Garden Butterfly Monitoring Scheme (Pilot)

2020 End of year report

Compiled by Liam Lysaght

15th February 2021

Background

The National Biodiversity Data Centre established a Garden Butterfly Monitoring Scheme on a pilot basis in May 2020. The purpose of this scheme was to test if a series of timed counts of butterflies seen in gardens would generate useful data on butterflies and provide additional insights to how butterfly populations change.

The National Biodiversity Data Centre already operates two general butterfly monitoring schemes:

1. The Irish Butterfly Monitoring Scheme involves surveyors walking a weekly transect between 1 April and 30 September each year to detect phenological patterns and year to year population changes.
2. The Five Visit Monitoring Scheme is also based on transect walks, but requires only five transects to be walk, two between 22nd April and 16th June and three between 1st July to 31st August.

The Garden Butterfly Monitoring scheme is intended to complement these existing schemes as an easy means of generating quantitative data on butterfly diversity and abundance. The Garden Butterfly Monitoring Scheme provided people who were unable to travel due Covid-19 restrictions with an opportunity to record butterflies in their gardens. The Garden Butterfly Monitoring Scheme also has the advantage of allowing people to become familiar with the most commonly recorded butterflies.

Methodology

The Garden Butterfly Monitoring Scheme asks volunteers to make a count of the maximum number of each butterfly species seen in their garden during a 15-minute period, when air temperature is at least 15° C. Surveyors can choose to count from a fixed point or from a walk around the garden, but the same method must be used each time for the count to ensure consistency of effort between counts. Ideally surveyors are encouraged to make at least one monitoring count each week. When first joining the scheme surveyors are asked to register their garden on the Garden Butterfly Monitoring Scheme online management system (National Sampling Framework https://surveys.biodiversityireland.ie/) providing some information about the garden, mainly its general location and size. All counts are then submitted online through the same system. Counts were received from 1st May to 3rd October. Data is only collected for 20 species under this scheme, these 20 being the butterflies most likely to be found in gardens. Full details of the scheme and how to participate can be found at https://www.biodiversityireland.ie/projects/monitoring-scheme-initiatives/butterfly-monitoring-scheme/get-involved/garden-butterfly-monitoring/

RESULTS 2020

Participating gardens

54 gardens registered for the scheme. Almost three quarters of all participating gardens were rural, and just over half were large rural gardens; large being bigger than 50m x 50m. Only two urban gardens participated and 13 sub-urban. Gardens from 21 different counties

participated which was a far better than expected regional spread for the initial pilot scheme. The National Biodiversity Data Centre is extremely grateful to all the surveyors who participated in the scheme in 2020.

