

# WADER HUB

## Local Wader Monitoring: Decision-making guidance



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### GETTING STARTED

Deciding how best to monitor your breeding waders can be daunting, but there are eight commonly used methods that are likely to be suitable for a wide range of individuals and groups.

When setting up a new wader monitoring project you should first clearly define the boundaries of your study area (the extent of the area you are interested in). This can be any size, from a single field to an entire region, but most study areas will be in between these two extremes, and might comprise a farm, farm cluster, nature reserve, or shooting estate.

Your study area is the area for which you are most interested in finding out about waders, but you should also consider the scale that is best suited to the species of interest. Waders such as Curlew can move large distances within the breeding season, so the size of your study area may determine not only the number of pairs you monitor, but what proportion of their breeding activity take place in your study area.

The next step is to ask yourself exactly what it is you wish to know about the waders that breed in your study area:

- How many pairs are attempting to breed within my study area?
- What is their breeding success? (The proportion of pairs that successfully raise young)
- What are the most important causes of breeding failure within my study area?

And often, how these change over time.

**Choosing a monitoring method:** Table 1 (overleaf) gives an overview of eight methods that will be relevant for most local individuals and groups interested in monitoring breeding waders. Using any of these methods means you can readily compare the data you gather with other projects from around the UK, maximising our potential to learn from every piece of information collected. In this document we outline each method and explain which situations you might use them. When it comes to choosing between different monitoring methods there is often no right or wrong answer, but certain methods will be better suited than others to getting you the information you need. Most projects will end up using a combination of surveys and nest monitoring.

**Liaising with landowners and land managers:** It is good practice to consult with the landowners and managers in your study area to arrange monitoring visits. This is especially important wherever you need permission to access land within your study area, but you should do it wherever you can establish contact with landowners and managers. Not only will it help to foster and maintain good relations with them and give them the opportunity to inform you and other fieldworkers about any risks you might encounter on their land, and how best to avoid or minimise these. Please follow the Countryside Code and our Health & Safety guidance ([www.bto.org/how-you-can-help/take-part-project/guidance-for-volunteer-fieldworkers](http://www.bto.org/how-you-can-help/take-part-project/guidance-for-volunteer-fieldworkers)) when undertaking any wader monitoring. You could also ask if landowners and managers would be interested in helping with monitoring. Some may be willing and able to join in with your surveys, but others may be better placed to help by keeping an eye out for waders and their nests and passing on this information to you, or by carrying out Wader Calendar surveys in areas they spend a lot of time in, or Breeding Wader Transect surveys along their regularly walked routes.

**TABLE 1.** The core methods supported by **Wader Hub**

Type	Method	Information
Breeding Wader Censuses	Three methods supported: <ol style="list-style-type: none"> <li>1. Lowland wader census O'Brien &amp; Smith (1992)</li> <li>2. Upland wader census Brown &amp; Shepherd (1993)</li> <li>3. Curlew census CRP (2022)</li> </ol> See <b>Breeding Wader Census Guidance</b> .	The most comprehensive of these methods for answering how many wader pairs are attempting to breed in a given area and can be used with caution to indicate breeding success too. It is, however, time-consuming, and best used by projects with fieldworkers who have sufficient time dedicated to completing the required survey visits across the breeding season.
Breeding Wader Transects	Two methods supported: <ol style="list-style-type: none"> <li>1. Breeding Bird Survey (BBS)</li> <li>2. Breeding Wader Transects (BWT)</li> </ol> See <b>Breeding Wader Transect Guidance</b> .	Can provide an indication of how many wader pairs are attempting to breed in a given area, and their breeding success. They are less time-consuming than census methods, and fieldworkers can complete BWT alongside work or leisure activities.
Wader Calendar	Simple weekly estimates based on incidental observations. Aimed at farmers, but open to anyone who lives/works on land that waders breed on. See <a href="http://www.bto.org/wader-calendar">www.bto.org/wader-calendar</a> .	Less structured than census and transect methods but can provide an indication of how many wader pairs are attempting to breed in an area, and their breeding success. It is more time-efficient than census methods, requiring 5-10 minutes a week once in the habit of taking mental or written notes on wader numbers and behaviour on the go.
Nest Monitoring	Supported by the national Nest Record Scheme ( <a href="http://www.bto.org/nrs">www.bto.org/nrs</a> ). See <b>Wader Nest Monitoring guidance</b> .	Most comprehensive method for measuring wader nest survival and nest outcomes in a given area. It can help determine whether nest survival is the cause of poor breeding success and highlight the potential factors contributing to nest failure.
Incidental sightings	Anyone can contribute one-off, valuable local biological records and point local groups toward unknown breeding sites by submitting sightings of breeding waders to BirdTrack ( <a href="http://www.bto.org/birdtrack">www.bto.org/birdtrack</a> ).	Provides evidence for occupancy and breeding (though unlike surveys, it cannot provide estimates of population size, i.e., how many pairs).

