Promoting pollinator research in the Caribbean

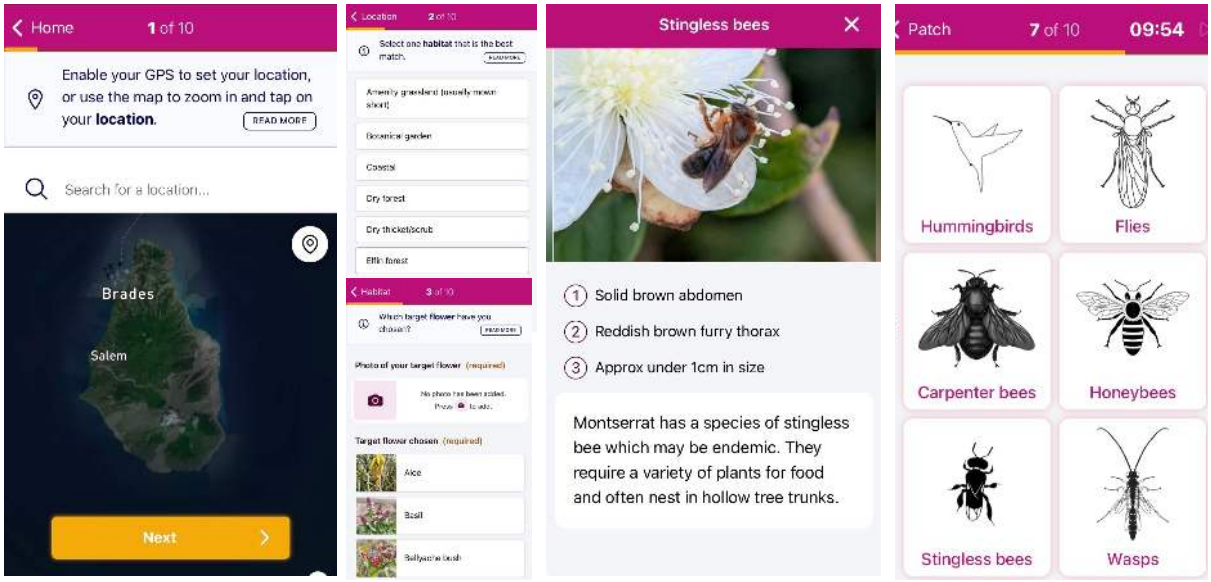
Marc Botham, Claire Carvell, David Clements, Jodey Peyton, Wolfgang Rabitsch, David Roy, Helen Roy, Chris Sealys, Catherine Wensink, Ajhermae White and Vicky Wilkins

Biodiversity is in decline around the world. There are many, interconnected pressures being placed on biodiversity, with the main ones being climate change, invasive non-native species, pollution, exploitation and land use change. Humans and many other species need the 'ecosystem services' of insects and other pollinators to have enough food to eat. Long-term monitoring using standardised methods for pollinators is needed to be able to detect changes over time and to ensure conservation programmes to protect them are informed by data. You can learn more about standardised monitoring through the presentation from the UK Centre for Ecology & Hydrology's (UKCEH) Dr Marc Botham who provided this background to Montserrat partners in 2024 as a way to address some data gaps and resource constraints. (https://docs.google.com/presentation/d/1uvhQcvZgm9SgP4EeX1j0pZ08oPC1QjLd/edit?usp=sharing&ouid=117293974070685157622&rtpof=true&sd=true).

As part of DPLUS192 Delivering biodiversity and human well-being gains for Montserrat's sustainable development, the UK Overseas Territories Conservation Forum (UKOTCF), Montserrat National Trust (MNT), the Montserrat Department of Environment (DoE), the Species Recovery Trust (SRT) and UKCEH partnered to deliver two tools that will help Montserrat develop and expand standardised monitoring for pollinators. The tools, used throughout UK and Europe and developed by UKCEH and partners, have been adapted for use in Montserrat and follow similar initiatives in Anguilla. These are:

- FIT Count: https://www.brc.ac.uk/app/flower-insect-timed-count-fit-count-app.

