



# Hedgehog Improvement Areas (HIAs)

## 2017 Report

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The following report summarises the progress of the Solihull and Rugby HIAs in 2017. Activity is broken down into distinct areas of work and provides headline information in line with the aims of the 2017 year of the projects.

### 1. Community Engagement

#### 1.1. Events

61 events were attended in Solihull and 65 in Rugby during 2017. 2,366 people were engaged face-to-face in Solihull and 2,976 in Rugby, totalling 5,342 people. People reached spanned from small children to older adults, ranging from natural historians, to corporate volunteers to biological recorders to families.

Events included talks to community groups, practical work days, training at local authority events and hedgehog conservation activities. Highlights included a collaborative spring event with *the Earlswood Wildlife Partnership (EWP)* at Clowes Wood nature reserve, including hedgehog crafts and activities and attended by 200 people, and an awareness workshop at Rugby Art Gallery and Museum attended by over 100 people.



Figure 1. An outdoor hedgehog house building workshop. Copyright Warwickshire Wildlife Trust.

## **1.2. Education**

Educational work included hedgehog training workshops, outside learning, survey work and conservation events for young people. The work was scaled down in Solihull and more geographically focussed than in previous years, with 1,168 young people engaged at 23 education events. Of these, 61 students were above primary age (11-25) and 1107 students were of primary age (5-11). A series of education events were run at Langley Hall Park in conjunction with Solihull Metropolitan Borough Council (SMBC), inviting primary schools local to the ward of Olton to engage in a range of nature based activities delivered by council staff and including hedgehog work delivered by the Solihull Hedgehog Officer. Owing to the Rugby project being younger, educational work was more widespread, laying foundations for future activities. 1803 children were engaged, with 45 students above primary age.

Learning outcomes for school students were measured later in the year. A series of multiple choice questions relating to hedgehog biology, ecology and conservation were asked before and after learning interventions. In Solihull, across 13 education events, there was an overall average increase in understanding of 19% following an unexpectedly high baseline knowledge of 63% correct. Results were similar in Rugby across 5 education events, with an average increase in learning of 24% following 58% correct baseline knowledge. School children across the HIAs appear to have a good understanding of hedgehogs and their conservation, but are also able to increase this knowledge, which they are then also encouraged to share with their parents.

Although secondary schools have proven difficult to engage with owing to time constraints, primary schools continue to be interested in the work of the project and are keen to receive more focussed learning around themes relating to the KS2 curriculum. However, it has been more challenging persuading schools to conduct follow-up habitat improvement works on school grounds, following high staff turnover and a resistance to put habitat in place that requires future maintenance. This is something we hope to pursue in 2018-2019.

## **1.3. Community Groups**

Adult community groups have been engaged and supported in hedgehog work throughout 2017. Engagement has included survey work, hedgehog house building, events and habitat improvement works to increase nesting habitat.

Example groups supported in Solihull include:

- *The Elmdon Park Supporters Group* has undertaken survey work in Elmdon Park and members' gardens, as well as practical work in the park. Invasive plant species have been removed, including Rhododendron and Cherry Laurel, to allow the proliferation of woody British species such as Hawthorn and Blackthorn as provision of nesting habitat for hedgehogs.
- *The EWP* has undertaken survey work and manufactured hedgehog houses, which have been installed at residences and schools in Earlswood, as well as holding a collaborative spring event.
- *The Olton Residents Association* invited the Solihull Hedgehog Officer to speak at their AGM and is now keen to be involved with the project in 2018-19, with the potential to increase garden-to-garden connectivity in key areas of Olton.

Areas of public green space were surveyed with the involvement and training of five local community groups in Rugby, including *the Friends of East Rugby Group (FERG)*, *Cawston Greenway and Bluebell Walk*, *the Rugby Wildlife Group* and the newly formed *Newbold Quarry work party*. The work with FERG is a continuation since a partnership was formed alongside Rugby Borough Council (RBC) in 2016. A hedge that was planted on a local recreation ground as part of the project was maintained at an event in 2017 and holes in the periphery fences made, and it is hoped the partnership will continue.



Figure 2. Training the Newbold Quarry work party in footprint tunnel surveying. Copyright Warwickshire Wildlife Trust.

The Rugby Hedgehog Officer has also been working with *the Coventry Diocesan Environment Group (CDEG)* to raise awareness of hedgehog conservation with church groups and encourage habitat improvement works. An event held with St Leonard's Church in Birdingbury was attended by an unusually high number of 37 parishioners (including families), who then went on to survey the village with footprint tunnels and a remote camera, and an article was included in the local *Birdsong* parish magazine. This core engagement was in a rural area of the borough, meeting a key objective of the project and raising awareness in an otherwise difficult-to-reach community.



Figure 3. Engagement and survey work with Birdingbury parishioners. Copyright Karen Armbrister.

## 1.4. Dissemination

The work of the HIAs has been widely disseminated in 2017 to a broad range of audiences, from the general public, to local authorities, to scientific audiences, to experts in hedgehog conservation. The projects have received high exposure across both national and local media, including coverage by *Countryfile*, *BBC Midlands Today*, *BBC West Midlands* and *Radio Rugby*, as well as articles in *Mammal News* and local newspapers such as the *Rugby Advertiser*. Findings have been presented and discussed at Hedgehog Officer meetings and conferences, such as the annual Mammal Society conference. The concept is to share data and information with others to increase awareness, encourage collaborative work and to allow other projects to learn from our findings.

The [www.helpforhedgehogs.co.uk](http://www.helpforhedgehogs.co.uk) project website has been redesigned to act as a platform where people can find information and download a range of resources to enable them to set up their own self-sustaining HIAs. The website will be officially re-launched during *Hedgehog Awareness Week* to reach a maximum audience and will be periodically updated during 2018-2019 to include more resources as the projects progress.

The HIAs have also continued to be promoted and audiences engaged through social media, with over 800 followers on the Help for Hedgehogs Facebook page and 2,900 on the Twitter page. The campaign *#adventhog*, which utilised still and stop motion plasticine hedgehog scenes, has been hugely successful. Twitter impressions for December 2017, when stop motion videos were used, were more than double that of 2016, when still images were used. Impressions in December 2017 were over 6 times that of December 2015, before *#adventhog* began. Followers of the campaign appear to have stayed following the pages, providing lasting engagement with a varied audience.



