



# Willow Tit Survey Volunteer Handbook

Greater Manchester Ecology Unit

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# Willow Tit Survey Volunteer Handbook

## **Carbon Landscape Citizen Science Project / RSPB National Survey**

### *Contact us*

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

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# 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=carbonlandscape>] 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, including Willow Tit, 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 this 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 the abundance and distribution of some of our key species and most importantly, 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

## One kilometre square or tetrad selection

The Carbon Landscape's Citizen Science Project survey unit is the 1km square and we aim, with your help, to survey as many of these as possible within the Carbon Landscape boundary by the end of June 2020. This will ensure the data collected is statistically robust and enable species distribution to be mapped at a landscape scale.

We have developed an online data portal which enables recorders to request 1km survey squares / RSPB tetrads and view those already allocated, see [gmwildlife.org.uk/carbon\\_landscape/survey\\_squares](https://gmwildlife.org.uk/carbon_landscape/survey_squares). Co-ordinating volunteers' survey effort will enable a large biological dataset to be compiled and ensure coverage is as comprehensive as possible, giving us a clear picture of the distribution of Willow Tit at a landscape scale.

## Submitting your survey data

When carrying out your survey, please enter your data onto the field survey forms provided. Your data should ideally be submitted to GMEU as soon as possible after each survey visit via the online survey forms on our website <https://gmwildlife.org.uk/>. To access the data entry forms you need to register first (click on the person icon in the top right of the screen) and then log in and click on the **My Surveys** button. Whilst you should find them intuitive, instructions for using the forms are available on request by emailing [carbonlandscape@gmwildlife.org.uk](mailto:carbonlandscape@gmwildlife.org.uk)

## Land owner permissions

Landowners' permission for access onto private land, where there are no public rights of way, must be obtained. The Carbon Landscape Programme team are compiling a database of landowners and requesting access to their land. If you are unsure if you have permission to walk on land please check with GMEU before carrying out your surveys. Please pass on to us any information you obtain on landowners and their contact details as these will be added to the database.

You will be issued with a letter (also available to download from our website [gmwildlife.org.uk/carbon\\_landscape/](http://gmwildlife.org.uk/carbon_landscape/)) which 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 and are willing to share survey data with them if they are interested in knowing which species occur on their land with a view to sympathetically managing the habitats under their stewardship.

## 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 with national data and trends.

# General equipment list

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

- Survey route map
- Field survey form
- Clipboard, a paper copy of the recording form (available from [gmwildlife.org.uk/carbon\\_landscape/](http://gmwildlife.org.uk/carbon_landscape/)) and a pencil
- Notebook
- Waterproof clothing
- Sturdy walking boots
- First aid kit
- Food and drink (if required)
- Hat and suntan lotion (strongly recommended from April to September, even during cloudy conditions)
- Whistle
- 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)

## Optional equipment

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



# 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 work. 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 your 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.

# Willow Tit species and habitat survey v2 (2019-2020)

## Background

National Willow Tit numbers have fallen rapidly in the last three decades making it the second fastest declining breeding bird in the UK after Turtle Dove, and a Red-listed species (Birds of Conservation Concern). The 1984 atlas of Breeding Birds in Greater Manchester estimated the GM population at 300 pairs and suggested that there were two main areas for Willow Tit in the county; the west and the south-east. However, by 2004 the Greater Manchester population was estimated at less than 100 pairs (Birds in Greater Manchester, County Report 2004) and the population in the south-east was believed to have been lost completely, although there have been regular sightings over the past five years at two sites in Tameside. Following a major survey by the Lancashire Wildlife Trust in 2016 (funded by Biffa Award) the population is currently estimated at 120 pairs in Greater Manchester and the same number in the Carbon Landscape Programme area which includes a stronghold at Woolston Eyes SSSI and nearby sites including Risley Moss SAC/SSSI.

The Royal Society for the Protection of Birds (RSPB) and others have conducted research into the causes of decline, and eliminated a number of potential factors which seem unlikely to be driving the large scale declines. One of the potential causes that needs further investigation is whether deterioration in habitat quality is affecting this species. One of the main habitats that Willow Tits occupy in Britain is damp young woodland. This habitat is often short lived with sites frequently drying out and developing into mature woodland over 20-30 years. The RSPB and other organisations, including Natural England, are currently trialling woodland management solutions for Willow Tit, and the species is part of the Back From the Brink HLF project <https://naturebftb.co.uk/the-projects/willow-tit/> involving detailed study of daily movements and habitat use, as well as habitat management.

