



Hedgehog Improvement Areas (HIAs)

Learning Document

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In response to a national decline in hedgehog numbers, *Warwickshire Wildlife Trust* (WWT) set up the UK's first Hedgehog Improvement Area in Solihull in 2015, with funding from the *British Hedgehog Preservation Society* (BHPS). Following the success of the Solihull HIA, a sister HIA was then launched in Rugby in 2016. The HIAs were a grass-roots conservation project with community engagement at the core, aiming to empower communities to conserve hedgehogs and ultimately improve the landscape for wildlife. The following document outlines lessons learnt from the HIA project 2015-19. It details what worked well and what was less successful, with activity broken down into distinct areas of work, and acts as a guide as to potential gains and losses for future hedgehog projects.

1. Community Engagement

1.1. Face-to-face engagement

Having a designated "Hedgehog Officer" provided the project with a face and point of contact for the community. The title itself was sometimes misleading to the public, who generally assumed that the officers were involved in the direct care of hedgehogs, even though this was not the case. Time was repeatedly spent explaining this to the public and responding to queries regarding hedgehog rehabilitation and rehoming, which largely did not contribute to the outcomes of the project. With any project of this nature, it is important to maintain good relationships with local hedgehog rehabilitators and to be able to signpost people to them and to the BHPS when necessary. Indeed, taking time to build these relationships successfully resulted in data sharing between the HIA project and local rehabilitators, providing a broader and more informed picture of how hedgehogs were faring locally. Responding to queries must also be considered as part of core community engagement and can be both helpful to the person enquiring and sometimes to the community in which they live. For instance, after getting in contact and being given information regarding a spate of roadkills on a particular stretch of road, one villager succeeded in getting the Parish Council to erect hedgehog signs along the road in an effort to reduce the number of road casualties. This was then further publicised in a local community magazine, raising awareness amongst a wider audience.

The largest audiences were engaged with face-to-face during the project at both family focussed and adult focussed events. The most successful family events were often already established events running a range of activities and led by local authorities and trusts across well-used green spaces. For example, *Family Fun Days* at Castle Bromwich Gardens, *Earlswood Springwatch* and

Animal Antics at Olton Jubilee Gardens all each resulted in over 100 people engaged. Craft-based family events were also successful, for example, a *Hedgehog Awareness Workshop* and *Hedgehog Heroes Event* at Rugby Art Gallery and Museum and a *Hedgehog House Making Workshop* at Brandon Marsh, again each attracting over 100 people. At one hedgehog house workshop, all participants said they enjoyed the activities, that they captured the imagination of the children and that they would recommend it to others. A mother commented, "So great to be able to take something substantial home that will be used by hedgehogs (we hope!)", with families seeming to enjoy having something physical to take home with them.



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

Adult focussed events generally comprised talks to community groups, such as *U3A*, *WI* and gardening groups. Talks had the added advantage of being able to take place in poor weather and in the winter when hedgehogs were hibernating, and were highly informative for community members who may otherwise not have engaged with the project ("It was very interesting, informative and thought provoking and enjoyed by all of our members"). However, talks were likely both more engaging and more likely provoke follow-up action when combined with a practical activity or walk ("It was also good to be able to look at the possible opportunities to help hedgehogs in a real garden which makes it seem more do-able when you can see the actual setting"; "So much information - extremely useful, now more knowledgeable about to try and encourage a hedgehog in our garden"). Knowledge was also shared and disseminated at events such as *Warwickshire Biological Recorders* meetings, *Mammal Society* conferences, and meetings with other hedgehog projects. It could be argued that this adult focussed engagement was potentially more valuable than broader family event engagement, raising awareness amongst more varied yet specialised audiences, such as gardeners, scientists, land managers, lecturers and biological recorders with the power to bring about change. However, encouraging families to do more to help their local hedgehogs harnesses the collective power of the people to make long-lasting change across the landscape and was always a core part of the HIA project.