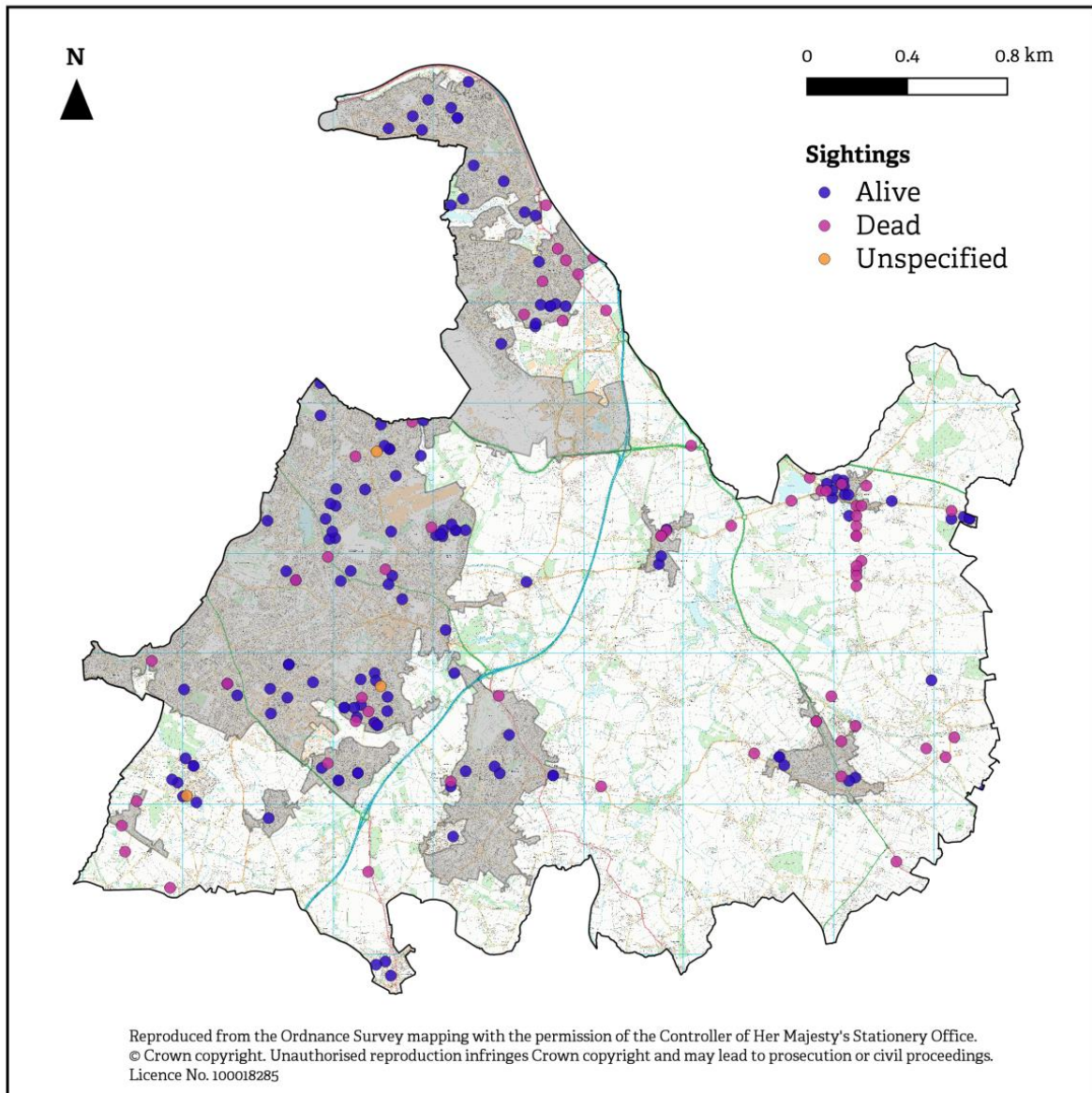
Figure 4. Example still from *#adventhog* demonstrating torchlight surveying. Copyright Deborah Wright.

## 2. Surveying

### 2.1. Sightings

A total of 206 hedgehog sightings have been submitted for Solihull from 2013 (when the Help for Hedgehogs campaign began) to 2017, 137 of which were alive and 38 of which were submitted in 2017 (Figure 5). The 2017 sightings cover 9 further 1km squares (monads) than the previous sightings (Figure 6).





*Figure 5.* Distribution of dead and live hedgehog sightings within Solihull metropolitan borough, with urban areas shown in grey.

A total of 1064 sightings have been submitted across Rugby borough, 812 of which were alive and 300 of which were submitted in 2017 (Figure 7). The 2017 sightings cover 13 further 1km squares (monads) than the previous sightings (Figure 8). Sightings information for Rugby appears to be very high, disproportionately representing 44% of vice county sightings. This may not be representative of high population levels of hedgehogs in Rugby, rather it may simply reflect high levels of engagement throughout the HIA project, combined with partnership work encouraging reports with RBC.

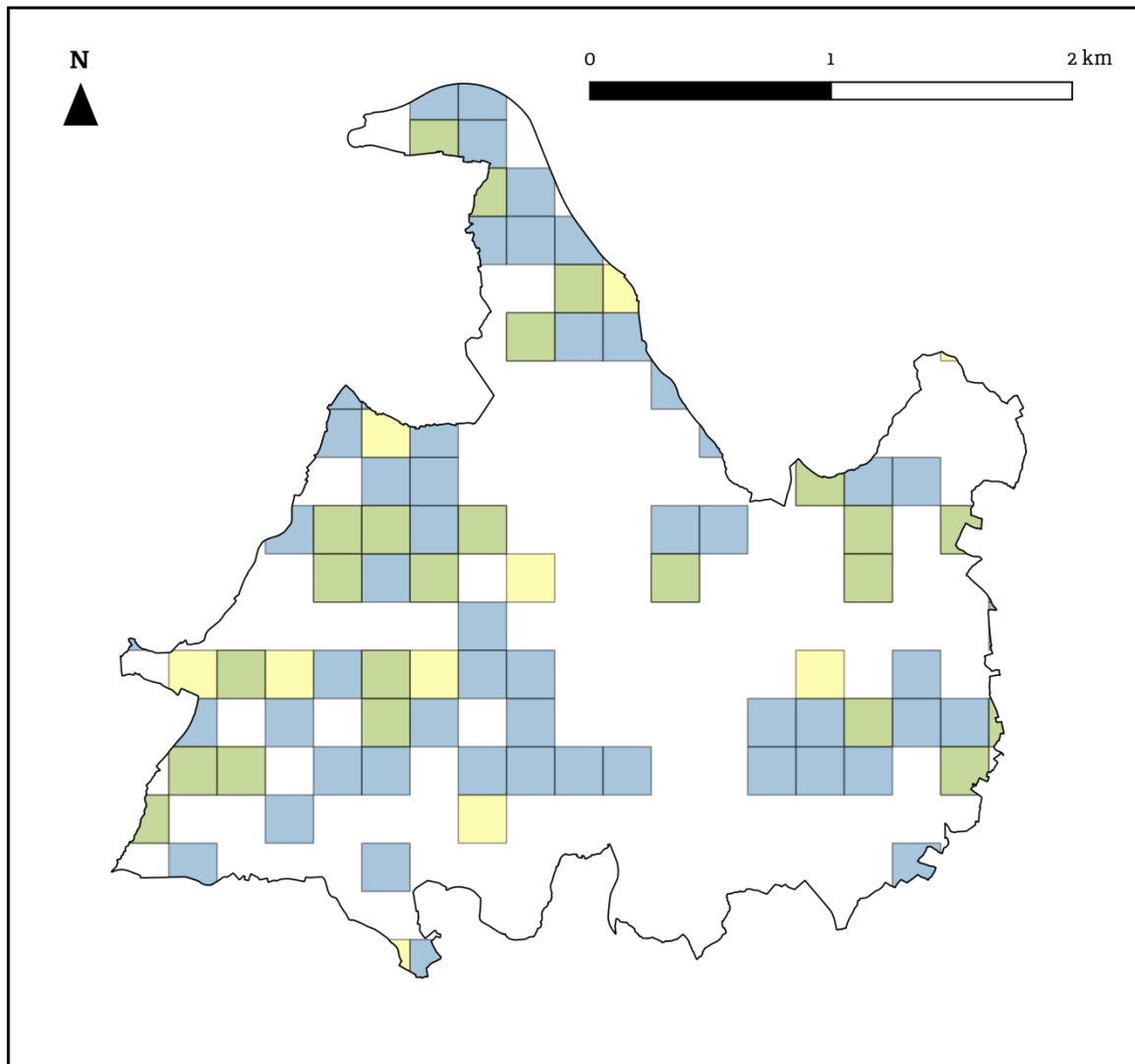


Figure 6. 1km square (monad) coverage of sightings across Solihull metropolitan borough, with those submitted before 2017 shown in blue and those during 2017 in yellow. Green squares represent sightings submitted both before and during 2017.

