Wye Valley National Landscape

Hedgehog

Erinaceus europaeus Species Action Plan 2022 – 2027



To Accompany the Wye Valley National Landscape Nature Recovery Plan



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1. Background

In 2019, set against a backdrop of unprecedented concern for the future of the natural world, the National Association for Areas of Outstanding Natural Beauty (NAAONB) set in motion plans to significantly increase the scale and pace of nature conservation activity in Areas of Outstanding Natural Beauty (AONB's). The Wye Valley AONB Partnership, along with AONB's across the UK, signed up to the Colchester Declaration. This is an ambitious plan to recover nature in and beyond protected landscapes, build climate resilience and enhance engagement with people. Rebranding has since taken place and AONBs are now known as National Landscapes.

As part of this effort, each National Landscape has committed to adopting an IUCN threatened, or locally threatened, species and preparing and delivering a Species Action Plan, in the hope that by 2030 at least 30 species relevant to AONB's can be removed from the threatened list (NAAONB, 2019). The Wye Valley National Landscape has committed to adopting 5 locally significant species, each of which represent one of the AONB's special qualities, and/or indicate the health of a well-connected landscape. Threatened in both rural and urban environments across the UK, the hedgehog has been chosen as a species with which the general public can engage and actively contribute towards conservation work.

2. Introduction

Well recognised as one of the UK's favourite wild animals, the hedgehog is our only native spiny mammal. They are 22-28cm long and covered on their back and flanks by around 6000 banded spines; their face and underside are covered with coarse greyish brown fur. When threatened, the spines are raised, brought over the head and feet, and the hedgehog rolls up. Hedgehogs have a 'skirt' of skin bounded by an orbicularis muscle that acts like a drawstring bag pulling the hedgehog into a tight ball.

They have a wide range of habitats in both urban and rural situations, though they are absent from large conifer plantations, marshes & moorlands. Suburban and urban gardens appear to be increasingly important as habitat. Hedgehogs are found throughout western Europe, including mainland Britain and Ireland, but are absent from some Scottish Islands and have been introduced to others. Their diet consists of ground-dwelling invertebrates, especially beetles, caterpillars, millipedes and earwigs. Whilst hedgehogs can and do eat slugs and worms, these are shown in large amounts to cause parasitic infections, and are usually only consumed when they are unable to find alternatives. They will also readily eat meaty cat food or dog food and should reach a healthy weight of over 600 g to survive hibernation. Hedgehogs breed between April and September, with peak activity in May and June, although increasingly they are having litters late into September. Hoglets can emerge anytime from late April/early May, are weaned at around five weeks and are independent from then on. Females can attempt two litters in a year, but generally cannot rear more than one successfully. During the winter (usually November through to March when there are 5 consecutive nights at 5°C or below) they hibernate, although research shows that they will still make an appearance on warmer, drier days for water and food.

Hedgehogs are generally solitary, non-territorial, and nocturnal. They are mobile and wide-ranging, and are able to travel 1-2km a night in urban locations and up to 3km a night in rural locations.

Hedgerows are a particularly important feature for hedgehogs (hence the name) as they tend to follow linear features when foraging.

Although hedgehogs are still relatively widespread, there is now considerable evidence of a dramatic decline in recent years, with around a third of the national population being lost since the millennium. They are declining in both rural and urban habitats, but at a much faster rate in urban areas due to a wide range of factors.

The list of areas associated with hedgehogs is a long one. The hedgehog is the symbol of Ross-on-Wye and the ancient kingdom of 'Ergyng' (Archenfield) which is partly within the National Landscape boundary, means 'Land of Hedgehogs'.





Figure 1: Hedgehogs (Source – Ali Taylor & Hannah Bamber, Peoples Trust for Endangered Species)

3. Current Status

3.1 Ecology and habitat requirements

Timings of many hedgehog behaviours are dependent on temperature, gender and the body condition of the individual hedgehog. Actions at particular times of year can, however, help reduce hazards and help hedgehogs thrive. Hedgehogs have three main habitat requirements: a range of nesting opportunities, high quality feeding areas, and varied habitats which are well-connected.