It is notoriously difficult to determine the impact of engagement work such as this. Measures such as number of people engaged with, number of events attended, number of people signed up to become *Hedgehog Champions* and number of streets pledged to become hedgehog-friendly can be useful indicators of how much of the population is being reached. Asking people to report on the action taken, however, proved much harder in the HIA project, with email as the main reporting method and very little feedback received via this channel. Online mapping software

such as that used by *Suffolk Wildlife Trust* is a much more useful recording tool and this should ideally be costed into new projects with similar goals from the outset.



Figure 2. A meeting with other hedgehog workers. Copyright Hugh Warwick.

Two areas of sustained engagement proved largely unsuccessful during the HIA project for no obvious reason. The first was Cawston, a key area of urban sprawl in Rugby, chosen due to being subject to recent residential development and with further developments planned to extend the area southwards. A physical front garden survey was conducted in the area, with engagement during this time proving both difficult and hostile, with complaints about the management of the area and a disinterest in wildlife. The survey revealed that although 12% of houses had an average of 100% green space, 11% had an average of 0% green space, comprising tarmac, paving and shingle, potentially limiting both hedgehog habitat and movement. Despite trying to contact local groups and the Parish Council, a visit to the local primary school, and successes in terms of securing hedgehog-friendly measures in planning applications for the Cawston extension, engagement with the public remained low, with only a few token residents responding to queries and reporting sightings. Footprint and torchlight surveys of the area resulted in little local interest and no hedgehog records. Similarly, engagement in Olton in Solihull was largely unsuccessful, despite its promising landscape of connected green space, including a golf course, cricket ground, school and park. Despite an event attended by 55 people, a visit to the local primary school and attempted contact with varied local groups, it proved to be quite challenging to engage with the community. Footprint and torchlight surveys of the area again resulted in little local interest and no hedgehog records. It also proved especially difficult to obtain responses to a garden survey, yet when 37 responses were eventually obtained, a surprising 81% of residents reports having hedgehog holes in their fences and only 5% did not intend to open their garden up to hedgehogs. Sometimes communities can be difficult to engage with, which is only exacerbated by negative survey results, and engagement efforts may occasionally be better spent in other focal areas.

Throughout the project, door knocking was used as a means of engaging residents in core project areas. Although time consuming and labour intensive, this was often successful in engaging communities that would otherwise not have been reached, and in obtaining difficult to access data. For example, two small areas in Solihull and Rugby were door knocked and residents asked to complete a simple diagram of their rear gardens, indicating potential access points for

hedgehogs. Residents could either complete the diagram at the time or return it via freepost. This type of data is hard to obtain using other methods, with no public access to private gardens and satellite imagery largely inadequate to see such fine scale details from above. The response rate was approximately 12%, which is relatively promising for a campaign. However, for data such as this, it is much more useful to obtain information from every house along a street to provide a complete picture of connectivity, otherwise there could be access blocks amongst the unknown gardens. One way to improve response rate would be to partner with *Hedgehog Street* to door knock streets that already have *Hedgehog Champions*, however, this might skew data to indicate higher levels of connectivity than may be present along average streets.



Figure 3. Example rear garden diagram with crosses indicating hedgehog access points. Copyright Warwickshire Wildlife Trust.

1.2. School engagement

Schools were heavily engaged with in an effort to inspire the next generation to protect hedgehogs and other wildlife. 75 educational events were held during the HIA project, engaging over 6,000 children and students. Schools were generally positive about holding hedgehog assemblies, which in themselves engaged the highest number of pupils. However, the small group and forest school engagement could be seen as more valuable, with practical activities, such as surveying and sighting a hedgehog house, linking more with the curriculum and developing scientific thinking. Working with primary schools was considerably easier than working with secondary schools that rarely facilitated visits, owing to time and curriculum constraints. Private secondary schools with a more flexible approach to learning were easier to engage with than state schools. A concerted effort was made in the later project years to work with secondary schools, colleges and universities.