The RSPB has launched a national Willow Tit survey which runs from 2019 to 2020. The data collected by the Carbon Landscape Citizen Science project will be supplied to them and incorporated into the national analysis which aims to: -

1. Produce a robust and updated national and local population estimate
2. Measure changes in distribution since the Bird Atlas 2007-11
3. Produce maps of current distribution both nationally, within the Carbon Landscape Programme area and across Greater Manchester/NW England
4. Provide evidence to underpin the conservation work and habitat management being carried out by the RSPB, Lancashire Wildlife Trust and others to arrest and reverse the population decline

The survey is based upon the field methodology originally developed by Mark Champion (Wigan Projects Manager, Lancashire Wildlife Trust) and was adapted in 2019 to reflect the RSPB's methodology.

In addition, recording breeding activity, such as song (S), nest excavation (B) and carrying food for young (FF), using the British Trust for Ornithology's breeding evidence codes, provides valuable additional information which will contribute essential data to be used in the analysis of the Willow Tits' status across Greater Manchester and Warrington. These data will be submitted to the Rare Breeding Birds Panel (RBBP) via the respective county bird recording groups. The RBBP monitors the national trends of rare or scarce breeding birds in the UK, including Willow Tit since 2010, and requires an annual estimate of the numbers of confirmed, probable and possible breeding pairs for each county/recording area in the UK. The annual RBBP report is published in British Birds magazine and previous copies of the report can be downloaded from their website [rbbp.org.uk/](http://rbbp.org.uk/).

# Equipment

## Essential

- Map of the survey site with survey points (use a fresh map for each visit)
- Willow Tit survey form
- Binoculars
- Sound recording of Willow Tit call and a playback device (*available to loan from the GM Ecology Unit*)

The recording can be downloaded from the Carbon Landscape Citizen Science project page here, [gmwildlife.org.uk/carbon\\_landscape](http://gmwildlife.org.uk/carbon_landscape). It is the standard recording used by the RSPB in its surveys, originally sourced from 'British Bird Sounds' on CD. Use this recording only as described in this guide to minimise disturbance. You need to be logged in for the download link to display.

- GPS (*available to loan from the GM Ecology Unit*) or a Smart Phone with GPS app
  - **Android** - Grid Reference Free OS can be downloaded from Google Play Store,  
[https://play.google.com/store/apps/details?id=uk.co.torvusconsultants.gridreferencefree.OS&hl=en\\_GB](https://play.google.com/store/apps/details?id=uk.co.torvusconsultants.gridreferencefree.OS&hl=en_GB)
  - **iOS** - GridPoint GB

## Useful

- Camera
- Notebook
- Compass
- Identification guide for trees and shrubs without leaves

## Dates and times of survey

Two surveys of each allocated 1km square (or 2-km square outside of the Carbon Landscape area) should be completed annually:

- **Survey 1** 15<sup>th</sup> to 31<sup>st</sup> March
- **Survey 2** 1<sup>st</sup> to 15<sup>th</sup> April

