

## Welcome Note

Thank you for volunteering to take part in the All Ireland Daubenton's Bat Waterway Survey. We hope that you enjoy your participation whilst making a very positive contribution to bat conservation.

The All Ireland Daubenton's Bat Waterway Monitoring Scheme is a project funded by the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and Gaeltacht, Republic of Ireland and the Environmental Fund under the Northern Ireland Environment Agency (NIEA). This scheme aims to be the primary tool for monitoring Daubenton's bats in the Republic of Ireland and Northern Ireland.



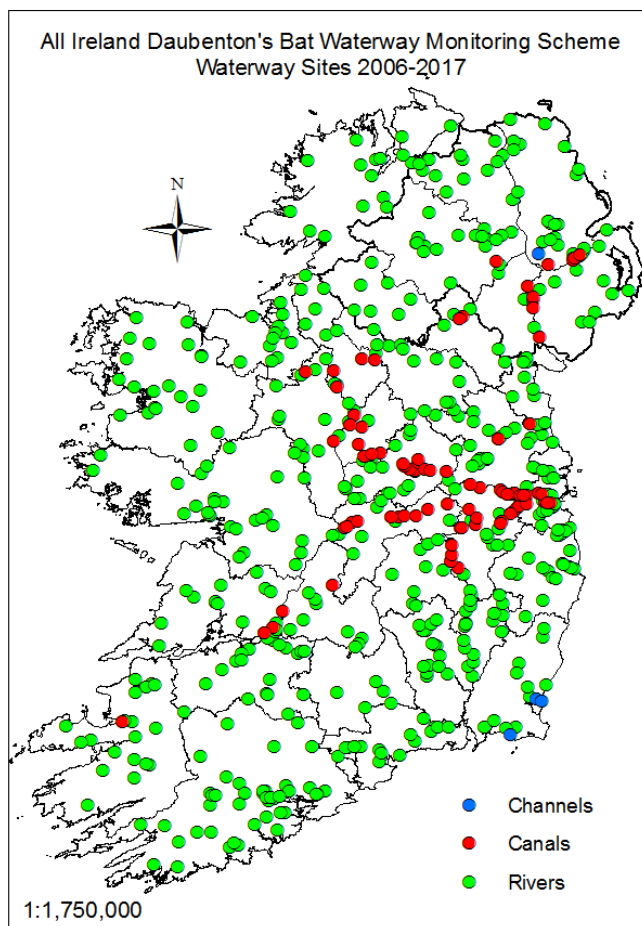
An Roinn  
Cultúir, Oidhreachta agus Gaeltachta  
Department of  
Culture, Heritage and the Gaeltacht



Department of  
**Agriculture, Environment  
and Rural Affairs**  
www.daera-ni.gov.uk

The number of waterway sites surveyed annually has increased since the scheme was first introduced. In 2006, 134 waterway sites were surveyed increasing to 252 waterway sites in 2014 and 250 in 2015. Overall, 599 waterway sites have been surveyed at least once over the twelve years of the scheme providing an excellent, robust dataset on the distribution of Daubenton's bats across the island. Ninety-three waterway sites were located in Northern Ireland while 506 waterway sites were located in the Republic of Ireland.

Yearly trend analysis results suggest that there was a decline to 2008 with numbers stabilising in 2009, 2010 and 2011 with a slight decrease in 2012, 2013 and 2014. Since 2015, an increase has been seen and therefore the population is considered to be stable. But changes are quite small relative to the width of the confidence limits and must, therefore, be treated with caution. Power analysis show that if between 150 and 200 waterway sites are surveyed each year, it should be possible to detect Red Alerts in 6 years and Amber Alerts in 10 years.



Data collected by volunteers to date have provided vital information on an array of waterway characteristics that influence the level of Daubenton's bat activity along waterways. This information is a vital contribution towards BC Ireland's recommendations for the management of waterways.

Daubenton's are more likely to be present in wider river corridors (to a max of 20m wide) and at survey spots with trees and hedgerows.

In contrast, the presence of street lights causes a reduction in Daubenton's activity.

Water quality is important. When the Q value is 3 (poor), around 20% fewer survey spots have Daubenton's bats compared to spots with a Q value of 4 (good).

BC Ireland will be further investigating these influences and, in advance, we thank you for your contribution to this.

The aim of this survey is to walk a route along a 1km stretch of river/canal. The activity of Daubenton's bats is recorded at 10 stopping points along the route on two evenings between the 1<sup>st</sup> and 31<sup>st</sup> August.

