

Irish Garden Hedgehog Survey - Footprint Tunnel Method



Garden Hedgehog. Photo courtesy of Pat Morris.

Introduction

The Irish Hedgehog Survey is an initiative by researchers in NUI Galway and the National Biodiversity Data Centre. The aim of the survey is to gather information on the status of the Irish hedgehog population. Studies from Britain and elsewhere in Europe have shown that hedgehog numbers there are in steep decline due to habitat loss and fragmentation from changing farming practices and development. As the Irish environment faces similar challenges it is likely that the Irish hedgehog population may also show similar losses. However, very little research has been carried out on the hedgehog in Ireland so far. This study will provide baseline data in order to monitor their numbers in the future.

While hedgehogs are believed to be widespread and fairly common, because they are nocturnal and occur in low numbers, they can be difficult to count. Thus, citizen science is very helpful in developing an accurate image of the distribution and density of hedgehogs in Ireland. Casual records of live or dead hedgehogs from anywhere in Ireland can be submitted via the Biodiversity Ireland website [here](#). For the Garden Hedgehog survey, volunteers actively survey their gardens for hedgehog activity which will provide important information for how hedgehogs use these habitats. Over the next couple of years, volunteers will also help to survey parks, woodlands and farms using similar methods.



Survey method

Footprint tunnels are an effective way to sample for hedgehogs and other small mammals. This method has been developed based on studies carried out in the UK which have shown that a five-night survey with a footprint tunnel is effective in determining if hedgehogs are present at a site (Yarnell et al, 2014; Williams et al, 2018).

You can take part in the survey whether you believe you have hedgehogs in your garden or not. This project requires that you survey your garden with a footprint tunnel for 5 nights in a row. The survey must take place between the start of May and the end of September.

You should submit your results via the online form here ([link](#)) as soon as possible after the survey.

Negative results are just as important as positives, so it is very important that you submit your results, even if you did not find any hedgehogs in your garden – this is vital information for the project.

You should only complete one 5-night survey for each garden. You can survey as many gardens as you wish provided you have the home-owner's permission. You may also survey in public green spaces within housing estates, school gardens or other gardens. This does not include large public parks which will be surveyed in a future volunteer survey that you will be welcome to take part in (please contact the survey co-ordinator elaine.oriordan@nuigalway.ie for more information).

Please ensure you comply with all current restrictions on movement and social distancing guidelines relating to the Covid 19 situation.

Hedgehogs are active at night, so you should prepare and set your tunnel before dusk. Assemble the tunnel and prepare the base board of the tunnel with fresh paper, paint and bait according to the instructions (pages 5-7).

You should place your tunnel in the same spot every night. Hedgehogs like to move along linear features so if possible, choose a location alongside a hedge, wall, fence, shed or a border between long and short grass.

In the morning, slide out the base board and check for footprints. Hedgehog footprints are quite distinctive. Both the front and back feet have five toes, though often only four toes show up on the tracks.

The front feet are wider (~30 mm long and 25 mm wide), and they look like little hands. The back feet are slimmer and longer and leave narrower prints (30-35 mm long and 25 mm wide).



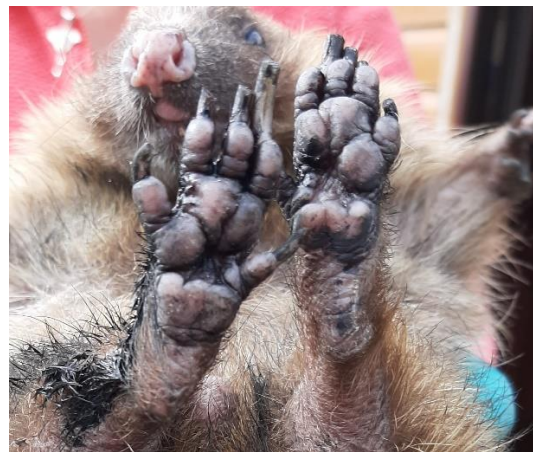
Hedgehog front footprint



Hedgehog hind footprint



Hedgehog fore foot



Hedgehog hind foot

Other animals may use the tunnel such as mice, rats or cats. You can see some images of their prints on page 9.

