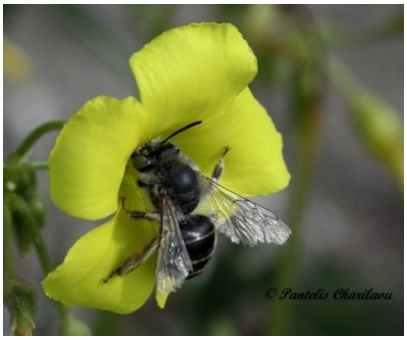
Mini Pollinator Monitoring Scheme - Kýpros: Flower-Insect Timed Count

mini PoMS-Ký

Background

The Mini Pollinator Monitoring Scheme Flower-Insect Timed Count (FIT Count) Mini PoMS-Ký was developed for children to collect data on numbers of flower-visiting insects in Cyprus. There are concerns that numbers of pollinating insects such as bees and flies may be declining, but we need additional data to be able to track changes in abundance. A reduction of pollinators would cause many problems because many wild and cultivated plants depend on insects to pollinate their flowers leading to seed or fruit production.



Solitary bee on Oxalis flower (photo by Pantelis Charilaou)

The Team

The Flower-Insect Timed Count (FIT Count) was designed by a collaborative Research Team in the UK to engage volunteers in collecting data on numbers of flower-visiting insects, as part of a wider set of surveys within the UK Pollinator Monitoring Scheme (PoMS), coordinated by the UK Centre for Ecology & Hydrology (UKCEH).

The Cyprus (Kýpros) Pollinator Monitoring Schemes - (PoMS- Ký and Mini PoMS-Ký) are based on PoMS but have been modified to enable us to understand more about the pollinating insects in Cyprus.

For further information about PoMS-Ký please visit http://www.ris-ky.info/poms-ky.

Who is the target audience?

Mini PoMS-Ký (a simplified version of PoMS- Ký) is designed to be conducted with groups of children between 10 – 15 years old.

What is the aim of this guide?

This guide was written by the UK Centre of Ecology & Hydrology in UK, the Unit for the Education for Environment and Sustainable Development of the Ministry of Education and Culture and the Joint Services Health Unit, British Forces in Cyprus and was funded through two Defra Darwin Plus grants (DPLUS056 and DPLUS088). This guide aims to give all the necessary information and advice to the teachers who would like to carry out FIT counts on how to prepare for and set up pollinator counts.

Preparation for the FIT count

Points to note:

- Counts can take place all year, in dry and reasonably warm weather, see weather conditions below.
- FIT Counts can be conducted anywhere there are flowering plants (in your own garden, a park, in the countryside or a nature reserve)
- Before each session starts, it is recommended for teachers to spend some time (about 15-20 minutes) in the location(s) that will be surveyed in order to see which plant species are in flower and are most abundant.
- Study the flower and insect identification guides together with your students.
- Try to survey a few different habitats/locations to get a range of different flowers and pollinating insects as well as to show the children differences between habitats.

- Wherever possible, try to pick at least one native plant species and one non-native plant species to carry out FIT counts so that you can assess whether non-native flowers attract the same numbers and types of pollinators as native plants.
- Before the FIT Count take a digital picture of each target flower species.
- Print out a survey form and an identification guide to insects for each group.

Material needed (for each group)

- 1 survey form
- 1 pencil
- 1 clipboard
- 1 quadrat 50 cm X 50 cm
- 1 stopwatch
- Insect identification guide

Target flower recording

Which target flowers do I need to record?

Find one of the flower species listed in the separate identification guide for the target flower species. It doesn't matter if your flower is part of a large patch of the target flower or grows among different flower species.

In case you cannot find any of the flowers from our list at your location, choose another flower that is attracting insects that you can recognise. If you can't recognise any flowers, just choose a random flower and a provide a picture of it.

Some of the plant names on our list of target species apply to groups of species, for example "poppies" or "rock-roses". 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. See the target flower guide for more information.

