

# WADER HUB

## Breeding Wader Survey Guidance



Curlew, by Geoff Carr / BTO

### SURVEY BASICS

Fundamentally, your safety and conduct when undertaking surveys is your own responsibility. Please see our guidance for volunteer fieldworkers ([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)) for further guidance on survey access, health & safety, and safeguarding before undertaking any surveys. For your safety and others, it is crucial to maintain a good relationship with the landowners and managers where you are undertaking surveys; contact and consult with them on what conditions they have for accessing their land and stick to these carefully.

#### Essential equipment:

- **Survey maps** or relevant recording forms (pen and paper, or electronic).
- Binoculars (8–10x magnification).

#### Helpful equipment:

- Compass.
- GPS device or smartphone with GPS capabilities.
- Water- and wind-proof clipboard.

Breeding wader surveys involve the surveyor completing a route (and/or watching from vantage points) that allows them to search a well-defined **monitoring site**, and note the following key information for each wader observation:

- Species.
- Count.
- Location – ideally mapped accurately, but at least field/km<sup>2</sup> bird first observed in.
- Behaviour.
- Presence of nests or chicks.

And the following, where possible:

- Age.
- Sex.
- Movements made during the observation.

Most surveyors still complete wader surveys using pen and paper **survey cover sheets** and **maps**. Using the standard symbology outlined below can save space on **survey maps**, whilst still representing the key information you may observe on surveys.

(cont)

You can represent **species** on survey maps using two-letter codes (Table 1).

**TABLE 1. Two-letter species codes for many breeding wader species in the UK.**

Species	Code	Species	Code
Avocet	AV	Lapwing	L.
Common Sandpiper	CS	Little Ringed Plover	LP
Curlew	CU	Oystercatcher	OC
Dunlin	DN	Redshank	RK
Dotterel	DO	Ringed Plover	RP
Golden Plover	GP	Snipe	SN
Greenshank	GK	Woodcock	WK

**You can add a count** to your species observations by adding a number before the two-letter code, e.g. **2CU** would mean you have observed **two Curlews together**. This can extend to any number to indicate flock-size when observing multiple waders together.

You can represent **key behaviours or the presence of nests or young** using additional symbols that you can combine with two-letter species codes. Most wader behaviours observed on surveys are display/'song' (in spring and early summer) and repeated alarm-calling/agitation (in late spring and summer). Please see the **Wader Survey Behaviour Guide** for guidance on recognising key wader behaviours. Using the **core** symbols in **Table 2** is a straightforward way to capture most relevant behaviours and the presence of nests or chicks. **Figure 2** (at the end of this document) shows the full range of **advanced** wader survey symbols, which allows the representation of a wider range of (but less common) behaviours.

**TABLE 2. Core symbols representing the most common breeding wader survey observations.**

	Observation	Survey map symbol	Most observed
Signs waders are attempting to breed	Bird displaying /'singing'	ⒸU	In spring or early summer
	Nest found or bird observed on nest	*CU or *CU on	
Signs waders are rearing chicks	Intensely and persistently alarm-calling		In late spring and summer
	Reluctance to leave the area		
	Flying toward/circling the observer/predators	<u>CU</u>	
	Distraction (e.g., 'broken wing') display		
	Short 'flushing' distances		
	Parent bird directly observed with chicks	CU + juv(no of chicks), e.g., CU + juv(2)	

(cont)

**Wader flight movements** can be represented combining the above symbols with lines and arrows, a bird only observed in flight can be represented  $\rightarrow\text{CU}\rightarrow$ , on the ground then taking off in flight  $\text{CU}\rightarrow$ , and in flight then landing on the ground as  $\rightarrow\text{CU}$ . Movements of one bird flying from one location and landing in another can be indicated as  $\text{CU}\rightarrow\text{CU}$ .

**When two birds are behaving as a pair**, you can record them using male/female symbol  $\text{CU}\text{♂}\text{♀}$  (e.g.  $\text{CU}\text{♂}\text{♀}$  = two Curlews, apparently a pair). Likewise, if it is possible to sex a wader you have observed, please use male  $\text{♂}$  and female  $\text{♀}$  symbols (e.g.,  $\text{L}\text{♂}$  = a male Lapwing). You can combine these with numbers, too (e.g.,  $2\text{CU}\text{♂}\text{♀}$  = two Curlew pairs, four birds in total).

You can represent **simultaneous observations** of two different birds, pairs, or flocks using dashed lines (i.e.  $\text{CU}\text{-----}\text{CU}$ ). This is important for later interpretation of your survey maps, as it indicates they were definitely not the same birds double-counted. Please try to **avoid double-counting/mapping** waders in general (the same birds may move within and between fields and monitoring sites). It can be helpful to watch territorial or flushed birds for as long as possible to help judge whether a subsequent sighting in the same area could be the same or a different bird. For certain species (e.g. Lapwing and Golden Plover), it can be helpful to note, grade and sketch the pattern of plumage on the belly/breast as this can help distinguish individuals. You should treat subsequent sightings as the same bird unless there is evidence of it being a different individual.