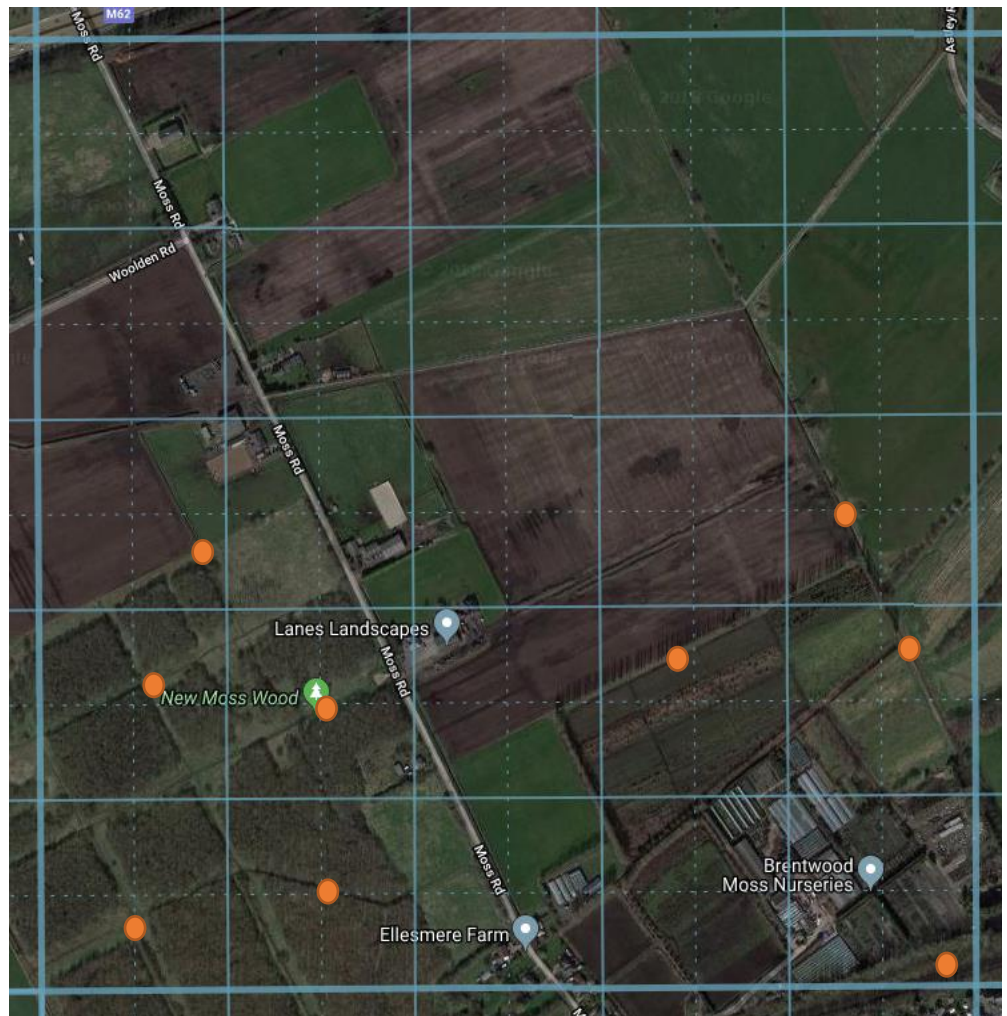
Ideally please leave a two week interval between your surveys. Dawn or dusk chorus should be avoided due to the difficulty of distinguishing Willow Tit calls from the other birds. Ideally, surveys should be undertaken on fine days. If present, Willow Tits are much more likely to be detected on relatively warm days with no wind and rain and are more likely to respond to the recording during the morning when not heavily overcast. Avoid surveying in heavy rain, strong winds or during periods of prolonged severely cold weather. Disturbing birds during severe cold when they require all of their energy reserves to stay warm and survive can be very detrimental. Once the birds are serious about excavating and nesting they become very quiet from mid-April.

## Planning your survey route

An Ordnance Survey map of your allocated 1-km or 2-km square will be provided to you. Woodland within the survey square will be shown on this map, but you are encouraged to survey scrub, tree lines and other wooded sections within the survey square which are not marked as woodland.

Unless you have prior knowledge of the survey area, use the OS map and aerial photography to plan your survey. The GMLRC MapApp, [gmwildlife.org.uk/mapapp/](http://gmwildlife.org.uk/mapapp/), is a good source of aerial photographs and zooming in will allow you to overlay 200m grid squares over your 1km square as shown in figure 1 below. *Solid lines demark 200m squares and dashed lines are 100m squares.* Mark the numbered survey points on your Ordnance Survey map either during an initial recce visit or during the first survey.

**Figure 1** Showing survey points for each 200m square within the larger 1km allocation



In larger woodlands, the survey points would ideally be points on a grid corresponding to 200m squares (similar to figure 1). In small / narrow areas of woodland, this is likely to result in a linear route along which you will stop at survey points at approximately 200m intervals. The distance can be paced out or measured using a GPS and survey map. If pacing out 200 metre sections, use a compass to ensure you are walking in the correct direction. Linear features (hedges and narrow strips of trees especially along ditches) can also be surveyed and may provide suitable Willow Tit breeding habitat; therefore please include such areas and any other potentially suitable habitat in the survey points which you select.