Determining if school engagement was actually effective was challenging and so a short survey was developed in 2017 to collect data. A series of multiple choice questions relating to hedgehog biology, ecology and conservation were asked before and after learning interventions. Results from 15 school visits suggested an average increase in understanding of approximately 20%, following high levels of approximately 60% baseline knowledge. School children across the HIAs appeared to have a good understanding of hedgehogs and their conservation, but were also able to increase this knowledge and were encouraged to share it. They were given information and leaflets to take home with them to continue engagement with parents and encourage them to take action to hedgehogs in their home. It would have been even more beneficial to repeat the questions after a longer period of time to test long-term retention but this proved logistically

difficult, owing to poorly resourced and overworked school staff, further exacerbated by a high staff turnover.



Figure 4. Demonstrating surveying techniques with students at Solihull College. Copyright Warwickshire Wildlife Trust.

For these reasons, schools were also particularly poor at reporting survey results and habitat changes. A greater response tended to be achieved when staff were contacted at less busy times of year. Getting schools to make habitat improvements to school grounds proved especially difficult, with concerns about future habitat management halting progress. Schools were more receptive to minor rather than major changes, such as installing hedgehog houses and creating log piles and bug hotels. One way to encourage bigger changes was to run practical workshops on the school grounds in conjunction with local authorities and organisations. For example, corporate volunteers from *Gro-Organic* dug a wildlife pond and constructed insect hotels and habitat piles to sit amidst a newly planted wildflower meadow in the grounds of Bishop Wilson School, in an otherwise heavily developed area of Solihull.

1.3. Online and media engagement

Hosting a website, designing and uploading free resources to it, building a social media follower base, and regularly posting updates can be highly time consuming. However, online engagement is important in hedgehog projects, helping to raise awareness above and beyond face-to-face direct interaction. Whereas the school work largely engaged primary aged children, talks often engaged older people, and conferences engaged working professionals, use of social media broadened outreach to a wider audience, including teenagers and young people. The Help for Hedgehogs social media accounts grew from strength-to-strength throughout the HIA project, accruing over 1000 Facebook followers and almost Twitter 3,500 followers. The social media *#adventhog* campaign was particularly remarkable, with animated hedgehog facts posted each day in December on the build up to Christmas. The number of Twitter impressions grew from 9,300 in December 2015 before the *#adventhog* campaign, all the way up to 153,000 impressions in December 2018. Each year, new followers were recruited, up to 61 in December 2018, who then largely appeared to be retained after the campaign ended each year.



Figure 5. Still from #adventhog 2018 demonstrating the hazards of slack netting. Copyright Tara Higgs.

Using online social survey tools (e.g. SurveyMonkey) proved useful in determining if engagement work was effective in changing attitudes and behaviours. These were either more general attitudes, for example towards opening up gardens, or more specific, such as asking allotment holders about chemical use. Importantly, surveys need not be conducted digitally in isolation, rather also provide an opportunity to be completed alongside face-to-face engagement. For example, in a SurveyMonkey survey of 60 allotment holders, the majority were reticent about providing information about which chemicals they used and with what frequency. However, in person, the HIA Hedgehog Officers were able to engage them in dialogue about hedgehog-friendly gardening and provide them with written information. When directly engaged, respondents often provided considerably more information and the engagement could be considered as more valuable than simple data point gathering. Depending on the aim of the survey, it is also important to question intended *action* as well attitudes, as this provides an indication of potential impact. For example, 55 residents responded to an online survey in the first year of the Rugby HIA. Over half of respondents (60%) reported having heard of the project, with 93% deeming the initiative useful for the development of their community, 31% reporting having seen positive changes in local residents' behaviour towards hedgehogs and conservation since the initiative began and 90% saying that an awareness of the Rugby HIA meant that they were likely to take action to help hedgehogs. This suggested that this first year resulted in positive outreach with a high level of intention to help hedgehogs in the future.