- Nesting: Hedgehogs nest year-round and produce different types of nest for day-time resting, breeding and hibernation. Day-time nests are a retreat during the active season, and are often temporary, flimsy and found in areas of rough grassland, loose leaf piles or garden vegetation. Breeding nests are made by females and are used to raise young. These nests are more robust, like hibernation nests, and are often found in garden sheds or in overgrown gardens. Winter nests can be used for several months to hibernate through periods of cold weather and low food availability. The sturdiest nests rely on medium-sized deciduous leaves and a structure to hold the leaves in place. Bramble patches, log piles and open compost heaps are common locations for breeding nests and hibernacula.
- **Feeding:** Hedgehogs are omnivorous, opportunistic feeders, but the bulk of their diet consists of macro invertebrates such as beetles, earwigs, caterpillars and millipedes. In urban areas, supplementary food in the form of cat, dog or formulated hedgehog food can make up a significant part of their diet if natural sources are low. Hedgehogs will balance their diet to

mitigate risk, choosing food sources that provide the necessary nutrients while avoiding excessive exposure to harmful parasites e.g. through slugs and worms. Access to water on a daily basis is also very important.

- Habitat: Hedgehogs are highly active and range widely. They need to be able to move freely through a well-connected range of habitats to find food, mates and areas to nest. Radiotracking studies show that hedgehogs can travel around 2km in a night in urban areas, and up to 3km a night in rural landscapes, though distances differ between the sexes. A viable population of urban hedgehogs is thought to need around 0.9km² of well-connected habitat.

3.2 Population and distribution

Hedgehogs are nocturnal and solitary creatures, so counting numbers in the field is difficult. Only two reliable estimates of the population size exist and both acknowledge a lot of uncertainty in the figures. In 1995, and more recently in 2017, researchers have suggested a figure of about 1.5 million hedgehogs across England, Scotland and Wales collectively (see figure 2). However, more recent figures from the Mammal Society in 2018, suggest that the population may be as low as 879,000.

In the early 1990s, Dr Pat Morris, at Royal Holloway University of London (RHUL), recruited volunteers to record hedgehog road casualties as a way of monitoring the population in the wider landscape. Ten years on, PTES relaunched the survey, part-funded by the Joint Nature Conservation Committee (JNCC). These surveys showed regional differences in counts of hedgehogs and indicated an ongoing decline in the population since Morris' original work. Other surveys indicated similar findings and in 2007 hedgehogs were made a priority conservation species in Britain under the then UK Biodiversity Action Plan (UK BAP).

In 2022, the Peoples Trust for Endangered Species (PTES) analysed three surveys that have regularly collected records of hedgehogs for the last two decades for their 'The State of Britain's Hedgehogs Report 2022'. All record other species as well. PTES' Mammals on Roads survey covers primarily rural areas (outside towns and cities); while the British Trust for Ornithology's (BTO) Garden BirdWatch and PTES' Living with Mammals are garden-based, or predominantly so, and are more representative of the built environment. Differences in the way data are collected mean that trends aren't directly comparable, but together they give a good indication of the direction of change and an idea of its size.

- Rural populations: Between 2002 (the baseline year) and 2022, counts of hedgehog road casualties recorded in PTES' Mammals on Roads survey fell by between a third and three-quarters across Great Britain (Figure 2). Estimating changes in the size of the national population is difficult. Changes in the way the survey is carried out mean that the results should be interpreted with care. Annual estimates vary a lot and more records are needed each year to get a better idea of how the rural population is changing. The trend, which evens out year-to-year differences, has been level over the last few years, but it's still possible that the population has increased over this period or continued to fall. To be more confident, more data is essential. Another survey, the BTO/JNCC/RSPB Breeding Bird Survey, also shows a decline across rural areas, in this case, in sightings of live animals.
- **Urban populations:** Across urban sites, a different picture is emerging. While hedgehogs remain widespread, fewer places record them today than did twenty years ago. This may be changing however and the last few years has seen an increase in the number of hedgehogs where they are still present. Between 2004 and 2012, the proportion of sites recording

hedgehogs in Living with Mammals (either from sightings or signs) fell sharply; since then, however, the decline has levelled off and average weekly counts of hedgehogs show an upturn. A broadly similar pattern, changing little between 2008 and 2013 and increasing in the last few years, is shown by the proportion of sites recording hedgehogs in the BTO's Garden BirdWatch. These records can be difficult to interpret because participants aren't necessarily recording mammals or hedgehogs, but along with Living with Mammals, the two surveys suggest an improving situation (steadying of numbers rather than a decline) for hedgehogs in urban areas. Hedgehogs are not disappearing from sites as rapidly as they were fifteen years ago and might even be returning.