Incidental sightings reports are only indicative of distribution, highlighting potential 'hotspots' and 'blackspots' of activity, but requiring further investigation since absences cannot be confirmed and there is no information on frequency. As reporting is reliant upon the public, distribution can often directly correlate with residential, urbanised centres, as can particularly be seen for Solihull (Figure 5). However, there can also be a noticeable lack of sightings in the heart of some urban centres such as Rugby (Figure 7) where habitat is largely unsuitable for hedgehogs, with large areas of grey infrastructure, main roads fragmenting the landscape, and rows of terraced houses with brick walls impeding access into, and movement across, gardens. Some clustering of sightings can be seen in outlying villages that may act as 'refuges' from rural areas facing steep declines, where there are large gardens and areas of suitable habitat connected through the landscape. Clusters can also be seen from roadkill reports, often along rural tracts where speed limits are high and lighting is limited for motorists, thought to be an important factor in rural hedgehog decline (Wilson and Wembridge, 2018).

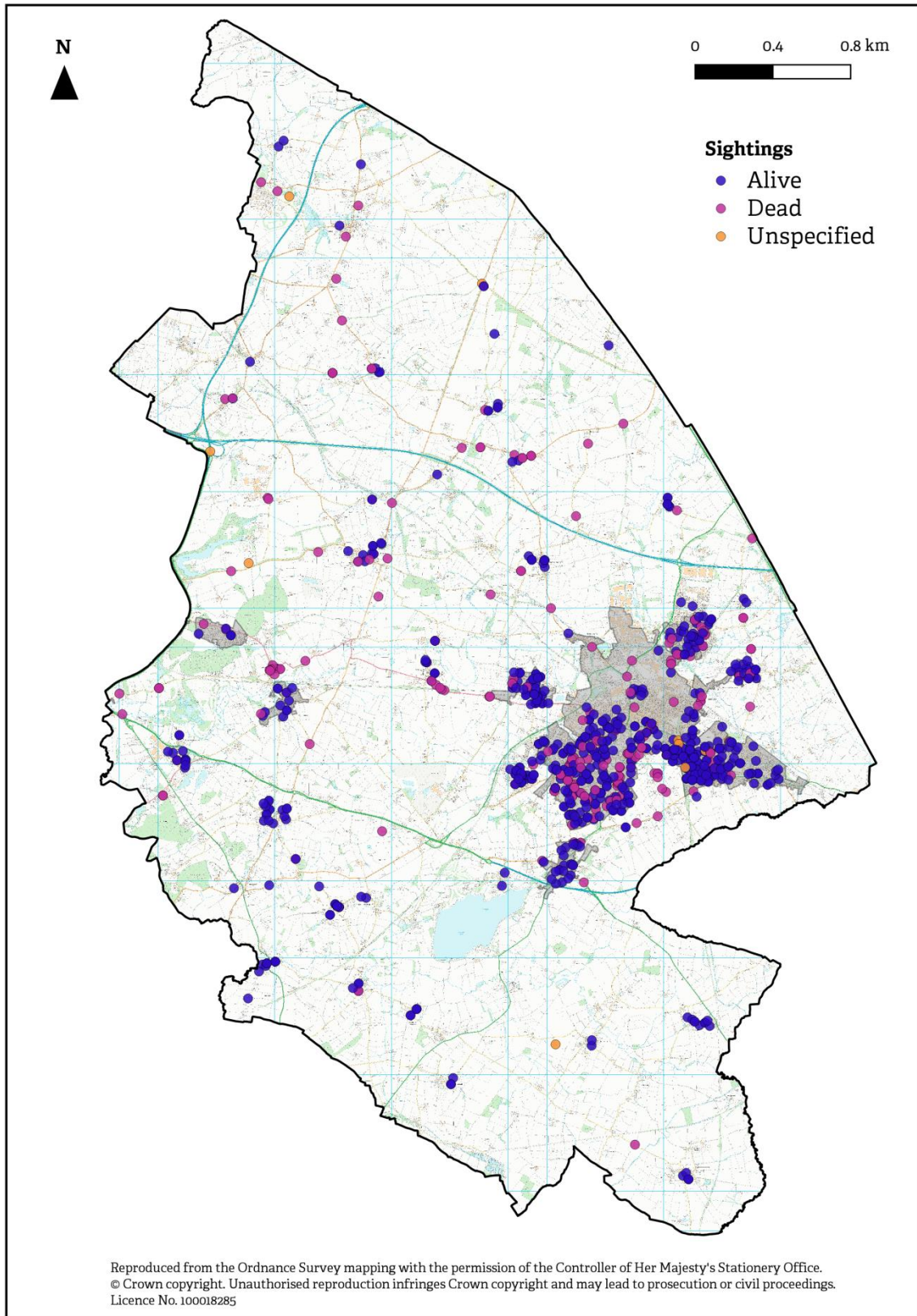


Figure 7. Distribution of dead and live hedgehog sightings within Rugby borough, with urban areas shown in grey.