## SURVEYS

The most straightforward way to estimate number of pairs and provide an indication of their breeding success is using surveys. The **Breeding Wader Survey Guidance** provides general guidance on undertaking breeding wader surveys. You may conduct surveys yearly, or intermittently between years, to provide a standardised measurement of how breeding populations (relative abundance) and breeding success (relative productivity) change over time. When choosing a survey method, you should consider the questions you want to answer, the size of your study area, and the number of fieldworkers available, their availability, and experience.

### Surveys: Censuses

The most comprehensive of the survey options outlined here for estimating number of pairs in your study area is using area-based censuses. There are three commonly used methods, which all fundamentally involve standardised or timed searches of a chosen area of land and recording the waders seen or heard:

- O'Brien & Smith (1992) method for censusing lowland breeding waders: surveying all species on lowland, enclosed (fenced/walled) farmland.
- Brown & Shepherd (1993) method for censusing upland breeding waders: surveying all wader species on upland, unenclosed moorland.
- CRP (2022) method for censusing breeding Curlew: surveying sites that either only have Curlew, or where you are not interested in other wader species.

See the **Breeding Wader Census Guidance** for more details.

Bear in mind that these census methods require considerable time to complete (~60-80 minutes per km<sup>2</sup> per visit, requiring 2-4 visits per year, or more). If you are considering conducting any of these methods, it is prudent to work out how long it would take to cover your entire study area. If you can cover your study area using these methods, your whole study area becomes your survey area. You can divide your survey area into monitoring sites that are coverable in one survey visit, ensuring you visit these monitoring sites the number of times your chosen survey method recommends.

If it is not possible to cover your study area using census methods, or you do not need to know the location of every pair in your study area, you can sample the area using a sub-set of monitoring sites, creating a smaller survey area than your wider study area. Try to ensure that your sampling area is representative of the wider study area. In large study areas, this might be achieved by randomly selecting 1 km Ordinance Survey (OS) grid squares within the study area (contact [waders@bto.org](mailto:waders@bto.org) for advice on this if needed). Alternatively, you could use transects (see below) to sample your study area.

Once you have pinned down where individual pairs are nesting on early census survey visits, it can be tempting to just return to those sites, but wader detectability naturally varies between survey visits: surveyors may miss breeding attempts in early visits, and waders can move around within the breeding season, so it is best to cover your monitoring sites in full each visit. The CRP (2022) Curlew census allow you to reduce your survey area based on where you observe breeding birds as the season progresses, however O'Brien & Smith (1992) and Brown & Shepherd (1993) require full survey area coverage on all survey visits. Nevertheless, if you have only visited some monitoring sites early in the season to establish an apparent absence of breeding waders, but not after, the data from earlier visits are still valuable (and reporting absences can be just as valuable as counting breeding pairs); accurately record and report upon all survey visits completed.

### Surveys: Transects

Transects are linear routes walked by surveyors, during which they record all waders encountered. It is a good option if it is not possible to cover your entire study area using census methods, or you do not need to know the location of every pair in your study area. Provided the habitats and landscapes they sample are representative of your study area, and you can estimate the proportion of the study population that you counted. Transect surveys can give you an indication of the number of pairs in your study area as well as their breeding success. If you wanted to design a representative transect survey of a large area, you could place 1 km transects in randomly selected 1-km OS grid squares. However, if you cannot randomly select transects (e.g., they need to be easily accessible), they can still provide an indication of trends over time.

The two most useful methods for sampling an area using transects are:

- Breeding Bird Survey (BBS) ([www.bto.org/bbs](http://www.bto.org/bbs)): this survey method is applicable to terrestrial breeding birds, but you can conduct similar surveys focussed exclusively on waders. This will make it straightforward to directly compare your findings with BBS estimates and trends for the relevant country, region or habitat. However, for small sites with few transects, estimates of abundance and change from BBS-style surveys will be 'noisy' (i.e., have an elevated level of uncertainty).
- Breeding Wader Transects (BWT) ([www.bto.org/breeding-wader-transects](http://www.bto.org/breeding-wader-transects)): these could be a good choice for situations where fieldwork must fit around busy schedules.

See the **Breeding Wader Transect Guidance** for more details on both transect methods. As with the census methods, it is prudent to work out how long the transects you plan to survey will take, so you can make sure that you have the time and fieldworkers to conduct the fieldwork.