In larger areas of woodland where access to all of the site is possible, start in one corner of the 1-km square (e.g. the north-west corner) and walk in one direction until you reach the edge of the scrub/woodland habitat (or the edge of the 1km square) then move 200 metres to the east and work back in the opposite direction through the woodland, surveying every 200 metres. Repeat this until the whole woodland patch has been covered. Starting in the south-east corner and working north and west would work equally well. Mark your route on the survey map for future reference.

Habitat information will be recorded at each individual survey point, *see guidance later*. One aim of the survey is to gather information about the specific types of habitat in which Willow Tit are present.

The grid or linear route does not need to be perfect and paths and rides can be used provided that every part of the wood is covered with survey points no more than 200m apart, and no suitable habitat is more than 100m from a survey point. The grid reference of each survey point should be recorded in order to relocate them during subsequent surveys. Please use National Grid format, although the only survey form will accept latitude and longitude. Taking location photographs may be useful for relocating the survey points.



## Habitat codes

The habitat codes will allow land managers to assess what types of woodland Willow Tits are using and plan any habitat management that may be required in the future. A habitat classification should be carried out at each of the points used for the survey. The ideal time is during an initial visit in early to mid-March when deciding upon the route through the woodland and the location of the survey points. At this time, there is less chance of disturbing nesting birds, although most trees will not be in leaf yet.

As an alternative, it can be carried out during the first Willow Tit recording visit between 15th and 31<sup>st</sup> March. If more than one surveyor is present the habitat could be classified by one person whilst the other surveys for Willow Tits.

Please use the following codes to describe the habitat:

### *Survey point habitat codes*

<i>Habitat structure</i> <i>select 1 per point</i>	
A	Low scrub, shrubs and managed hedgerows (1.5m to 3m)
B	Tall hedges, bushes, scrub and young trees (3m to 6m)
C	Trees and woodland edge (>6m)

<i>Habitat category</i> <i>select up to 2 per point</i>	
A	Linear features (e.g. hedges, tree lines, thin strips of woodland, railway embank...)
B	Semi-natural scrub
C	Young plantation (<5m high)
D	Plantation Woodland (>5m high)
E	Semi natural woodland (>5m high)

# Additional habitat information and plant species survey (optional outside of the Carbon Landscape)

When survey points are being accessed from tracks or paths, it will probably be necessary to move a few metres away from the path, into the woodland, in order to make the required habitat measurements.

1. Identify and record the **main** tree species in the primary canopy surrounding the survey point. These are mature trees which will normally be above 5 metres in height.
2. Identify and record the **main** species in the understorey (secondary canopy), also known as the shrub layer which will usually be between 2 and 5 metres in height. This may not always be present in some woods.
3. Identify and record the **main** species in the ground layer i.e. plants excluding shrubs and trees such as brambles, nettles and Himalayan balsam which are growing beneath the understorey. This may not always be present in some woods.

Please omit species which you are unable to identify. Alternatively take photos and a small sample for identification. If a recorder with good botanical knowledge is available to you, it would be beneficial to request their assistance in identifying (or verifying) your plant species for you; please note the name of the 'verifier' on your survey form. If you are able to record specific species of willow this will be valuable data for the survey (see photo guide in appendix 3). However, you may record "willow species" if you are unsure.

Please proceed with care in case nest holes are present. If a nest hole is inadvertently discovered, please move away immediately in order to prevent disturbance to the birds.

## *Open habitats within the 200m square*

B	Grassland and marsh	E2	Flushes and springs
C	Tall herb and fen	F1	Swamp
D	Heathland	F2	Marginal and inundation
E	Mire (including bogs and fens)	J1	Arable / cultivated ground

<i>Water bodies within the 200m square</i>				
<i>Code</i>	<i>Type</i>	<i>Maximum dimensions</i>	<i>Area (ha)</i>	<i>Maximum area (m<sup>2</sup>)</i>
SP	Small pond	<10m x 10m or 20m x 5m	<0.1 ha	<1000
LP	Large pond	200m x 100m or 400m x 50m	0.1 - 2.0 ha	20,000
SL	Small lake	500m x 100m or 200m x 250m	>2.0 - 5.0 ha	50,000
LL	Large lake		>5.0 ha	
LR	Lined reservoir			
GP	Gravel / sand pit			
CA	Canal > 2m wide			
RI	River > 3m wide			
DI	Ditch with water <2m wide			

## Willow Tit survey methodology

The survey is a point count survey designed to record the presence or absence of Willow Tits at specific survey points within a 1-km or 2-km square. A sound recording of Willow Tit calls and song is used as a lure to attract the birds to the survey point. This playback method, using a standard (2-minute) recording of Willow Tit calls and songs, and listening for a response has been successfully developed by the Lancashire Wildlife Trust and the RSPB Willow Tit research project. The survey does not include searching for nests. The methodology is designed to cause minimal disruption to the birds and it is very important that the lure recording is used precisely as described below.




