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Meadow Brown most recorded species 3 years in a row



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Sonraí Bithéagsúlachta
National Biodiversity
Data Centre

Irish Butterfly Monitoring Scheme



2025: Numbers up on last year, but trends still in decline

About the Irish Butterfly Monitoring Scheme

The IBMS is a citizen science scheme that tracks population and phenology (flight) trends in Irish butterflies, detecting the impacts of factors such as land use and climate change on the Irish butterfly population. It involves walking a fixed route (transect) on a weekly basis from 1st April to 30th September each year, when weather conditions are favourable. The number of the different butterfly species seen along different sections of each transect are recorded. These records are the basic data upon which the analysis is based.

Results at a glance

Results from the multi-species index in 2025 showed that there has been a moderate decline in butterfly populations since 2008 (-65%). From an individual species trend perspective, only one species showed an increase from 2008 to 2025 and that was Red Admiral, one of our migrant species. Two species showed stable trends while 14 species showed either moderate or strong declines since 2008. The trends of a further 4 species were uncertain.

Results from the raw data showed that 2025 had the highest number of butterflies since 2019. For the 3rd year running the most recorded species, in both the IBMS and the Five Visit Monitoring Scheme, was the Meadow Brown with 4,425 sightings, accounting for 14% of butterflies recorded in the IBMS.

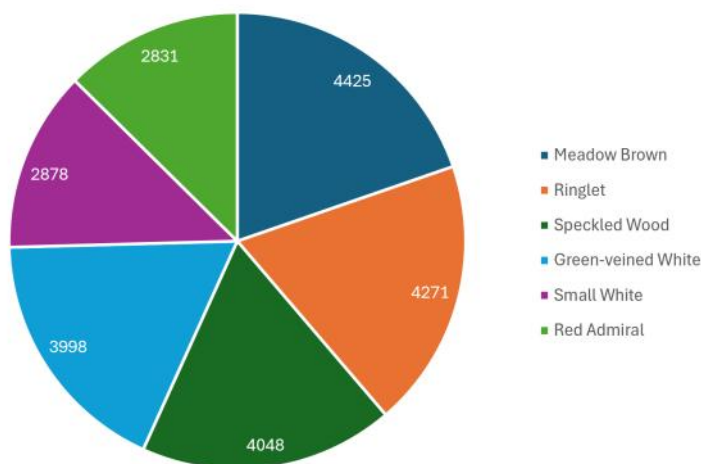


Figure 1. The top 6 species recorded in the IBMS in 2025 with the number of records per species in the pie chart

Irish Butterfly Monitoring Scheme Analysis

What type of analysis is completed?

Two separate analyses are undertaken to determine the change (if any) in butterfly populations. The first is a multi-species index which estimates the overall direction of change in the butterfly population, as a whole, using Ireland's most common resident butterflies (15 species). A trend line is estimated from the multi-species index which summarises the overall direction of the population change since the commencement of the recording scheme. The second analysis is the estimation of a trend that tracks the status of the individual species of butterflies. This analysis includes migratory species of butterflies to Ireland and not just native or common species like in the multi-species analysis.

The trends are then categorized based on how much they change per year (e.g., more or less than 5%) and the confidence associated with that prediction (i.e., is the change statistically significant and what is the confidence interval surrounding the trend?).

Individual species trends were estimated using the 'rbms' package (Schmucki R., Harrower C.A., Dennis E.B. (2022) rbms: Computing generalised abundance indices for butterfly monitoring count data. R package version 1.1.3. <https://github.com/RetoSchmucki/rbms>). Multispecies index was estimated using international best practice methods developed by Statistics Netherlands (Multi-Species Indicators, MSI, Soldaat et al., 2017).

The Five Visit butterfly Monitoring Scheme

The Five Visit Monitoring Scheme (FVMS) is a reduced effort butterfly transect monitoring scheme that involves walking a fixed route five times per year counting all the butterflies seen. It helps track changes in butterfly populations and provides valuable information on regional butterfly abundance across the country. It is intended to be used for recorders who don't have time to devote to the full weekly monitoring scheme and although it does not collect the detailed flight period data of the full 26-week scheme, it collects sufficient data to enable changes in butterfly populations to be tracked.

The data collected in the Five Visit Monitoring Scheme is now included in the analysis of the full Irish Butterfly Monitoring Scheme. Combining the data from the FVMS and IBMS allows us to generate more accurate trends and will improve the quality of our results.

Butterfly phenology

The flight curve for butterflies was generated using the raw monitoring scheme data and can be seen in Figure 2. The peak flying period for butterflies in 2025 was at week 15 (mid July) which was approximately two weeks earlier than the peak in 2024. There was a noticeable dip in the number of butterflies flying in week 10 (early June) when compared to the 2024 figures and the overall average of 2008-2025.

Met Eireann's Annual Climate Statement for 2025 described the weather as 'the second warmest year on record with above average rainfall for most'. 2025 also had the warmest and sunniest Spring on record and the warmest summer on record.