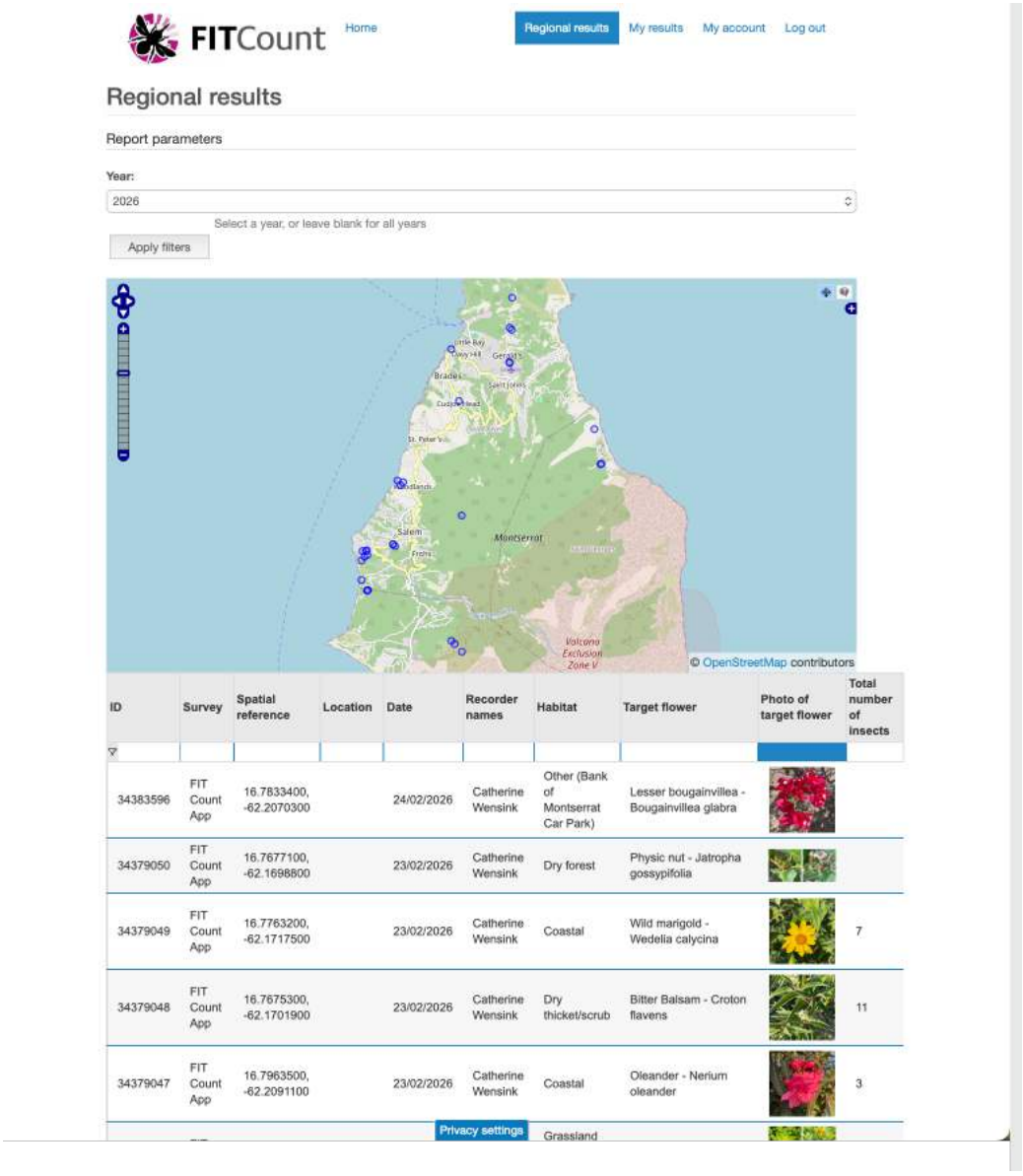
Many wild and cultivated plants depend on insects to pollinate their flowers, with successful pollination leading to successful seed or fruit production. There are concerns that numbers of pollinating insects such as bees and flies may be declining, but we need more data to be able to track changes in abundance across the country. The Flower-Insect Timed Count (FIT Count) is a simple 10-minute survey designed to collect new data on numbers of flower-visiting insects.



