



# Wetland Birds Breeding Survey Volunteer Handbook

Greater Manchester Ecology Unit

September 2019



**Funding raised by  
The National Lottery**  
and awarded by the Heritage Lottery Fund



# Wetland Birds Breeding Survey Volunteer Handbook

## Carbon Landscape Citizen Science Project

### *Contact us*

Please contact the Greater Manchester Ecology Unit (GMEU) if you have any questions with regard to this survey handbook.

Greater Manchester Ecology Unit  
Dukinfield Town Hall  
King Street  
Dukinfield  
SK16 4LA  
0161 342 4121  
[carbonlandscape@gmwildlife.org.uk](mailto:carbonlandscape@gmwildlife.org.uk)

*Document version: 26-09-2019*

*Cover photo courtesy of Adrian Dancy ©*

# Contents

Introduction.....	4
Survey Preparations.....	5
Site selection .....	5
Submitting your survey data.....	5
Land owner permission .....	6
Survey timings.....	6
General equipment list.....	7
Health and safety .....	8
Biosecurity .....	9
Wetland birds breeding survey methodology.....	10
Target Species.....	10
Number and timing of surveys.....	11
Time of day.....	11
Weather .....	11
Survey route.....	11
Adult Wildfowl Population Count (April to June).....	12
Recording the locations of wildfowl.....	12
Wildfowl Broods Count (June and July) Adults with young .....	13
Breeding Wetland Birds - Other Species Survey (April to July) .....	15
Breeding Evidence Codes.....	16
Wildfowl Population Survey Analysis (optional) .....	18
References .....	18
Appendix.....	19
Grid references .....	19

# Introduction

Thank you for volunteering to take part in the Carbon Landscape's Citizen Science Project to monitor key species through structured surveillance. The project's boundary, [view map: [https://gmwildlife.org.uk/mapapp/?project=carbon\\_landscape](https://gmwildlife.org.uk/mapapp/?project=carbon_landscape)] encloses the core of the Great Manchester Wetlands Nature Improvement Area (NIA) which supports a host of European and UK protected species, as well as UK Biodiversity Priority Species, all dependent on the mossland and wetland habitats which the project will enhance and restore.

The project will build on the existing survey work being undertaken and will also recruit and train new recorders, our Citizen Scientists. It aims to significantly increase survey coverage of target species, across the key habitat restoration areas, and the wider Carbon Landscape. The surveys have been designed with the help of specialist county and vice-county recorders who between them have a wealth of experience in species monitoring in the North-west of England.

The survey methods are structured and repeatable allowing valuable data to be collected, not only during the three year lifetime of the project, but well into the future. Biological datasets are of most value when collected over a long time span. Monitoring the abundance and distribution of the target species is an important mechanism for measuring the success of the habitat works on the ground and changes to the landscape over time.

The robust data collected from the project's surveys and the subsequent survey effort will be used to monitor sites over time, allowing the success of habitat management works to be assessed and to influence future sustainable management. This will be of particular benefit to those owning or managing land within the Carbon Landscape, whilst providing ecologists and conservationists with biological data that can be analysed at landscape scale. This project will provide important insights into the factors influencing abundance and distribution and will be used to support future species conservation work.

Your contribution as a Citizen Scientist to the Carbon Landscape Project is greatly valued.

# Survey Preparations

## Site selection

To check which sites are currently available, and to reserve an allocation for yourself, visit the project website, [https://gmwildlife.org.uk/carbon\\_landscape/survey\\_squares/](https://gmwildlife.org.uk/carbon_landscape/survey_squares/). You have to create an account, and log in, to be able to request a survey allocation.

## Submitting your survey data

When carrying out your survey, please enter your data onto the paper field survey forms provided. Your data should ideally be submitted to GMEU as soon as possible after each survey visit. All data for this survey is submitted through the project website, <https://gmwildlife.org.uk/user/surveys/>. Alternatively survey forms can be scanned and emailed to [carbonlandscape@gmwildlife.org.uk](mailto:carbonlandscape@gmwildlife.org.uk) or posted to GMEU. If sending by post, please ensure you retain a copy of your data as a backup.

## Land owner permission

Landowners' permission for access onto private land where there are no public rights of way must be obtained. If you are unsure if you have permission to walk on land please check with GMEU.

