

Flower-Insect Timed Count guidance

This survey is a collaboration between the National Biodiversity Data Centre and the Northern Ireland Environment Agency. It is also supported by the Irish Wildlife Trust, Butterfly Conservation NI, Buglife, The National Trust and the Centre for Environmental Data and Recording in NI (CEDaR). This survey follows the methodology of the UK Pollinator Monitoring Scheme (PoMS). This document is adapted directly from their resources. We thank them for their generosity and support. All data for Northern Ireland will be shared directly with the UK Pollinator Monitoring Scheme.

Many wild and cultivated plants depend on insects to pollinate their flowers, with successful pollination leading to successful seed or fruit production. There are concerns that numbers of pollinating insects such as bees and flies may be declining, but we need more data to be able to track changes in abundance across the country. The Flower-Insect Timed Count (FIT Count) is designed to collect new data on numbers of flower-visiting insects.



*Bumblebee on Knapweed flower
(photo by John Fogarty)*

This document contains all the information you need to carry out a FIT Count. The Count is not difficult to do, but we need to collect data as carefully as possible so that it can be analysed to provide information on potential changes in insect numbers. Please follow this guidance as closely as you can.

Planning your FIT Count

What will I need to carry out a survey?

- You need about 15 minutes of time – the count itself lasts for 10 minutes.
- Counts need to take place between the beginning of April and the end of September, in dry and reasonably warm weather, see weather conditions below.
- You will need to find a location containing a target flower species to watch during the FIT Count. This can be in a garden or park, in the countryside or on a nature reserve – anywhere that has suitable flowers can be used. See below for the target flower list.
- You need to watch insects in a 50cm by 50cm square patch – the easiest way to define this is to use a quadrat (see below).
- You are asked to take a digital photo of your target flower species.
- Print out the recording form, and make sure you have a pencil or pen to record your counts.
- After the count, please add your results to the online recording system at:
<https://records.biodiversityireland.ie/record/fit-count>

What weather conditions are suitable?

A FIT Count can be carried out at any time of day between the beginning of April and the end of September, as long as the weather is dry and warm:

- If sky is clear (less than half cloud) the minimum temperature for a count is 13°C
- If sky is cloudy (half cloud or more) the minimum temperature for a count is 15°C

Please do not carry out counts when the temperature is below the above thresholds. You are asked to provide simple information about the amount of sun and shade during your count, and the wind conditions. See the recording form for details.

What location can I use?

Your location can be anywhere where there are flowers to attract pollinating insects. An urban garden or park is suitable, or in more rural areas it could be on farmland, on a nature reserve – anywhere where suitable flowers are growing, where you have permission to be, and where it is safe to go. When entering your results, it is best to give a town or village name, not your full address.

You can carry out a FIT Count as a one-off exercise at any suitable site, but we are keen to have counts repeated on different dates and times at the same site, so places that you can easily gain access to (such as gardens or nearby parks) are ideal for this.

The target flowers

Which target flowers do I need to find?

Whenever possible we would like you to find one of the 14 flower species listed in the table below. Having many counts from the same flower type generates data that is more easily analysed. You don't have to find a particularly large patch of the target flower, and the target flower can either be growing in a patch all of the same flower, or among different flower species. We ask you to record how many of your target flowers are in your quadrat to help us understand how many insects have been attracted to the flowers.

| Main flowering time | Target flower name | Flower type |
|---------------------|---|--------------------|
| Apr to Sep | Buttercup – <i>Ranunculus</i> species | individual flowers |
| Apr to Sep | Dandelion - <i>Taraxacum officinale</i> | flower head |
| Apr to Jun | Hawthorn/Whitethorn – <i>Crataegus monogyna</i> | individual flowers |
| May or Jun to Sep | Bramble (Blackberry) - <i>Rubus fruticosus</i> | individual flowers |
| Jun to Aug | Lavender (English) - <i>Lavandula angustifolia</i> | flower spike |
| Jun to Sep | Hogweed - <i>Heracleum sphondylium</i> | umbel |
| Jun to Sep | Common Knapweed - <i>Centarea nigra</i> | flower head |
| Jun to Sep | Ragwort - <i>Senecio jacobaea</i> and relatives | flower head |
| Jun to Sep | White Clover - <i>Trifolium repens</i> | flower head |
| Jun to Sep | Red Clover- <i>Trifolium pratense</i> | flower head |
| Jul to Sep | Butterfly-bush - <i>Buddleja davidii</i> | flower spike |
| Jul to Sep | Heather - <i>Calluna vulgaris</i> or <i>Erica</i> species | flower spike |
| Jul to Sep | Thistle - <i>Cirsium</i> or <i>Carduus</i> | flower head |
| Sep | Ivy - <i>Hedera helix</i> | flower head |

Please choose one of the flowers from the above list if you possibly can, but if none of these is available at your location you can choose another flower that is attracting insects. Ideally this will be a flower of a species that you recognise so that you can tell us which species you used, but if your only option is to use a flower that you don't recognise you can tell us that and provide a photo.