The app was adapted to Montserrat so that the flowering plants recommended as 'target flowers' were those found locally. The plant list was reviewed by Chris, Marc, Jodey and Catherine and included all flowering medicinal plants used in the Montserrat booklet produced by the MNT in collaboration with the local community. This link between pollinators and medicinal plants is an

important one that can be explored further by researchers. Images were sourced and provided to the developer so that it could be tailored to Montserrat and plants could be easily identified. As part of the adaptation of the app, we also developed a paper version of the recording form (Annex 1). This served as a mechanism to allow promotion of the scheme to occur during the app update phase and also means that anyone can undertake counts.

UKCEH has granted access to the data via its portal so that results can be extracted as an exportable file and used for the benefit of Montserrat. A screen shot of this platform is shown below:



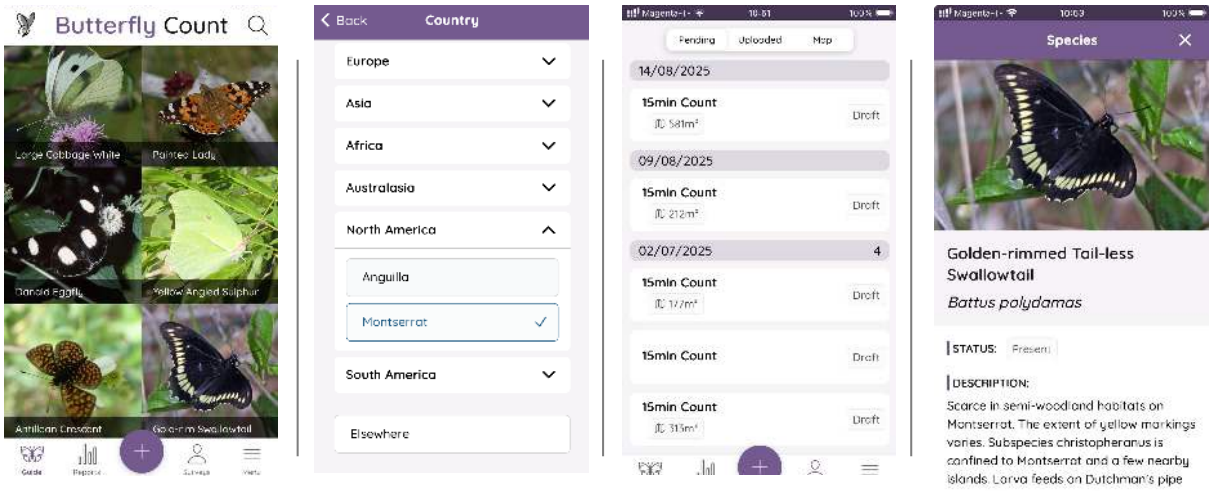
ID	Survey	Spatial reference	Location	Date	Recorder names	Habitat	Target flower	Photo of target flower	Total number of insects
34383596	FIT Count App	16.7833400, -62.2070300		24/02/2026	Catherine Wensink	Other (Bank of Montserrat Car Park)	Lesser bougainvillea - Bougainvillea glabra		
34379050	FIT Count App	16.7677100, -62.1698800		23/02/2026	Catherine Wensink	Dry forest	Physic nut - Jatropha gossypifolia		
34379049	FIT Count App	16.7763200, -62.1717500		23/02/2026	Catherine Wensink	Coastal	Wild marigold - Wedelia calycina		7
34379048	FIT Count App	16.7675300, -62.1701900		23/02/2026	Catherine Wensink	Dry thicket/scrub	Bitter Balsam - Croton flavens		11
34379047	FIT Count App	16.7963500, -62.2091100		23/02/2026	Catherine Wensink	Coastal	Oleander - Nerium oleander		3
						Grassland			