Another method of engagement and dissemination used was the media. High levels of media coverage were received throughout the HIA project, including television, radio and newspaper coverage. This coverage was on one occasion international – in the *Wall Street Journal* – as well as national, for example coverage by *BBC Breakfast*, *BBC Countryfile*, *BBC Children's Newsround*, *BBC Radio 2*, *BBC Radio 4*, *the Times*, *the Guardian*, *the Telegraph* and *the Independent*. There was also local coverage, for example by *BBC Midlands Today*, *BBC Coventry and Warwickshire*, *BBC West Midlands*, *Radio Rugby*, *the Rugby Advertiser*, *the Birmingham Mail* and *the Solihull Observer*. The national and international coverage raised awareness about hedgehog decline and ways to help amongst very large audiences. However, it is questionable how much this coverage contributed to the outcomes of the project, particularly the international coverage. Whereas, although local media coverage will have reached a smaller audience, it is much more likely to have attracted a relevant audience. For example, articles in small parish magazines, such as *Round the Revel* and the *Marton Newsletter*, raised awareness amongst village communities and resulted in smaller scale engagement and often further involvement in the project. Sometimes time needed to be given to wide-scale national engagement for the benefit of hedgehogs overall, but smaller scale local engagement is likely to have been more beneficial for the HIA project itself.



Figure 6. Still from *BBC Midlands Today* coverage of torchlight surveys in Rugby. Copyright BBC.

2. Surveying

2.1. Sightings

Encouraging reports of hedgehog records proved highly successful, accruing just over 2200 verified records across Warwickshire over the course of the project, compared to 750 across previous years. In the first year of the HIA project alone, there was a 165.5% increase in recorded sightings in comparison to the previous year. Rugby records were particularly numerous, each year accounting for over half of the county records. *Rugby Borough Council* (RBC) was especially helpful, putting up signs before and during the project on lampposts and public areas that were highly visible to local residents. Having a simple way of recording sightings was key, with a website form providing a highly effective means of gathering easily analysed digital data. Obtaining records in person, over the telephone and via email was much more time consuming, however. Managing the complete dataset was difficult, with a volunteer from the *Warwickshire Biological Records Centre* eventually needed to verify and collate the records from various sources. The time consuming nature of this task should be factored into future projects and perhaps sightings should only be gathered through a website if there are time constraints. There is also a need for data sharing agreements with other organisations, and sharing of HIA project data was significantly delayed, with issues arising due to changes in GDPR law. Once verified, it is important to consider whether the records might indicate abundance of hedgehogs or simply reflect levels of engagement. Sightings often correlate with number of people, with more people seeing and reporting more hedgehogs. However, despite high levels of engagement in some highly urban areas during the project e.g. Rugby town centre, these areas were still largely void of sightings, suggesting that the grey infrastructure and disjointed gardens present were not suitable hedgehog habitat. Indeed, despite the Solihull HIA running for longer, Solihull borough only totalled just under 300 sightings, whereas Rugby borough totalled more than 1300 sightings, potentially indicating that Rugby has a more healthy hedgehog population. Incidental sightings can only indicate presence and not absence, and do not provide information on frequency, but they do provide an indication of potential “hotspots” and “blackspots” of activity that can be investigated further through surveying.

2.2. Footprint tunnel surveys

Footprint tunnel surveys proved popular with families (“It’s been great fun and very reassuring to see prints every morning. The children even saw a hedgehog in the tunnel one evening, which was incredibly special”) and provide a simple and efficient way of determining the presence or

absence of hedgehogs in an area. Having a hub to provide a collection and return service was important, as was taking tunnels to key events to distribute them amongst the public. This type of sample was opportunistic though and to produce more systematic results across set areas, volunteers needed to be recruited. A volunteer group took time to initially build but was largely successful by the end of the HIA project, with volunteers involved in surveying approximately 30 areas of public green space each year. Footprint tunnel surveys can be labour intensive, requiring site visits for 6 consecutive days, so having volunteers onboard was essential. It was generally a good way of recruiting volunteers in a flexible and fun activity, with feedback such as, "Looking forward to getting out there tunnelling!" demonstrating their enthusiasm.



Figure 7. Hedgehog seen during a garden footprint tunnel survey. Copyright Faye Chambers.