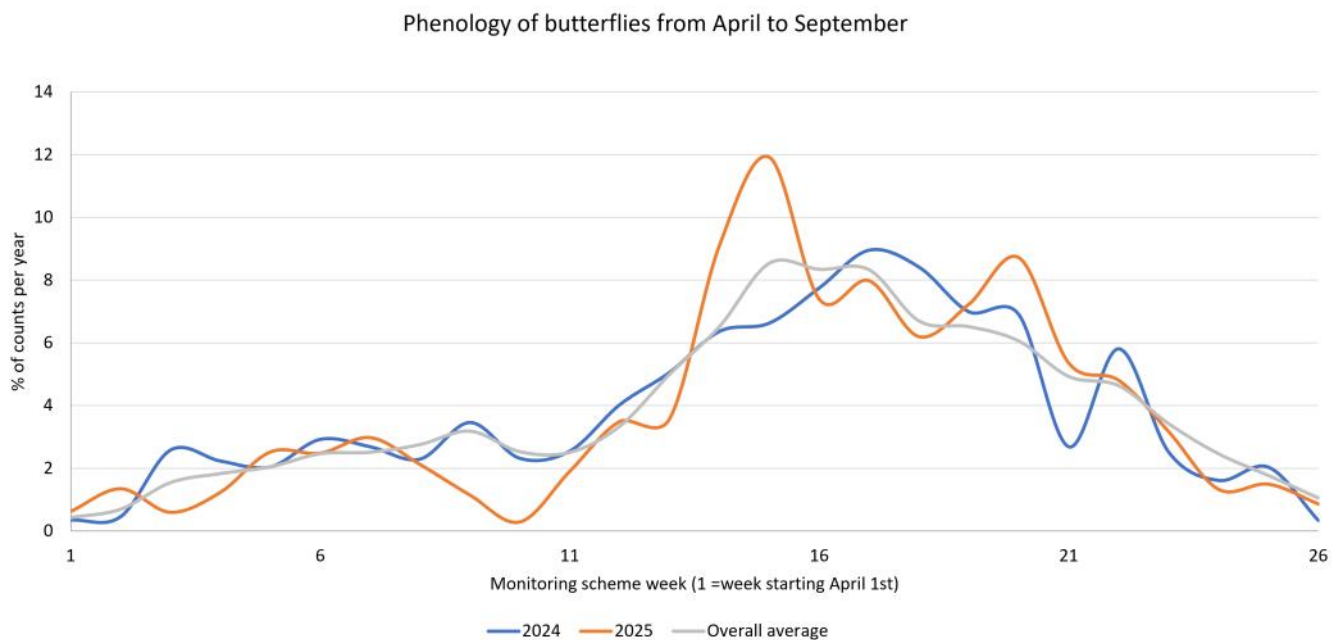


Figure 2. Phenology (flight curve) of butterflies across monitoring scheme week. This was completed using the raw data thus it includes all records and species recorded in the Irish Butterfly Monitoring Scheme



Irish butterfly population trends 2008-2025

Multi-species analysis

Results from the multi-species index of the 15 most common butterfly species highlight that there was a moderate decline (-65%) in the population of butterflies in 2025 when compared to the baseline year of 2008 (Figure 3). Results from the last 10 years (from 2016 to 2025) show the population has moderately declined (-28%).

For a species to be included in the multi-species index it must be recorded in at least 5 sites on at least 2 occurrences. Sites must be visited at least 3 times, and must be visited during at least 10% of the flight period of the species being investigated. Sites are weighted based on the proportion of flight curve sampled thus ensuring that the absence of species are correctly accounted for in the statistical model used for the data analysis. Table

1 (page 5) identifies the species that are included in the multi-species analysis based on this criteria. The Comma is close to reaching the threshold to be included in the analysis, but most other species need to be observed on more sites before they can be considered.

It is important to note that the multi-species index is a useful index to show overall trends in population changes of common butterflies of the wider countryside. However, it does not generate sufficiently reliable data to track how the populations of our more localised or specialised butterfly species are changing. This is because there is currently not enough data being recorded for these species. In order to capture adequate information on these species additional species specific schemes (like the Marsh Fritillary Monitoring Scheme) are needed.