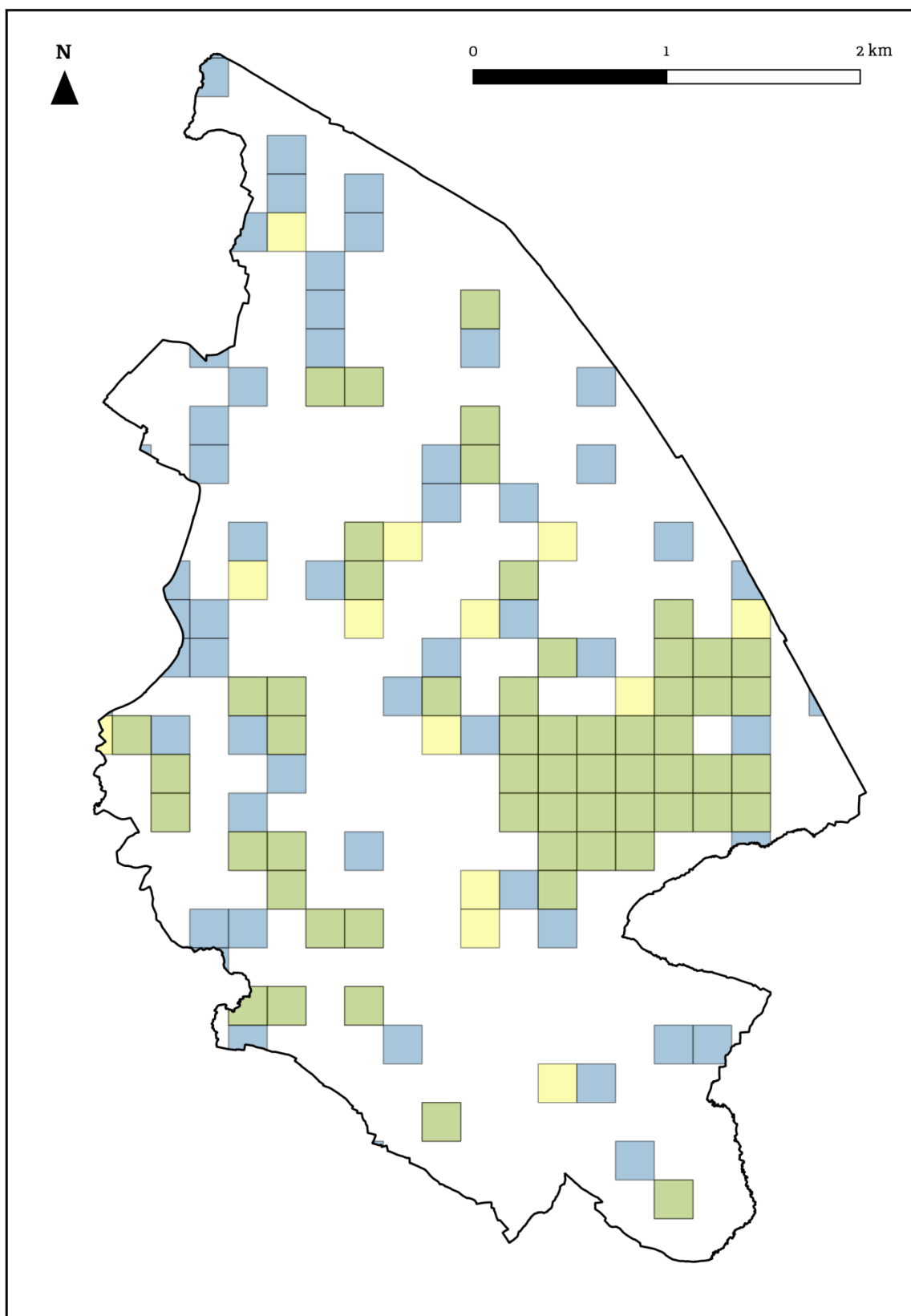


Figure 8. 1km square (monad) coverage of sightings across Rugby borough, with those submitted before 2017 shown in blue and those during 2017 in yellow. Green squares represent sightings submitted both before and during 2017.



## 2.2. Footprint Tunnel Surveys

Hedgehogs were recorded in 5 out of 16 (31%) SMBC green spaces during 2017 (see Table 1). Elmdon Coppice which recorded hedgehog presence in both 2015 and 2016 did not during 2017, whilst both Meriden Park and Langley Hall Park recorded hedgehog presence for the first time during 2017.

SMBC Greenspace	Hedgehog Presence		
	2015	2016	2017
Babbs Mill Park	✓	✓	✓
Cole Bank Park	✓	✓	✓
Dorridge Park	×	×	×
Elmdon Heath	×	×	×
Elmdon Coppice	✓	✓	×
Elmdon Park	×	×	×
Hillfield Park	×	×	×
Knowle Park	×	×	×
Lanchester Park	×	×	×
Langley Hall Park	N/A	×	✓
Malvern and Brueton Park	✓	✓	✓
Meriden Park	×	×	✓
Olton Jubilee Park	N/A	×	×
Shirley Park	×	×	×
Tudor Grange Park	×	×	×
Wychwood	N/A	×	×

Table 1. Hedgehog presence in SMBC managed green spaces, established using footprint tunnel surveys from 2015-2017.

A tract of the Great Union Canal was also surveyed using footprint tunnels and disappointingly yielded no positive confirmation of hedgehogs. Disturbance was extremely high with 80% of tunnel nights being disturbed by either dog or badger. High levels of disturbance were recorded across all SMBC green space footprint tunnel surveys with tunnels being flattened, moved and damaged. This disturbance was confirmed as badgers once (Elmdon Park), with all other confirmed instances recorded as dog. The frequency of badger disturbance in the Great Union Canal survey is indicative of a high density of badger activity along this tract of the canal and local investigation reveals a substantial amount of anecdotal evidence to support this. For this reason, it could be that the tract of the Great Union canal which passes through residential Solihull is not a favourable environment for hedgehogs to frequent.

Hedgehogs were recorded in 3 out of 16 (19%) RBC green spaces during 2017 (see Table 2 and Figure 10). Both Dewar Grove and Rokeby Open Space, which recorded hedgehog presence in 2016, did not during 2017. The negative result for Dewar Grove was not surprising giving minimal recorded sightings in the surrounding area, and the negative results for nearby sites Linnell Road LNR and Whinfield Cemetery extension. However, the site still has potential with the amenity land acting as a feeding area surrounded by residential gardens, and with the housing style in the area affording much more access than in the town centre. It is still a valuable resource if hedgehog numbers are low in the area. The negative result for Rokeby Open Space was disappointing, given that it is largely open and connected to large areas of green space and residential gardens and provides feeding habitat with regularly mown grass. However, the grassland is damp with a brook running through the site, and there is a road to the west, both of which may affect hedgehog usage. It was suggested to RBC that summer nesting habitat could be added, and hedgehogs encouraged, by mowing only some areas once a year.

Pantolf Place and Cornwallis Road Open Space recorded hedgehog presence, having being surveyed for the first time in 2017. The positive result for Pantolf Place is potentially surprising given the small size of the site (4809 m<sup>2</sup>) and lack of recent sightings within a 1.5km radius.

However, the site is surrounded by residential gardens and provides feeding habitat. The positive result for Cornwallis Road Open Space was again surprising, given that there are few recent records in the area. However, this site borders many residential gardens to the west and some areas appear to be little used. There are some scrubby areas to provide shelter and walkways to the adjacent residential areas that provide good connectivity. Current management changes by RBC have left longer areas of grass, providing shelter, food and minimal disturbance.

RBC Greenspace	Hedgehog Presence	
	2016	2017
Ashlawn Cutting	×	×
Dewar Grove	✓	×
Linnell Road LNR	N/A	×
Whinfield Cemetery extension	×	×
Burnside	×	✓
Rokeby Open Space	✓	×
Centenary Park	N/A	×
Newbold Paddock	N/A	×
Boughton Road	N/A	×
Pantolf Place	N/A	✓
Avon Mill Recreation Ground	N/A	×
Yates Avenue	N/A	×
Bilton Pavilions	N/A	×
Addison Road Recreation Ground	N/A	×
Cornwallis Road Open Space	N/A	✓
Hillmorton Recreation Ground	N/A	×

Table 2. Hedgehog presence in RBC managed green spaces, established using footprint tunnel surveys from 2016-2017.

