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National Biodiversity Data Centre
Documenting Ireland's Wildlife

Biodiversity IRELAND

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Trends in butterflies
Effects of Ireland's warmest year on butterfly phenology

Invasive Alien Species
Developing Ireland's Management Plan to address this growing threat

Farmland Biodiversity
Recording species on your farm

National Biodiversity Data Centre
Documenting Ireland's Wildlife

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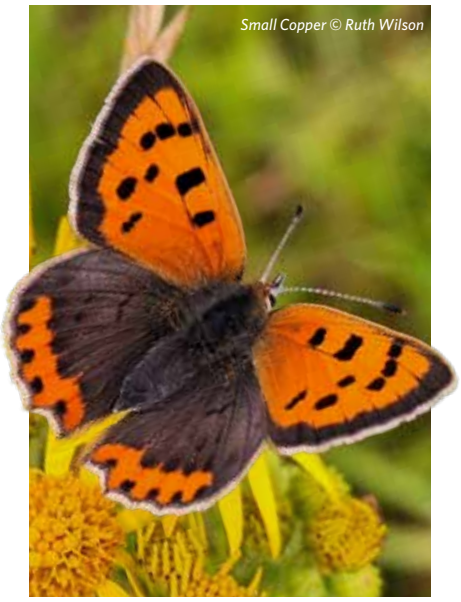
The National Biodiversity Data Centre,
Beechfield House, SETU West Campus, Carriganore, Waterford.

Tel:	+353 (0)51 306240
Email:	info@biodiversityireland.ie
Web:	www.biodiversityireland.ie

An Chomhairle Oidhreachta
The Heritage Council


Small Copper © Ruth Wilson

The National Biodiversity Data Centre

Ireland's biodiversity is under threat. Like elsewhere in the world, biodiversity loss is depriving future generations of its intrinsic and monetary value. International conventions, nature protection legislation and national initiatives have been supported by the Irish government to address biodiversity loss and improve the quality of life of its citizens. The National Biodiversity Data Centre is one such initiative.

In order to conserve Ireland's biodiversity, we need to document what biodiversity we have, understand how it is distributed across the island of Ireland and its marine waters, track how it is changing over time, and communicate the importance of conserving biodiversity.

Addressing these knowledge gaps and building the scientific evidence base to help its conservation is central to the work of the National Biodiversity Data Centre. Find out more about what we do by visiting the National Biodiversity Data Centre website at biodiversityireland.ie

The staff of the National Biodiversity Data Centre

Owen Beckett, *Research Officer,* has created new consolidated national Wasps and Ant datasets. He also managed the feasibility study of a farmer-led moth monitoring scheme in extensive farming systems in Co. Donegal.

Kate Chandler, *Pollinator Plan Communities and Engagement Officer,* has responsibility for engagement with local communities to support and coordinate community actions for pollinators. This post is funded by The National Parks and Wildlife Service.

Oisín Duffy, *Surveys and Records Officer,* has responsibility for the management of Ireland's Citizen Science Portal and the data validation processes with partners. He provides active support to the recording network to improve the quality and quantity of data submitted.

Dr Úna FitzPatrick, *Chief Scientific Officer,* has responsibility for oversight and delivery of the scientific content of the Centre's work programme and advises on biodiversity science and evidence-based actions.

Dr. Michelle Judge, *Data Manager and GBIF Node Manager,* has responsibility for maintaining the National Biodiversity Database and publishing biodiversity data through Biodiversity Maps. In addition, she looks after the National Biodiversity Indicators and the data analysis for the Irish Butterfly Monitoring Scheme.

Sarah Kelly, *Agri-business Officer,* is working on supporting Origin Green Companies to deliver biodiversity measures to support implementation of the All-Ireland Pollinator Plan. This post is supported by Bord Bia.

Dr. Michelle Larkin Is responsible for managing the National Pollinator Monitoring Scheme. This pilot project aims to develop a robust national monitoring framework that will collect data on the distribution, conservation status and trends of insect pollinators across Ireland. This project is funded by the NPWS, and the Department of Agriculture, Food and the Marine.

Dr Liam Lysaght, *Chief Executive Officer* works with the Board to set the strategic direction of the Data Centre and has overall responsibility for management of operations and delivery of its work programme. He is an active recorder with a particular interest in butterflies, birds and mammals. He also serves as Chair of the Global Biodiversity Information Facility (GBIF).

Martina O'Brien, *Invasive Species Engagement Officer,* has responsibility for engaging with different sectors to coordinate actions that address the threat posed by Invasive Alien Species. The role is to support NPWS in implementing and reporting on delivery of the EU Regulations on Invasive Alien Species in Ireland. This post is funded by The National Parks and Wildlife Service. (until November 2023)

Colette O'Flynn, *Invasive Species Officer,* is responsible for the Invasive Species work programmes of the Data Centre. She manages the National Invasive Species Database, provides coordination of invasive species data and information, and contributes advice and policy support at the national and European level.

Niamh Phelan, *Administrative and Engagement Officer,* is responsible for day-to-day office management at the Centre and spearheading the Centre's engagement and outreach programme.

Dave Wall, *Citizen Science Officer,* is responsible for the Explore Your Shore! and Dragonfly Ireland 2019-2024 citizen science projects. He also takes the lead on developing the Data Centre's work programme on citizen science and all marine biodiversity activities.

Ruth Wilson *Farmland Pollinator Officer,* is responsible for implementing actions in the All-Ireland Pollinator Plan that relate to making farmland more pollinator friendly. The post is supported by the Department of Agriculture, Food and the Marine.

Message from the Chief Executive Officer

The publication of the report from the Citizens' Assembly on Biodiversity Loss was a landmark event in the realm of public policy in 2023. A representative group of 99 members of the public, randomly selected from households across Ireland, came together to hear from experts, stakeholders and the general public about biodiversity loss and related issues. Having considered a large body of information and opinion from invited guests, the Assembly recommended 159 actions that it considered necessary if biodiversity loss was to be halted. An interesting feature is that the results of the ballots on each of the recommended actions are included in the report. While there was near unanimity on some actions, particularly those directed at State Agencies, actions that require a significant change in behaviour by society or which impact specific sectoral activities received less overwhelming support. This is an important signal from the process that much work needs to be done to convince everyone of the need to take action and not to rely on others.