You will be issued with a letter that briefly explains that you require access to carry out ecological surveys and advising that you request the landowner to contact GMEU should they require additional information. We rely very much on the good will of farmers and landowners.

## Survey timings

The Carbon Landscape Project surveys should be carried out at the specified time of year which varies depending on the target species or taxonomic group. The surveys have been designed so that they can be completed by one or a number of different volunteers over a year. The survey methodologies and dates are based on current national surveys which will allow the direct comparison of the results.

# General equipment list

Some of the surveys require specialist equipment, details of which can be found later in the individual survey methodology, However, there are a number of items that should be taken on every survey: -

- Survey route map
- Field survey form
- Clipboard, recording form and 2B pencil
- Waterproof clothing
- Sturdy walking boots
- First aid kit
- Whistle
- Compass
- Camera (may be useful)
- Mobile phone, in case of emergency (do not rely on smart phones for navigation)
- Warm clothing (if required)
- Insect repellent (if required)
- Suntan lotion (recommended)
- Food and drink (if required)

## Optional equipment

- Global positioning system (GPS), available to loan from GMEU

## Health and safety

We want you to remain safe. Before any survey is attempted, the route should be pre-walked and any potential risk assessed. Listed below are a wide variety of general hazards that you might encounter when working in the field along with precautions to reduce the risks: -

<i>Example risk</i>	<i>Example precautions</i>
<i>Undulating / rough terrain and steep slopes</i>	<i>Select appropriate footpath / route. Wear appropriate footwear with good soles and ankle support.</i>
<i>Weather</i>	<i>Ensure you are aware of the forecast prior to your survey. This is of particular importance in the winter or when visiting remote areas.</i>
<i>Dense vegetation</i>	<i>Hazards such as holes, burrows, tree stumps or fencing may be obscured. Work with care in such conditions.</i>
<i>Protruding stems</i>	<i>Take care when bending to survey vegetation to avoid injuries to eyes.</i>
<i>Streams and rivers</i>	<i>Cross streams or rivers only by footbridges or other purposely built structures. Avoid any structures that appear damaged or poorly maintained.</i>
<i>Poorly maintained footpaths, stiles, etc.</i>	<i>Avoid these if possible and report to the appropriate agencies.</i>
<i>Lone working</i>	<i>Conduct survey work in pairs whenever possible</i>
<i>Secluded sites</i>	<i>If in doubt err on the side of caution and do not walk alone. Inform another person of where you are going, your route and estimated time of return and arrange for them to contact the authorities if you do not contact them to say you have arrived back safely.</i>
<i>'People' Hazards - might include poachers, strangers in isolated sites, irate owner/occupier, people with dangerous dogs, etc.</i>	<i>Exercise good judgement and assess the situation. Avoid confrontation and withdraw if threatened. Record any incident and inform the appropriate authorities. Carry a mobile phone. Operate lone working system and if in doubt do not work alone.</i>
<i>Farm animals</i>	<i>Heed any warning signage and avoid entering fields containing dangerous livestock.</i>
<i>People with firearms</i>	<i>If shooting is legal make yourself known audibly and visibly. If illegal, withdraw and report to the authorities.</i>
<i>Railways</i>	<i>NO fieldwork on active railways.</i>
<i>Hypothermia</i>	<i>Wear appropriate warm and waterproof clothing. Carry extra clothing and high energy food (e.g. chocolate).</i>

# Biosecurity

In the wake of the recent ash die back emergency, the Forestry Commission have updated their biosecurity guidance and produced a 13 page booklet on the subject. It is recommended that this is downloaded and read at

[http://www.forestry.gov.uk/pdf/FC\\_Biosecurity\\_Guidance.pdf/\\$file/FC\\_Biosecurity\\_Guidance.pdf](http://www.forestry.gov.uk/pdf/FC_Biosecurity_Guidance.pdf/$file/FC_Biosecurity_Guidance.pdf).

For low risk biosecurity control, ensure that footwear is clean prior to the visit (visually free from loose soil and plant debris). If necessary, brush or wash in soapy water before visit. Keep vehicular access to a minimum, where practicable, keep to established hard tracks. Clean accumulated mud from vehicles. Observe signage at sites and follow any site specific biosecurity instructions.