	Small	Medium	Large
Rural	0	11	28
Suburban	7	3	3
Urban	1	1	0

Types of gardens registered for the Garden Butterfly Monitoring Scheme in 2020

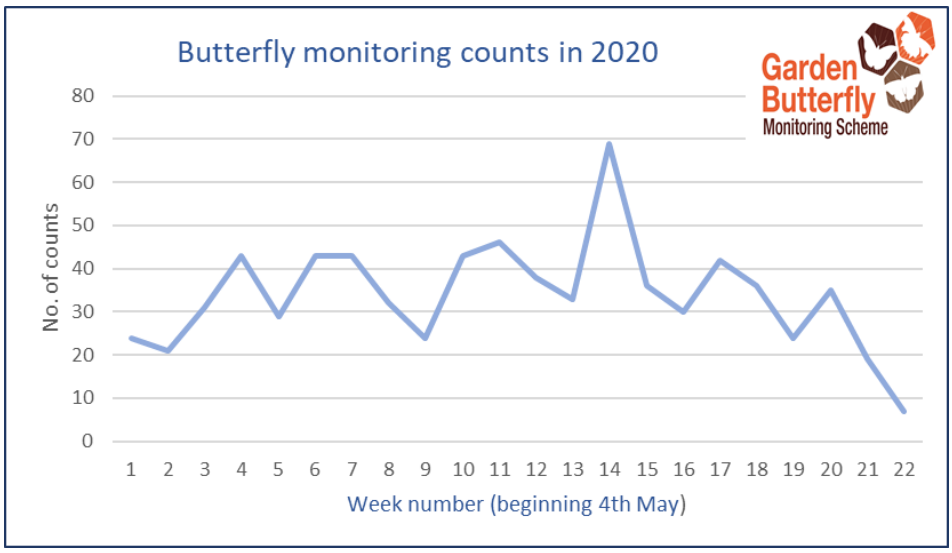
List of surveyors and gardens in 2020

Garden	Surveyor
Baile na mBocht, Co. Cork	Colm Ó Ceallacháin
Ballinlough Big, Co. Meath	Goska Wilkowska
Ballinteer, Co. Dublin	David Scully
Ballycahane Middle, Co. Limerick	Marie Wright
Ballycahane Upper, Co. Limerick	Colette Blaney
Ballyclancahill, Co. Clare	Lieke Schonemann
Ballyea South, Co. Clare	Eamonn Twomey
Ballymachola, Co. Mayo	Mark Holmes
Ballyshannon, Co. Wexford	Helen Greenhalgh
Barnland, Co. Wexford	Janet Whelehan
Bigwood, Co. Kilkenny	Olga Redmond-Stokes
Bohola, Co. Mayo	Anne Dingerkus
Bramblestown, Co. Kilkenny	Liam Lysaght
Bray, Co. Wicklow	Cathy Kelly
Bunerris, Co. Galway	Terry Forsyth
Carrickmore, Co. Tyrone	Sandra Hawkes
Carriganore, Co. Waterford	Liam Lysaght
Cashel Croft, Co. Dublin	David Burnett
Cleighran, Co. Sligo	Sandra Kelleher
Clonegal, Co. Carlow	Patrick Long
Cloonmurly, Co. Roscommon	Eileen Fahey
Coolcotts 1, Co. Wexford	Mary Foley
Coolcotts 2, Co. Wexford	Mick O'Connor
Crossabeg, Wexford	Sara Kelly
Crossakeel, Co. Meath	Stephen Gibney
Cúil Aodha, Co. Cork	Hammy Hamilton
Deerpark, Co. Laois	Richard Duff

Garden	Surveyor
Delgany, Co. Wicklow	Jonathan Taylor
Derrynacarragh, Co. Clare	Raymond Kazmierczak
Dunmore East, Co. Waterford	Oisin Duffy
Fethard, Co. Tipperary	Rachel Murphy
Firhouse, Co. Dublin	Gerard Kavanagh
Gormanston, Co. Meath	Peter Brady
Grange Rise, Co. Louth	James Hussey
Granisk, Co. Wexford	Kate Moore
Greenhall Upper, Co. Kildare	Jane Nolan
Gurteenclareen, Co. Longford	Áine Fenner
Kealanine, Co. Cork	Julia Cooper
Kells, Co. Clare	Karen van Dorp
Kilmacud, Dublin	Fionnuala O'Connor
Kiniska, Co. Galway	Margaret Ruttledge
Knockasartnett, Co. Kerry	Noreen O'Reilly
Leabeg Lane, Co. Wicklow	Hannah Keogh
Lettermore, Co. Galway	Paul Dunne
Liscullane, Co. Clare	Eileen O'Connor
Meelick, Co. Laois	Cathal Bergin
Midleton, Co. Cork	Janette Foley
Moynehall, Co. Cavan	Suzanne Kelly
Rail Park, Co. Kildare	Pat Bell
Rathgar, Dublin	Malcolm Taylor
Rose Cottage, Co. Kilkenny	Dave Broadfoot
The Bottoms, Co. Meath	Stephen Gibney
Tig Na Gile, Co. Cork	Paola Vais
Virginia, Co. Cavan	James Whelan