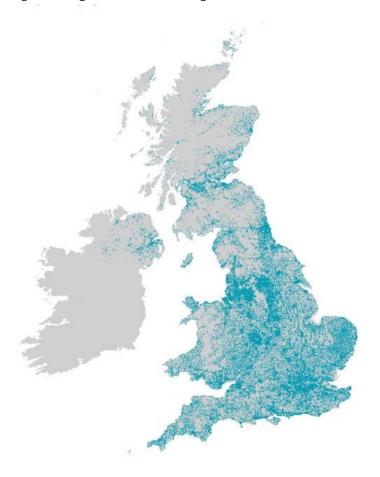


Figure 2: The distribution of hedgehog sightings in PTES and other surveys between 2012 and 2017. Most records are from urban areas, reflecting the distribution of recorders as well as that of hedgehogs (Data provided from the State of Britain's Hedgehogs 2018 Report, PTES).

In 2015, Hedgehog Street, a joint campaign between PTES and the British Hedgehog Preservation Society, launched the BIG Hedgehog Map¹, the only real-time map that shows hedgehog distribution UK wide. It's an online resource to record hedgehog sightings, dead or alive, and maps 'Hedgehog Highways' through gardens. So far over 19,000 hedgehog sightings and over 4500 'Hedgehog Highways' have been mapped, linking over 9000 gardens across the UK.

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¹ https://bighedgehogmap.org/

3.3 Legislation

In 2020, hedgehogs were put on the IUCN Red List as vulnerable to extinction in Great Britain. Hedgehogs are listed as a Priority Species in both the UK Biodiversity Action Plan (2007) and under S41 of the NERC Act (2006). They also have limited protection under Schedule 6 of the Wildlife and Countryside Act (1981) as amended, which means they cannot be caught or trapped without a licence and under Appendix III of the 'Bern' Convention. The Wild Mammals (Protection) Act (1996) prohibits cruel activities and mistreating of hedgehogs. Hedgehogs are identified as vulnerable in the Mammal Society Red List.

No legislation currently addresses the causes of decline in hedgehog populations.

3.4 Summary of important sites

Hedgehogs are known to inhabit both rural and urban areas, including woodlands, hedgerows, meadows, gardens and parks. Their habitat is widespread, as long as there is adequate cover and food sources available. This makes it difficult to determine important sites across the Wye Valley National Landscape.

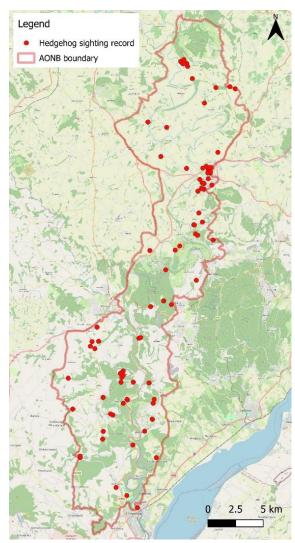


Figure 3: Current Hedgehog records in the Wye Valley Landscape (Source – Wye Valley National Landscape with data from PTES, 2022)

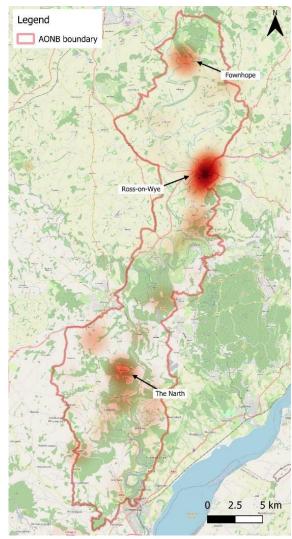


Figure 4: Heatmap of current Hedgehog records in the Wye Valley Landscape (Source – Wye Valley National Landscape with data from PTES, 2022)

Data from the BIG Hedgehog map was shared by PTES in 2022 including all records received within the Wye Valley National Landscape (a total of 94 records), combined with a small number of reports (7) received directly by the Wye Valley National Landscape team. Figures 3 & 4 help to identify the distribution of hedgehogs across the National Landscape. As previously discussed within Section 3.2, most records are from urban areas, reflecting the distribution of recorders as well as that of hedgehogs.