Where a damaging tree pest is known or suspected to be present and there is a risk of spreading the pest further, a higher level of biosecurity control will be needed. Please refer to the above document. Higher level controls will be required if the site is under animal health control, for example foot and mouth disease.

# Wetland birds breeding survey methodology

This survey consists of three components which can be combined on monthly visits between April and July:

Survey Type	Survey Frequency/Period
Habitat survey/recce visit	March / April
Adult wildfowl population count	Monthly survey April to June
Wildfowl broods count	June and July
Breeding evidence survey - other wetland birds & gulls / terns count	Monthly survey April to July

## Target Species

The main focus of this survey is to monitor five species of dabbling and diving ducks during the breeding season:

- Gadwall                      Amber-listed - Birds of Conservation Concern 4
- Pochard                      Rare Breeding Birds Panel species / Red-listed BoCC4
- Shoveler                      Rare Breeding Birds Panel species / Amber-listed BoCC4
- Teal                              Amber-listed - Birds of Conservation Concern 4
- Tufted Duck                      Green-listed - Birds of Conservation Concern 4

However other breeding wetland birds (see recording form for species list) may also be recorded whilst carrying out the wildfowl surveys. The data collected will allow an accurate estimate to be made of the number of breeding pairs of each species at a site, the number of broods hatched and their fledging success, known as productivity. It will also allow for comparisons between sites which will be useful for habitat management purposes.

## Number and timing of surveys

Make four visits, about one month apart, early to mid-April, early to mid-May, early to mid-June and early to mid-July.

## Time of day

Make an early start from 6am onwards to ensure surveys are completed by 10:00 hrs BST.

## Weather

Do not survey when visibility is poor, or in high winds when large water bodies will be very choppy.

## Survey route

Walk around the edge of the water body, keeping as close as is safely possible to suitable nesting habitat such as ditches, small bays and reedbeds, whilst avoiding disturbance to nesting birds. Where this isn't possible use a series of vantage points around the site to scan reedbeds for nesting birds and open water for loafing and diving ducks.

Mark your survey route and vantage points on the map provided so this can be repeated in the future by another recorder. Reverse the direction of your route on the second visit to avoid recording the same area at the same time of day. On the third visit revert back to the direction used on the first survey etc. Ensure the same route is surveyed from year to year to permit comparison of results.

## Adult Wildfowl Population Count (April to June)

Only the target species which meet the following criteria should be recorded as breeding:

- Any pair - one pair record as 1P, two pairs as 2P etc.
- Any lone male - record as 1♂
- Any lone female - record as 1♀
- 2-4 males chasing 2-4 females in flight - record as (2♂ ↗ 2♀) etc.
- Groups of 2-4 males - record as 2♂, 3♂ or 4♂

**Discount** groups of five or more ducks which for the purposes of the survey are considered to be non-breeding. From June onwards numbers of some species, such as Gadwall, will increase as ducks assemble to moult into eclipse plumage.

From each view point, scan slowly across the water and record the wildfowl as they are seen i.e. individually, in pairs, or in small groups. Do not lump together individuals, pairs and groups as this will confuse the analysis.

### *Recording the locations of wildfowl*

It is recommended to divide the site up into compartments, and mark these on a large scale map using the letters of the alphabet e.g. a, b, c, d, e, f etc. Enter your observations either onto a large scale map, directly onto the Carbon Landscape Breeding Wetland Bird Survey field recording sheet provided, or alternatively use a notebook, cross-referencing the wildfowl observed to the locations.

If using a notebook ensure the key information is recorded to enable you to complete the field recording sheet and input your data online. Where the same area of water or reedbed is visible from more than one view point, it is important to identify boundary markers between compartments to avoid double-counting the same birds. Make a note of these on the map for future reference. Use a new map and field recording sheet for each visit.

If using the recording sheet, enter each individual, pair or group seen, even if the species is the same, on a separate row (see example below). This will enable the online survey form to automatically apply pair counts (and the appropriate code) to each individual and group recorded.

<i>Species (code)</i>	<i>*Location</i>	<i>Adults only (April-June)</i>	
		<i>Singles (m/f)</i>	<i>Pairs (P)</i>
	Cpt or grid ref		
GA	A SJ 6425 9925	2m, 1f	
GA	A SJ 6425 9925		3p
TU	A SJ 6425 9925	1♀	
SV	A SJ 6425 9925	(2♂➤ 2♀)	

See the **Analysis** section at the end of this document on how to interpret your results and estimate the number of breeding pairs from the wildfowl observed.

