VOLUNTEER GUIDELINES

Thank you for signing up to be a volunteer on our study about foraging behaviour in tits. We are excited to get your help, so let's get started!

This document will guide you through everything you need to know to help us out and observe foraging behaviour at the feeders in your garden. Make sure to check out the detailed instructions on how to record your observations in the step-by-step guide below.

All documents and online forms can also be found on our website. Please contact us if you have any questions at caching.birds@newcastle.ac.uk.   We are happy to help!

The Research Project

Surviving the winter can be a big challenge for birds, especially ones that remain at northern latitudes during winter. A lot of birds, such as several tit species, make use of garden feeders. They either eat the food directly from the feeders or hide the food in the surroundings to save it for later. This is called 'food hoarding' or 'food caching'. You may have seen this first-hand, where some tits move items from a food source to cache it in some moss, a tree or even a flowerpot. If you'd like to see an example of a coal tit caching, check this video. At 02.10 minutes, the coal tit picks up a seed and hides it on the branch nearby.

We are part of a research group at Newcastle University investigating how these birds decide when to eat food from feeders or when to hoard it. We do this by developing mathematical models, which we then test against reality with observational data from wild birds. This is where you, as one of our volunteers, are of key importance! The information that you collect, can help us answer important questions about how these birds survive the winter.

What will you be doing?

What you will be observing:

As part of our volunteer team, you will be observing tit behaviour. We'd like to know what species visit the feeder(s) in your garden, if they eat the food they find, or look for places to hoard it, what food they are attracted by and when they perform these behaviours. A pair of binoculars might come in handy! You can easily submit your observations with the online data submission form. Offline data sheets are available if you'd prefer to write down your observations on paper.

Which species to observe:

For this study, we are interested in tit species. These include hoarding species such as coal tits, marsh tits, willow tits and crested tits but also non-hoarding species such as blue tits and great tits. For now, we will not need observations on other species that might visit your feeder. For more information on which species to observe, please check 'Bird ID information' below.

How much time you will spend:

You can make as many observations as is comfortable for you. A minimum of 1 hour per week would be great (this does not have to be all at the same time), but all observations, whether it is once a month or every day, are welcome!

Step-by-step guide

Step 1: start of the session

At the start of your session, you watch your feeder and wait until a suitable bird turns up. If a suitable bird picks up a seed from the feeder, your first observation can start!

Step 2: observation

Once the bird picks up a seed from the feeder, it is important to watch its behaviour closely and record what happens. We are interested whether the bird eats the food or searches for a hiding spot. If both happen, we would like to know the order in which they occur. On the data form, you can select one of the following behaviours:

1. **Disappear:** If the bird picks up a seed and disappears out of sight or drops the food. For example, when a bird flies into a bush with the food it collected and you can no longer see it.

2. **Eat:** If the bird eats the food item it picked up from the feeder. The bird will have a food item under one or both feet, whilst it is sitting on a perch. The bird will be pecking at the food. If you are looking at the bird from a distance and cannot see the food, this will look like the bird is pecking at its feet. To see what this behaviour looks like, check out this video.

3. **Search:** If the bird picks up the food item and searches for a place to hide it. The bird will be moving across branches and other substrates holding a seed in its beak. Even if the bird does not successfully hide the food (or at least you don't observe it), please record the behaviour as 'Search'. If the bird does succeed to hoard the food, you can still log this as 'Search', since this is part of the behaviour. Check out this video to see what this behaviour looks like. From 01:00-01.10 minutes you can see the bird searching for a place to hide the food. At 01.11 the food item is hoarded.

4. **Eat then search:** If the bird first eats some of the food item and then looks for a place to hide it, please select this option.

5. **Search then eat:** If the bird first looks for a place to hide the food and then starts to eat it, please select this option.

Step 3: end observation

An observation of a bird can end in 4 ways:
1. The bird moves out of sight
2. The bird stays in sight but starts doing something else, not related to the food
3. The bird returns to the feeder and picks up a new seed (this means you start a new observation)
4. The bird shows a third behaviour (for example: search-eat-search). We are not interested in the third behaviour and your observation can end here.