Some of the plant names on our list of target species apply to groups of species, for example “heather” or “thistle”. These are groups of similar-looking plants that are attractive to pollinators, so you can choose any one of the group without having to worry exactly which species it is. However, if you do know the species please add that information to the recording form.

For each FIT Count that you do, please add one photo of your target flower. This will allow us to double-check the flower species used for the counts.

How do I use a quadrat?

You are asked to count the insects visiting your target flowers within a 50cm by 50cm square patch. The easiest way to do this is to set up a 'quadrat' to define the square. A quadrat can be made using stiff cardboard or wire, or lengths of cane etc., cut to be 50cm on each side. Or you can make one using a 2-metre length of string, with knots tied in at each 50cm interval to allow you to arrange it in a square, or with folded gaffer tape (see below). It is also possible to buy 50cm quadrats (e.g. <http://www.nhbs.com/title/159625/q1-quadrat>).



Using a quadrat with Dandelion as the target flower. This quadrat has 3 flowers (don't count those that have gone to seed)

Each side of the quadrat can be made from a strip of gaffer tape, about 54cm long (to allow for overlaps at the corners).
Fold each strip back on itself so that it is no longer sticky.



Cut a small strip of gaffer tape to bind the corners together.

For plants growing at or near ground level the quadrat can be positioned over the area being counted, as shown in the photo above. For tall plants/shrubs, such as Hawthorn or Ivy, the quadrat can be positioned vertically or at a convenient angle in the shrub, as long as it clearly marks out the area of flowers that you are going to use for your count.

How many flowers?

We need to know two things about your target flowers:

- How much of your 50x50cm patch is occupied by the target flowers? – less than half the patch, half, or more than half
- How many of the target flowers are there within the 50x50cm patch?

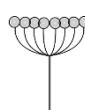
To answer the second of those questions you will need to count the flowers, but different flowers need to be counted in different ways. Depending on the flower structure, you may need to count:



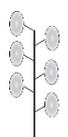
individual flowers (e.g. hawthorn) – each flower counts as one unit



flower heads (where there are lots of tiny flowers within a larger flower head, e.g. dandelion) – each flower head counts as one unit



flower umbels (for flowers that have small flowers grouped into 'umbels', like inside-out umbrellas, e.g. hogweed) – each umbel counts as one unit



flower spikes where a number of small flowers are arranged along a stem (e.g. lavender) – each spike counts as one unit

In some cases you may have very many flowers to count (e.g. in a dense patch of lavender). If so it is fine to make an estimate, e.g. by counting flower 'units' in a quarter of the quadrat and multiplying by four to get a total for the whole quadrat. Only count flowers that are reasonably fresh and that are likely to attract insects – 'dead-head' flowers and seed heads should not be counted.

Counting Insects

How do I count and identify the insects?

The actual count should last for ten minutes – if you have a mobile phone with a timer or alarm that is an easy way to ensure you count for exactly the right length of time. You should stand close enough to the flowers so that you can see visiting insects easily, but try not to lean right over the top of the flower patch as this can prevent insects from visiting.

During the ten minutes, use a tally count (e.g. IIII ||) on your recording form to count every insect that lands on one of the flowers of your target flower species within the 50x50cm square patch:

- Only count insects that **land on** flowers of your target plant species, **within** the patch
- Tiny insects (up to 3mm long, including pollen beetles) should be counted as "Small insects under 3mm long" – there is no need to distinguish which insect group these tiny insects belong to
- If an insect is over 3mm long but you're not sure which group it belongs to, it should still be counted, in the "Other insects" category
- Ignore insects that do not land, or that land on flowers of non-target plant species, or that land on leaves
- Ignore any spiders, snails or other non-insects that may occasionally be seen on flowers
- Occasionally you may find insects 'hiding' at the bases of flowers, but these should not be counted unless you saw them actively land on or move over the flower during your 10 minutes

Where possible you are asked to identify the insects into different groups (e.g. bumblebees, hoverflies), and you do not need to say which actual species you have seen. Identifying insects into groups is not always straightforward: some are fairly obvious (for instance many people are familiar with what a bumblebee looks like), but others can be tricky (such as the smaller hoverflies and solitary bees). See the website for a pdf guide on distinguishing between the different insect groups.

We want you to count **all** the insects you see on the target flowers, but it is very likely that you will see some that you cannot confidently put into one group or another. That is absolutely fine, and there are two categories for "other insects", where you can count insects that you can't identify. There is one category for "Small insects under 3mm long", where you can add estimates for some of the tiny creatures that visit your target flowers. These might include pollen beetles for instance, which are small, shiny black beetles, but any really small insects can be counted in this category. And there is an "Other insects" category, which is for any insect over 3mm long that doesn't fit in to one of the main groups, or that you can't identify or are unsure of.