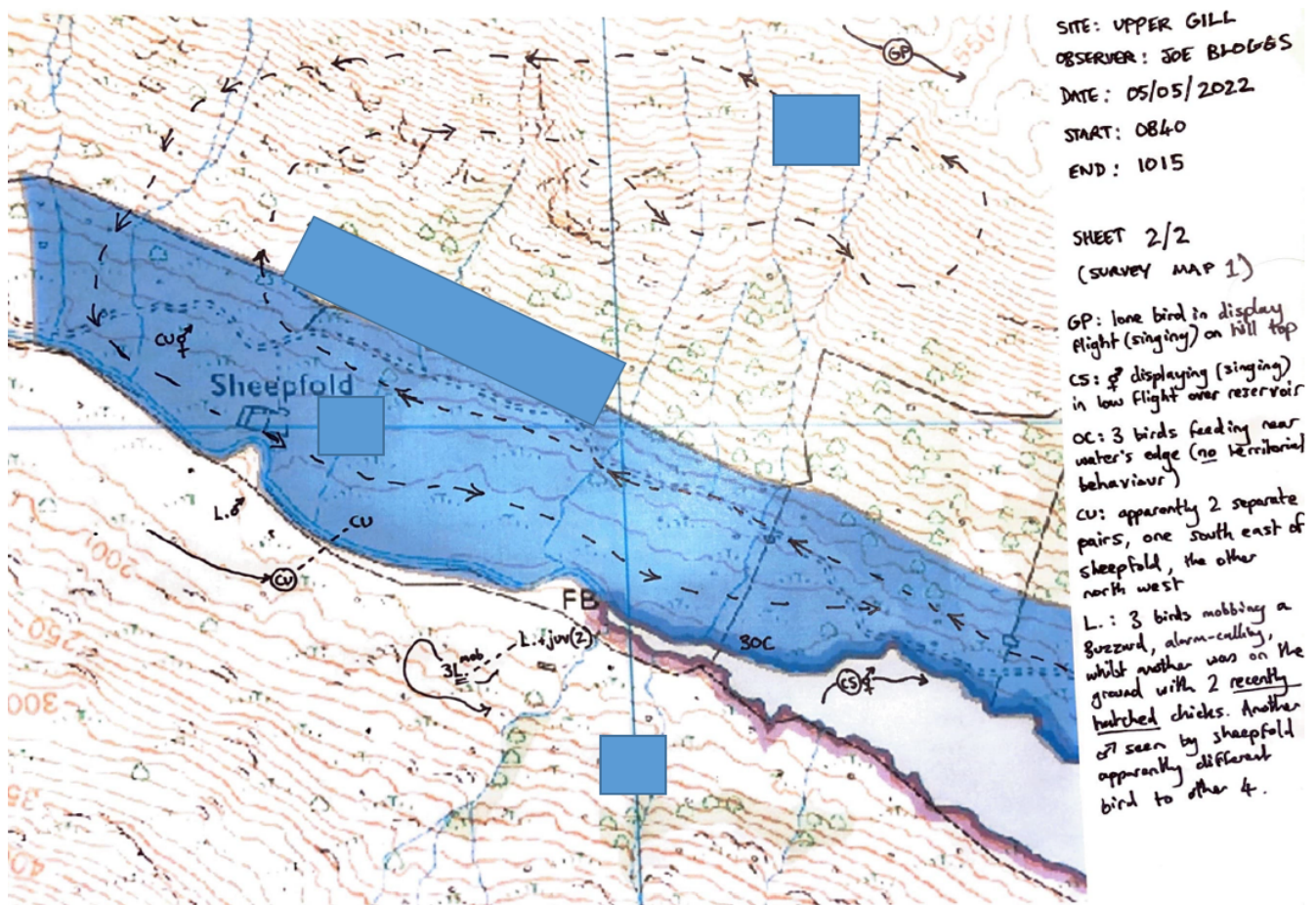
In practice avoiding double-counting can be difficult, but just do your best (surveys are not exact counts and inaccuracies should be consistent across sites); it is more accurate for you to make this call than whoever interprets your observations.

It is helpful to show **the route you took** on your survey maps using a dashed line interspersed with arrows to show the direction you took (i.e.  $\rightarrow\rightarrow\rightarrow\rightarrow\rightarrow\rightarrow$ ).

Finally, it is important to write as many notes detailing what you have observed on your survey cover sheet and maps as possible. This can be crucial for when others may need to interpret your survey maps.

All these symbols can be combined to create an accurate representation of what you saw and heard during your survey, as in the example below (Figure 1).

**FIGURE 1.** Example survey map displaying use of wader survey symbology and accompanying notes to accurately represent survey observations.



## 2. MONITORING SITES

Each year, it is important to divide the entire area you wish to survey (your survey area) into monitoring sites, which are manageable to cover in one survey visit. The nature of monitoring sites depends on the survey method chosen:

- Census methods: monitoring sites are contiguous (one joined-up area) sections of your total survey area.
- Breeding Bird Survey (BBS): monitoring sites are the 1 km Ordnance Survey (OS) grid squares you have chosen to cover, and the transects you have chosen that intersect that 1 km grid square.
- Breeding Wader Transects: monitoring sites are the transects you have chosen.