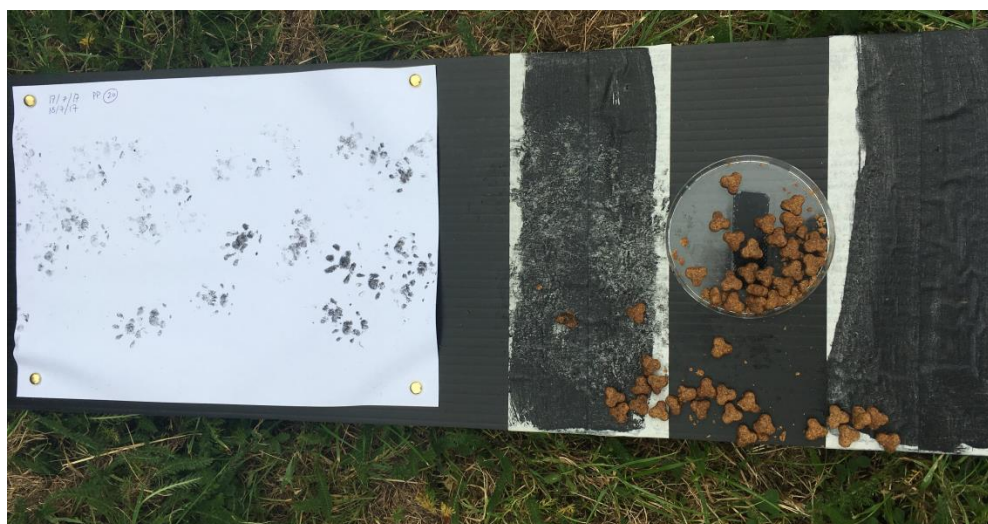
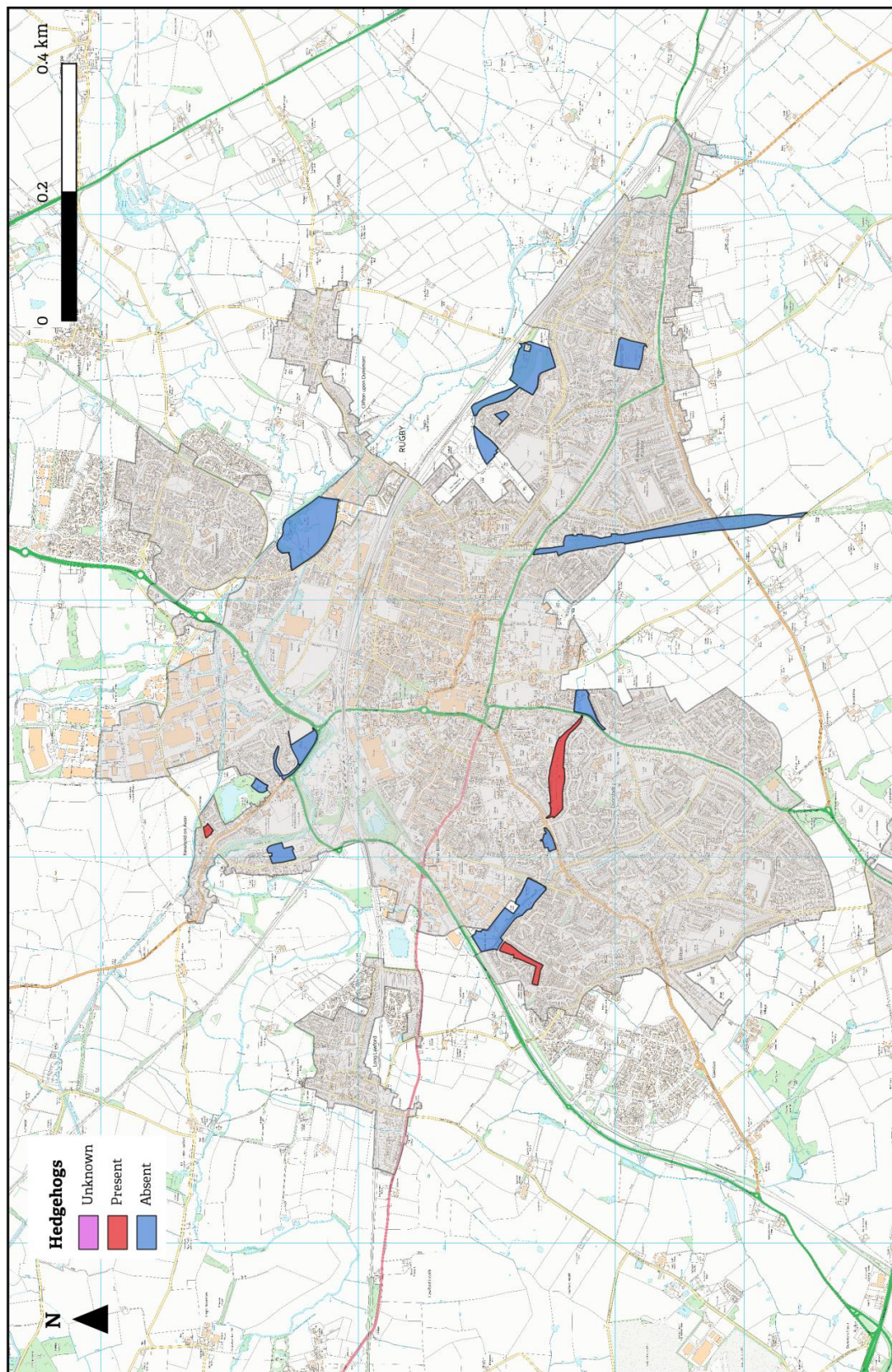


Figure 9. Hedgehog footprints found during a survey of Pantolf Place, July 2017. Copyright Deborah Wright.

Again, high levels of disturbance were recorded across RBC green space surveys. However, these were sometimes owing to disturbance by people rather than wildlife, with tunnels vandalised and one survey terminated due to antisocial behaviour in the vicinity. With hedgehogs recorded in either 2016 or 2017 in only 10 out of 32 green spaces across Solihull and Rugby, it was decided to undertake torchlight surveys as a basic measure of corroborating negative results and as a means of ruling out the impact of disturbance upon the survey result.