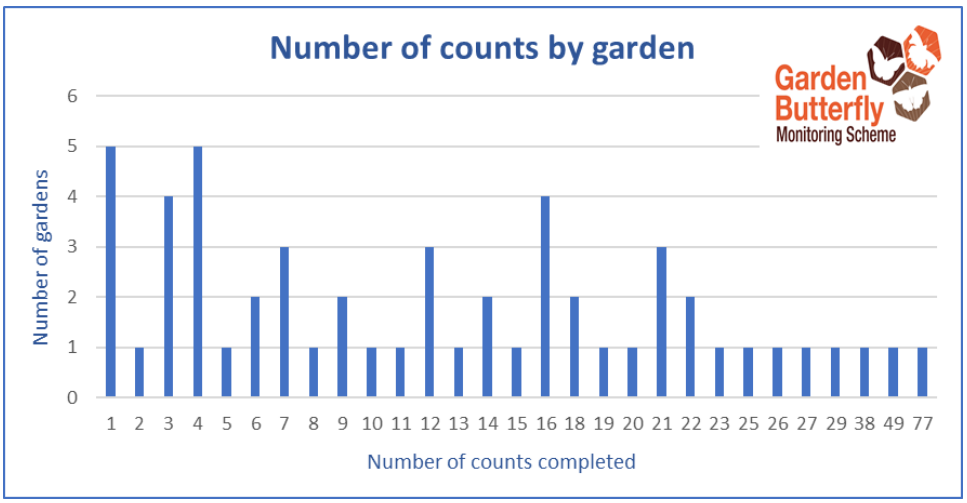
Number of counts

A total of 756 counts was completed between 1st May and 3rd October, generating data for 23 weeks of 2020. The number of counts completed varied between 30 and 40 most weeks between mid-May to mid-September. There were noticeably fewer counts completed in the first week of July, during a particularly bad spell of weather. The week with the most counts completed was week 14, running from the 3rd to the of 9th August, when 69 individual counts were completed.



Number of 15-minute butterfly counts completed each week from 4th May to end of September 2020

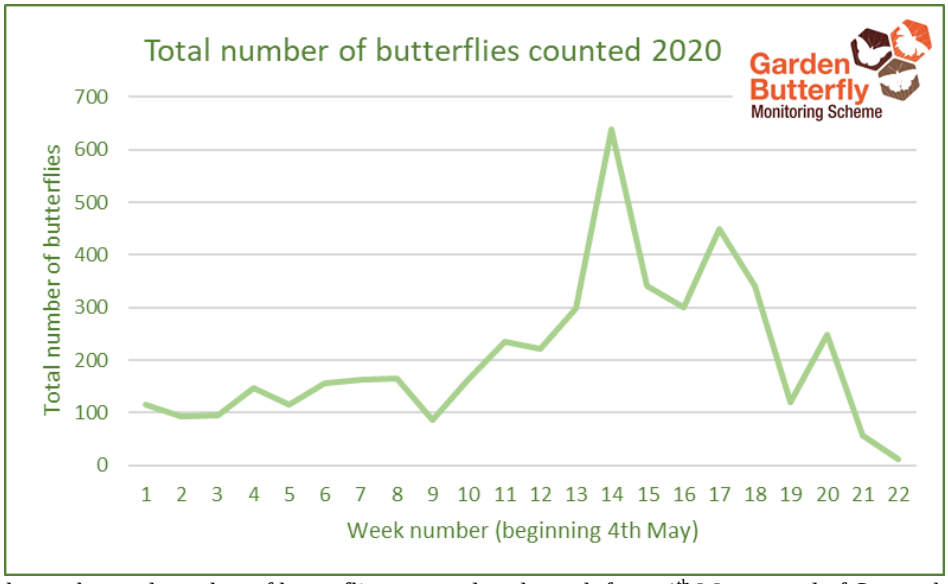
On average, 14 counts were made per garden, but there was a large variation between participating gardens. The 10 gardens with the lowest number of counts submitted 3 or less transect walks. The 10 gardens with highest numbers of counts submitted 22 or more transect walks. These top ten gardens accounted for 313 counts which was more than 40% of total, and three gardens completed a remarkable 38, 49 and 77 counts respectively.