Multispecies Index of butterfly population change 2008-2025

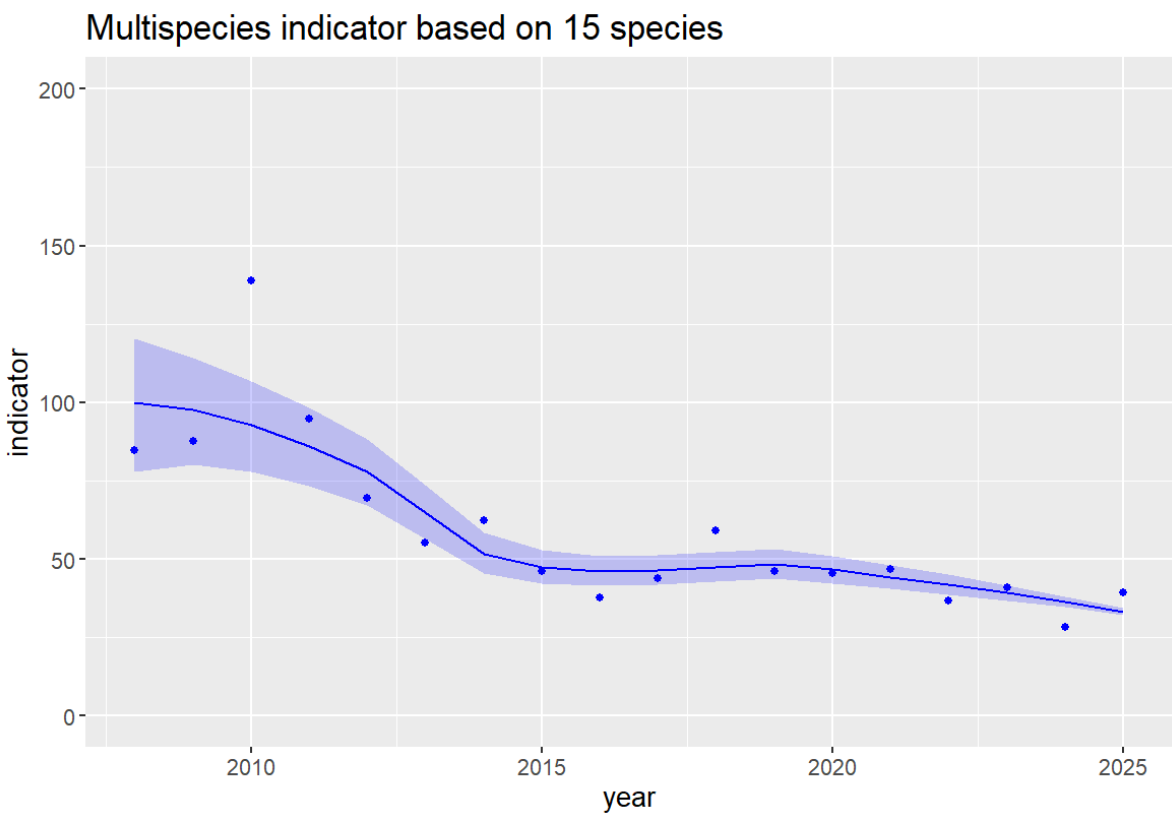


Figure 3. The multi-species index derived from the amalgamation of the population trends of 15 common species of butterflies from 2008 to 2025. The dark purple line is the smoothed trend line, and the circle markers represent the multispecies index per year. The shaded area surrounding the trend line is the 95% confidence interval calculated using the Bootstrapping method.

Table 1. Irish Butterfly population trends 2008 to 2025

Species	Trend 2008 - 2024	MSI
Brimstone	Stable	No
Holly Blue		Yes
Peacock		Yes
Small Tortoiseshell	Moderate decline	Yes
Grayling		No
Dark Green Fritillary		No
Small Copper		Yes
Wall		No
Wood White		Yes
Meadow Brown		Yes
Green Veined White	Strong decline	Yes
Large White		Yes
Orange-tip		Yes
Small White		Yes
Small Heath		Yes
Speckled Wood		Yes
Ringlet		Yes
Common Blue	Uncertain	Yes
Dingy Skipper		No
Silver-washed Fritillary		Yes
Painted Lady*	Uncertain	No
Red Admiral*	Moderate increase	No

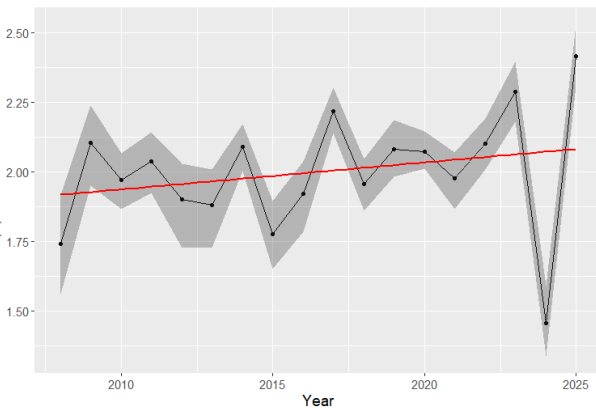
*Migrant species; changes in numbers recorded in Ireland largely dependent on conditions external to Ireland

Population trends of individual butterfly species

Individual species trends

The results of the individual species trends show that over the period 2008 to 2025, only one of our species showed an increased population size when compared to 2008 and this was the migrant Red Admiral species. The populations of 3 species remained stable while 14 species showed a moderate or strong decline from 2008 to 2025. There was uncertain trends in a further 3 species and 9 species had insufficient data to estimate any trend. In good news, a lot of species did bounce back from lower numbers in 2024, so if we continue to experience higher numbers of butterflies for the remainder of 2026 and into 2027 the trends may prove interesting.

Moderate Increase



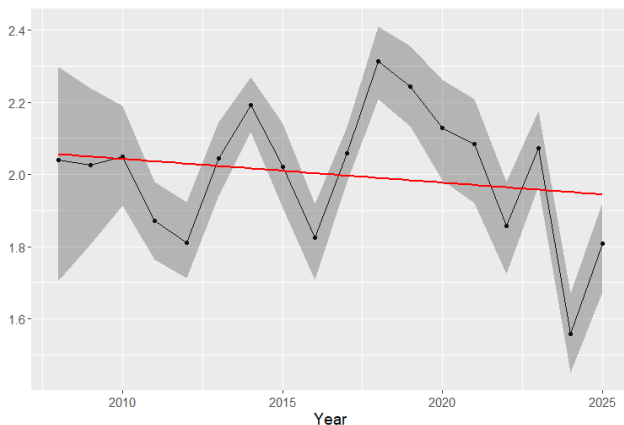
Red Admiral *Vanessa atalanta*

Trend 2008-2025: Moderate increase (+46%)

Trend 2016-2025: Stable

Conservation status (2010): Least Concern

Stable



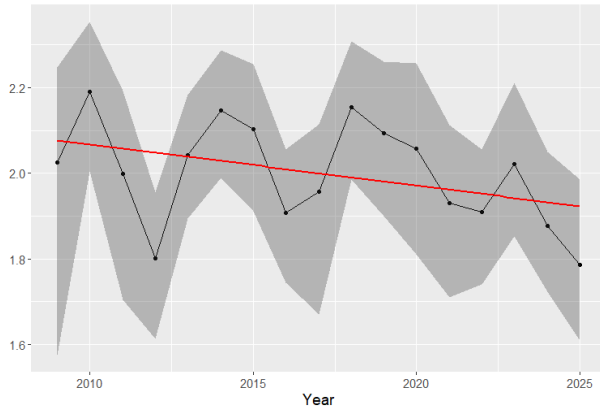
Peacock *Aglais io*

Trend 2008-2025: Stable

Trend 2016-2025: Moderate decline (-53%)