The publication of the Fourth National Biodiversity Plan was deferred to allow some of the recommendations from the citizens' assembly to make their way immediately into public policy. This is a good move as it captures some of the sense of urgency that the Citizen's Assembly on Biodiversity Loss highlighted in its report. The Fourth National Biodiversity Plan is due for publication early in 2024. This biodiversity policy framework presents an opportunity to serve as the catalyst for the ambition and recommendations of the Citizens' Assembly on Biodiversity Loss to translate into real action in Ireland to address biodiversity loss.

Approval by the European Parliament of a Nature Restoration Law in November is another recent development for biodiversity. This legislation aims to restore at least 20% of the EU's degraded land and seas by 2030 and repair all ecosystems in need of restoration by 2050. It will require all EU States to submit National Restoration Plans to the Commission within two years, and these plans must show how they will deliver on the targets. Not everyone is happy about this new legislation. It has been resisted by the agricultural sector, where it is being presented as a threat to their industry. It is unfortunate that biodiversity is being presented in this way, as the challenge we face is to explore how biodiversity loss can be addressed while maintaining a viable agricultural industry. But to do this, it will require genuine efforts to change the way biodiversity is managed on agricultural land.

How this might be done was the topic of the National Biodiversity Data Centre's Protecting Farmland Pollinators EIP project, working with 40 productive farmers in County Kildare. The evidence from this five-year research project shows clearly that where farmers took evidence-based actions on farmland significant benefits for biodiversity were achieved without impacting on the productivity of their farming systems. An added benefit of the project was that the participating farmers really enjoyed taking these actions, learning about biodiversity, and working with the National Biodiversity Data Centre to come up with practical, workable solutions.

Dr Liam Lysaght

CHIEF EXECUTIVE OFFICER
National Biodiversity Data Centre

New identification swatch on Intertidal Fish and Invertebrates

We have recently published a new swatch in our 'Ireland's Biodiversity' series. 'Intertidal Fish and Invertebrates' helps you to identify 61 common intertidal animals that are found on Irish shores. This pocket-sized photo guide will help you to get started in marine recording or improve your identification skills. Available to purchase now from our online store: *shop.biodiversityireland.ie*

Butterfly Monitoring Scheme shows the influence of warmest year on record on phenology

Speckled Wood, *Pararge aegeria* showed a marked decline since a peak in 2009

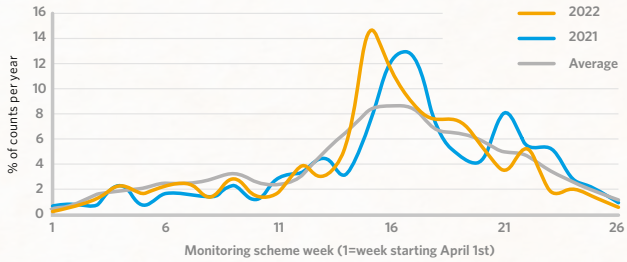
The Irish Butterfly Monitoring Scheme is a citizen science scheme managed by the National Biodiversity Data Centre that tracks population and phenology (flight) trends in Irish butterflies.

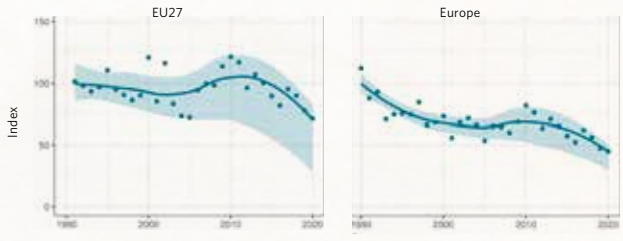
It has been running since 2008 and is the longest running insect monitoring scheme in Ireland. It involves walking a fixed route (transect) on a weekly basis from April to September each year, when weather conditions are favourable. The number of the different butterfly species seen along different sections of each transect are recorded. These records are the basic data upon which the analysis is based. Since 2021, data from the reduced effort 'Five Visit Monitoring Scheme' (FVMS) has also been included in analysis. Combining the data from the FVMS and IBMS allows for the generation of more accurate trends and will improve the quality of results.

there was an overall decline (-57%) in the number of butterflies flying in 2022 compared to the baseline year of 2008

Results from the multi-species index of the 15 most common butterfly species show that there was an overall decline (-57%) in the number of butterflies flying in 2022 compared to the baseline year of 2008. On an individual species basis, population trends from 2008-2022 estimated that two species (Brimstone and Holly Blue) were showing stable trends over the time period, while 12 species showed strong or moderate declines.

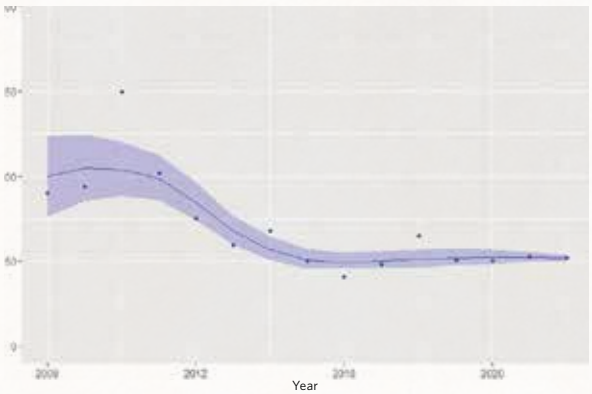
Phenology of butterflies from April to September



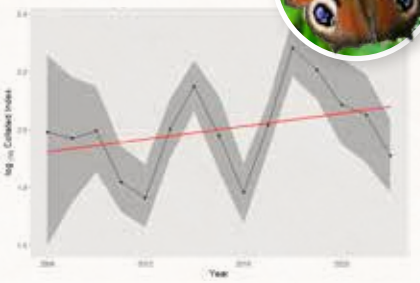


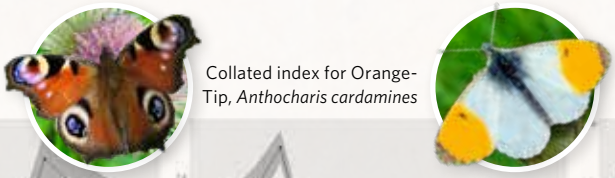
Grassland butterfly indicators for EU27 and Europe. Shaded areas represent 95% confidence intervals.