The number of counts per garden varied significantly, with one garden recording a remarkable 77 counts over a 22 week period.

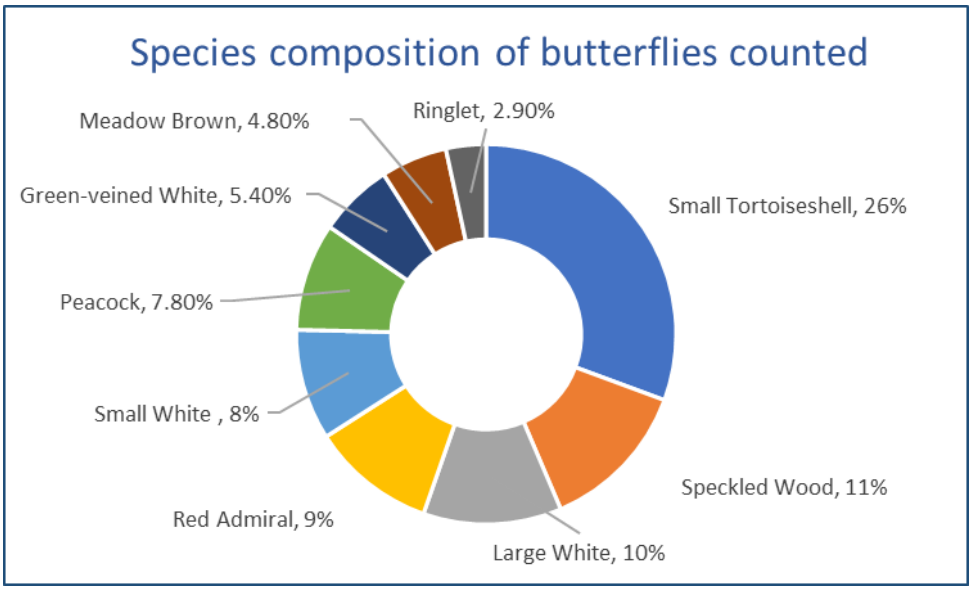
Butterfly numbers

A total of 4,585 individual butterflies was counted during 2020. The number of individuals counted was reasonably stable until early-July (Week 10). Numbers increased steadily during July and August, except for the third week in August which experienced poor weather conditions, before dropping off in September and tapering off completely during the first week of October.



Graph shows the total number of butterflies counted each week from 4th May to end of September 2020

Small Tortoiseshell was the most by far the most frequently seen butterfly, comprising more than a quarter of all butterflies counted. The top nine species, Small Tortoiseshell, Speckled Wood, Large White, Red Admiral, Small White, Peacock, Green-Veined White, Meadow Brown and Ringlet accounted for 85% of all butterflies.



Nine species of butterfly accounted for 85% all butterflies counted in gardens in 2020.

These nine species were also the most widespread, having been recorded in about half of all gardens. Although the results are based on only a pilot, and from one year, it already appears as if there is a core community of butterflies that occurs in gardens.