Privacy settings

At the time of writing, 66 FIT Count surveys have been completed across the island. A total of 323 pollinator-flower interactions have been documented. 11 groups were recorded between July 2025 and February 2026 by taxonomic groups were ‘Other insect’ 102 (true bug, ant etc); ‘small insect’ 63 (insects smaller than 3mm), honeybee 44, stingless bee 22, wasp 18, fly 18, butterfly and moths 17, beetle 7, carpenter bee 6, other fly 4, hoverfly 1. This data could potentially be used to map pollinator activity across the island. Catherine Wensink is exploring this.

- Butterfly Count: https://www.brc.ac.uk/app/butterflycount-app.

The world is increasingly aware of the perilous state of wildlife, and there have been widescale reports of declines in numbers of insects. Butterflies are no exception, being threatened in many parts of the world. There is an urgent need to greatly improve the knowledge of this vital part of biodiversity to help inform their conservation. This Butterfly Count App enables you to contribute to butterfly conservation by providing important information on where different species occur and the numbers found in different places across Europe. Contribute your counts of butterfly species alongside accurate location information, added via a dynamic map or via GPS acquired route information. You can add photos to support your observations. This free resource makes it easy to keep track of what you see, while making your data openly available for scientific research, education and conservation.



How were these European apps adapted for Montserrat?
Through this project, for the FIT Count app, we updated the types of pollinating insects that there are available on Montserrat and also added photos for them. We then added new habitats and plants that are found on Montserrat to enable the app to be suitable for Montserrat.
For the Butterfly Count app, we adapted the different species to record, based on the list compilations for butterflies on Montserrat from the DoE and SRT. We then found photographs for all the species available from a range of sources, and added descriptions of their distribution on Montserrat. The text and information for these updates was adapted from guides created through the DPLUS155 project by Ajhermae White from the Montserrat Department of Environment and David Clements (SRT). The SRT has been maintaining a checklist of invertebrate species for Montserrat and it was from this, the list of butterfly species for the guide was identified. We aim to publish the Checklist of invertebrate species for Montserrat to GBIF.

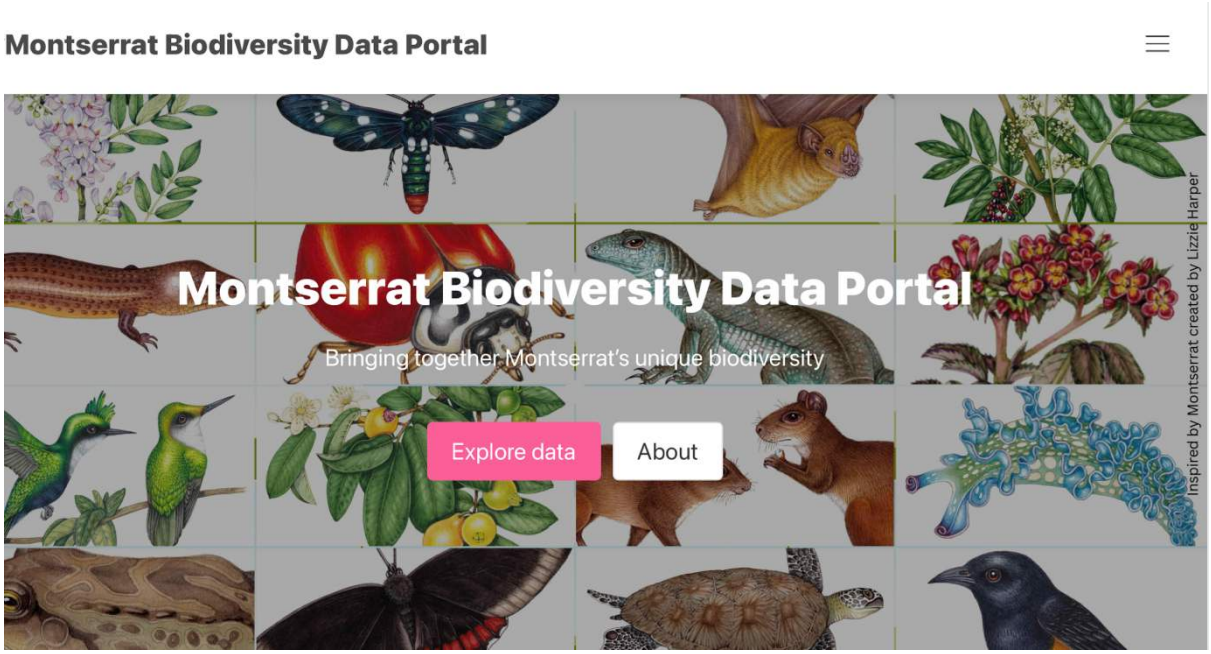
Please note there may be a species list update later in 2026 for the Butterfly Count app where all the species on Montserrat will be listed, with photographs.