However, footprint tunnel surveys of areas of public green space can be problematic and lack efficacy when there is high disturbance from people and dogs, resulting in low occupancy rates. For instance, the Solihull and Rugby HIA footprint tunnel surveys consistently suggested that under 33% of local authority sites were being used by hedgehogs but this may have simply been a reflection of heavy dog use on certain sites. Tent pegging tunnels to the ground and resetting them late in the afternoon helped to minimise disturbance that occurred during the day and torchlight surveys were conducted on focal sites to verify negative results. Efficacy could also have been influenced by the fragmented nature of urban habitats and ability for hedgehogs to access them. The method only captures a 'snapshot' in time: hedgehogs may be using the space at other times of year and the method is difficult when considering that 20% of hedgehogs are thought to be nomadic. Even though multiple surveys and survey methods over time are costly, no one survey method should ideally be used in isolation. Indeed, footprint tunnels in Regent's Park, London, have indicated absence, even when hedgehogs are known to be present.

2.3. Torchlight surveys

Searching for hedgehogs by torchlight at night was another way of seeing if hedgehogs were present on core sites, as well as providing additional data on numbers of hedgehogs. However, very low numbers of hedgehogs were seen across Solihull and Rugby during torchlight surveys in 2016 and 2017. Colleagues elsewhere in the country were reporting greater success later in the evening when previous torchlight surveys would have already finished. Therefore, surveys in 2018 and 2019 began later in the evening and ran throughout the night. Hedgehogs were then seen on sites that had previously sometimes yielded negative results, such as Coombe Country Park and Castle Bromwich Hall Gardens, despite regular sightings reported, droppings seen and footprints found in tunnels, likely because torchlight surveys had previously finished too early.

Recruiting volunteers for all night torchlight surveys was challenging but appeared to be successful – and attract a more local audience – when surveys were relabelled as “safaris”.

One site that repeatedly revealed negative results for hedgehogs from both footprint and torchlight surveys was Elmdon Park in Solihull, comprising WWT’s Elmdon Manor Nature Reserve and adjacent arable land accounting for 112.11ha of green space in Elmdon Ward. The park was initially highlighted in the development phase of the HIA project as a potential central ‘buffer zone’ for the suburban population of hedgehogs in Solihull, alongside the potential focal area of Elmdon Ward itself, which had hedgehog records and contained three large areas of green space. However, despite hedgehog sightings in surrounding residences, a consistent lack of hedgehog records from the park – potentially correlating with very high levels of badger activity – called for a change in project area focus. Changes to habitat in areas of recorded absence, and efforts to improve and connect the area for the benefit of hedgehogs are, of course, worthwhile. However, volunteers become demoralised over time when hedgehogs are persistently found to be absent and these absent areas do not make for good focal project areas.

In September 2018, torchlight surveys were combined with a new monitoring programme. It had proven difficult to estimate number of hedgehogs present in an area from previous surveys, because it was unknown if the same hedgehogs were being re-encountered and re-counted. It had also been demoralising for volunteers to keep surveying areas where hedgehogs were not seen. It was decided that two focal areas of green space where hedgehogs were regularly seen, and that were chosen for their legacy potential, would become “Hedgehog Hubs”. Following a similar model to that used in Regent’s Park, torchlight surveys took place across those sites each May and September, and when hedgehogs were found, they were sexed, weighed, health checked and marked with numbered plastic shrink tubes. This work was conducted under specific site licence from Natural England. The length of processing time it takes to obtain this licence must not be underestimated, resulting at times in delayed surveying. It is also involves training for the licence, relying on the goodwill of other licence holders that must then provide a reference. However, once the licence was obtained, the surveying began building up a useful long-term monitoring dataset. Core volunteers were also then able to be trained in handling and checking hedgehogs, creating project legacy.



Figure 8. Volunteers training in handling and checking hedgehogs during torchlight surveys. Copyright Warwickshire Wildlife Trust.