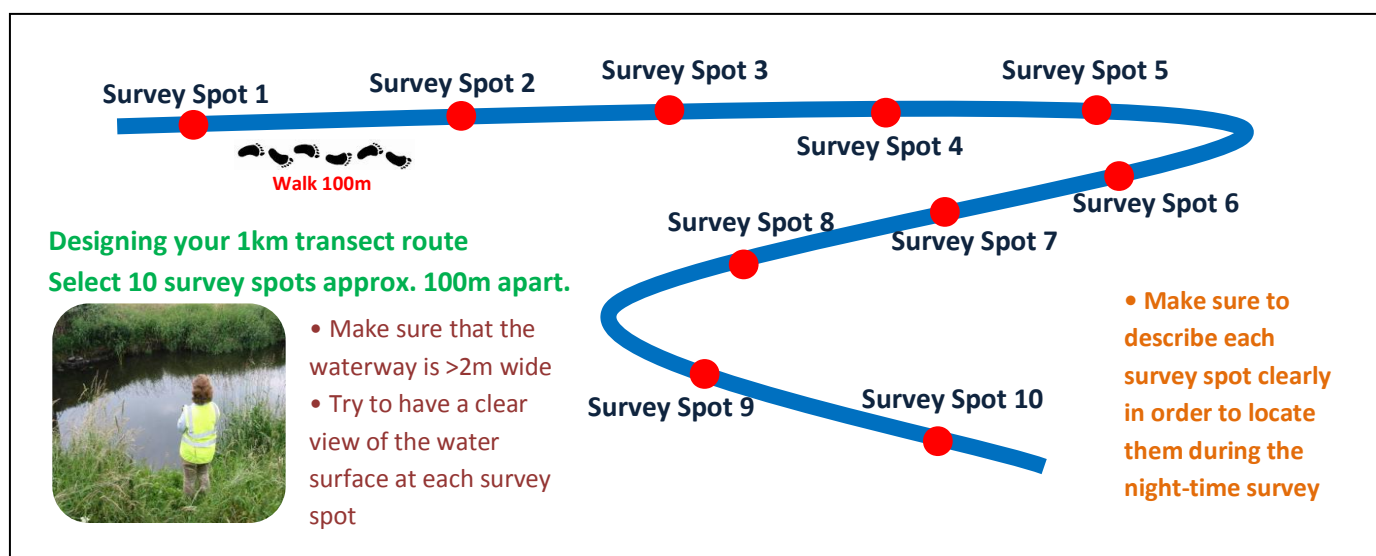
### First you will need to select your 1km transect route:

If BC Ireland assigns you potential survey sites, then you will need to check these out during the daytime to select the most **accessible, convenient and safe one**. The sites allocated will have a 10-figure grid reference which will correspond, usually, to a bridge, in order to find it easily.

- Select a stretch of river or canal on an OS map. Identify a potential route of 1km in length using the 10-digit reference point as **one** of the ten spots of the selected route.
- Visit the selected stretch of river/canal during the daytime and select an accessible site where it is safe and convenient to survey. Your chosen water body should be >2m in width.
- Select a start point that is convenient for both reaching the bank and standing to record bats. Clearly mark this as your first spot on the map.
- From this starting point walk along the river/canal, pacing out rough 100m intervals as you go. After each 100m, select the nearest point at which you can see the water-surface (Always ensure that there is at least 80m between each spot). Make a descriptive note of the survey spots for future reference on the Spot Description Form. Repeat this until you have a total of ten points or survey spots.

**NB: Do not chose survey spots that you think will be good for bats as this will bias the results, just stick to points that allow you to access the bank and to record bats conveniently and safely.**

- During your daytime walk of the route, describe a feature/landmark for each spot to help you to identify it on your return night-time visit. These features must be permanent or have a long-term presence on the waterway.
- You may have to make detours where the river bank becomes inaccessible or unsafe. This may mean that your route ends up longer than 1km, but this does not matter.
- Mark and number each spot on your map. Ensure that you make three copies of this map (Field copy, original to be filed by yourself and a third copy to be submitted with recording sheets to BC Ireland).
- Record access gates and suitable parking areas, if relevant.



If BCireland has assigned you a **WATERWAY SITE PREVIOUSLY SURVEYED**, you will be provided with a Survey Spot Description of that waterway site. You will need to check that this site out during the daytime to ensure that you can locate the Survey Spots and that the waterway site is safe and suitable.