The heatmap generated from these records identifies the main hotspot at Ross-on-Wye with 23% of records concentrated in this area. Fownhope and The Narth were also identified as secondary hotspots for hedgehog sightings.

4. Current factors affecting the species

Hedgehogs face a multitude of natural and anthropogenic threats, many of which act together and some of which are still being understood. Whilst habitat loss and fragmentation are major issues across both urban and rural habitats, the reasons differ between the two landscapes. But many of the threats are man-made and can be reduced through simple changes in land management, providing an opportunity for green-space managers to make a real difference for local hedgehogs. It can be helpful to consider urban and rural areas separately, though there are certainly crossovers between the two.



Figure 5: Threats to hedgehogs (Sourced from 'Hedgehog Ecology and Land Management', Peoples Trust for Endangered Species and British Hedgehog Preservation Society)

4.1 Rural threats

- Use of herbicides can directly reduce earthworm density and reduce the varied ground cover needed for foraging.
- Loss of hedgerows leads to habitat fragmentation.
- Larger field sizes make it difficult for hedgehogs to move around the landscape.
- Hedgerow management by flailing now leads to hedges with gappy bases which are poor for nesting.
- Limited areas of scrub, decaying wood or nectar rich planting.
- Increases in badger populations, the hedgehog's main natural predator, may have an effect where habitat is already degraded. It's thought that the two species can coexist as they have for thousands of years, so long as there's enough feeding and nesting habitat for them both.
- Loss of permanent pasture.

4.2 Urban threats

- Roads can act as barriers to hedgehog movement, may have genetic impacts on populations and are a large source of mortality. It has been estimated that between 167,000 335,000 are killed on our roads in Great Britain every year.
- Impermeable garden fencing and walls limits the area of connected land available.
- Gardens lost to car parking or decking directly reduces foraging area.
- Habitat loss from new developments.
- New developments usually lack any connectivity between gardens.
- Over-tidy gardening can remove dead wood, leaves, replace foraging areas with drives and decking and clear away overgrown corners.
- Slug pellets are potentially lethal if directly ingested and also reduce important prey sources.

4.3 General threats

- Thousands of hedgehogs are admitted to vets and rescue centres across the country every year. Hedgehogs are well known for their association with host specific ticks and fleas, but can also carry and suffer from diseases such as salmonella, lungworm and ringworm. The population-level impact of these diseases on wild hedgehogs is still being researched.
- Litter, wire fencing and loose or fine vegetable netting poses a risk to hedgehogs. Cricket nets and football goals are also common places for entrapment.
- Hedgehogs have no flight reflex and nest year round, making them vulnerable to machine injury e.g. strimmers, mowers
- Risk of drowning: ponds and lakes are excellent habitat and provide an important water source for hedgehogs in times of drought. Hedgehogs are good swimmers, but even small ponds are a hazard if they can't climb back out
- Hibernation habitat, typically scrubby or brambly areas, are frequently lost through over management or development
- Bonfires and compost heaps are attractive nesting sites for wildlife but can be particularly hazardous to hedgehogs who lack a flight mechanism
- Use of pesticides, herbicides and rodenticides that can be highly toxic and can impact non-target species.

- Foxes and dogs can cause hedgehog injuries and mortality, particularly during hoglet season, but there's no available research to indicate that they impact hedgehog populations as a whole. Small populations may be more vulnerable.

4.4 Barriers to conservation

- Hedgehogs are nocturnal and solitary creatures, so counting numbers in the field and estimating population is difficult.
- Hedgehogs are generalists; they are widespread throughout the UK, occupy a wide range of habitat types and feed on a range of different foods. As a result of this, the factors affecting them vary across the range.
- In the Wye Valley National Landscape we are lacking knowledge about the range, population and distribution of hedgehogs.

5. Current Initiatives

5.1 Local protection

Despite a wealth of UK-wide hedgehog conservation schemes, within the Wye Valley National Landscape there is a lack of localised action for hedgehogs. The closest rescue centre for hedgehogs is New Newent (Samantha's Little Prickles) and the Vale Wildlife Hospital and Rehabilitation Centre in Tewkesbury, who treat over 1,000 hedgehogs every year, with 250+ typically being treated in their care throughout the winter. In 2023, 1,960 hedgehog causalities were admitted to the centre with numbers increasing year on year. They offer advice on their website for hedgehog rescue, care and warning signs which can indicate ill health.