During these torchlight surveys, transects were walked and open and marginal areas illuminated using MT14 Led Lenser 1000 lumen handheld torches and 1 million candle power Cluson Clubman lamps. An additional Seek Thermal RevealXR FastFrame camera was also used to detect

hedgehogs. This is a relatively inexpensive (approximately £350) handheld thermal camera that is lightweight and portable, and proved useful in picking up hedgehog heat signatures that would otherwise have been missed, even up to 20m away. In dense vegetation, the camera was able to pick up hedgehogs fairly well. However, the camera struggled to pick up hedgehogs amongst hedgerows, flower beds and areas with bare ground, the field of view was quite small so surveyors took additional time to scan an area, it was difficult to walk and scan using the camera simultaneously, and the battery life was only up to 2 hours of constant use. Despite this, the camera was a useful additional tool and recommended for future projects. The “FastFrame” model is essential, as refresh rates of the screen would be too slow otherwise when surveying.



Figure 9. A volunteer can be seen walking past a hedgehog (left) that would otherwise have been missed. The difficulty in detecting hedgehogs amongst hedgerows and bare ground can be seen (right) even with the colour setting maximised for detection. Copyright Warwickshire Wildlife Trust.

Determining whether hedgehog numbers changed from the start to the end of the HIA project is challenging. There were 750 hedgehog sightings across the county before the project began, which seemed low considering that the hedgehog was thought of as a common and widespread generalist species, and the awareness campaign *Help for Hedgehogs* had already been running for 2 years. It is unlikely, however, that this was an accurate estimate of the number of hedgehogs in Warwickshire at the time, because people notoriously tend to underreport common species, for example rabbits and moles. Ironically, these animals are more frequently recorded when people start to anecdotally notice a decline. Therefore, there is little baseline locally to compare end sightings results to.

Since the Millennium, hedgehogs have been better recorded nationally across multiple surveys, now combined every few years by the *People's Trust for Endangered Species* (PTES) to provide an updated *State of Britain's Hedgehogs Report*. This provides an indication of current state and change over time since the Millennium, but before this, data were severely lacking. The latest report in 2018 revealed that hedgehogs are still on the decline, particularly in rural areas by up to 50%. However, the urban picture is more positive because although they have still declined by up to 30%, in areas where they are still present, in some places they seem to be increasing in number according to weekly counts. Some people have attributed this increase to community projects like *Hedgehog Street* and this HIA project, which raise awareness and encourage people to take action to help hedgehogs. However, a correlation does not mean a causal effect and caution must be taken when making claims. Either way, taking action to help hedgehogs does little harm and is much more likely to be beneficial to a range of wildlife. Studies are also underway to test

the efficacy of some of these actions so that hedgehog conservation can become more evidence-based. For example, if surveys show that hedgehogs are absent from gardens when no fence holes are present but then they are present when holes have been made, this might suggest that hedgehog holes are indeed effective in creating access. Another example is the *Hedgehog Housing Census*, which the HIA project contributed in designing, and which was a first step in working out if hedgehog houses are utilised and which characteristics are generally favoured.

3. Habitat

3.1. Habitat improvements

Habitat improvements have the potential to provide long-lasting legacy. During the HIA project, volunteers were involved in over 500 hours of habitat improvement works across green space sites, including activities such as planting, litter picks and hedgelaying. Feedback indicated that they enjoyed learning new practical skills ("...it was a great weekend, lovely participants, great leaders and expert tuition"). Practical habitat workshops and events were also held with community groups, local authorities and corporate groups.



Figure 10. Volunteers showing off the new dead hedge they created on a local nature reserve. Copyright Warwickshire Wildlife Trust.

It is particularly difficult in short-term funded projects to determine if habitat improvements have made a difference. Measures such as number of metres of hedgerow planted and/or restored, or number of green spaces connected can be used to indicate potential habitat benefits for wildlife. Similar to with surveying, figures such as number of volunteers signed up, trained and the hours given to habitat improvement, provide an indication of project effort, engagement and project legacy. However, in terms of actual use of the land by hedgehogs, improvements such as hedgelaying can initially be quite destructive and may take time to make a difference, with the beneficial regrowth happening over a period of years. Ideally this should be considered when starting new large-scale projects, with funding secured for a minimum of 4-5 years, and before and after hedgehog surveys conducted.