Multispecies indicator based on 15 species

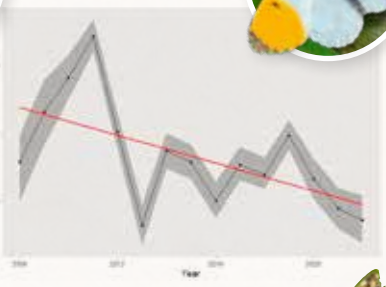


Collated index for Peacock, *Aglais io*

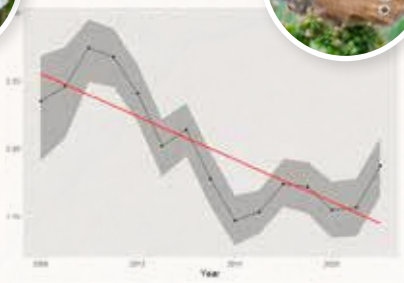




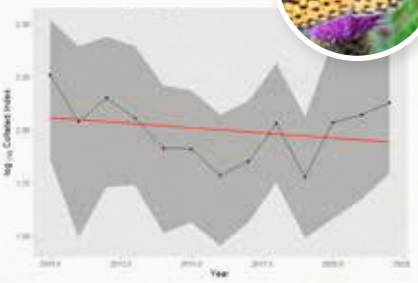
Collated index for Orange-Tip, *Anthocharis cardamines*

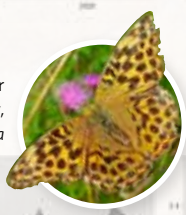


Collated index for Ringlet, *Aphantopus hyperantus*

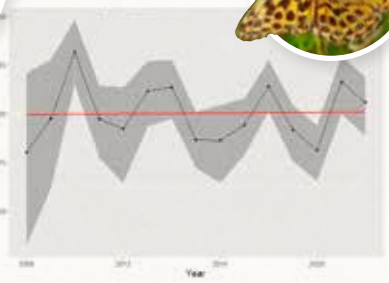


Collated index for Dark Green Fritillary, *Argynnis aglaja*

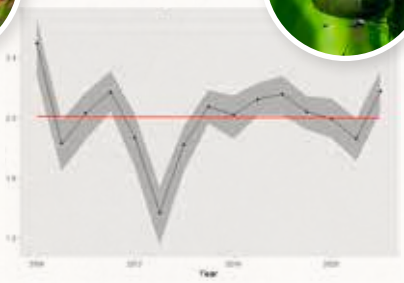


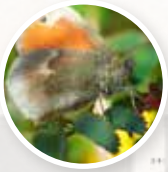


Collated index for Silver-washed Fritillary, *Argynnis paphia*

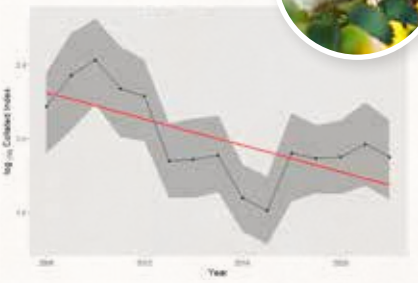


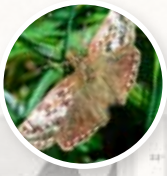
Collated index for Holly Blue, *Celastrina argiolus*



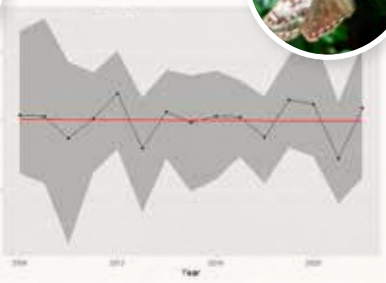


Collated index for Small Heath, *Coenonympha pamphilus*

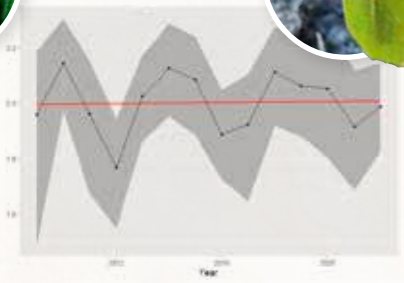




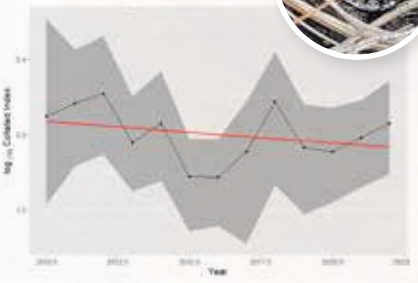
Collated index for Dingy Skipper, *Erynnis tages*



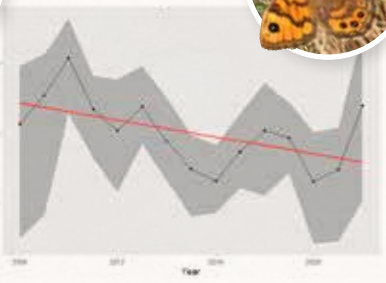
Collated index for Brimstone, *Gonepteryx rhamni*



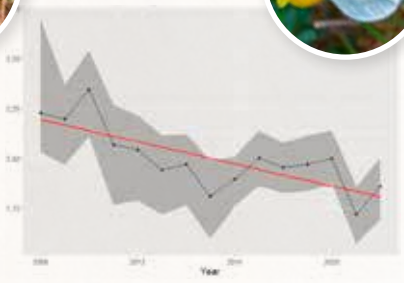
Collated index for Grayling, *Hipparchia semele*

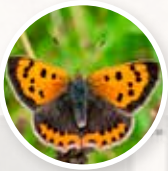


Collated index for Wall Brown, *Lasiomata megera*

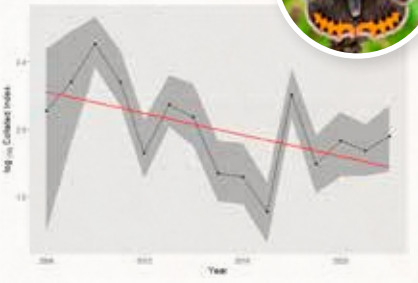


Collated index for Wood White, *Leptidea* sp.