## Wildfowl Broods Count (June and July) Adults with young

The visits in June and July are the best time in the breeding season to monitor the number of broods which tend to be more detectable than nests which are often hidden from view in marginal vegetation and reedbeds. Use the same survey area and route as the population survey. Record the presence of any adults (males, females or pairs), the number of young and the approximate size. Allocate a number to each brood e.g. GA (B1) and record the location on your survey map. Alternatively, if using the recording form use a separate line for each brood (see example below).

<i>Species (code)</i>	<i>*Location</i>	<i>Adults</i>	<i>Young</i>	
	<i>Cpt or grid ref</i>	<i>m/f with broods</i>	<i>Broods (no. of young/size)</i>	<i>Comments</i>
GA	A SJ 6425 9925	1f		
GA	B SJ 6438 9947	1f	7 SD	
TU	C SJ 6419 9900	1m/1f	6 MD	
SV	C SJ 6419 9900	1f	4 WG	

Young should be classified as one of the following age classes:

**Small Downy (SD)** - this applies to recently hatched young covered in down, up to approximately 18 days old (approximately ¼ of adult size).

**Medium Size (MS)** - this applies to young from 19 – 36 days old who apart from their size will show a mixture of feathers and down ranging from mainly downy with a few feathers to over half of the body covered with feathers (approximately 1/2 of adult size).

**Well Grown (WG)** – this applies to young 37 – 42 days old who may show a small amount of down among the back feathers, or be fully feathered.

**Fully Grown (FG)** – fully feathered but incapable of flight 43-55 days old, young will be flying at 50-60 days.

The age information will help distinguish between different broods on subsequent visits and also give an indication of survival rates/fledging success.

Please take care to avoid disturbing birds during the survey. Flushing birds from nests or away from young could be very detrimental. If this occurs accidentally, please move away to a safe distance before continuing with your survey.

# Breeding Wetland Birds - Other Species Survey (April to July)

Whilst carrying out the wildfowl surveys record any other wetland birds present from the species list below and any breeding evidence. Use the Breeding Wetland Birds Other Species section (pages 5-6) of the recording form.

Species	Dabbling & Diving Ducks	Species	Other Wetland Birds
Code	Target Species	Code	
GA	Gadwall	BI	Bittern
GY	Garganey	BN	Black-necked Grebe
PO	Pochard	CG	Canada Goose
SV	Shoveler	CO	Coot
T.	Teal	CA	Cormorant
TU	Tufted Duck	CU	Curlew
		GD	Goosander
	Gulls	GG	Great Crested Grebe
BH	Black-headed Gull	H.	Grey Heron
CM	Common Gull	GJ	Greylag Goose
GB	Great Black-backed Gull	KF	Kingfisher
HG	Herring Gull	L.	Lapwing
LB	Lesser Black-backed Gull	ET	Little Egret
		LG	Little Grebe
	Terns	LP	Little Ringed Plover
AC	Arctic Tern	MA	Mallard
CN	Common Tern	MN	Mandarin
AF	Little Tern	MH	Moorhen
TE	Sandwich Tern	MS	Mute Swan
		OC	Oystercatcher
		RK	Redshank
		RP	Ringed Plover
		RY	Ruddy Duck
		SU	Shelduck
		SN	Snipe
		WA	Water Rail

## Breeding Evidence Codes

Select a code that best describes what you have seen/heard.

Code	Probable Breeder	Code	Confirmed Breeder
P	<u>P</u> air in suitable nesting habitat	DD	<u>D</u> istractio <u>n</u> - <u>D</u> isplay or injury
T	Permanent <u>T</u> erritory (defended over	FL	Recently <u>F</u> ledged young or downy
D	Courtship and <u>D</u> isplay (e.g. pair mating, Lapwing in display flight)	ON	Adults sitting in circumstances indicating <u>O</u> ccupied <u>N</u> est, or
N	Visiting probable <u>N</u> est site (e.g. duck entering reeds)	NE	<u>N</u> est containing <u>E</u> ggs (eggs must be visible,
A	<u>A</u> gitated behaviour (indicating nest or young)	NY	<u>N</u> est with <u>Y</u> oung seen or heard
B	Nest <u>B</u> uilding or excavating nest-hole		See page 5 for brood codes

### Gulls and Terns

If you are lucky enough to find a gull or tern colony at your site please let us know. Use the dedicated section (page 7) of the recording form to record the number of adults (pairs), the number of occupied nests and the number of young and approximate size. Additional guidance is available on how to survey gull/tern colonies.