For each FIT Count, add one photo of your target flower. You don't need to worry about exactly how many target flowers are in your quadrat. Observe and circle how many target flowers are there in your 50x50cm patch, 1- 5 flowers, 6-20 flowers, 21- 50 flowers or more than 50 flowers.

In some cases you may have too many flowers to count (e.g. in a dense patch of lavender). In such cases 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.

See the separate target flower guide for more information.

Carrying out FIT counts

What weather conditions are suitable?

A FIT Count can be carried out between 7 am and 6pm between all year around, as long as the weather is dry and warm (not raining or with very strong winds):

- 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

Do not record if it is more than 30°C as it will be too hot for the insects and you!

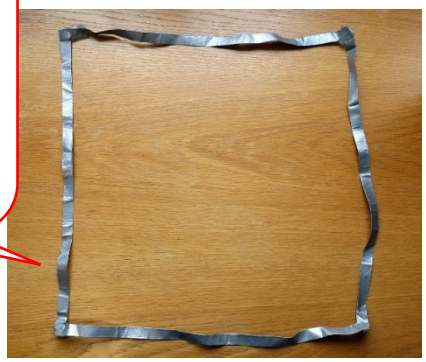
How do I use a quadrat?

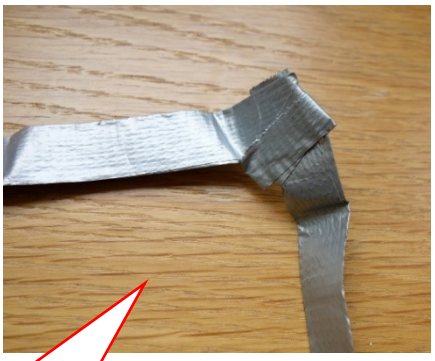
Count the insects visiting your target flowers within a 50cm by 50cm square patch. The easiest way to do this is to set up a 'quadrat' to define the square. A quadrat can be made using stiff cardboard or wire, or lengths of cane etc., cut to be 50cm on each side. Or you can make one using a 2-metre length 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).

flower

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





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 Spiny Broom, Olive and Acacia 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.

Guidance

- Students are divided in groups of 3-5 people depending on the amount of students.
- Target flower must be pointed out before the FIT count so the students will have time to observe it closely.
- Each FIT Count is conducted in a different spot in the area.
- The groups sit around the quadrat to observe the insects that visit the flowers. It is important not to lean over the flowers which could create shadowing over the area and effect the insects visits.
- Each group will be given a name, or number which will entered on the recording form each time.
- Students fill in all parts 1-4 of their recording form.
- The teacher announces the start time and students write it down on the insect recording form.
- The stopwatch is activated for 5 minutes and each group of students starts to record the insects that land on the target flowers.
- The actual count lasts five minutes. Use any time recorder.

- Use a tally count on the insect recording form to count every insect that you observe on the target flower species within the 50×50cm square patch.
- Record insects that land on the flowers in the column headed 'On Flower'.
- Insects that are seen on the target plant but are not on the flowers (for example are on the leaves or stems) should be recorded in the column headed 'Not on flower'.
- Any insects that are not in any of the four main groups (Bees, Flies, Butterflies and Moths or Beetles) should be recorded in the 'Other Insects' category along with any insects that cannot be identified or are too small to identify.
- 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.
- The teacher announces aloud stop time and students enter it in the re-useable insect recording form.
- If there is enough time repeat this process using other target plants and visiting other locations as time permits.

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.)

Collecting and recording data

The teacher, after the FIT counts, needs to enter the data through the website http://www.ris-ky.info/mini-poms-ky. This can be done on an individual teacher basis or for the school/environmental centre for which you can share the access. You will need to set up an account if you want to be able to review the data you submit. This account should be set up in advance of any FIT counts being conducted so that the account can be accessed immediately after each session and data can be entered.
For terms and conditions for the privacy notice for Mini-PoMS-Ký please visit https://www.ris-ky.info/terms-of-use and here https://www.ris-ky.info/privacy-notice.

Stay safe

Please make sure that you abide by your School/Environment Centres Health and Safety guidance for outdoor activities when undertaking these surveys.