### Surveys: Wader Calendar

The Wader Calendar ([www.bto.org/wader-calendar](http://www.bto.org/wader-calendar)) is a quick and easy method for individuals who work or live in an area where waders breed. Each week, surveyor(s) estimate the maximum number of waders detected in the survey area, whether a single field or a whole farm, along with key information about their behaviour. The method is less rigorous than structured censuses or transects, but if participants put similar effort into their weekly counts, they can get useful information on changes in abundance over time, and even an indication of breeding success. It is a good option for farmers and other stakeholders who have little time to undertake full surveys, but who can record what they see and hear as they undertake work on their farms.

## NEST MONITORING

If you wish to collect more detailed information about nest survival, nest outcomes, and causes of nest failure, you may want to find and monitor individual pairs and nests; see Wader Nest Monitoring Guidance. Wader nests take time, effort and patience to find, but with practice it gets easier. Spending time in the field with more experienced nest-finders can be very helpful.

Once you have found a nest, you can monitor its progress by making intermittent visits to collect information about it. You can also use nest cameras and temperature loggers to provide more information about the outcomes of the nests you monitor - this is especially useful if you wish to identify the causes of nest failure or determine the main nest predator species.

## INCIDENTAL SIGHTINGS

Anyone can provide scientifically valuable records of wader sightings using BirdTrack. BirdTrack is a free and convenient way of storing your bird sightings online or using the app. BirdTrack also lets you keep up to date with what others are seeing, view the latest trends, and contribute your data to BTO science.

To participate in BirdTrack you just need to do the following:

- Go to the BirdTrack website and register an account. If you have taken part in any other online survey organised by the BTO then please use your existing username and password.
- Then either:
  1. Add one-off sightings as and when you want; or
  2. Enter the location of your chosen site(s) or select from a popular site, enter the date and time of your visit and the site you visited, and record the species you saw or heard on your visit.

## OTHER NATIONAL MONITORING SCHEMES TO BE AWARE OF

### Ringling Scheme

Bird ringling ([www.bto.org/our-science/projects/bird-ringing-scheme](http://www.bto.org/our-science/projects/bird-ringing-scheme)) generates information on the survival, productivity, and movements of birds, helping us to understand why populations are changing. It has been instrumental in identifying the demographic drivers of our declining wader populations (i.e., poor breeding success).

Ringling waders on their breeding grounds is especially valuable, particularly when ringers colour-mark them (allowing re-sighting without the need for re-capture). For waders, Retrapping Adults for Survival (RAS) projects provide much-needed rigorous information on annual survival trends. Changes in adult survival can have big impacts on wader population change as they generally live a relatively long time and have low productivity. Unfortunately, there are very few wader RAS projects in the UK due to the difficulty of catching and ringling the required number of adults. For a successful RAS project, ringers and local individuals aim to re-encounter (catch or resight) 30-50 individual adult birds of a single species in a study area during the breeding season. The study area should be well-defined with the adults in the area having the same chance of being caught or re-sighted every year.

Only licenced ringers, with relevant permit endorsements, can ring waders. Consider contacting local ringling groups to discuss the use of ringling within your study area. Contact [waders@bto.org](mailto:waders@bto.org) if you cannot find local ringling groups by searching online.

### Breeding Bird Survey (BBS)

The national, official set of stratified-random Breeding Bird Survey (BBS) squares that thousands of volunteers cover each year has been instrumental in informing wader conservation decision-making. If you can identify all bird species encountered in your region in the spring and summer, please check whether there are any BBS squares in your study area, and whether they have been allocated to a volunteer. If they have not, you could take on a square within your study area, with the option of completing an additional BBS Breeding Wader visit if your square contains breeding waders.

### Breeding Waders of Wet Meadows (BWWM)

Breeding Waders of Wet Meadows (BWWM) (<https://www.bto.org/our-science/projects/breeding-waders-wet-meadows>) is a large-scale, intermittent survey to help monitor long-term population changes of our lowland breeding waders in England and Wales. The survey has taken place in 1982, 2002 surveys, partially in 2009-10, and again in 2021-2022. The purpose of this survey is to assess the importance of both existing and new lowland wet grassland and other breeding wader habitats in England (as provided by agri-environment schemes) for declining breeding birds such as Curlew, Lapwing, Redshank and Snipe.

### Wader Map

The Wader Map (<https://app.bto.org/wader-map/index.jsp>) is home to the most accurate maps of breeding wader abundance for nine breeding wader species. If you, or a local group or project you are part of are doing anything to help monitor or conserve breeding waders, you can also add your details to the Wader Map and see if there are any local wader projects you can collaborate with or seek advice or support from (there is a contact form for each project that have indicated they are happy to be contacted via the Wader Map).

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