If prints are present, remove the sheet(s), write the date on them and keep them safe until the end of the survey. If no prints are present and the paper is in good condition, you can leave it in place. If the paper is damp or damaged you should discard it along with any uneaten food which may spoil if left out in heat all day. In the evening, reset the tunnel with fresh paper and bait and top up the ink pads as necessary.

This procedure should be followed for 5 nights. On the morning after the 5th night you should remove the tunnel and wipe it down thoroughly with an anti-bacterial spray and paper towels so it is clean and ready for the next survey. When you are finished your survey, please make arrangements to return any borrowed tunnels to the hedgehog survey project as soon as possible.

Please submit your results as soon as you can after you complete your survey – even if you did not record any hedgehogs. It should only take 5 minutes on the online form.

Submitting your results

You submit your results via the online survey form at <https://forms.gle/aarmwtZpPtoPhFBv7> . The form is very straightforward and should take only about 5 minutes per survey. Please only complete one 5-night survey per garden. Use one form for each survey completed.

The form requires you to give your address (your Eircode will suffice). This will enable us to map the results and record hedgehog sightings accurately. It will also allow us to access additional information about geology, habitats and land use in your local area. You do not need to include your name or contact details unless you wish to hear updates from the project or would be interested in further survey work.

Your personal information (including address) will be used purely for academic research and will not be published or shared with any third party. It will be stored only for the duration of the project.

The first part of the form gathers information about your garden and the second part records the findings of your survey. You can upload photos, videos or PDF files on the form. It would be helpful if

you can scan or photograph your footprint sheets and upload them for verification. We would also welcome photos or short video clips of your night-time visitors.

[Click here to enter online survey form](#)

Links and useful information

If you have any questions, please contact the lead researcher on the project –

Elaine O’Riordan by email at elaine.oriordan@nuigalway.ie

You can find out about other surveys and keep up to date with the Irish Hedgehog Survey via the website:

<https://www.irishhedgehogsurvey.com/>

If you see a hedgehog anywhere in Ireland, alive or dead, you can record your sightings via the biodiversity Ireland page here:

<https://www.biodiversityireland.ie/projects/additional-survey-schemes/irish-hedgehog-survey/>

Follow the Irish hedgehog survey on social media

<https://www.facebook.com/IrishHedgehogSurvey/>

https://twitter.com/Irish_Hedgehogs

If you find a sick or injured hedgehog, you should contact your local vet or ISPCA branch to see if they can help. If not, you can get advice and help from:

Dublin Hedgehog Rescue 086 8810492

The Hogsprinkle Wildlife Carers 086 8624511

Kildare Animal Foundation, Wildlife Unit 087 6201270

Advice on what to do if you find injured wildlife here www.irishwildlifematters.ie

Some useful sites from the UK

British hedgehog preservation society <https://www.britishhedgehogs.org.uk/>

Hedgehog street <https://www.hedgehogstreet.org/>

Peoples trust for endangered species <https://ptes.org/>

How to make your own footprint tunnel

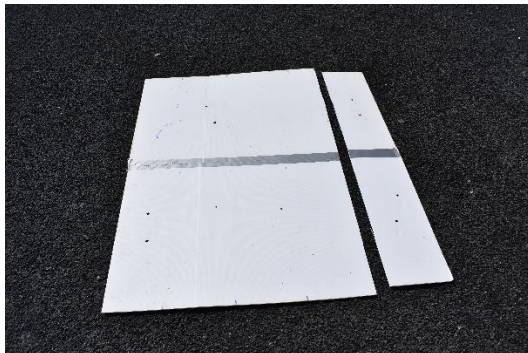
This design is for a triangular tunnel with sides of about 23cm wide about 1m long made from corrugated plastic* or cardboard. There is a removable base board holds the paper, ink and bait. Design based on that developed by researchers at Nottingham Trent University and the Mammal Society in the UK (Yarnell et al., 2014).