Conservation status (2010): Least Concern

Stable

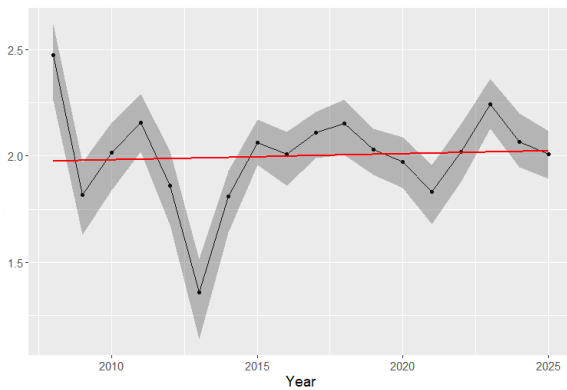


Brimstone *Gonepteryx rhamni*

Trend 2009 -2025: Stable

Trend 2016-2025: Uncertain

Conservation status (2010): Least Concern



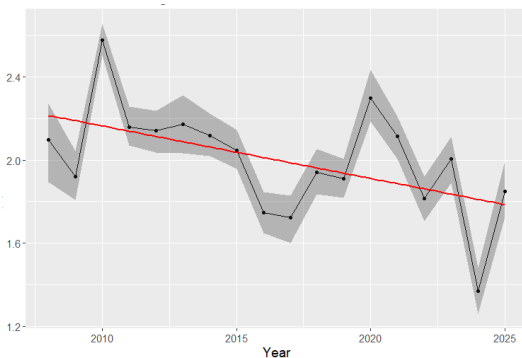
Holly Blue *Celastrina argiolus*

Trend 2008–2025: Stable

Trend 2016 -2025: Stable

Conservation status (2010): Least Concern

Moderate Decline

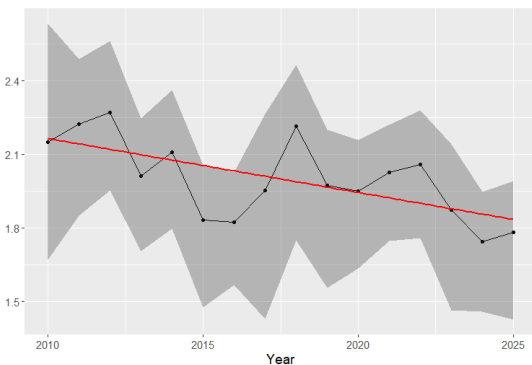


Small Tortoiseshell *Aglais urticae*

Trend 2008-2025: Moderate decline (-63%)

Trend 2016-2025: Uncertain

Conservation status (2010): Least Concern



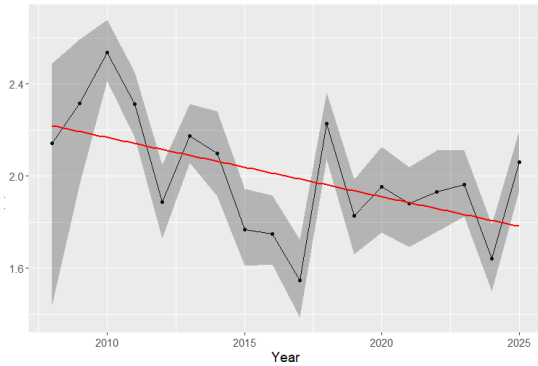
Grayling *Hipparchia semele*

Trend 2010-2025 :Moderate decline (-53%)

Trend 2016-2025: Uncertain

Conservation status (2010): Near Threatened

Moderate Decline

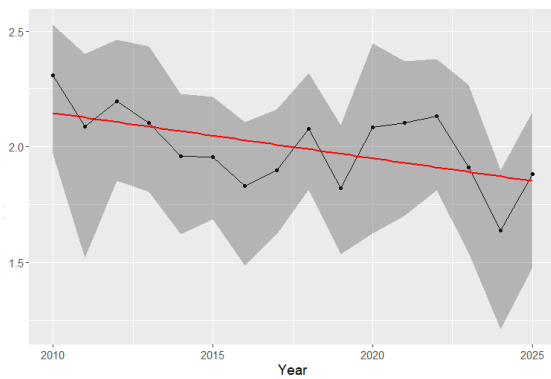


Small Copper *Lycaena phlaeas*

Trend 2008-2025: Moderate decline (-63%)

Trend 2016-2025: Uncertain

Conservation status (2010): Least Concern

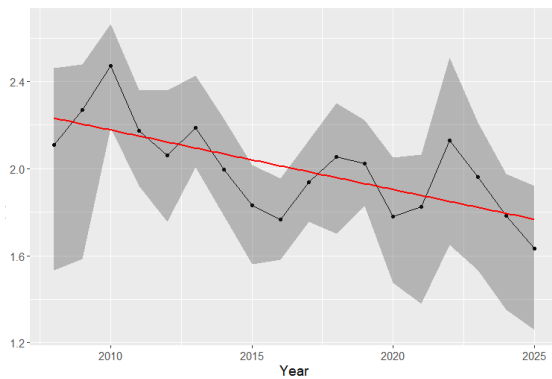


Dark Green Fritillary *Argynnis aglaja*

Trend 2010-2025: Moderate decline (-49%)