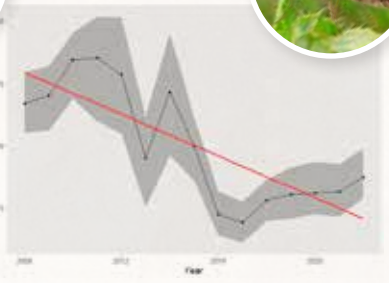




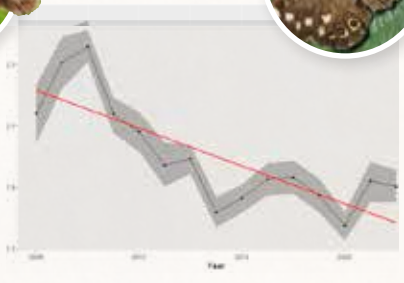
Collated index for Small Copper, *Lycaena phlaeas*



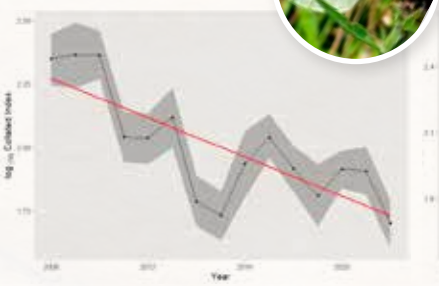
Collated index for Meadow Brown, *Maniola jurtina*



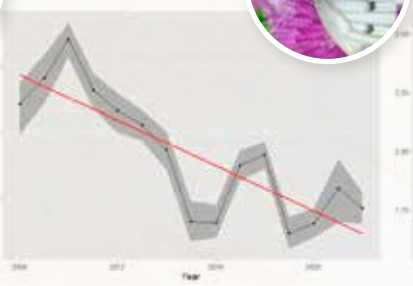
Collated index for Speckled Wood, *Pararge aegeria*



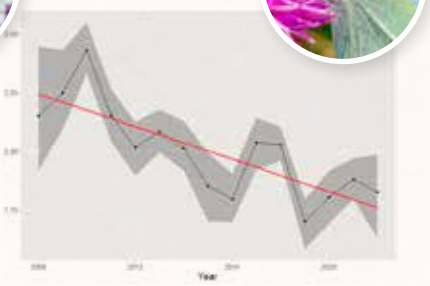
Collated index for Large White, *Pieris brassicae*



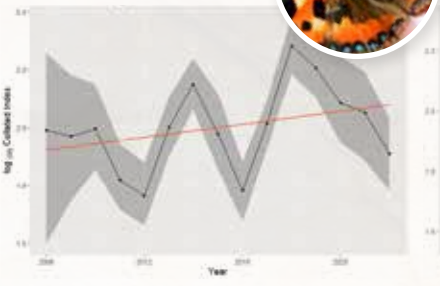
Collated index for Green-veined White, *Pieris napi*



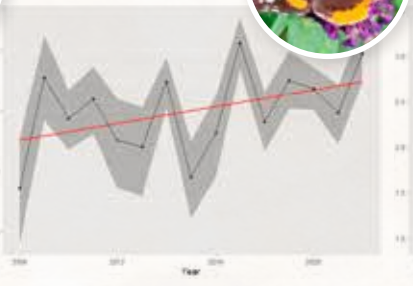
Collated index for Small White, *Pieris rapae*



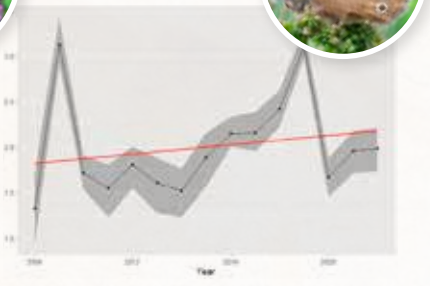
Collated index for Small Tortoiseshell, *Aglais urticae*



Collated index for Red Admiral, *Vanessa atalanta*



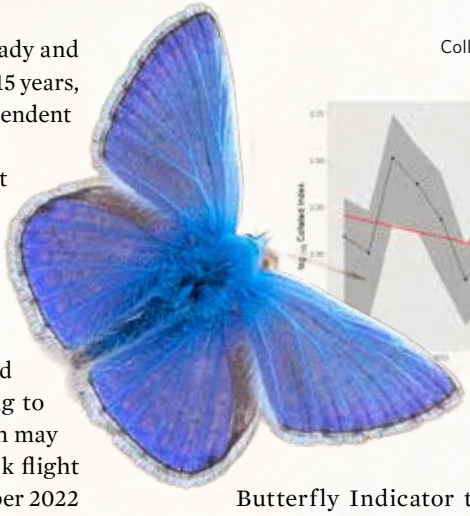
Collated index for Painted Lady, *Vanessa cardui*



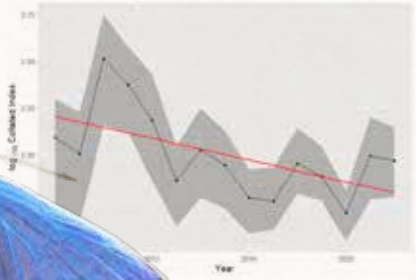
The two migrant species to Ireland (Painted Lady and Red Admiral) showed moderate increases in the 15 years, but changes in their populations are largely dependent on conditions external to Ireland.

Results from 2022 show the peak of the flight curve of butterflies occurred two weeks earlier and was higher than the peak observed in 2021. Met Éireann's Annual Climate Statement for 2022 stated that it was the 'warmest year on record' and had 'below average rainfall'. High pressure from the Azores built over Ireland numerous times in July and August, leading to warmer and drier than average weather, which may have influenced the higher than average peak flight curve observed in the summer of 2022. September 2022 was recorded as 'wetter than average', which may have lead to the reduction in butterflies flying when compared to 2021, where lower than average rainfall was recorded for the same month according to Met Éireann's Annual Climate Statement for 2021.

The Irish Butterfly Monitoring Scheme is one of 22 monitoring schemes across Europe that form the European Butterfly Monitoring Scheme. An initiative of Butterfly Conservation Europe and the Centre for Ecology and Hydrology (UK), the partnership brings together data from 10,816 transects walked by 100,000 citizen scientist from 22 different countries. This allows pan-European butterfly trends to be detected and provides the data to enable the European Grassland Butterfly Indicator to be generated. The European Grassland Butterfly Indictor 1990-2020 shows that Europe has lost 36% of its grassland butterfly populations since 1990. The European Grassland Butterfly Indicator has been identified as one of the indicators of progress for the proposed EU Nature Restoration Law. This will greatly increase the importance and value of maintaining and extending butterfly monitoring in Ireland.