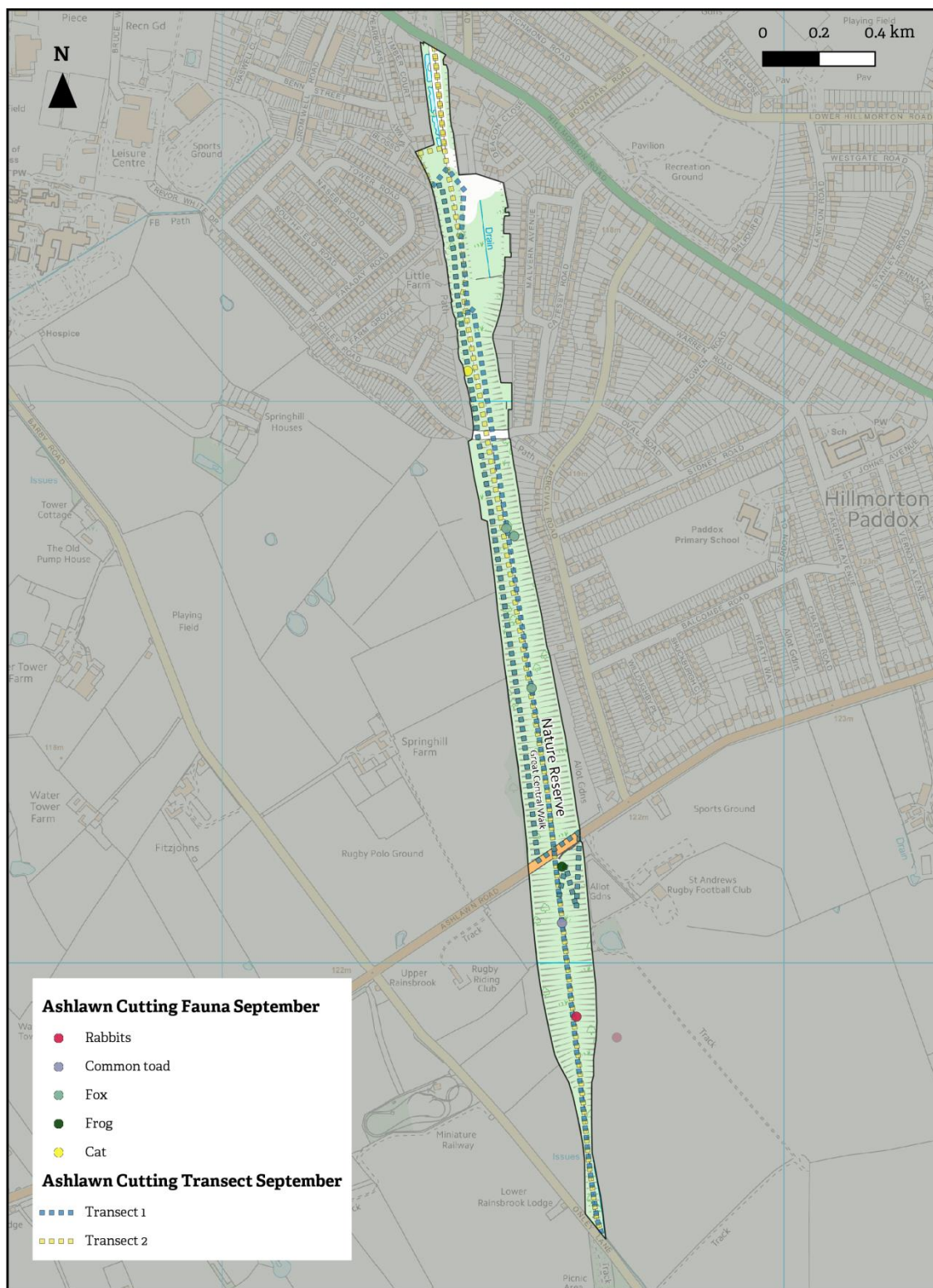




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Figure 10. Hedgehog presence in RBC managed green spaces, established using footprint tunnel surveys during 2017, with urban areas shown in grey.





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Figure 11. Torchlight survey results for Ashlawn Cutting in September 2017.



### 2.3. Torchlight Surveys

Torchlight surveys were undertaken in 2017 following Poulton & Reeve's (2010) methodology. Sites were selected due to outcomes of footprint tunnel surveys and interest in the landscapes they are situated within. Surveys were undertaken in May and September with the help of volunteers. Surveys began at dark and transects were walked illuminating open and marginal areas using 1million candle power Cluson Clubman lamps (see Figure 11 for an example transect and the animals recorded).

Three parks managed by SMBC were surveyed in Solihull: Brueton and Malvern Park, Olton Jubilee Park and Langley Hall Park. Only a single hedgehog was recorded, on one occasion, using a garden connected to Brueton Park.

In Rugby, one nature reserve, one country park and three golf courses were surveyed: Ashlawn Cutting, Coombe Country Park, and Rugby, Brandon Wood and Bramcote Waters Golf Clubs. Again, only a single hedgehog was recorded, on one occasion, using Bramcote Waters Golf Club. Interestingly, no hedgehogs had been recorded on the site through footprint tunnel surveying, although presence was suspected owing to droppings. Cats were recorded in the tunnels most nights and had likely eaten the food before hedgehogs emerged in the evening. Rabbits, a young toad and a fox were also seen during torchlight surveys of the site but no badgers or signs were noted. The course appeared particularly good for wildlife with an abundance of scrub and nesting areas. Chemical use is minimised and only used on the greens, evidence of which can be seen in the ground flora and abundance of invertebrate prey. Chemicals can build up in the food chain, increasing in toxicity and reducing prey availability. They also often indiscriminately kill beneficial insects along with the target species, and the target species are able to recover faster and become an even more persistent problem.



*Figure 12. The Rugby Hedgehog Officer during a torchlight survey of Bramcote Waters Golf Club in September 2017. Copyright Deborah Wright.*

With low abundance of hedgehogs seen across Solihull and Rugby during torchlight surveys, and colleagues elsewhere in the country reporting far greater success later in the evening, it is envisaged that where possible, surveys in 2018 will begin later in the evening and run throughout the night.

## 2.4. Residential Connectivity Survey

A random sample of 10% (n=9) of the 94 residential streets within Elmdon Ward, Solihull, was taken to quantify residential habitat fragmentation within the borough. This sample accounted for 388 individual boundaries, which were assessed as to their street level permeability; the fence's capacity to allow hedgehogs to travel from the street to the back garden of the property.

The material which the boundary was made from and the length of each boundary was recorded and each boundary's permeability was considered using a traffic light system as described below;

- Red boundaries were considered as impermeable e.g. concrete fence
- Amber boundaries were permeable with a single point of access large enough to allow hedgehog passage e.g. wooden fence with a single hole
- Green boundaries were fully permeable or open, with unhindered access from the street to the back garden of the property e.g. a hedgerow

Results are summarised below:

- Potentially permeable boundary features account for an average length of 33.5% of total street length with the remaining 66.5% being the walls of residences
- 24% of boundary features were rated as permeable or open
- 76% of boundary features were rated as impermeable
- The most commonly occurring boundary type was the wooden fence (Figure 13)