Who are these applications for?
FIT Counts: We are recommending that if people are interested in learning about what types of pollinators are in their gardens and how these numbers might vary throughout the year / across the years, this is a great app for you! They are great for school children to look at the visitors to the plants in their school yards!
Butterfly Count: this application is for people who know about the different butterfly species present on island and want to do either standing counts or walking a route to monitor what is there. If you

don't know the species already, you can learn more about them by contacting cwensink@ukotcf.org and you can practice with the app!

What happens to the data?
The data is held securely in the UK at the UKCEH and is accessed by trusted partners at the Montserrat National Trust and UKOTCF. Your sightings will be made available to experts to review and will be shared with the Global Biodiversity Information Facility (GBIF) to enable them to be used for wider research to support conservation. You can learn more about this here:
https://www.brc.ac.uk/app/butterflycount-app
https://www.brc.ac.uk/app/flower-insect-timed-count-fit-count-app

The Global Biodiversity Facility (GBIF)
As of 2026, all data for Montserrat that is present on GBIF can be accessed via the Montserrat GBIF Hosted Portal. These portals, supported for the UK and UKOTs by Royal Botanic Gardens, Kew, the National Biodiversity Network, the Natural History Museum and Defra, enable users to rapidly collated information for their UKOT, share information with others interested in using and promoting biodiversity data.



Montserrat GBIF Hosted Portal is at: https://www.montserrat-biodiversity-information-portal.org

How it helps others in Caribbean
Given there are species and habitats similarities across the Caribbean, the work we have done in this apps will help others in the region who are wanting to use these tools. To learn more about the work on Montserrat and how you can get involved, please contact info@montserratnationaltrust.ms If you want to know more about the apps and how they might be used for your UKOT or Crown Dependency, please contact Catherine Wensink cwensink@ukotcf.org. If you want to learn more about the pollinating species of Montserrat, please see Annex 2 for the project Pollinator-plant sheets.

For more information on the Tools created in this project, such as the Thirty Medicinal Plants of Montserrat publication, a booklet that incorporates traditional knowledge of plants, please visit: www.montserratationaltrust.ms or the www.ukotcf.org.uk.

Annex 1

FIT Count field recording form

version 7, 2025

Flower-Insect Timed Counts are a useful way to monitor the abundance of important pollinators in Montserrat. This will help us understand changes in insect numbers. They can be carried out at any time during the day all year round as long as it is not raining or really windy. It is best to carry FIT Counts just after sunrise and when it is not too hot. This version of the FIT Count field recording form was adapted from the UK Pollinator Monitoring Scheme: ukpoms.org.uk for use in Montserrat and is based on flowers and pollinating insect groups commonly found in Montserrat as part of DPLUS191: *Delivering biodiversity and human well-being gains for Montserrat's sustainable development* and can be used in conjunction with the FIT Count app.