In order to get consistent totals it is important that you count EVERY insect that visits the target flowers, even if that means putting a lot into the "Other" category!

Try to count each individual insect just once. For instance, if a bumblebee flies into your quadrat area and lands on a target flower, that counts as one bumblebee. If it then moves to another flower within the quadrat that does **not** count as a second bumblebee. But if another bumblebee flies in from outside the quadrat that **is** counted as a second bumblebee.

If you have a lot of insects flying in and out of your quadrat it can be very difficult to keep track of whether or not you are seeing the same insect over and over again, and we know that the counts won't always be perfect. All we ask is that you do your best to count every insect that visits your target flowers, and to count each individual insect only once, during the ten minutes.



*For this Hogweed flower, your tally would be eight hoverflies and two other flies. If one or more of these subsequently visited another flower within your target patch, it should not be counted a second time, but if a 'new' insect landed on the flower it would be counted.
(Photo by Martin Harvey.)*

Sending in your count data

Data for the island of Ireland should be submitted here: <https://records.biodiversityireland.ie/record/fit-count>

The online form should match the field recording form, so all you need to do is to transfer the information you wrote down in the field onto the online form.

All data from Northern Ireland will also be shared directly with the UK Pollinator Monitoring Scheme.

Can I record any individual species that I recognise?

We do not need you to record particular species for the FIT Count itself, the focus here is on the species groups. But if you have identified any insects to species level, either during the count or at any time while you have been at your location, then we would encourage you to submit those records to the National Biodiversity Data Centre here: <https://records.biodiversityireland.ie/start-recording>

How many counts should I do?

All counts, even just a single one, are useful to the project and can be included in our analysis, so please don't forget to add your results to the online form!

If you are able to carry out multiple counts during the year that would be fantastic, and will add value to your data when we come to analyse it. Ideally we would like counts that are repeated over time at the same location (or very nearby). You can use different flowers at different times of year (and it is fine to move the quadrat around a small area to target different flowers).

If you are able to carry out counts at several locations that is also very useful, but where possible we would prefer more counts at fewer locations, rather than single counts at lots of locations. If you are able to do one count a month, or one a week, throughout the April to September season that would provide a really good set of data to add to the project.

Stay safe

As a volunteer, you are under no obligation to participate or continue with this survey. Volunteers are responsible for their own health and safety, and should not put themselves in a position that could place them, or others, in danger. You should never undertake any activity if you have concerns about your own or others' health and safety. If you have any such concerns, you should stop the count.

When selecting a location for a FIT Count we would ask that you keep to areas that are publicly accessible, or along public footpaths, or in locations where you have access arrangements with the landowner.

You can carry out the count at any location with suitable flowers, and there is no need to seek out remote sites. But if you are travelling away from home for your count, always leave a note of your whereabouts with a responsible person. This should include: a date and time of survey visit, expected time of leaving the site and return to home, and vehicle identification details. The person to whom these details are given should be told who to contact if you do not return and at what time to raise the alarm. If possible, do not work alone. It is advisable to carry a fully charged mobile phone in case of an emergency. Before undertaking any survey activity, every surveyor should consider the particular health and safety risks associated with their individual survey sites and whether their individual circumstances and medical conditions expose them to particular risks. Think about what precautions are needed to minimise risks, including wearing appropriate footwear and protection from the sun.

Who is organising this project?

In Ireland, FIT Counts are a collaboration between the National Biodiversity Data Centre and the Northern Ireland Environment Agency and are co-ordinated by the Data Centre. Their primary purpose is to generate important data to track changes in insects as part of the All-Ireland Pollinator Plan www.pollinators.ie

The FIT Count methodology used follows that of the Pollinator Monitoring Scheme (PoMS) within the UK Pollinator Monitoring and Research Partnership, co-ordinated by the Centre for Ecology & Hydrology (CEH). We thank them for their generosity in sharing resources. For further information about PoMS go to: www.ceh.ac.uk/pollinator-monitoring

What happens to my data?

By adding your count results to the online recording system, you agree to the terms for this project:

- Your contact details will be held in a database at the National Biodiversity Data Centre and will not be passed on to third parties. We may use these details to contact you if there is a query about the data you have entered, and to send information about various aspects of the project.
- Your data can be used to monitor changes in insects on the island of Ireland into the future to assist with their conservation. Permission is granted to the Data Centre to use your contributions in whatever way is needed to further this goal, in accordance with best practise. However, you give us this permission non-exclusively, meaning that you yourself still own your contribution.
- That your data can be shared with the PoMS project so that the National Biodiversity Data Centre and CEH can work collaboratively to identify wider trends and further insect conservation at the Britain and Ireland level into the future.