**IMPORTANT** - The sound recording should only be used for the purpose of this survey and is only provided for use by volunteers who have attended a survey training workshop run by an experienced trainer. Overuse (or misuse) of such recordings may cause birds to desert their breeding areas. It is therefore vitally important that you do not share the recording with others who have not received formal training in the survey technique. **The call volume should be checked before surveying and should be audible up to 100m away from the survey point.**

- At each survey point, the recording should be played **once**. If Willow Tits are seen, or if they sing, or call back in reply, **do not play the recording again within the 200m square**. This is essential to minimise disturbance to breeding Willow Tits. If there is no immediate response, play the recording for a second time. Carefully observe all around the survey point looking for Willow Tits (this is much easier if two people carry out the survey together). If there is no response, record the habitat information on the form, wait no more than 5 minutes and play the recording a third and final time and check for a response before moving to the next survey point and repeating the process.
- If Willow Tits are observed or heard, record this on the survey form together with any breeding status information (use the breeding codes). If no Willow Tits are recorded, please enter 0 (absent) against the survey point on the recording form. If they are heard but not seen, record as P (present), unless it is clear from the calls that two or more birds are present. If birds are seen, record the number.

If one or more Willow Tits respond to the sound recording this should be entered as T (permanent Territory) in the breeding code box.

- Records of some other bird species will also be collected in order to investigate if competition from and / or predation by other species influences Willow Tit distribution. These species are listed on the survey form.
- If Willow Tits are recorded, it is important to avoid double counting the same birds (and causing potential disturbance). Ensure the next survey point is 200m away from the previous one in order to avoid this.

# Recording information

Carbon Landscape Willow Tit Survey						giving nature a home		LOTTERY FUNDED
Recorder name(s)		1km square or tetrad <small>e.g. S36796 or S369T</small>						
Site name		Territories this visit		Min	Max			
Date <small>e.g. 05/05/2018</small>		Start time <small>e.g. 10:15 hrs</small>		End time <small>e.g. 12:15 hrs</small>				
Other Notes <small>e.g. Birds feeding</small>								

Before starting the survey complete the information boxes at the top of the form, including the date and start time. Record all Willow Tit contacts on the survey form to include the following:

- **Grid reference of the survey point**
- **Count** (birds heard or seen): Absent (0), Present (P) or count e.g. 3
- **BTO Breeding evidence code(s)**
- **Located by playback** – yes/no (although this may not always be clear)
- **Reaction time (mm:ss)** – time taken for the Willow Tit to react (only if **yes** to the above)
- **Distance to Willow Tit (metres)** – distance to the Willow Tit when first detected
- **Response codes** – note if the response to playback was call (C), song (S), or agitated behaviour (A)

**Feeding** – if possible please record details of Willow Tits seen feeding to include playback point or grid reference (if between points) and any information on the food items. This may be generic e.g. cranefly species or butterfly/moth larva. All information collected will be of value as the diet of Willow Tits has been poorly studied. There is a notes box at the top of the form to record this information.

## Territory estimates

After each visit please complete the end time and minimum and maximum number of territory boxes (at the top of the form) to estimate the number of territories within the 1-km square or tetrad. This should be based on your observations during this survey and not on information from previous years.

## Casual records

If you do come across any Willow Tits on non-survey dates anywhere in Cheshire, Greater Manchester or Lancashire then please do submit the record(s) via the GMLRC website [gmwildlife.org.uk/wildlife\\_recording/simple/](http://gmwildlife.org.uk/wildlife_recording/simple/) or directly to your Local Record Centre. Every record received helps us to build up a picture of their distribution and will be used to target future survey effort. If you log in first then the form will be automatically populated with your name and you will be able to recall your records at a later date via the 'Reports' page.