Trend 2016-2025: Uncertain

Conservation status (2010): Vulnerable

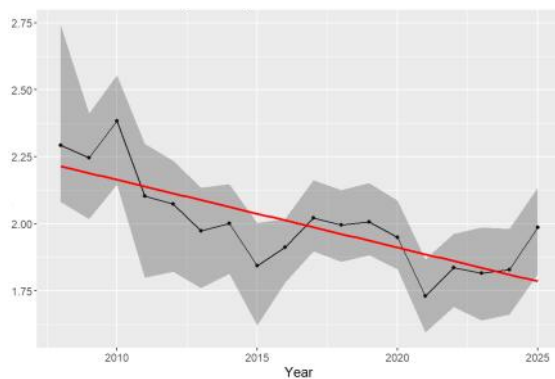


Wall *Lasiommata megera*

Trend 2008-2025: Moderate decline (-66%)

Trend 2016-2025: Moderate decline (-26%)

Conservation status (2010): Endangered

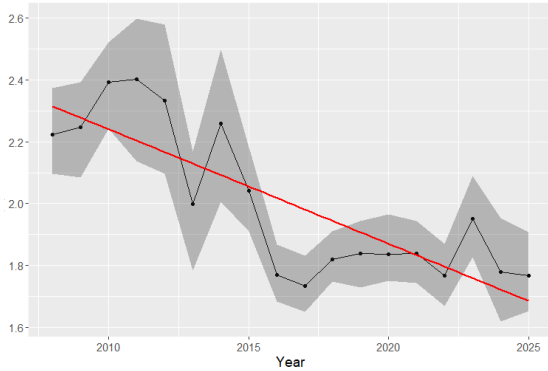


Wood White *Leptidea sp.*

Trend 2008-2025: Moderate decline (-58%)

Trend 2016-2025: Moderate decline (-25%)

Moderate Decline



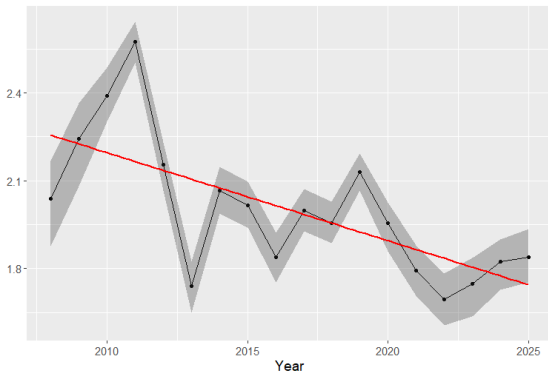
Meadow Brown *Maniola jurtina*

Trend 2008-2025: Moderate decline (-77%)

Trend 2016-2025: Uncertain

Conservation status (2010): Least Concern

Strong Decline

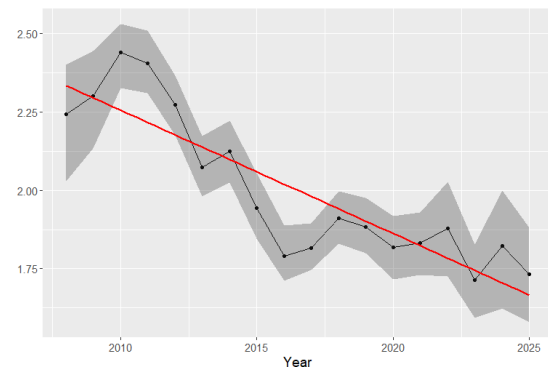


Orange-tip *Anthocharis cardamines*

Trend 2008-2025: Strong decline (-69%)

Trend 2016-2025: Moderate decline (-37%)

Conservation status (2010): Least Concern



Ringlet *Aphantopus hyperantus*

Trend 2008-2025: Strong decline (-79%)

Trend 2016-2025: Uncertain

Conservation status (2010): Least Concern



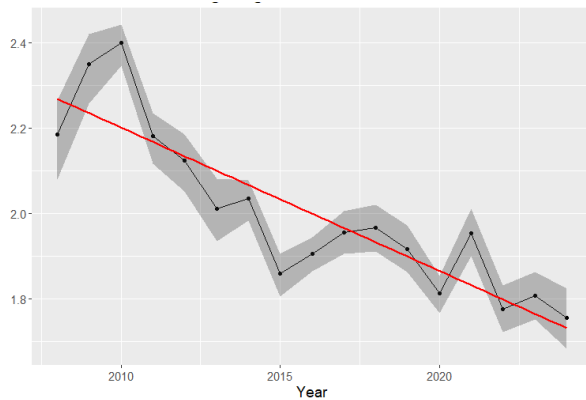
Small Heath *Coenonympha pamphilus*

Trend 2008-2025: Strong decline (-83%)

Trend 2016-2025: Moderate decline (-41%)

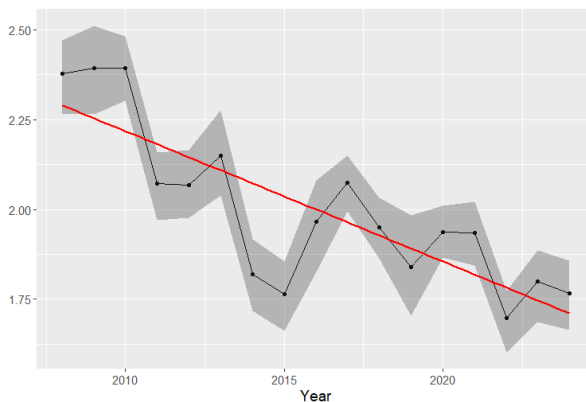
Conservation status (2010): Near Threatened