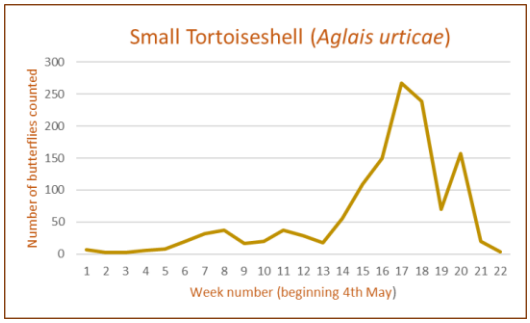
Species	Number of gardens in which butterfly was recorded	Percentage of gardens in which each species was recorded
Speckled Wood	45	83%
Small Tortoiseshell	43	80%
Red Admiral	41	76%
Large White	37	68.50%
Small White	35	64.80%
Meadow Brown	35	64.80%
Peacock	33	61%
Green-veined White	31	57.40%
Ringlet	26	48%
Orange-tip	23	42.60%
Holly Blue	19	35%
Common Blue	16	29.60%
Comma	15	27.70%
Painted Lady	12	22.20%
Small Copper	11	20.40%
Wood White	10	18.50%
Small Heath	6	11%
Brimstone	3	5.60%
Clouded Yellow	3	5.60%
Silver-washed Fritillary	3	5.60%

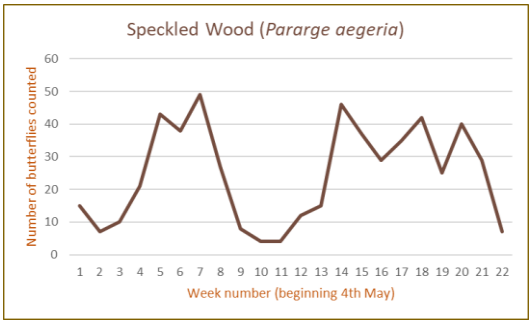
Table showing the number of gardens, and the percentage of gardens, in which each butterfly was recorded. Nine species were recorded in approximately half of all participating gardens.

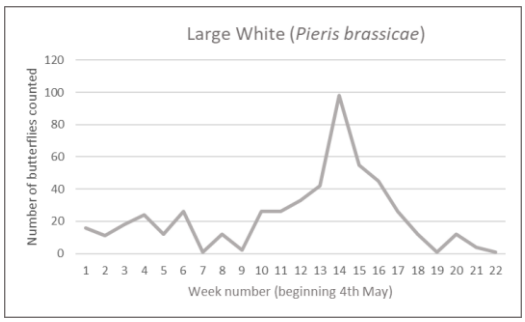
Individual species

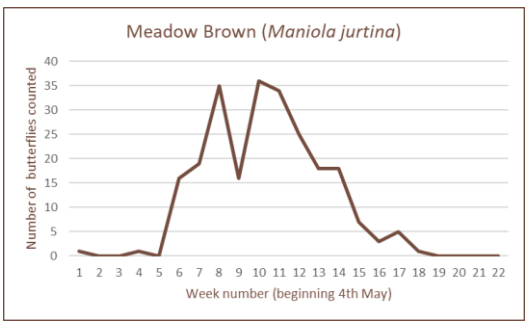
The number of individuals of the different species seen each week are show in graphs below for the ten most abundant species. Despite the relatively small number of sites and the poor weather conditions in July and August, the results from the pilot monitoring scheme suggest that it can provide useful information on butterflies. The scheme was able to detect the main flight periods of species like Meadow Brown, Orange-tip and Ringlet. Two generations of the Speckled Wood and Small White seem to have been detected, as was the successful autumn generation of Small Tortoiseshell. Clearly there were strong peak numbers of Peacock, Red Admiral and Large White counted in August, but this could just be due to more monitoring counts being completed.

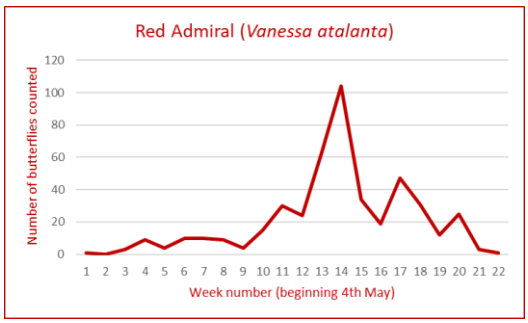
It is far too early to know the full value of the Garden Butterfly Monitoring Scheme however, the initial results of the pilot look promising. It is proposed that the scheme will be launched as a full scheme in 2021, and more people will be encouraged to participate.