**Nests (enter all species on the Other Species section of the recording form)**

**Important.** Please avoid disturbing nesting wildfowl. If you come across a duck sitting on a nest retire to a safe distance. Flushing birds off nests makes eggs vulnerable to predation.

Nests should be recorded. Use the British Trust for Ornithology's breeding evidence codes as follows:

**Sitting bird** – nests identified by a **sitting bird** where the contents are not visible, use the code **ON** (**O**ccupied **N**est) e.g. Mallard (ON).

**Visible eggs** - nests with **visible eggs**, use the code **NE** (**N**est containing **E**ggs). Record the number of eggs e.g. Gadwall (NE 6).

**Nests with Young** – use the code **NY** (**N**est with **Y**oung seen or heard). If visible, record the number of young in the nest e.g. (NY 5). Most ducklings leave the nest on hatching, so this code is unlikely to be used.

The following example shows a Gadwall sitting on a nest (contents not visible), and a Pochard nest containing seven eggs.

<i>Species</i>	<i>*Location</i>	<i>Adults</i>	<i>Breeding Evidence</i>	<i>Broods (no. of young)</i>	<i>Nests (ON/NE)</i>
Brood no.	Cpt or grid ref	no.	code	Size (SD/MS/WG/FG)	
GA		1			ON
PO		1			NE (7)

It is recommended to mark the locations of any nests on a large scale site map, (use a clean, dated copy on each visit), or record in your notebook against a location reference marked on the map. Any birds recorded on nests should not be included in the adults (singles or pairs) count.

## Data Submission

If you have used a map or notebook to record your field observations the records should be transferred to the **Carbon Landscape Breeding Wetland Bird Survey field recording sheet**, or input online.

# Wildfowl Population Survey Analysis (optional)

All data submitted will be analysed by the Carbon Landscape Citizen Science team. However, if you are interested in helping with the analysis of your own surveys, please complete the **Breeding Wildfowl Survey Analysis form** (available upon request) as soon as possible after each survey whilst the details are still fresh in your mind.

All the following count as breeding pairs:

1. Any pair
2. Any lone male - those skulking close to the reeds may be guarding a female on a nest
3. Two to four males chasing two to four females in flight should be counted as that number of pairs.
4. Groups of two to four males should be counted as that number of breeding pairs.
5. If the number of lone females exceeds the number of males count any additional females as additional pairs e.g. three males and four lone females equates to four pairs.

## References

Wildfowl population and productivity surveys adapted from Bird Monitoring Methods (RSPB) Gilbert, Gibbons and Evans 1998. The advice of the Woolston Eyes Conservation Group in preparing this document is gratefully acknowledged.

# Appendix

## Grid references

GPS often display grid references of 10 figures which would imply an accuracy of 1m<sup>2</sup>. Most GPS will give a ± accuracy number. If this number is 10m or less, an 8 figure grid reference can be recorded to reduce this false accuracy (i.e. a grid reference which has an accuracy of 10m rather than 1m).

If you have a 10 figure grid reference (accurate to 1m) and you want to obscure it to an 8 figure grid reference (accurate to 10m), the following example shows you how to remove the final digits from the easting and northing to reduce the precision.

GPS Reading SD 58315 03315 → Recorded Grid Reference SD 5831 0331

If you have an 8 figure grid reference (accurate to 10m) and you want to obscure it to a six figure grid reference (accurate to 100m), the following example shows you how to remove the final digit from the easting and northing.

8 Figure Grid Reference SD 5831 0331 → 6 Figure Grid Reference SD 583 033 **Be careful** - never round the numbers up when reducing the accuracy of a grid reference as it would move your record to an adjacent grid square north-east of the actual location.

The screenshot here shows different levels of precision for the same marker location on the map. Click this link and then click on the marker to try this yourself -

<https://gmwildlife.org.uk/mapapp/?path=SD6254500455>