Biological records for other key species, (e.g. Lesser Spotted Woodpecker, Long-eared Owl, and Tawny Owl) including Grey Squirrel, Stoat and Weasel, observed whilst carrying out the survey, especially when walking from point to point, may be submitted, but recording additional species should not be at the expense of the main Willow Tit survey.

## Feedback

Once you have carried out the surveys, we would welcome your feedback on this survey manual and the accompanying recording forms. Please email [carbonlandscape@gmwildlife.org.uk](mailto:carbonlandscape@gmwildlife.org.uk) with your suggestions for clarifying/improving the survey instructions and whether it would be beneficial to include additional information.

# Appendices

## Suitable Willow Tit habitat (source RSPB)

Willow Tit habitats vary across the UK and Europe. In Northern Europe they favour conifer forests where they forage in winter during heavy snowfall, while during the breeding season they nest in areas with more birch trees on peaty soils. In the UK they are associated with a number of scrubby habitats, which may include overgrown hedges on river valleys and floodplains, young regrowth in conifer plantations, birch and willow scrub on former industrial sites, linear scrub along railway lines and canals, or scrubby areas on the edge of mature plantation or woodland.

A key feature of these sites is the prevalence of pioneer tree and shrub species such as willow, birch, elder and hawthorn with few mature canopy trees. These sites are often but not exclusively on wetter areas.

Based on earlier research, the key properties of Willow Tit habitat are:

- Dominant tree/shrub species: Hawthorn, Elder, Alder, Birch, Willows.
- Undesirable tree species: Oak, Beech, Sycamore, Mature Conifers (where there is little or no shrub layer).
- Shrub cover at 2-4m above ground: 46-58%.
- Canopy cover: 48-58%.
- Lots of standing small dead trees, 10-20 cm diameter.
- Younger woods preferred but only if they contain favoured tree species and not undesirable tree species.
- Wetter soils preferred, which retain moisture for longer during the breeding season i.e. poorly draining soils, or peat soils.
- Patches of suitable habitat can be as small as 1ha for breeding as they will use surrounding habitats and move between patches

Willow Tits excavate holes in soft rotten stumps to nest in; they may excavate more than one hole before deciding where to nest. Nests site characteristics are:

- Height above ground 1-2.5m.
- Trunk diameter 10-20 cm.
- Tree species used for nests: willow (16%), birch (40%), elder (15%), + 24 other species.
- Elder used for nesting more frequently than found in habitat and Hawthorn less frequently.



# Standard BTO symbols for bird activities (source RSPB) (optional for recorders with experience of Common Bird Census surveys)

Rather than use the standard BTO code for Willow Tit (WT) when mapping the location of contacts, please use the terms A1, B1, etc., to denote records from the first visit and A2, B2, etc., from the second visit. *This optional data cannot be submitted via the online forms as it is outside of the scope of the structured survey methodology*

A1, 2A2 Willow Tit sight records with age, or number of birds if appropriate.

A1♂ indicates one pair; 2A♂ means two pairs together.

A1 A calling Willow Tit.

A1 A Willow Tit repeatedly giving alarm calls or other vocalisations (not song) thought to have strong territorial significance.

Ⓐ A singing Willow Tit.

\\ \ / / /

- A1 B1- An aggressive encounter between Willow Tits.

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\*A1 An occupied nest of Willow Tits; do not mark unoccupied nests, which are of no territorial significance by themselves.

A1 mat Willow Tit carrying nesting material.

A1 food Willow Tit carrying food (during courtship display).

Willow Tit movements can be shown as follows:

—A1→ A calling Willow Tit in flight (seen only in flight).

Ⓐ1→ A singing Willow Tit perched then flying away (not seen to land).

→A1 A Willow Tit flying in and landing (first seen in flight).

The following conventions indicate when registrations relate to different birds, and when to the same bird:

A1→A1 A Willow Tit moving between two perches. The solid line indicates it was definitely the same bird.

Ⓐ1-----Ⓑ1 Two Willow Tits in song at the same time, i.e. definitely different birds. The dotted line indicates a simultaneous registration and is of great value in separating territories

Ⓐ1——Ⓐ1 The solid line indicates that the registrations refer to the same bird.

Ⓐ1—?—Ⓐ1 A question-marked solid line indicates that the registrations probably relate to the same bird.