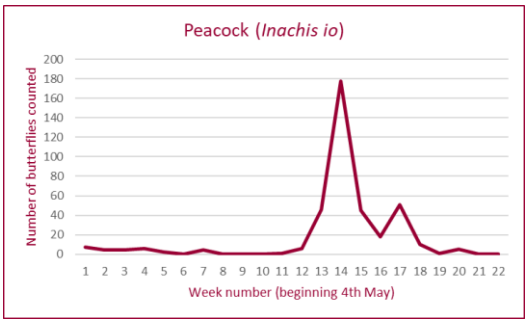

Small Tortoiseshell (*Aglais urticae*)
Number of butterflies counted
0 50 100 150 200 250 300
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)

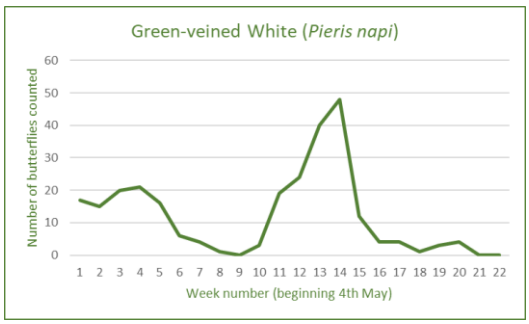

Speckled Wood (*Pararge aegeria*)
Number of butterflies counted
0 10 20 30 40 50 60
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)

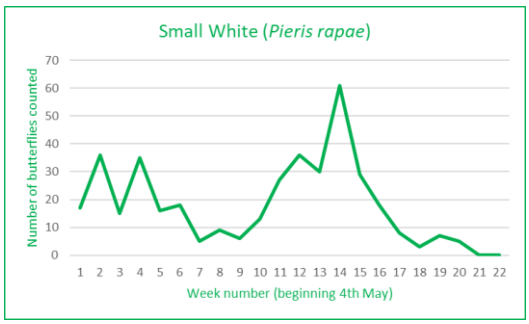

Large White (*Pieris brassicae*)
Number of butterflies counted
0 20 40 60 80 100 120
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)

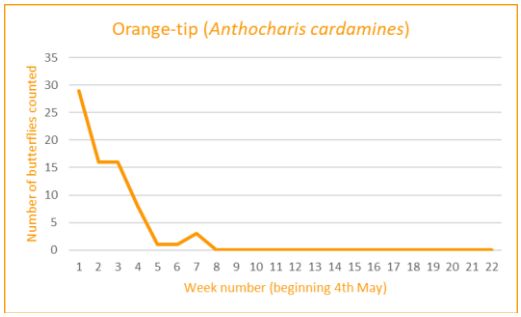

Meadow Brown (*Maniola jurtina*)
Number of butterflies counted
0 5 10 15 20 25 30 35 40
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)

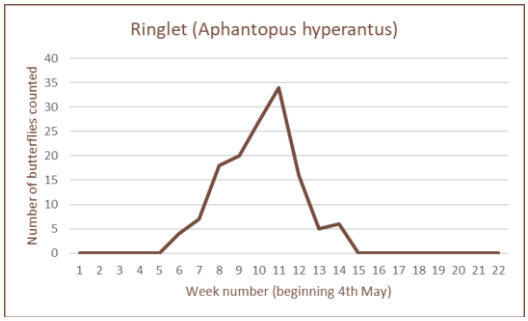

Red Admiral (*Vanessa atalanta*)
Number of butterflies counted
0 20 40 60 80 100 120
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)


Peacock (*Inachis io*)
Number of butterflies counted
0 20 40 60 80 100 120 140 160 180 200
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)