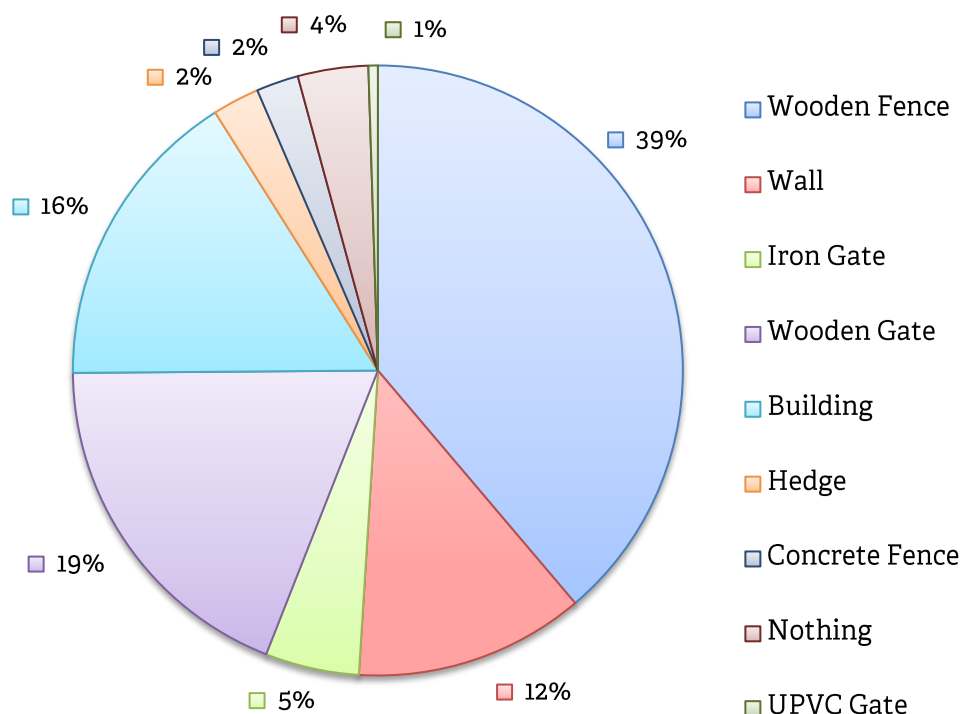


Figure 13. Percentage occurrence of residential boundary types in a random sample of 10% Elmdon's streets.

- Of the wooden fences surveyed (n=156), 6.4% (n=10) would allow access for hedgehogs. The percentage permeability of each boundary class is detailed in Figure 14.

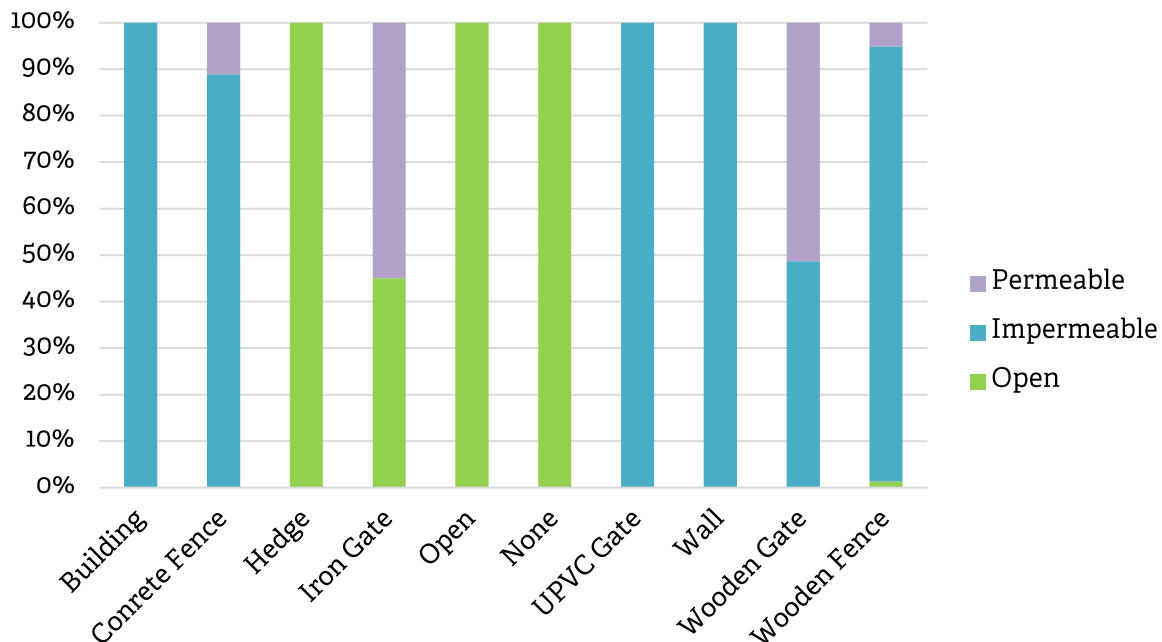


Figure 14. Percentage permeability of each boundary class.

With wooden fences accounting for 39% of the boundaries encountered, promoting the use of hedgehog-friendly gravel boards and the creation of hedgehog holes in wooden fences could significantly increase permeability within the ward.

### 3. Habitat Improvement

#### 3.1. Public Green Space

Improvements of a school's grounds for wildlife in North Solihull have been made in conjunction with Gro-Organic, a West Midlands based community gardening organisation. A group of corporate volunteers were led in the construction of insect hotels and habitat piles to sit amidst a newly planted wildflower meadow in the grounds of Bishop Wilson School. The group were also tasked with digging a wildlife pond, providing safe access into and out of fresh water in an otherwise built up and heavily developed area. Four schools in Rugby visited as part of the HIA project have since made habitat improvements to the school grounds, enhancing both nesting and foraging habitat. Northlands Primary School created a log pile, Bilton Infant School installed two hedgehog houses, Leamington Hastings C of E Academy created a full wildlife garden and Bilton Grange Preparatory School held a hedgehog house event.

Several practical work parties have been delivered across 5 sites in both local authority and Warwickshire Wildlife Trust managed green space across Solihull during 2017. Improvements have been to access at four sites, creating hedgehog holes in previously impermeable barriers. Habitat piles and dead hedges have been built to provide shelter and potential nesting habitat. Planting of native species has been undertaken, including the planting and maintenance of a

hedgerow at Langley Hall Park to provide shelter, increase floral diversity and in turn encourage invertebrate diversity. Work parties have also been undertaking work to control invasive species, notably rhododendron, which is responsible for destroying much of the understory, which is used by hedgehogs and their prey.

RBC has made management changes to 11 acres of land over 5 green space sites as part of a 2017 trial. This has involved planting areas with trees and reducing the regularity of grass cutting of some areas to once per year from 11 times, with pathways cut through to allow the general public to enjoy the space (Figure 15). These management changes have positively increased nesting habitat, which is considered to be a significant limiting factor for hedgehog populations. This has largely been through leaving areas of grass to grow long, which provides food (by increasing habitat for invertebrates) and shelter for hedgehogs during summer months. Planting trees also provides leaves for hedgehogs to collect as nesting material. RBC explained initial problems in that larger sites were hay cut with a tractor but some of the smaller sites were inaccessible for this size of machinery. Despite these difficulties, the success of the trial and lack of public complaint has encouraged RBC to expand the changes to a further 18 acres across 7 other locations in 2018. RBC have been encouraged to consider the sites within the greater landscape, improving connectivity, and where possible to cut areas of longer grass in the winter, when hedgehogs are likely to be sheltering in more robust areas.



Figure 15. Increased areas of longer grass at Boughton Road, Rugby. Copyright Deborah Wright.