Collated index for Common Blue, *Polyommatus icarus*



Can you help? The number of transects walked for the Irish Butterfly Monitoring Scheme is reducing each year, so we are always looking for volunteers to participate. If you would like to establish a transect close to where you live to help monitor butterflies, please email butterflies@biodiversityireland.ie.

Developing Ireland's National Management Plan to address the growing threat of Invasive Alien Species

American Skunk Cabbage is an EU regulated invasive plan which has established populations throughout Ireland © Jan Robert Baars

Invasive Alien Species sit alongside climate change, land use change, pollution and overexploitation as one of the top five drivers of species extinction and ecological change. Just last month, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) published a landmark assessment report on invasive alien species.

Some community groups target Himalayan balsam for removal along invaded riverbanks © Jan Robert Baars

The report was produced by 86 experts from 49 countries, working for more than four and a half years. It reviewed the impacts of invasive species and how they can combine with other key environmental pressures to drive biodiversity loss. Their findings identified Invasive Alien Species that have been a major factor in 60% of species extinctions and the direct cause of 16% of global animal and plant extinctions. They also found that species introductions have quadrupled every decade since the 1970s, and a further 36% increase is anticipated by 2050 if action is not taken to curb their introduction and spread.

In Ireland, the continual addition of invasive species to our ecosystems is evident from the accumulation of species records and reported sightings on our national database. In 2021, the Quagga Mussel was found in the Shannon. Sightings of the Chinese Mitten Crab in Waterford harbour have been reported for the last three years, indicating that the species is still present in the harbour after initial records in 2006 and 2009. Reported sightings of other invasive alien species such as the Oak Processionary Moth, Asian Hornet, Pond Slider and Rose Ringed Parakeet in recent years exhibit Ireland's susceptibility to the introduction of Invasive Alien Species and remind us of the many pathways through which species can be introduced. A 20-year research project 'Plant Atlas 2020' published by the Botanical Society of Britain and Ireland this year shows an upward trend in the diversity and abundance of non-native plants in Ireland. It revealed that an overwhelming majority of introduced plants (80%) are increasing in abundance, while most native plants are in decline (56%).

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The IPBES assessment and numerous reports on invasive species policy and management in Ireland bring the significance of the threat of these species into sharp focus. The authors have called on countries to take the threat of invasive species seriously and to take decisive action. It is perhaps timely that Ireland's first National Invasive Alien Species Management Plan is being developed to allow strategic, coordinated action to be taken on invasive alien species by a range of different stakeholder groups throughout the country. The aim of the plan is to minimise the risk of introduction and spread of invasive alien species and to reduce their negative impacts on Ireland's biodiversity, ecosystems, society and economy. The plan will be achieved through a strong partnership approach and targeted actions to effectively implement legislation and policy.

In Ireland, great efforts are being made to address the threat of invasive alien species by a diverse range of stakeholder groups, including practitioners, government departments, state agencies, eNGOs, businesses, volunteer networks, community groups, researchers and experts. For example, Eco Carn Network and Inishowen Rivers Trust have been trialling novel chemical-free treatments for Japanese Knotweed. Many City and County Councils have developed Invasive Species Actions Plans to address IAS locally. Some state bodies have integrated invasive species training, surveillance, and risk assessments into their operations. Numerous community groups take part in removal activities (e.g. removing Himalayan Balsam), and members of the public submit sighting records of IAS to the National Biodiversity Data Centre each year.

The Quagga mussel now present in the Shannon alongside other invasive bivalves (i.e. the zebra mussel and asian clam) © Jan Robert Baars

Chinese Mitten Crab © Jan Robert Baars

The red-eared slider is an EU regulated invasive species and is now present in some urban ponds and lakes in Ireland- Shutterstock

Lagarosiphon major is an invasive aquatic plant which can form dense stands in lake systems
© Jan Robert Boars

Invasive water fern clogs up waterways
© Jan Robert Baars

The Asian clam is an invasive bivalve that can establish vast populations that can cover extensive areas of river beds
© Jan Robert Baars

Pathway Action Plans

'Pathway Action Plans' have been developed to address the accidental movement and spread of invasive species through key pathways. Researchers are also contributing greatly to our understanding of invasive species impacts, ecology, detection methods, control and management options.

This list represents just some of the work taking place in Ireland on invasive alien species and it builds on decades of effort that has developed our collective understanding of invasive alien species in Ireland. The National Invasive Alien Species Management Plan offers the opportunity to connect and link up the work being done across different sectors and through different groups, to harness the energy of stakeholders, and to work towards a common and shared goal with clarity and purpose.

Proposed areas of focus within the plan include strategic coordination, prioritisation and risk analysis, biosecurity, prevention, early detection, rapid response and eradication, surveillance, monitoring, raising awareness, expanding our knowledge, and monitoring outcomes. Development of the plan will be shaped by stakeholders through participation, co-creation, engagement, and consultation. The first phase of stakeholder participation will commence in October 2023, followed by wider stakeholder and public consultation phases, with delivery of the final plan in 2024.

Development of a National Invasive Aliens Species Management Plan is a commitment in the Programme for Government. It will be delivered by the National Parks and Wildlife Service, with coordination of drafting by the National Biodiversity Data Centre, supported by a Steering Group.To find out more about the work of the National Biodiversity Data Centre on Invasive Alien Species, please see *www.invasives.ie*

Martina O'Brien
INVASIVE SPECIES ENGAGEMENT OFFICER
National Biodiversity Data Centre

Emerging risks to Irish plant health biosecurity

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture
Food and the Marine

2023 has so far proven to be a busy year for protecting Irish biosecurity and plant health. Over the course of the year, Plant Health Divisions at the Department of Agriculture, Food and Marine (DAFM) have been actively managing several threats posed by invasive plant pests. The most notable threat was an outbreak of the Oak Processionary Moth in North Dublin in June. However, there have been several other threats which DAFM continues to monitor and address. In this article, the Pest Risk Analysis Unit provides an overview of two threats and the responses DAFM Plant Health divisions are taking to address them.