3.2. Land management

Having a positive partnership with local authorities proved to be particularly productive for habitat work. For example, in 2017, RBC reduced the regularity of grass cutting from 13 mows per year to one and planted trees across 5 green space sites. Despite concerns that there would be a high level of complaints, this proved not to be case, potentially due to accompanying signage

explaining the changes. The trial was then expanded in 2018 across 7 other locations and into 2019 across other large green spaces. These changes created project legacy and resulted in a win-win situation, with RBC saving funds on grass cutting and the project creating more varied habitat for hedgehogs. RBC also wrote a letter explaining the changes and issues involved, which could be disseminated and used amongst other projects.



Figure 11. An RBC site subject to trial in 2016 before any changes (top left), 2017 post changes with interpretation (top right) and subsequent years 2018 (bottom left) and 2019 (bottom right) . Copyright Warwickshire Wildlife Trust.

Allowing areas of grass to grow long provides food (by increasing habitat for invertebrates) and shelter for hedgehogs during summer months. Planting provides leaves for hedgehogs to make their nests. Although correlational, footprint tunnel survey results suggested that two sites that had trial management changes had visiting hedgehogs in 2018, despite an absence the previous year. Following the trial, it was suggested by the HIA Hedgehog Officers that planting in blocks might not be wholly beneficial because hedgehogs require a mosaic of mixed and edge habitats, helping to meet all of their habitat needs. For instance, close cropped grassland can be used for gathering invertebrate food, longer areas of grass for nesting in the summer, trees for leaves to build winter nests, and hedgerows for food, connectivity and nesting amongst in the winter. It was suggested that future management plans should include planting hedgerows and to cut areas of longer grass in the winter, when hedgehogs are likely to be sheltering in more robust areas. It was also noted that sites should be considered within the greater landscape, and access to sites improved where necessary. Use of chemicals was discouraged wherever possible, as not only can they build up in the food chain and so increase in toxicity, but they also reduce food availability.

3.3. Policy and planning

A major success of the HIA project was in planning. As a Schedule 6 rather than Schedule 5 species on the *Wildlife and Countryside Act*, developers largely need not survey or mitigate for

hedgehogs, and any hedgehog-friendly measures put in place are based on goodwill. Previous attempts to change the law were unsuccessful. However, the HIA project successfully pushed for changes to both policy and guidance, through pushing for hedgehog-friendly features in developments since 2016 and working with local authorities, ecologists and developers. Statements regarding connectivity and permeable barriers are now included in the Rugby Local Plan and are to be included in at least eight Neighbourhood Development Plans. Tailored comments on planning applications within the HIAs and partnership work also resulted in hedgehog fence holes to be included across 16 development sites. This work was highly effective and nation-leading, yet labour intensive with a more sustainable approach to create legacy required. The Senior Hedgehog Officer of the HIA project wrote the publication “Hedgehogs and Development” with the PTES and BHPS, which now provides guidance that can be used and referred to nationwide into the future. Furthermore, following these planning successes, Hugh Warwick appealed to the power of the people through social media as part of a new “HedgeOx” project, and petitioned government to provision for hedgehog-friendly measures, resulting in an inclusion in guidance to accompany the National planning law.



Figure 12. Cover of the new national planning guidance for developers .

Summary

The HIA project was highly successful in directly engaging over 18,000 people and over 4,500 through social media. There are now thousands of reported hedgehog sightings across Warwickshire and 30 areas of green space were surveyed over time by dedicated volunteers. Habitats were improved through on-the-ground volunteering, land management changes across green spaces to create varied hedgehog habitats were made, and planning guidance was written to encourage hedgehog-friendly development.

Setting up a new hedgehog project should never be done in isolation. Partnerships with local authorities, charities and community groups are essential for the project to be successful, resulting in more wide-ranging and higher levels of community engagement, as well as facilitating practical habitat works and influencing policy. Learning from others and sharing knowledge is invaluable and can be done through media, social media, websites, talks, presentations, reports, articles and meetings.