Our local 'Hedgehog Hero' Dylan Allman leads the 'Be Hedgehog Aware' campaign which aims to reduce the number of injuries suffered by hedgehogs from gardening related activities such as strimming and mowing. The campaign has gained support from local authorities and equipment manufacturers including Hyundai and STIGA. These manufacturers now attach a 'Be Hedgehog Aware' sticker to all of their strimmers, mowers and brushcutters.





Figure 6: Hyundai products with the 'Be Hedgehog Aware' sticker (Source – Dylan Allman, Hedgehog Aware)

Raising awareness within the local community has been one of the main objectives of this campaign and Dylan has spoken at numerous events engaging with schools and the public throughout

Monmouthshire and the Wye Valley, including organising the 'Let's Talk Hedgehogs' community event in March 2023.

As a result of this campaign, the 'Volunteer Hedgehog First Response Unit' was established in December 2023 for the Monmouth and Chepstow areas, providing advice and support for members of the public who find injured hedgehogs, and acting as a first line of response for anyone who discovers an injured or out in the day hedgehog. This group is made up of the 'Hedgehog First Responders' comprising volunteers who have been trained in the first aid and care of injured hedgehogs and issued with a comprehensive hedgehog rescue kit. Since launching, they have taken 29 calls on their hotline (at 22/6/24), have helped 19 hedgehogs, along with building an online community of nearly 150 followers. The Ross-on-Wye Hedgehog Care & Advice group also aims to raise awareness and share advice via social media.

The Lower Wye Valley Nature Networks Project (2021-23), funded by the Heritage Lottery Fund, and the Wye Valley National Landscapes Sustainable Development Fund (SDF), SDF Landscape and Biodiversity enhancement grants, and other schemes have facilitated some hedgerow planting and restoration primarily across the Monmouthshire part of Wye Valley National Landscape. These hedgerows improve habitat connectivity for the hedgehogs to support their populations.

5.2 Programmes of action

The British Hedgehog Preservation Society (BHPS) was founded in 1982 and was one of the first charities to address hedgehog decline in the UK, offering help and advice to those with sick, injured or orphaned hedgehogs, and raising money to fund vital research into the behavioural habits of hedgehogs to ascertain the best methods of assisting their survival.

The BHPS has partnered up with the Peoples Trust for Endangered Species (PTES) on many campaigns and initiatives for hedgehogs, including their 'Hedgehog Street' campaign. Hedgehog Street encourages communities to make small changes which can make a big difference for hedgehogs in urban environments. This includes actions such as pledging to make a hedgehog hole in your garden fence or wall, learning more about hedgehogs and how you can help them, and registering on Hedgehog Street to become a 'Hedgehog Champion' to encourage your local community to take action. There are now over 100,000 people currently taking part in the UK. Aside from Hedgehog Street, PTES and BHPS run the UKs only training course on hedgehog-friendly land management, surveying and mitigation for professionals.

Most wildlife conservation organisations provide online guidance materials and advice for how to support hedgehogs in your local area, including the RSPB, The Woodland Trust and the Wildlife Trusts. This encourages actions such as making hedgehog houses and holes, making your garden more hedgehog-friendly, and seasonal advice such as checking bonfires for hedgehogs and providing them with food throughout the winter. In addition, The Wildlife Trusts run a campaign with the Royal Horticultural Society called 'Wild About Gardens', which was set up to celebrate wildlife gardening and to encourage people to use their gardens to take action to help support nature, with a particular focus on common garden visitors who are under threat, such as hedgehogs, house sparrows and starlings.

5.3 Survey, research and monitoring

The BIG Hedgehog map is one of the largest databases of hedgehog records within the UK, including information on hedgehog sightings, rescue efforts, conservation initiatives and research findings. However, the lack of a consistent and reliable survey technique makes it difficult to determine how hedgehog populations are being affected by certain factors. The PTES & BHPS have been working in collaboration with the University of Reading and Nottingham Trent University on a separate 'National Hedgehog Survey' which aims to provide a better insight into these factors. A minimum of 400 sites were chosen across England and Wales in 2014 & 2015 where footprint-tunnels (as seen in Figure 7) were setup to record the presence/absence of hedgehogs in rural habitats (PTES, 2024).