Each monitoring site is what you will visit using your survey methods during a survey visit (recording start and end times for each survey visit).

For census surveys, it is helpful to further divide your monitoring sites into parcels. For enclosed (fields surrounded by fences, walls or hedgerows) survey areas, field boundaries are the most useful way to create parcels, but in unenclosed survey areas, 1 km OS grid squares are the most useful way to create parcels. Whilst you should provide summary visit and wader information at the monitoring site level, please ensure that you record wader observations at least at the parcel level.

## 3. SURVEY METHODS

It is important to stick to the methodology of your selected survey as closely as possible (deviation can affect your wader counts, and so resulting pair estimates), even if it is not clear in your mind why a method stipulates something. However, in practice factors may deviate from what your chosen method recommends, especially:

- Visit dates and times (outside recommended ranges).
- Visit number (fewer than recommended).
- Weather conditions (outside recommended conditions).

Do not worry if that does happen, your data will still be useful. The most important thing is to honestly report date, time, and weather so wherever the data are used it is possible to account for what effect this may have had. See **Breeding Wader Census Guidance** and **Breeding Wader Transect Guidance** for more detailed information on survey methodologies.

## 4. SURVEY DATA ENTRY

You can download template survey cover sheets from the Wader Hub webpages to use on surveys in combination with your survey maps to capture core information from each survey method supported by the Wader Hub; please use these with your survey maps to record your visit information and wader observations (raw data) in the field.

Usually, summary data is the key information you need to submit from your wader surveys; this is the totals provided on your survey cover sheet. You can submit your summary data from any survey method supported to the Wader Hub. See **Breeding Wader Census Guidance** and **Breeding Wader Transect Guidance** for more details on data entry.

### 4.1. Data Entry Options:

- Data Entry Spreadsheets: visit [www.bto.org/wader-hub](http://www.bto.org/wader-hub) to download the relevant spreadsheet for your chosen survey method. Please complete your spreadsheet and email it to [waders@bto.org](mailto:waders@bto.org).
- Paper Return: email [waders@bto.org](mailto:waders@bto.org), attaching your survey cover sheets and survey maps, to submit survey data by paper.

We are still in the early stages of establishing the Wader Hub; at this stage by submitting data, you would be helping to develop a universal data entry system to start protecting wader populations monitored by local individuals and groups (by representing these data at a national level) and beginning to investigate demographic patterns and trends across the UK, to inform conservation decision-making. With further development, we hope to provide greater levels of support to local individuals and groups to interpret and report upon the results of their survey data.



**TABLE 2. Example Full table of core symbols for representing key wader behaviours (middle column), as well as more advanced symbology allowing the capture of a more detailed (but less common) array of behaviours on survey maps (right column). Capturing core information alone is adequate (and will cover most behavioural observations made on surveys), but please use advanced symbology where possible.**

Information	Core behaviour	Core symbology	Example	Advanced behaviour	Advanced symbology	Example
No breeding evidence	No display/alarm	Two-letter code, no associated symbology	CU	No display/alarm	Two-letter code, no symbology	CU
	Display/song'	Two-letter code, circled		Calling	Two-letter code, single underlined	<u>CU</u>
Indicating attempted breeding	Display/song'	Two-letter code, circled		Display/song'	Two-letter code circled	
	Active nest or bird observed on active nest	Asterisk then two-letter code, followed by lowercase 'on' if parent on nest	*CU	Pair	Two-letter code with male/female symbol	CU♂ CU♀
	Repeated alarm-calling	Two-letter code, double underlined	<u><u>CU</u></u>	Territorial dispute between same species	Circled with vertical lines. (=two birds in total, no need to add count)	
	Adult observed with chicks	Two-letter code + juv(no. chicks)	CU+juv(3)	Active nest	Asterisk then two-letter code	*CU
	Indicating chick-rearing stage	Two-letter code + juv(no. chicks)	CU+juv(3)	Adult on active nest	Asterisk then two-letter code, followed by lowercase 'on'	*CU on
Indicating chick-rearing stage	Repeated alarm-calling	Two-letter code, double underlined	<u><u>CU</u></u>	Copulation	Superscript 'cop'	CU <sup>cop</sup>
	Adult observed with chicks	Two-letter code + juv(no. chicks)	CU+juv(3)	Feeding distraction display	Superscript 'fdist'	CU <sup>fdist</sup>
	Adult observed with chicks	Two-letter code + juv(no. chicks)	CU+juv(3)	Repeated alarm-calling	Two-letter code, double underlined	<u><u>CU</u></u>
	Adult 'mobbing'	Two-letter code + juv(no. chicks)	CU+juv(3)	Adult observed with chicks	Two-letter code + juv(no. chicks)	CU+juv(3)
	'Broken-wing' distraction display	Two-letter code + juv(no. chicks)	CU+juv(3)	Adult 'mobbing'	Superscript 'mob'	CU <sup>mob</sup>
				'Broken-wing' distraction display	Superscript 'bdist'	CU <sup>bdist</sup>