### Landowner permission

If required, BCireland will provide a letter to be presented to the landowner to gain consent to enter his/her property. It is important that you gain permission in advance for any landowners or custodians if you are entering private property or sites with restricted access. If you are surveying such sites, please record landowner details and which section of your route that they apply to on the form provided.

### Night Time Survey

#### When to survey

Two separate evening counts should be made, one in each of the following survey periods: **1<sup>st</sup>-15<sup>th</sup> Aug and 16<sup>th</sup>-31<sup>st</sup> Aug** with at **least five days** between each survey.

#### Equipment

- |                             |                         |             |
|-----------------------------|-------------------------|-------------|
| - tuneable bat detector     | - thermometer (outdoor) | - stopwatch |
| - recording sheets/notebook | - pencil/clip board     | - rough map |
| - torch                     | - head torch            |             |

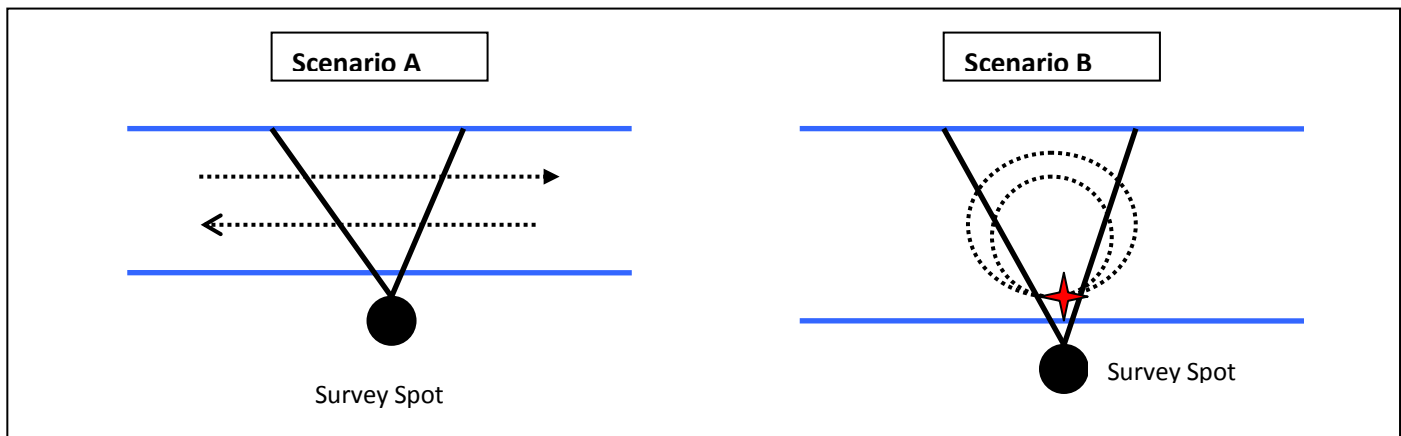
Position yourself at the starting point at 40 minutes after sunset (please refer to your sunset timetable using the nearest town/city quoted on the back of the Night Time Survey Form).

- Just prior to starting time, record the following: Time, Temperature and Weather conditions (as indicated on recording sheet).
- At each survey spot, tune your detector to **35 kHz** and simultaneously use a torch to scan the water to check whether Daubenton's bats can be seen skimming the water-surface. Do not use your torch continuously as this will discourage Daubenton's bats from travelling in vicinity of your spot.
- Daubenton's bat calls sound like a rapid click akin to machine-gun fire or marbles being dropped on a tile floor.
- Stand still and count the number of Daubenton's bat passes for a total of **4 minutes**. Record the number of passes on the survey form or in a notebook.
- If you hear a bat that you think sounds like Daubenton's, but you did not see it skimming over the water-surface, record it as an 'Unsure Daubenton's Bat'. Ignore bat passes of other species.
- At the last point, record your finish time. If you are forced to abandon the survey early, note down the location, time and reason for stopping.

### Survey Tips

- Use fresh batteries for detector
- A bat pass is a continuous stream of echolocation calls indicating a bat flying past. If constant activity is heard estimate the number of times a bat flies past.
- Detectors are directional. **For Daubenton's bats always hold the detector at 90°, pointing it across the surface of the water.**

## POINTS TO REMEMBER ON THE NIGHT OF THE SURVEY



Counting the number of 'bat passes' at each of your 'Survey Spots' is as follows:

**Scenario A:** This represents the typical straight line flights of the Daubenton's bat. A 'bat pass' is counted each time an individual bat passes through your 'Survey Spot' (as represented by the bold lines radiating from the 'Survey Spot'). Two 'bat passes' are represented here by the dashed arrows.