Strong Decline



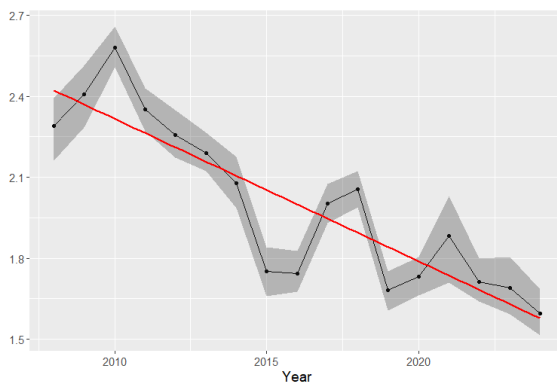
Speckled Wood *Pararge aegeria*

Trend 2008-2025: Strong decline (-72%)
Trend 2016-2025: Moderate decline (-37%)
Conservation status (2010): Least Concern



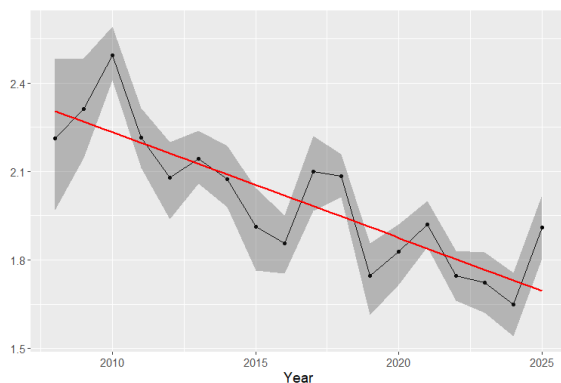
Large White *Pieris brassicae*

Trend 2008-2025: Strong decline (-70%)
Trend 2016-2025: Moderate decline (-32%)
Conservation status (2010): Least Concern



Green-veined White *Pieris napi*

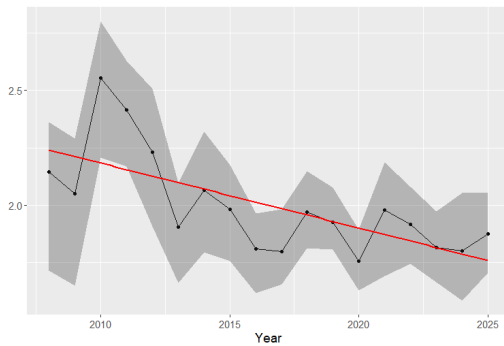
Trend 2008-2025: Strong decline (-84%)
Trend 2016-2025: Moderate decline (-36%)
Conservation status (2010): Least concern



Small White *Pieris rapae*

Trend 2008-2025: Strong decline (-75%)
Trend 2016-2025: Moderate decline (-42%)
Conservation status (2010): Least Concern

Uncertain

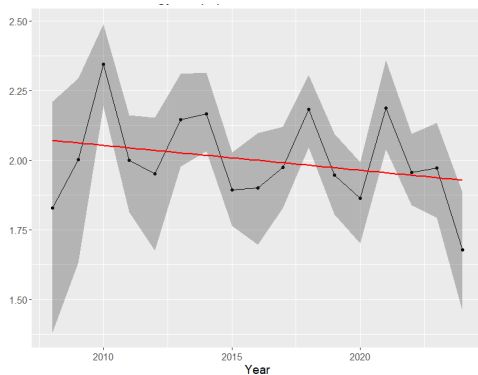


Common Blue *Polyommatus icarus*

Trend 2008-2025: Uncertain

Trend 2016-2025: Stable

Conservation status (2010): Least Concern

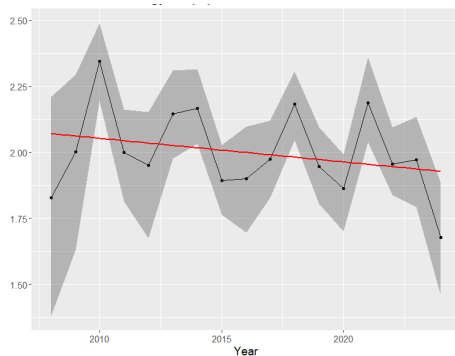


Silver-washed Fritillary *Argynnis aglaja*

Trend 2008-2025: Uncertain

Trend 2016-2025: Uncertain

Conservation status (2010): Least Concern



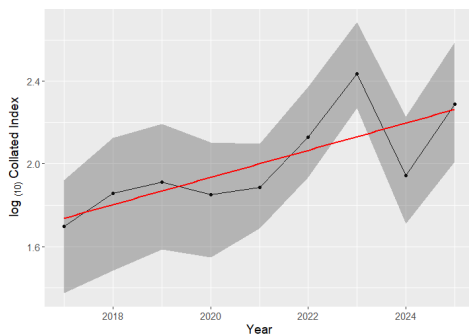
Dingy Skipper *Erynnis tages*

Trend 2008-2024: Uncertain

Trend 2015-2024: Uncertain

Conservation status (2010): Near Threatened

Recent Arrival



Comma (*Polygonia c-album*)

Trend 2017-2025: Moderate increase
(+236%)

Comma, a new arrival to Ireland since 2000, continues to expand its range and is increasingly being recorded on transects. It is not currently included in the MSI but this is likely change in coming years if the population continues to grow.



Ensuring continued success of the IBMS

For a species to be included in the multi-species analysis it needs to fulfil certain criteria. It is very important to carry out as many transect walks as possible to ensure as much data as possible can be included in the analysis. Where some weeks are missed, it is possible to calculate estimated counts using the previous and subsequent counts, but the fewer missed counts the greater the accuracy of the data.

Table 2 outlines the summary statistics of the numbers of records, transects walk, number of records submitted and the number of butterflies for the last 5 years. Un-

dertaking a butterfly transect requires a big and regular commitment from participants throughout the summer and not many people are able to make this commitment in a voluntary capacity. We will explore options for how to grow the number of transects walked over the coming months.