Oak Processionary Moth

Thaumetopoea processionea is a moth whose larval caterpillars preferentially feed on the oak leaves, although it can feed on several other tree species in the absence of suitable oak trees. The pest is originally native to southern and central Europe, but has increased its distribution range and is now established in most European countries. The pest is not regulated as a quarantine organism in the EU as it is widely distributed in EU member states. Oak Processionary Moth managed to establish in London city in the UK in 2006 and has been spreading further outward since. However, it has yet to successfully establish in Ireland. In 2014, DAFM recognised Oak Processionary Moth as a potentially highly damaging invasive species to Irish biodiversity and listed Ireland as a 'Protected Zone' under EU Plant Health Legislation.

Listing Ireland as a Protected Zone allowed DAFM to regulate the trade of known hosts trees into Ireland by requiring the application of specific phytosanitary measures to mitigate the likelihood for these pathways to introduce the pest into Ireland. Since then, there have been only two identified occurrences of the pest in Ireland, one in 2020 and another in 2023.

In 2020, a nest of larvae was spotted on a recently imported oak tree by a member of the public and the infestation was eradicated before it spread further. In June 2023, DAFM was notified of a suspected infestation in North Dublin by a member of the public. An email was sent to DAFM's plantandpests@agriculture.gov.ie account, providing links to images of the nest and a map location on the morning of June 8th. DAFM inspectors arrived at the location on the same day and confirmed that the nest was most likely an Oak Processionary Moth infestation. Samples of larval caterpillars were taken from the nest for the DAFM Plant Science Division's Entomologist for conclusive confirmation of the species identity, and the remaining larvae/nests were eradicated along with the infested host trees. DAFM notified the EU commission of the outbreak and launched a public awareness campaign to aid surveillance activities conducted by DAFM. DAFM have conducted intensive surveillance using a combination of visual surveys and deployment of pheromone traps. To date, there have been no further findings of larvae or adult moths. Official DAFM Surveillance for this outbreak will continue into 2024.

Oak Processionary Moth caterpillars

DAFM employed a range of surveillance activities during the outbreak, including deployment of funnel traps and visual inspections for defoliation

Colorado Beetle

Leptinotarsa decemlineata is a highly destructive pest of several *Solanum spp.*, particularly potato (*Solanum tuberosum*). The pest is originally native to the US mid-west, but was introduced into several Asian and European countries during the 20th century. The pest is not regulated as a quarantine organism in the EU as it is already present in most EU member states. Despite the high risk of introducing the pest on imports into Ireland, the Colorado Beetle has not yet managed to enter the wider Irish environment and become established. The pest has been previously found on several occasions, such as in 1990 (*https://www.rte.ie/archives/collections/news/21408562-colorado-beetles-in-ireland/*) on lettuce (Lollo Rosso) from Italy and 1996 (https://www.irishtimes.com/news/colorado-beetle-sparks-alert-1.40539) on parsley from Italy. However, in both cases, the pest was reported and populations were eradicated by DAFM inspectors before they could escape and potentially establish in the wild. To reduce the likelihood of the pest arriving on imports, DAFM enacted Protected Zone legislation in 1993 to regulate trade to mitigate the entry of the pest in to Ireland.

In July 2023, two findings of Colorado Beetle were reported in the UK: the first was an outbreak in Kent (*https://planthealthportal.defra.gov.uk/latest-news/colorado-potato-beetle-outbreak/*) and the second was a finding of a single specimen in Hampshire (*https://www.gov.uk/government/news/colorado-potato-beetle-confirmed-in-hampshire*). These were the first reported outbreaks in the UK since 1977. Both outbreaks are being monitored by the Department for Environment, Food and Rural Affairs and the Animal and Plant Health Agency.

In both cases the beetles were removed and host plants in the vicinity were destroyed. The exact entry pathway of the pest is currently unknown and may be difficult to discern as the pest is often found as a 'hitchhiker' on non-host plants (as was the case in the two findings in Ireland in the 1990s). Surveillance of potato crops and other Solanum hosts throughout the UK has not revealed any further findings of Colorado beetle to date.

DAFM has been monitoring the situation in the UK and informing the relevant Irish sectors of developments and risks to Irish biosecurity.

Further information on these threats can be obtained from PRAU Plant Pest factsheets hosted at: *https://www.gov.ie/ga/foilsiuchan/7b101-pest-risk-analysis-unit-plant-pest-risk-register-factsheets/*

Conor Francis McGee

AGRICULTURAL INSPECTOR, PEST RISK ANALYSIS UNIT,
Department of Agriculture, Food and Marine

Andy Bourke

ASSISTANT AGRICULTURAL INSPECTOR, PEST RISK ANALYSIS UNIT,
Department of Agriculture, Food and Marine

Bush with larvae, Gort. Images © Brian Nelson

Freshwater and terrestrial Invertebrate Research at NPWS

The main focus of invertebrate research within NPWS has fallen into three mains areas: monitoring and conservation of the EU protected species; threatened species and production of red lists; and targeted surveys of specific sites and species. This last is what will be briefly described here.

There are many state-owned nature reserves and wildlife-rich sites properties managed by NPWS across Ireland but, for most, systematic baseline surveys of their invertebrates have not been completed. In 2015 a series of baseline site surveys looking at the invertebrates and insects of these properties was initiated under an Important Invertebrate Area. This following one that was undertaken in St Johns Wood, Co Roscommon in 2010, its aim being to provide information on the management of the site. The survey just looked at the woodland fauna which was found to be rich in species of two-winged flies (Diptera). For example 65 species of fungus gnats (about 25% of Irish species list) were recorded of which four were new to Ireland including the globally rare *Docosia morioniella*.

The sites covered by the Important Invertebrate Area have included Scragh Bog. Co Westmeath; Glengarriff Woods Nature Reserve, Co Cork; The Raven and Ballyteigue Nature Reserves in Co Wexford; Sallymount and Buckroney property, Co Wicklow; and, Slieve Carran Nature Reserve and Ballyogan in Co Clare. The emphasis of the surveys has been to characterise the invertebrate assemblages associated with the main habitats but the main statistics relate to the number of species. The species list from the NPWS property at Ballyogan in Co Clare ran to almost 1000 species with 12 species added to the Irish list. New species to Ireland found in other sites include Asparagus Beetle *Crioceris asparagi* at Ballyteigue and the fly *Hybomitra bimaculata* at Scragh Bog. A species of barkfly found at Glengarriff turned out to be a species originating from Chile and was the first record for Europe *Chilenocaecilius ornatipennis*. It has since been found elsewhere and is clearly a non-native species so there are downsides too.