**Scenario B:** This represents a flight path by Daubenton's bats often seen on wide stretches of rivers. The looping (always within 30cm of the water surface) produces a continuous noise of echolocation calls on the bat detector (said to be constant activity). Therefore to count this as 'bat passes', pick a spot (as represented by the star) and count every time the individual bat passes this point as one 'bat pass'. Two 'bat passes' are represented here by the dashed circles.

### 1. Flight Pattern

REMEMBER Daubenton's bats fly within 30cm of the water surface. This will allow you to differentiate this species from other bat species foraging in the area.

### 2. Echolocation call

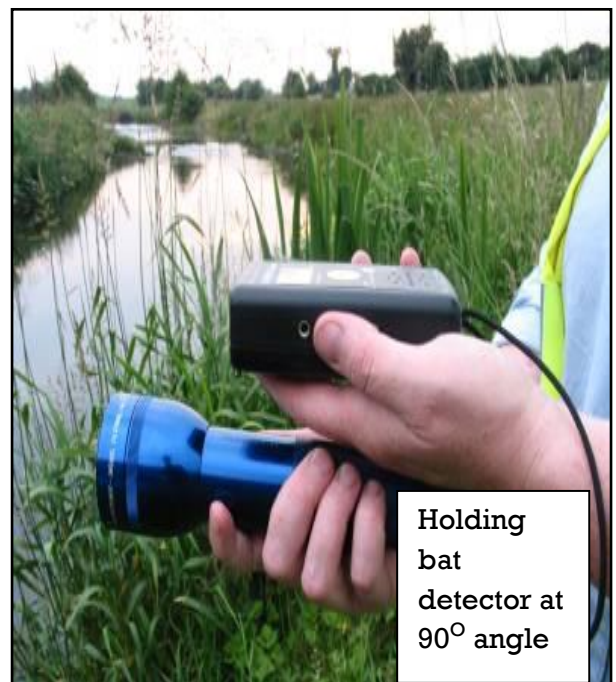
REMEMBER to listen for those RAPID DRY CLICKS (fast repetition rate and constant rhythm) when tuned to **35kHz** on your bat detector.

### 3. Start Time

Start 40 minutes after sunset.

### 4. Bat Detector and Torch

REMEMBER to gently scan your 'SURVEY SPOT' at a 45° angle. This will allow you to hear the bats travelling towards you in time to turn on your torch on in order to see Daubenton's bats flying low and through your survey area. Only count bats passing within this area.



## Health & Safety Guidelines

### Precautions to avoid injury

- Identify potential hazards in daytime and avoid during night
  - No distracting work should be carried out while walking, and good illumination should be carried at night for use when walking on uneven ground and/or in unknown areas.
  - Use head torch and pocket notepad, where possible, to keep hands free and check mobile phone coverage.
- Working alone should be avoided and no work should be undertaken where there is any significant risk, such as sites with a reputation for incidents, (e.g. where there may be a risk of personal assault).
  - Be aware of the location of the nearest house or phone so that help can be called if required. Carry a mobile phone
- Clean any cuts with clean water and cover adequately and anti-tetanus treatments should be up to date.
  - Avoid contact with water, particularly if contaminated with rats/cattle urine. Wash hands thoroughly and always before eating. If flu-like symptoms develop, inform doctor of possible exposure to Weils disease.
- When working in grassland areas where deer are present, wear long trousers and long socks. Check exposed skin for ticks. If a tick is found and flu-like symptoms develop – inform doctor
- Non-swimmers should be accompanied when walking by water and keep at safe distance from water edge.
  - Do not cross rivers unless by bridge and avoid work when risk of flooding and be aware of tides
- Check weather forecast beforehand and avoid/terminate all outdoor activity in inclement weather.
  - Ensure that waterproof and/or warm clothing is carried; hazards can increase significantly in heavy rain, strong winds and thunderstorms, especially at night.

### What to Return

- Complete Forms: Night Time Survey Form, Daytime Survey Form
- Map with 1km route and 10 survey spots marked on

Please return your completed forms/maps to:  
 Dr Tina Aughney, Bat Conservation Ireland,  
 Ulex House, Drumheel, Lisduff, Virginia,  
 County Cavan, Ireland.