Once your observation has ended you can fill in the other details and move on to the next one or end your session and submit your data.

Step 4: fill in the details

Once the observation has ended, be sure to note down the time, the species you observed and (if you know it) what food the bird interacted with.

- **Data sheet***: On your printed data sheet, you can just circle the relevant options and write down the other details
- **Online form***: If you are submitting your data directly online, you'll notice drop-down boxes for the species/feed and dedicated fields to put in the time and date

Once all the fields have been filled in, you are ready for your next observation (go back to step 2), or you can end your session. You are free to do as many sessions as you'd like per week.

Step 4: submit your data

Once your session is finished and your data is collected, you can submit this to us. The online form also contains space for suggestions and feedback, so we can learn from your experience and hear about what did or didn't work.

If you have collected the data on the printed-out datasheets, you can go ahead and copy this into the online form. You can find the online form here. If you have any issues with the online form, you can contact us at: caching.birds@newcastle.ac.uk

Examples of observations

Example 1

Scenario: A Coal tit approaches your feeder that contains whole sunflower seeds and picks up a seed. The bird starts to move around on branches and looks for a place to hide its food. When it fails, it sits on a branch with the food between its feet and starts to eat it. After 10 seconds the bird flies away.

How to record this: You can record the behaviours by choosing an option from the drop-down list. In this case, the bird first searched for a place to hide the food and then proceeded to eat. You can choose the option 'Search then eat' from the menu. Species, date, time, and food type can all be chosen from dropdown lists

This will look like:

	Species	Behaviour	Date dd/mm/yyyy	Time	Food type
1	Coal tit	Search then eat	20/07/2022	01:30 PM	Whole sunflower seeds

Example 2

Scenario: A Marsh tit approaches your feeder that contains a mixture of seeds and picks up a seed. After moving to a branch, it gets startled and flies off into a bush. You lose sight of the bird.

How to record this: The observation started once the bird picked up the seed. However, the bird disappeared out of sight before another behaviour was seen. You can choose the option 'disappear' from the menu. Species, date, time, and food type can all be selected.

This will look like:

	Species	Behaviour	Date dd/mm/yyyy	Time	Food type
1	Marsh/Willow tit	Disappear	06/08/2022	7:30 AM	Mixed seeds

Example 3

Scenario: A Willow tit approaches your feeder that contains safflower seed and picks up a seed. After moving to a branch, it eats the seed. After it has done so, it returns to the feeder to pick up another seed. The bird then hoards the second seed and flies away.

How to record this: In this case, the bird ate the seed straight away, so you can choose 'eat'. After this the bird returned to the feeder, which ends the observation. The second observation can also be logged, this would be a single 'Search'. Note that this is a successful hoarding attempt and not just 'searching', but it does still get logged as 'search'. Species, date, time, and food type can all be chosen from dropdown lists. 'Safflower seed' is not one of the options, you can select 'other'.

This will look like:

	Species	Behaviour	Date dd/mm/yyyy	Time	Food type
1	Marsh/Willow tit ˅	Eat ˅	11/09/2022	10:00 AM ˅	Other ˅
2	Marsh/Willow tit ˅	Search ˅	11/09/2022	10:00 AM ˅	Other ˅

Example 4

Scenario: A Blue tit approaches your feeder that contains peanuts and picks up a food item. The bird sits on a branch with the food between its feet and starts to eat it. The bird then flies away.

How to record this: In this case, the bird ate the food straight away. You can choose the option 'Eat' from the menu. Species, date, time, and food type can all be chosen from dropdown lists.

This will look like:

	Species	Behaviour	Date dd/mm/yyyy	Time	Food type
1	Blue tit ˅	Eat ˅	11/09/2022	09:30 PM ˅	Peanuts ˅

Bird ID Information

These are the species that are included in our study. Some of them might visit the feeder in your yard. If you'd like to see some images and read some information about the different species, please click on the names next to the pictures below. To check which species occur in your area, you can use the Merlin bird app (download onto your phone or tablet here). Use the 'explore birds' function, fill in your location, and check which tit species are likely to occur in your area.

 Coal tit

 Marsh tit/ Willow tit

 Great tit

 Blue tit

 Crested tit