*Sheets of black Correx or corriboard can be bought at builder's providers or online. Or you can reuse old signs or election posters.

Materials

- 1 sheet 100cm X 100cm of corrugated plastic or cardboard (you can tape 2 sheets together if necessary)
- Stanley knife or similar sharp knife
- Duct tape or Gaffer tape
- 2 Black plastic bags.
- Masking tape
- 2 sheets of A4 plain white paper
- 8 paper clips or thumb tacks
- Jam jar lid / small dish
- Blue tack
- Black or dark colour non toxic poster paint or concentrated gel or paste food colouring.
- Vegetable oil
- Bait - cat or dog food or chopped hot dog.
- 2 tent pegs

Method

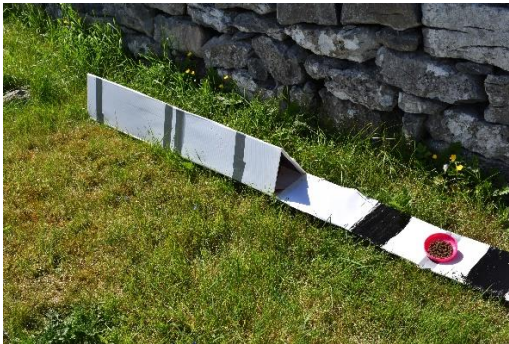


1. Use the diagram on page 7 as a guide to design your tunnel.
2. Lay your corriboard sheet flat and use a Stanley knife to cut off one strip 22cm wide to form the base board.
3. On the remaining sheet, measure out 3 x 23cm wide panels and score the length with a coin or a key to allow them to fold as indicated in the diagram below.
4. Fold the sheet into a triangular tunnel and stick down the overlap with duct tape or similar.

5. If your tunnel is made from cardboard, wrap the black plastic bags around the sides and base of the tunnel to make it waterproof and secure with tape.