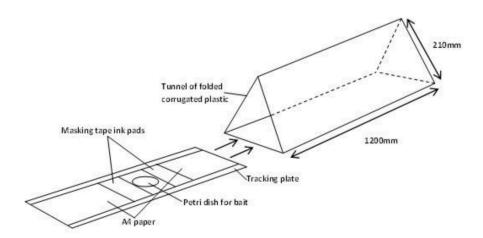


Figure 7: Footprint tunnel design as featured within the PTES footprint tracking tunnels guide (Source – PTES 2016)

This data is currently being processed but will provide a national baseline measure of hedgehog populations against which future changes can be measured, and direct urgent action to where it is most needed.

This approach could be replicated across the Wye Valley National Landscape and the results compared against the national baseline to determine current population and future actions. A PTES guide to making a footprint-tunnel is available online via the Hedgehog Street Website².

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² https://www.hedgehogstreet.org/footprint-tunnels/

6. Conservation Visions

To enhance opportunities for hedgehogs across the Wye Valley National Landscape:

- Working with partners and landowners to ensure that hedgehog habitat is considered within all management decision making.

More potential habitat to be created and connected to enhance opportunities for hedgehogs within the Wye Valley National Landscape:

- Working with partners and stakeholders to expand and join up new habitats in the Wye Valley National Landscape including hedgerows, in private gardens and on agricultural land.

To see a sustainable increase in hedgehog population across the Wye Valley National Landscape:

- Encouraging stakeholders to undertake surveys to determine hedgehog populations and monitor the progress of conservation efforts.

7. Conservation Actions

ACTION	HOW
Raise awareness of the decline of	- Organise school visits and talks.
hedgehogs and the potential for a	- Host events and workshops with the general public.
recovery in their numbers through	- Work with hedgehog champions and groups to spread
appropriate action.	the message.
	- Promote good practices relating to habitat
	management for hedgehogs.
Monitor the population of hedgehogs.	- Encourage partners, volunteers and the general public
	to carry out surveys (at known established sites and
	potential new sites) using methods such as the footprint
	tunnel.
	- Record signs and sightings of hedgehogs, and submit
	records to the relevant local environmental records
	centre.
	- Continued support of the Volunteer First Response
	Unit, sharing information on what to do if a poorly or
	injured hedgehog is seen out in the day, and recording
	rescues and outcomes
Nurture and encourage hedgehog	- Develop hedgehog champions.
action groups.	- Provide support through funding.
	- Assist with funding applications.
	- Facilitate meetings and promote the work of groups.
Encourage habitat connection through	- Encourage farmers to manage and restore existing, and
restoring and planting new hedgerows.	planting new hedgerows, promoting and assisting with
	applications for funding.
	- Work with farmers and landowners to encourage good
	land management practices to improve habitat,
	connectivity and reduce the risks of injury to hedgehogs.
Encourage the general public to better	- Produce and distribute promotional material about
manage their gardens and urban areas	hedgehogs.
for hedgehogs.	- Signpost the general public to information sources.
	- Promote Hedgehog Street and other sources of
	information

8. Roles

- Support, advise, facilitate and co-ordinate conservation action for hedgehogs, both leading on and through partnership with the National Landscape.
- Engage with landowners and managers, encouraging best practice in managing hedgehog habitat to enhance opportunities for hedgehog populations.
- Promote hedgehog conservation within other wildlife conservation organisations and encourage the provision of advice to the general public and practical support for landowners.
- Through the planning process, where suitable, encourage developers to include provision for hedgehogs e.g. gaps in fencing to facilitate the movement of hedgehogs.
- Enthuse the general public to take part in surveying and providing records of hedgehog sightings.

9. Marking Progress

We will mark progress through:

- **Hedgehog records:** When there are more records of hedgehogs in the National Landscape, indicating a population increase or an improvement in survey efforts.
- **Hedgehog habitat:** When there is more available habitat and better connectivity in the National Landscape where hedgehogs are being recorded, indicating a population increase, an expansion in range or an improvement in survey efforts.
- **Hedgehog measures:** When new measures are successfully implemented to support hedgehogs e.g. more hedgerows restored and created, hedgehog houses and hedgehog highways set up.
- Hedgehog understanding and conservation efforts: When information about hedgehogs is widely available to everybody, and hedgehog habitat in the National Landscape is being enhanced.

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