1. About you

Your name: _____

☐ I am new to identifying wildlife
☐ I am familiar with identifying some wildlife (e.g. birds or butterflies) but not most pollinating insects
☐ I am familiar with recognising the main **groups** of pollinating insect
☐ I am confident in identifying the commonly occurring pollinating insects **to species level**

2. Date and location of count

Date of count: _____

Location name: _____ (e.g. real estate subdivision/village, **not full address**)

GPS location if known (or select from online map later): _____

Habitat (tick one box that is the best match):

☐ Garden
☐ School grounds
☐ Park with trees
☐ Churchyard
☐ Beach edge
☐ Grassy area with wild flowers
☐ Amenity grassland (usually mown short)
☐ Dry thicket/scrub
☐ Dry forest
☐ Mesic forest
☐ Elfin forest
☐ Brownfield or other 'waste ground'
☐ Other habitat type (please describe): _____

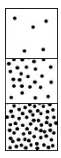
Please use one of the 'target flowers' if you possibly can:

- Bitter Lettuce (*Launaea intybacea*)
- Creeping oxeye (*Wedelia calycina*)
- Indian Jasmine (*Ixora* spp.)
- Lantana (*Lantana* spp)
- Liana (*Cissus verticillata*)
- Milkweed (*Asclepias curassavica*)
- Noni (*Morinda citrifolia*)
- Sage (*Croton flavens*)
- Saltbush (*Baccharis dioica*)
- Shrimp plant (*Ruellia simplex*)
- Sleepy Head (*Mimosa pudica*)
- Spanish Needle (*Bidens pilosa*)
- Trailing daisy (*Sphagneticola trilobata*)
- Tridax daisy (*Tridax procumbens*)
- West Indian milk berry (*Chiococca alba*)
- Wild/Butterfly pea (*Centrosema virginianum*)

3. Target flower (from the list on the left if possible)

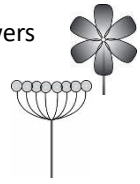
Which target flower have you chosen? _____

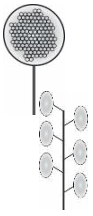
☐ Target flower cover less than half of 50×50cm patch
☐ Target flower cover about half of patch
☐ Target flower cover more than half of patch



Number of target flowers in the patch: _____

I counted: ☐ individual flowers ☐ flower heads





☐ flower umbels ☐ flower spikes

Is your 50 x 50 cm patch of target flowers:

☐ Growing in a larger patch of the same flower

☐ Growing in a larger patch of many different flowers

☐ More or less isolated

4. FIT Count

Once you are ready to start, check your timer so that you can record for exactly ten minutes. Please count **EVERY** insect that you see that is **SITTING** on or **LANDS** on one of your target **FLOWERS** (if you're not sure what type it is just add it to the "Other insects" category). Try to count each individual insect just once, and try not to lean over the flowers you are watching (this can cast shadows and prevent insects approaching).

Time of count start: _____

Insect group	**Tally of number seen: = 𝍸 || 7, etc.**
Honeybees	
Stingless bees (bottle bees)	
Carpenter bees *Xylocopa* species (bumblebees)	
Other bees	
Wasps (including jack sparrow)	
Flies	
Butterflies and moths	
Beetles (larger than 3mm)	
Small insects (such as pollen beetles) less than 3mm long	
Other insects	
Hummingbirds	

Do not count spiders or caterpillars, which are occasionally seen on flowers but are not regular pollinators.

5. Weather conditions

Sky above your area, location:

☐ All or mostly blue occasionally

☐ Half blue and half cloud time

☐ All or mostly cloud

During the 10-minute count, was your 50×50cm patch:

☐ Entirely in sunshine

☐ Partly in sun and partly shaded

☐ Entirely shaded

Wind strength (for all plants in not just target flowers):

☐ Leaves still/moving

☐ Leaves moving gently all the

☐ Leaves moving strongly

Don't forget to **take a photo** of your target flower species and **add your counts** to the Montserrat National Trust database with the flower photo (labelled date_initials_count number)! You can also add photos of *examples* of the insects you have seen, but this is optional (please don't take photos during the count as this may disturb the visiting insects).