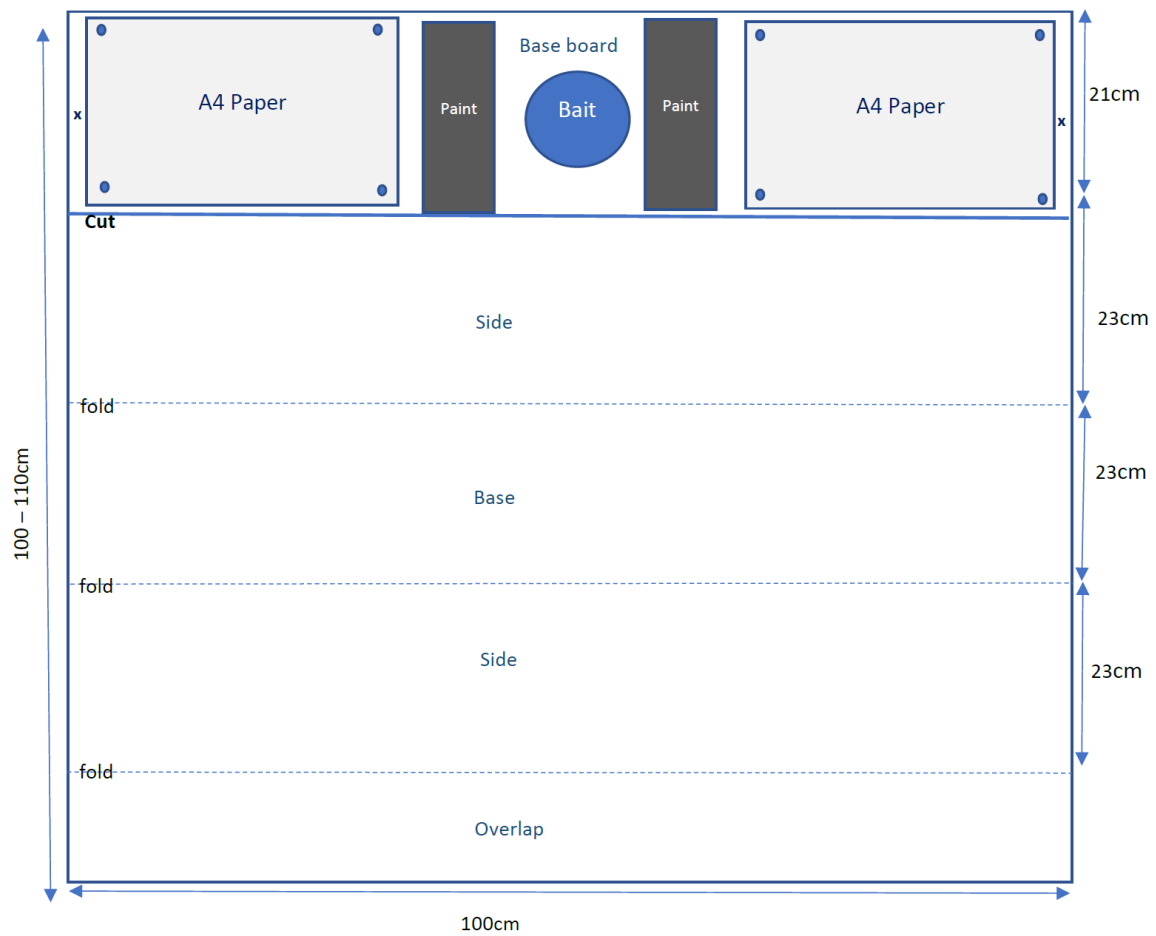
6. Use the drawing pins or paper clips to attach a sheet of paper to either end of the base board.
7. Secure the jam jar lid in the centre of the base board with the Blu-tac.
8. Attach 2 or 3 strips of masking tape across the base board either side of the jar lid to make the ink pads.
9. To make the ink:
 - a. If using poster paint, mix a small amount of vegetable oil into the paint to prevent it from drying out, but don't make it too liquid.
 - b. If using the food colour, mix together about 1 – 2 tsp of paste with enough oil to make a thick paint
10. Paint a generous coating of paint onto the masking tape.
11. Place bait in jam jar lid.



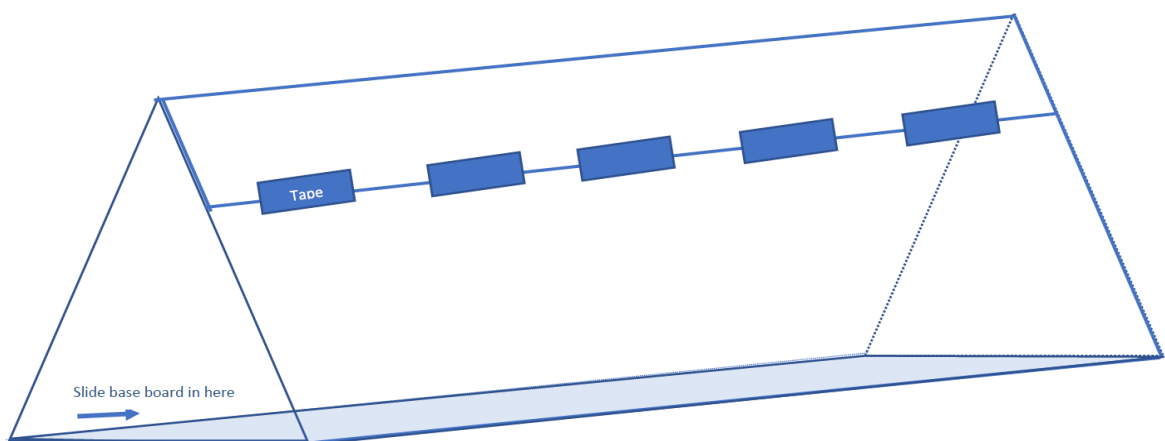
12. Slide base board into tunnel.
13. Place tunnel in survey location making sure that the entrance is flush with the ground.
14. If necessary, secure tunnel in place with tent pegs at entrance (make hole and push pegs through spot marked x on diagram).