Annulet Moth

The Irish Annulet moth *Odontognophos dumetata* was the subject of a research contract aimed at assisting Burren National Park staff in planning scrub control. This moth is almost entirely confined to the Burren National Park where it was discovered in 1991. Its main range is in the Mediterranean region and the Burren represents its northern most site in Europe. It is also absent from Britain so the population is also very isolated. The habitat of the moth is described as rocky, warm habitats where it uses Buckthorn *Rhamnus catharticus* as its larval foodplant. The survey looked at the type of bushes that the moth requires and mapped the range of the species based on all the records. Early investigations of the moth after its surprise discovery suggested that it was associated with turloughs and indeed reared larvae would found to survive periods underwater. This survey found that while the moth occurred near turloughs no larvae were found on bushes in areas affected by flooding. So this association is more coincidental and in the eastern Burren you are never very far from a lake or turlough. What seems to be key for the species is that it is most numerous on Buckthorn bushes growing over bare limestone pavement and where bushes became more enclosed by other species or growing in areas of grassland, the species is replaced by other Buckthorn-feeders such as the Tissue. The combination of bushes and bare pavement therefore seems essential and it is speculated that the larvae gain a benefit from the radiator effect of the rock in summer time. This research allows the National Park to control the scrub which threatens areas of grassland without removing Irish Annulet habitat.

Irish Wildlife Manuals have been produced or are in preparation giving the results for these surveys and these can be found on the NPWS publication page on its website at www.npws.ie/publications

Dr Brian Nelson

INVERTEBRATE ECOLOGIST
National Parks and Wildlife Service

BIODIVERSITY on your Farm

The 'Biodiversity on your Farm' project has been gathering momentum over the year, with a species profile released each week. The project challenges farmers to find some of the 40 species on their farm across the year. The project is being run in collaboration with the Department of Agriculture, Food and the Marine.

What farmland species are being highlighted?

The project highlights seasonal species that are relatively common and should be easy to identify. The species have a pollinator focus and will include a weekly 'Biodiversity management tip'. Across the year we've moved from the Early bumblebee to flowering Hawthorn, then to the late flowering Common knapweed and the Noon Fly.

Who's taking part?

There's been positive feedback from farmers, who are waiting to see what the next species will be, and if they can find the species on their farm.

We ran a farm walk as part of the 'Protecting Farmland Pollinators' project and were delighted to hear from the project manager report, that 'a farmer with no previous knowledge of bee identification successfully identified Marsham's Nomad bee and the Ashy mining bee based on what he learnt from the Biodiversity on your Farm guides. He impressed everyone on the farm walk, it was brilliant! He really likes them and commented on how user friendly they were.'

We appreciate any records from farmers, as we know when wildlife is most active in the spring and summer months, it's also a busy time on the farm.

We've also enjoyed some farmers sharing actions they've taken on their farms to help biodiversity and they have helped us to develop our weekly biodiversity tips.

Alan Poole, a dairy farmer in Co Wexford has been learning more about the pollinators and biodiversity on his farm. Alan commented, 'Now, as I continue my work on the farm, I ask myself what I can do differently or better to help biodiversity. There is so much potential to be realised by making small changes.'

We're creating postcards of the 40 species, and we'll take these to future agriculture shows and events. So far, there has been good interest from farmers to pick up these handy cards and they're keen to get the full set of 40 species.

Find out more

It's not too late to take part, just head over to *https://records.biodiversityireland.ie/record/biodiversity-on-your-farm*

Visit our dedicated pages for farmland information and resources *https://pollinators.ie/farmland/* to help take the next steps and find out how to help pollinators and biodiversity on your farm.

Ruth Wilson

FARMLAND POLLINATOR OFFICER

Supported by the Department of Agriculture, Food and Marine

BIODIVERSITY on your Farm

The 'Biodiversity on your Farm' project challenges farmers to find certain species on their farm across the year. This project is being run in collaboration with the Department of Agriculture, Food and the Marine.

To find out more, please see: *https://biodiversityireland.ie/surveys/biodiversity-on-your-farm/*
To record biodiversity on your farm, see: *https://records.biodiversityireland.ie/record/biodiversity-on-your-farm*

Kestrel
Falco tinnunculus

Common Snout Hoverfly
Rhingia campestris

Red-tailed Bumblebee
Bombus lapidarius

Buff-tailed Bumblebee
Bombus terrestris

Common Linnet
Carduelis cannabina

Swallow
Hirundo rustica

Hummingbird Hawk-moth
Macroglossum stellatarum

Large Carder Bee
Bombus muscorum

Marshams Nomad Bee
Nomada marshamella

Garden Bumblebee
Bombus hortorum

Hawthorn/Whitethorn
Crateagus monogyna

Grey (or Ashy) Mining Bee
Andrena cieraria

Bullfinch
Pyrrhula pyrrhula

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture Food and the Marine

All-Ireland Pollinator Plan
www.pollinators.ie

National Biodiversity Data Centre
Documenting Ireland's Wildlife

Clarke's Mining Bee
Andrea clarkella

Common Carder Bee
Bombus prascuorum

Common Darter
Sympetrum striolatum

Small Copper
Lycaena phlaeas

Garden Tiger moth
Arctia caja

Holly Blue
Celestrina argiolus

Common Knapweed
Centaurea nigra

Ragged Robin
Silene flos-cuculi

Early Bumblebee
Bombus pratorum

Dandelion
Taraxcum agg.

Noon Fly
Mesembrina meridiana

14-spot Ladybird
Propylea 14-punctata

House Martin
Delichon urbicum

Green Shieldbug
Palomena prasine

Garden Spider
Aranus diadematus

7-spot Ladybird
Coccinella septempucata

Biodiversity Maps

The data and mapping portal Biodiversity Maps https://maps.biodiversityireland.ie/ provides access to data on Ireland's biodiversity. As of the end of October 2023, there were 6,204,912 records of 17,607 species across 175 datasets on Biodiversity Maps.