### 3.2. Policy

Local Plans set out local planning policies, identifying how land is used and determining the type and location of development in the future. Solihull's current Local Plan was adopted by SMBC in December 2013, covering the period up to 2028. However, a legal challenge in 2015 resulted in overall housing requirement being remitted back to the Council for reconsideration. The result of this challenge, coupled with work on the construction of an HS2 interchange station on green belt land in Solihull which was scheduled to commence in 2017, resulted in the Local Plan being put into review by the Council. The Draft Local Plan has been subject to public consultation, with the draft due to be adopted in winter 2018. At present there is no hedgehog specific policy due to be adopted in the Plan. Recommendations for mitigation relating to Local Biodiversity Action Plan species, of which hedgehogs are a primary example, are included. Furthermore, the biodiversity policy highlights the importance of both the creation and maintenance of a green infrastructure network, all policy which could promote the installation of hedgehog highways in new developments.



Rugby's Local Plan is under examination with a current public draft, covering up to 2031. Although species are not specifically mentioned within a plan, a statement pertaining to hedgehogs has been included in the main body of the text in the Natural Environment chapter. The statement encourages maintenance and/or enhancement of connectivity and biodiversity of residential and non-designated green space (e.g. by using permeable barriers) and should promote hedgehog holes being installed in fences throughout the borough.

Neighbourhood Plans give communities a greater say over the type, location, size, pace and design of development within their designated Neighbourhood Area. However, since Neighbourhood Plans sit beneath the overarching legislation of the Local Plan and these are not yet formally adopted in either Solihull or Rugby, progress with these plans has been slowed. However, the groundwork has been laid for neighbourhood planning policy supportive of hedgehogs into the future as a lasting legacy of the project. Within Solihull borough there are now six designated Neighbourhood Areas (NAs): Cheswick Green, Meriden, Dickens Heath, Knowle, Dorridge and Bentley Heath, Hampton-in-Arden and Hockley Heath. Within Rugby, there are now seven designated NAs: Coton Forward, Wolston, Brandon and Bretford, Wolvey, Brinklow, Ryton-on-Dunsmore, Willoughby and Dunchurch. Aside from two, which have already adopted plans, all Neighbourhood Planning Authorities (NPAs) have been contacted with advice and guidance relating to the maintenance and creation of habitat corridors and permeable fencing within neighbourhood plans. Each neighbourhood area has been provided with suggested wording for hedgehog specific inclusions within the Neighbourhood Plan, and a leaflet has been made with example wording that is now downloadable from the project website (Figure 16).



Figure 16. Downloadable guide to Neighbourhood Planning. Copyright Warwickshire Wildlife Trust.

"Hedgehogs have much declined in recent years and are now a priority concern for nature conservation as defined in the Warwickshire, Coventry and Solihull Local Biodiversity Action Plan. Hedgehogs have been reported within the Neighbourhood Area. Development plans will be supported when features to help the species are incorporated into new developments. Boundaries and barriers should be made

permeable, for example through the use of fence panels with 13x13cm hedgehog holes at the base. Connectivity and shelter for ground-dwelling wildlife should be encouraged in the Neighbourhood Area, through features such as native species hedgerows and grassy margins. The local community values the presence of hedgehogs and other wildlife within the neighbourhood and is keen to ensure that they are protected and encouraged.”

At this stage, Meriden, Wolston, and Brandon and Bretford NPAs have agreed to include either partial or full suggested text for hedgehogs within their Neighbourhood Plans.

### **3.3. Development**

With significant development projects scheduled across both Solihull and Rugby boroughs for the foreseeable future and an increased housing allocation to be imposed upon the local authorities, there is potential to maintain and improve habitat for hedgehogs at a landscape scale beyond the duration of the HIA projects. In some cases, where there is currently degraded rural land, there is the potential for habitat net gain for hedgehogs, with their emerging preference for urban residential areas and ability to live alongside people.

A seminar was delivered early in 2017 to members of SMBC’s Managed Growth and Communities Directorate, including planners, members of the parks department, ecologists and highways. The seminar detailed the potential benefits which plans sympathetic to hedgehogs could have for both the species and the developer. From then on, a strong working relationship has developed and has led to much joint working and consultation between the project and SMBC. There has consistently been a strong relationship with RBC since the founding of the Rugby HIA, which continues to be built upon, with a high degree of consultation regarding development.

Meetings and discussions with ecologists and developers of large scale residential developments have been on-going. Together with the Planning and Biodiversity Officer for Warwickshire Wildlife Trust, suggestions have been provided for these developments to make them intrinsically hedgehog-friendly, rather than retrospectively adapting sites. Sightings and habitat information has been sent, along with the offer of assistance in implementing suggestions. Alignment to local policy has been emphasised, and opportunities for PR highlighted. Suggestions have included:

- Connectivity with permeable barriers and boundaries e.g. hedgehog holes in fence panels
- Sympathetic planting
- Minimising hard standing
- Native species hedgerows
- Other features e.g. ponds, log piles
- Caution when clearing ground e.g. deadwood, leaves, long grass

The partnership work has now resulted in the planned inclusion of hedgehog holes in sections of five developments across Coventry, Warwickshire and Solihull, four of which are in Rugby borough (Table 3). Ecologists such as Tyler Grange, Ecolocation and Lockhart Garratt have now begun suggesting hedgehog holes in ecological reports, as well as some suggesting hedgehog houses. Our suggestions have not included hedgehog houses, until the collaborative results of the Hedgehog Housing Census have been analysed and there is a potential basic evidence base for using them as mitigation and/or enhancement purposes.

Development Site	Area	Developer	Planned inclusions
Cawston extension	Rugby	William Davis	Hedgehog Holes for 50 out of 214 dwellings
Cawston extension	Rugby	Linden Homes	Hedgehog Holes for 50 out of 184 dwellings
Houlton	Rugby	Morris	Hedgehog Holes for 183 out of 183 dwellings
Houlton	Rugby	Crest Nicholson	Hedgehog Holes for 60 out of 180 dwellings
Coleshill	North Warwickshire	Crest Nicholson	Hedgehog Holes for 30 out of 50 dwellings; 3 Hedgehog houses

Table 3. Developments planning hedgehog-friendly inclusions across Coventry, Warwickshire and Solihull.

## 4. Conclusions

2017 has been a hugely successful year for the Solihull and Rugby HIAs. Awareness of hedgehog decline and conservation has been raised through engagement with over 5000 people, involvement of community groups, media coverage, and social media promotion. A greater understanding of hedgehog distribution has been gained from over 300 reported sightings, 32 footprint tunnel surveys across local authority green spaces and torchlight surveys at 8 sites, as well as an understanding of habitat in a focal area surveyed for connectivity. Habitat has been improved in 5 school sites and 10 public green spaces, and a foundation for future habitat legacy laid through Local and Neighbourhood Plans, and hedgehog-friendly inclusions in development sites.

Moving forward into 2018, the focus will primarily be on continuing to build this legacy. Higher level work with NPAs, developers and local authorities will continue, using knowledge gained from the successes made largely in Rugby so far. A volunteer group will be trained in community engagement, survey methodology and practical habitat improvement, to continue hedgehog conservation into the future. The website and downloadable resources will continue to be developed and used as a platform for other start-up and self-sustainable hedgehog projects.

## 5. References

- Poulton, S.M.C. and Reeves, N.J. (2010) 'A pilot study of a method to monitor hedgehogs (*Erinaceus Europaeus*)', *Mammal Notes*, pp. 1-4.
- Wilson, E. and Wembridge, D. (2018) 'The State of Britain's Hedgehogs 2018'.