Tables 4 lists all the volunteers who have contributed to the butterfly monitoring scheme over the years.

Table 2 Summary statistics for the last 5 years of the IBMS

	2021	2022	2023	2024	2025
Total number of recorders	69	68	67	62	57
Total number of transects	88	85	86	82	74
Total number of records	10,074	11,217	11,188	8,973	10,899
Total number of butterflies	27,900	31,137	30,925	21,594	32,809

Five visit monitoring scheme

Data from the Five Visit Monitoring Scheme walks completed as part of the Irish Pollinator Monitoring Scheme have been incorporated in the analysis. The Irish Pollinator Monitoring Scheme is funded jointly by the Department of Agriculture, Food and the Marine and National Parks and Wildlife Service. Table 3 shows the summary statistics for the five-visit monitoring scheme. Table 5 lists recorders involved in the five-visit monitoring scheme since it began.

Table 3 Summary statistics for the last 5 years of the five-visit monitoring scheme

	2021	2022	2023	2024	2025
Total number of recorders	19	49	46	50	69
Total number of Transects	28	64	57	66	78
Total number of records	2,125	2,455	5,096	3,591	4,778
Total number of Butterflies	4,852	8,823	6,036	4,765	9,255

Table 4. *Irish Butterfly monitoring scheme recorders since 2008*

Recorder	Recorder	Recorder	Recorder
Abigail Brewer	Cliona Creed	Grainne Reidy	Leah Moynihan
Aedamar Hofmann	Cliona O'Connell	Gregory Daly	Lee Donohoe
Aine Fenner	Colin Hamilton	Hannah Mulcahy	Leif Barry
Áine O'Donoghue	Damaris Lysaght	Hannah Sheridan	Leo Solosy
Alan Dunne	Daragh Smyth	Harm Deenen	Lesley Whiteside
Andrew Butler	Darren Ellis	Heather Bothwell	Letizia Cocchiglia
Angela Brewer	Darren Reidy	Howard Preston	Liam Lysaght
Angela Dakin	Dave McKay	I Ryan	Linda McGagh
Angus Tyner	David McDonagh	Ian Edwards	Linda Morrison
Anne Griffin	Deirdre Murphy	Ian Fox	Linda Paterson
Annemarieke van der Voort	Denis Cullen	Irene Deisler	Lisa Scarff
Annette Lynch	Dermot McNelis	Irish Peatland Conservation Council	Liz & Ralph Sheppard
Anthony Griffin	Derry Gibson	Ismay Bothwell	Lorna Folan
Anthony Pickering	Des Finnermore	Isobel Abbott	Louise Garcia
B Colhoun	Donal Sheehan	Jacintha Cloney	Louise McAlavey
Barry Mahon	Donal Sheehan	Jack Duffy	Lyn Nolan
Barry O' Sullivan	Donna Smith	James Kilroy	Lynda Weekes
Benedicta McArdle	Eamonn Twomey	Janet Whelehan (deceased)	Madeline Joyce
Bernard Brewer	Eddie Gilligan	Jason Monaghan	Maeve Foran
Brigid Seale	Eddie Smyth	Jenni McGuire	Mairead Crawford
Bruce Walker (deceased)	Edward Hill	Jesmond Harding	Mairi-Elena Crook
Bryony Williams	Eileen Maguire	Jim Galloway	Maja Gawlikowska
Caitriona Cunningham	Eileen McGrath	John Cullen	Malcolm Tanner
Caitriona Fenton	Eileen O'Connor	John Fogarty	Malcolm Taylor
Caren Carruthers	Elizabeth Byrnes	John Hardiman	Margaret O'Keeffe
Carol Fynn	Emma Stewart-Liberty	John Kehoe	Marie Power
Carol Melody	Emmet Fahy	John Kinsella	Mark Holmes
Caroline Murphy	Enda Flynn	John Linehan	Mark McCorry
Caroline Stanley	Enda Kiernan	John Lovatt	Martin Byrnes
Catherine Seale	Eric Corbett	John Morgan	Martin Connor
Cathy Kelly	Eugene Dunbar	John Rossiter	Mary Burke
Charlotte Dillon	Eugene McGettrick	John Sullivan	Mary Foley
Chris Martin	Evelyn Simons	Jon Freestone	Mary Gavaghan
Chris Uys	Finbarr Ryan	Justin Ivory	Mary Geoghegan
Christian Osthoff	Fiona Farrell	Karin Manning	Mary Howard
Christopher J Wilson	Fiona Johnson	Karina Dingerkus	Matt Alexander
Ciara Reddie	Fiona Lloyd	Kate Lavender-Duncan	Matthew Curtis
Ciaran Bruton	Fiona Wheeldon	Kate Thompson	Michael Bell
Ciaran Cronin	Frank Murphy	Kate Welsby	Michael Dunne
Clare Bromley	Frank Smyth	Kathryn Freeman	Michael English
Clare Coffey	Gearoid Jackson	Kealin Beattie	Michael John O' Mahony
Clare Hamilton	Ger O'Donnell	Kevin Deering	Michael Kingston
Clare Heardman	Geraldine Solosy	Kevin Healion	Michael O'Donnell
Clare McIntyre	Gillian Stewart	Laura Cullinane	Michael O'Connell