Green-veined White (*Pieris napi*)
Number of butterflies counted
0 10 20 30 40 50 60
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)


Small White (*Pieris rapae*)
Number of butterflies counted
0 10 20 30 40 50 60 70
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)


Orange-tip (*Anthocharis cardamines*)
Number of butterflies counted
0 5 10 15 20 25 30 35
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)


Ringlet (Aphantopus hyperantus)
Number of butterflies counted
0 5 10 15 20 25 30 35 40
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Week number (beginning 4th May)

Plans for 2021

The intention is the Garden Butterfly Monitoring Scheme would be launched as a full monitoring scheme in 2021. The scheme will run from 1st April to early October and counts can be completed on any day when air temperate is at least 15° C. Participants can make as many counts as they wish, but at least one each week is desirable to detect fine level changes in the different species' flight periods.

An online identification resources is being developed for the 20 species within this recording scheme. This resource details the identification features of both the upper and lower wing and any dimorphic differences between male and females. A promotional video is also being produced on the monitoring scheme to advertise and show how to get involved. The aim of these two resources is to support existing recorders and increase engagement from new surveyors. These will be available shortly from the Data Centre website https://www.biodiversityireland.ie/.

Garden Butterfly Monitoring Scheme

Monitoring calendar 2021

Week No.	Month	Thurs.	Fri.	Sat.	Sun.	Mon.	Tue.	Wed.
1	April	1	2	3	4	5	6	7
2	April	8	9	10	11	12	13	14
3	April	15	16	17	18	19	20	21
4	April	22	23	24	25	26	27	28
5	April	29	30	1	2	3	4	5
6	May	6	7	8	9	10	11	12
7	May	13	14	15	16	17	18	19
8	May	20	21	22	23	24	25	26
9	May	27	28	29	30	31	1	2
10	June	3	4	5	6	7	8	9
11	June	10	11	12	13	14	15	16
12	June	17	18	19	20	21	22	23
13	June	24	25	26	27	28	29	30
14	July	1	2	3	4	5	6	7
15	July	8	9	10	11	12	13	14
16	July	15	16	17	18	19	20	21
17	July	22	23	24	25	26	27	28
18	July	29	30	31	1	2	3	4
19	August	5	6	7	8	9	10	11
20	August	12	13	14	15	16	17	18
21	August	19	20	21	22	23	24	25
22	August	26	27	28	29	30	31	1
23	September	2	3	4	5	6	7	8
24	September	9	10	11	12	13	14	15
25	September	16	17	18	19	20	21	22
26	September	23	24	25	26	27	28	29
27	October	30	1	2	3	4	5	6

Garden Butterfly Monitoring Scheme Recording Form

GARDEN NAME

SURVEYOR NAME

DATE

TEMP (°C)

START

WEEK NUMBER

FINISH

WIND

- ☐ 0 - smoke rises vertically
- ☐ 1 - slight smoke drift
- ☐ 2 - wind felt on face
- ☐ 3 - leaves in slight motion
- ☐ 4 - small brances move
- ☐ 5 - small trees in sway

SUNSHINE

- ☐ Full sunshine
- ☐ Partial cloud cover
- ☐ Full cloud cover

SPECIES	Number counted
Brimstone	
Clouded Yellow	
Comma	
Common Blue	
Green-veined White	
Holly Blue	
Large White	
Meadow Brown	
Orange Tip	
Painted Lady	
Peacock	
Red Admiral	
Ringlet	
Silver-washed Fritillary	
Small Copper	
Small Heath	
Small Tortoiseshell	
Small White	
Speckled Wood	
Wood White	

INSTRUCTIONS

1. Chose a sunny day with temp of at least 15 °C

2. Count for exactly 15 minutes

3. Count the maximum number of each species seen during the 15 minutes

4. Try to complete at least one count each week

5. Submit your counts online

Garden Butterfly Monitoring Scheme