Dimensions



Folding

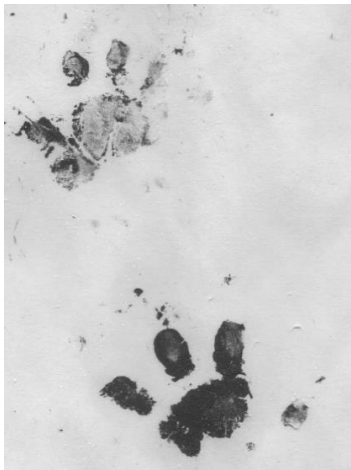


Design based on that developed by researchers at Nottingham Trent University and the Mammal Society in the UK (Yarnell et al., 2014).

Footprint Guide

The most common species you may find in your tunnel are shown here but you may find something else. Please scan or photograph your footprints and upload with the online form or email them to elaine.oriordan@nuigalway.ie. approximate

Footprints measurements are approximate. Images courtesy of London Wildlife Trust.



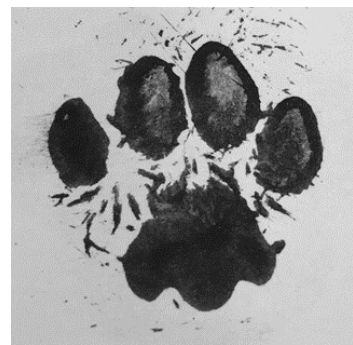
Hedgehog

W 25mm L 35mm



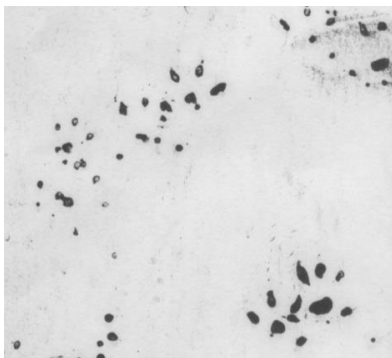
Fox

W 45mm L 50mm



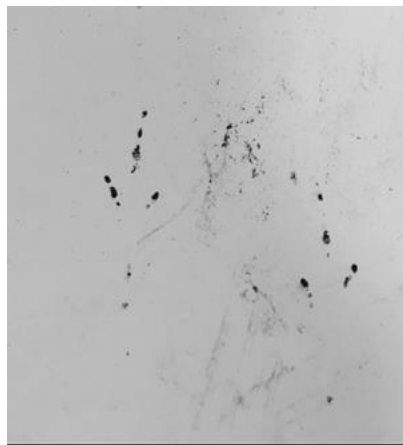
Cat

W 30mm L 30 – 35mm



Rodent (rat/mouse)

Tiny L 10-30m



Bird

Variable in size



Squirrel

W 25mm L 35mm

References

Williams, B., Mann, N., Neumann, J.L. et al. A prickly problem: developing a volunteer-friendly tool for monitoring populations of a terrestrial urban mammal, the West European hedgehog (*Erinaceus europaeus*). *Urban Ecosyst* 21, 1075–1086 (2018). <https://doi.org/10.1007/s11252-018-0795-1>

Yarnell, R. W., Pacheco, M., Williams, B., Neumann, J. L., Rymer, D. J. & Baker, P. J. (2014) Using occupancy analysis to validate the use of footprint tunnels as a method for monitoring the hedgehog *Erinaceus europaeus*. *Mammal Review*, 44(3-4), 234-238.