Table 4 continued. *Irish Butterfly monitoring scheme recorders since 2008*

Recorder	Recorder	Recorder	Recorder
Michael O'Sullivan	Patricia O'Loughlin	Rodney Daunt	Sue White
Mireille McCall	Patrick Fahy	Ronan Mac Giollapharaic	Ted Cook
Morgan Murphy	Patrick McQuinn	Ronnie Murphy	Theresa Bennett
Nancy Murphy	Patrick Sheridan (deceased)	Rory O'Callaghan	Therese Fitzgerald
Naomi Mitten	Paula McHale	Rory Sheehan	Thomas Farrell
Native Woodland-Trust	Pauline Murray	Rosemary Rooney	Thomas Hanrahan
Niamh Brennan	Peter Duffy	Roslyn Nicholson	Tim Butter
Niamh O'Flynn	Peter Wolstenholme	Roy Thompson	Tina Aughney
Niamh Roe	Philip Duggan	Ryner Weinreich	Tom Cuffe
Nigel O'Brien	Philip O'Donoghue	Sally McElhinney	Tom Kenny
Nina Rogerson	Philomena Cahill	Sam Connolly	Tomasz Babiarz
Nuala Madigan	R Gerrard	Sara Garcia Hipolito	Tony Miller
Nuala Mahon	R McDonald	Scott Simons	Tracy Anne Fennell
Nuala O Maley	R O'Dwyer	Sean Forde	Triona Finnen
Oisin Duffy	Rachel Vaughan	Sean Mullins	Trisha Robertson
Orla Murphy	Raymond Kazmierczak	SECAD Biodiversity	Tristram Whyte
Owen McCabe	Rebecca Teesdale	Shonagh Gray	Una Fitzpatrick
Padraig Keirns	Rebecca Cogan	Simon Wilkinson	Valerie McGrath
Padraig Roche	Richard McCafferty	Simone Schmalzer	Vicki Davitt
Pat Bell	Richella Duggan	Siobhan Hardiman	Victoria Anderson
Pat Doncaster	Rob Wheeldon	Stefanie Fleischer	Victoria Molloy
Pat Walsh	Robert Richardson	Stephen Lester	Wilbert Gelens

Table 5. Five-visit monitoring scheme recorders since 2017

Recorder	Recorder	Recorder	Recorder
Adrian Allen	Dirleane Rossato	Kate Harrington	Patricia Fallon
Aideen Kane	Eddie Gilligan	Kathryn Finney	Patrick Foley
Áine Ní Fhlatharta	Emmeline Cosnett	Kay Synott	Patrick McQuinn
Áine Fenner	Eoin Cunniffe	Kevin Healion	Paul Cutler
Amanda Pedlow	Eszter Krompak	Kyle Kenny	Paul Moore
Andrew Fenner	Ethna Diver	Laura Murphy	Paula Farrell
Anita Donaghy	Eve Moore	Leon van der Noll	Philomena Cahill
Ann Trimble	Fiona Mohr	Letizia Cocchiglia	Pam Foley
Anneke Vrieling	Fiona O'Neill	Liam Lysaght	Raymond Kazmierczak
Ben Malone	Frank Smyth	Lorcan Scott	Rene Murray
Bernie Loftus	Gemma Sidney	Louise Garcia	Richard Duff
Brian O'Connor	Goska Wilkowska	Lynn Cassidy	Richella Duggan
Brónagh Barnes	Gráinne O'Brien	Lynne Gillespie	Rosemarie McDonald
Carol Gilroy	Grainne O'Hara	Madeline Joyce	Rossa Meade
Catriona Cunniffe	Howard Preston	Mairead Stack	Sandra Sheridan
Celia Graebner	Hugh Gryspeerdt	Margaret Brennan	Sarah Kelliher
Charles Heasman	Hugh Sheppard	Marion Brady	Sean O'Brien
Chris Uys	Ian Edwards	Mark Holmes	Seanín Ó Conghaile
Christian Osthoff	Ita Sherlock	Mary Foley	Shane Brien
Ciara Ryan	Jacintha Cloney	Mary Mahony	SJ O Byrne
Ciaran O'Sullivan	Jacqueline Rynhart	Mary Sheehan	Sophia Couchman
Claire Kelly	Jennifer Mc Aree	Michael Jacob	Sophie Olejnik
Clare Bromley	Jim Wilson	Michelle Larkin	Theresa Bennett
Clare Hamilton	Joanna Hodgton	Mick O'Connor	Tom Gittings
Colette Blaney	Joe Duane	Miguel Martino	Tomas Murray
Colm Moriarty	John Deasy	Mireille McCall	Val Swan
Colm Ó Ceallacháin	John Sherry	Niamh Phelan	Vanessa Mack
Conor Daly	Jonathan Stanley	Nick Larter	Victoria Fitzpatrick
Damaris Lysaght	Julie Chance	Olivia L	Victoria Molloy
Dave Suddaby	Julie Kendall	Owen Beckett	Wiebke Asmussen
David Kearns	Justin Ivory	Paddy Sheridan (deceased)	Will Warham
Dermot Doran	Karina Dingerkus	Pat Bell	Yuliia Bilobrova

In other news



Get involved with the Garden butterfly monitoring scheme

The scheme seeks to determine how important gardens are for butterflies and to track population change in our commonest species.

- register your garden with the NBDC
- make regular 15-minute counts of the butterflies seen in the garden, on at least a weekly basis from April to September each year
- learn more here: <https://biodiversityireland.ie/surveys/garden-butterfly-monitoring-scheme/>



Test your identification knowledge

The National Biodiversity Data Centre has created an online course on butterfly identification. You can find the course under the 'Ireland's Biodiversity Learning Platform' section of the centre's website: <https://learn.biodiversityireland.ie/>

A BIG THANK YOU!

Once again we would like to express our thanks to all of our recorders. Without giving your time and expertise so generously we would not be able to complete such in-depth analysis of butterfly populations in Ireland and we really appreciate your efforts each year.

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