A Ⓐ No line joining the registration indicates that the birds are probably different but depending on the pattern of other registrations they may be treated as if only one bird was involved.

# Willow Tit colour ringing schemes in Britain

More information is available from the European colour-ring Birding website: <http://cr-birding.org/>

## Greater Manchester

Combination of three colour rings: 1 colour ring above metal ring (on left leg) and two colour rings (on right leg). Used colours are red, light-green, light-blue, white, orange, black and yellow.

## 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 5831~~5~~ 0331~~5~~ → Recorded Grid Reference SD 5831 0331*

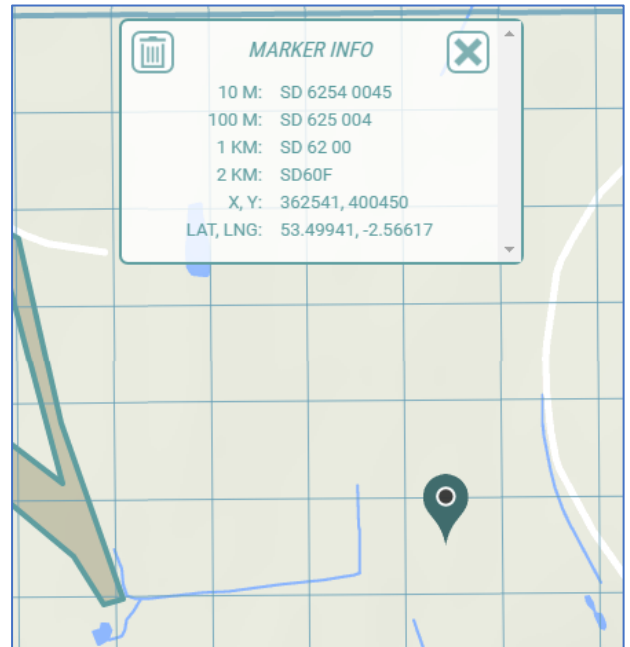
If you have an 8 figure grid reference (accurate to 10m) and you want to obscure it to a six figure grid reference (accurate to 100m), the following example shows you how to remove the final digit from the easting and northing.

*8 Figure Grid Reference SD 583~~7~~ 033~~7~~ → 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>



# References

## *Free downloads*

1	Perrins, C. 2003. <b>The Status of Marsh and Willow Tits in the UK.</b> British Birds 96: 418 -426	<a href="https://britishbirds.co.uk/article/the-status-of-marsh-and-willow-tits-in-the-uk/">https://britishbirds.co.uk/article/the-status-of-marsh-and-willow-tits-in-the-uk/</a>
2	Broughton, R.K. 2009. <b>Separation of Willow Tit and Marsh Tit in Britain: a review.</b> British Birds 102: 603 – 616	<a href="https://britishbirds.co.uk/article/separation-of-willow-tit-and-marsh-tit-in-britain-a-review/">https://britishbirds.co.uk/article/separation-of-willow-tit-and-marsh-tit-in-britain-a-review/</a>

## *Available to subscribers or by purchase of individual issues*

1	Last.J. & Burgess M. 2015. <b>Nestboxes and Fieldcraft for monitoring Willow Tits.</b> British Birds 108: 30-36	<a href="https://britishbirds.co.uk/article/nestboxes-fieldcraft-monitoring-willow-tits/">https://britishbirds.co.uk/article/nestboxes-fieldcraft-monitoring-willow-tits/</a>
2	Rustell, A. 2015. <b>The effects of avian nest predation and competition on the Willow Tit in Britain.</b> British Birds 108: 37-41	<a href="https://britishbirds.co.uk/article/effects-avian-nest-predation-competition-willow-tit-britain/">https://britishbirds.co.uk/article/effects-avian-nest-predation-competition-willow-tit-britain/</a>

## *Rare Breeding Birds Panel (RBBP) annual reports*

1	RBBP website	<a href="http://www.rbbp.org.uk/">http://www.rbbp.org.uk/</a>
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# Willow Tit NW Facebook Group

There is a Willow Tit NW Facebook group which you may wish to visit and like to receive regular updates <https://www.facebook.com/groups/167649310275619/> This was created to promote knowledge and conservation of Willow Tits in the Northwest of England, by providing a forum for discussions and knowledge transfer.

END OF INFORMATION