Recently added or updated datasets include:

Birds of Ireland:
1,873 new records

Explore your Shore!:
1,972

Vascular Plant Online Atlas 2012 Onwards:
10,506

Ladybirds of Ireland:
970

Hoverflies of Ireland:
816

Ants of Ireland (New!):
606

Empididae of Ireland (New!):
23

Ireland's Citizen Science Portal https://records.biodiversityireland.ie/ continues to see a large volume of records submitted through 2023. As of mid-November there has been 153,191 records submitted through Ireland's Citizen Science Portal (https://records.biodiversityireland.ie/), with records submitted from 7,788 individual recorders. The most recorded species during this time is the Small Tortoiseshell with 1,769 records submitted this year.

Bees

2023 has been another good year, with lots of bee records submitted. Up until the end of September, we received 4,300 records. In 2022, we received validated records of 86 wild bee species (18 bumblebees and 68 solitary bee species). This is an incredible recording effort, and we thank all those who are contributing.

The Tawny Mining Bee (*Andrena fulva*) was rediscovered in Ireland in 2012 and is now expanding in the east. Following in its footsteps, another bee feared extinct has been found after 46 years! The Perkins' Mining Bee (*Andrena rosae*), which was last seen in 1977, was found by Owen Beckett (National Biodiversity Data Centre) while surveying in County Carlow. A female was spotted entering her nest close to the river Barrow on April 6th 2023.

The Tree Bumblebee (*Bombus hypnorum*) was first recorded in Dublin in September 2017, and was then reported from Belfast in 2019. It has expanded rapidly across the eastern half of Northern Ireland. Despite a slower start in the South, it now appears to be on the move! Last year it made it as far west as Athlone, and in August 2023 it was spotted at Merlin Woods in Galway. Currently, we have validated records from Antrim, Down, Armagh, Dublin, Kildare, Monaghan, Meath, Westmeath and Galway.

The Ivy Bee (*Colletes hederae*) was first spotted at the Raven Nature Reserve in Wexford in 2021. It's a solitary bee with an autumn flight period to match the flowering of its favourite plant, Ivy. In 2022, it expanded its range as far north as Brittas Bay in Wicklow. In late September 2023, it was recorded at St Mullin's in Co Carlow. We have lots of people with their eyes peeled, so we can check how much it extends its range this year. Like the Tree Bumblebee, it is rapidly expanding, and it seems likely that in coming years many of us will get to see these two new characters!

The Hairy-footed Flower Bee (*Anthophora plumipes*) was first spotted in Ireland in 2022, when it was found in Harold's Cross in Dublin. It was found again in that area in spring 2023, but doesn't seem to have expanded its range yet.

Tree Bumblebee (*Bombus hypnorum*), Merlin Woods, Galway © Colin Stanley

The Blue Mason Bee (*Osmia caerulescens*) has been recorded, this time in Carlow, and does seem to be occurring in small, localised populations. It's unclear yet if it has fully established here. We do get occasional reports of new mason bee species in Ireland, probably accidentally imported with plant material.

We've continued to receive small numbers of sightings of our rarest bumblebees - Great Yellow Bumblebee, Red Shanked Carder Bee, and Shrill Carder Bee. In more worrying news, the latest analyses from the All-Ireland Bumblebee Monitoring Scheme (2012-2022) shows that the Large Carder Bee (*Bombus muscorum*) remains in serious decline. The All-Ireland Pollinator Plan has been encouraging local communities to take action to protect this bee where it occurs in their area. In good news, where communities create new habitat corridors, the bee is positively responding and very quickly!

The National Biodiversity Data Centre launched a National Pollinator Monitoring Scheme in 2022. This is thanks to funding from the Department of Agriculture, Food and the Marine and the National Parks and Wildlife Service. It will complement our existing citizen science initiatives. In 2023, all sites (38) were again monitored, and the data will now be analysed and ultimately will feed into the national bee and hoverfly databases. In future years, we look forward to learning what wild bees turn up across this diverse network of monitoring locations!

Dr Úna FitzPatrick
CHIEF SCIENTIFIC OFFICER,
National Biodiversity Data Centre

Dragonfly Ireland 2019-2024

The Bord na Móna Ecology Team getting to grips with damselfly identification at a workshop in Offaly.

Another busy season of dragonfly and damselfly recording is nearing an end, though as I write this in early October, there are still quite a few dragonflies about. Since April, we have received 4,036 records, which are now being validated. It was a slow start to the year, with very few records in April. The sunshine in June made it our peak month for sightings, but poor weather in July and August led to a swift drop off in records. Recording continues into the autumn, as adults of some resident species can survive into November (given the right conditions) and, of course, migrants can arrive at any time of year. So please keep an eye out and keep submitting your records. A massive thank you to all who submitted casual records this year or surveyed their local pond, lake or river for our Dragonfly Recorder monitoring scheme.

Alongside data from our volunteer recorders, funding from the National Parks and Wildlife Service (NPWS) and Centre for Environmental Data and Recording in Northern Ireland (CEDaR) allowed us to engage ecologists to conduct site surveys for species and habitats that are either difficult to survey, or for which we receive few records through our Citizen Science surveys. 242 site surveys were conducted by ecologists at small mesotrophic lakes, turloughs and alkaline lakes across Ireland between June and September.

May and June were busy as we conducted Dragonfly Ireland workshops in counties Cork, Galway, Sligo, Tipperary, and Wicklow. Our 2023 workshop programme was supported by the Heritage and/or Biodiversity Officers in each county, and by the county councils. The Sligo and Wicklow workshops were also supported by NPWS. Thanks to Michael Bell for leading the Sligo and Galway workshops, and to Geoff Hunt for leading the workshops in Cork and Tipperary. In May, we ran a workshop for the Bord na Móna Ecology team in Offaly, and in June a Dragonfly Ireland talk and walk was run with the Eco Showboat Project at Portumna Castle in Galway. Thanks to all who turned up for these events. Hopefully it has given you the confidence to record dragonflies and damselflies on a regular basis.

Michael Bell discussing dragonfly exuviae with attendees at the Galway workshop.

Dragonfly Dashes were run again this year during Biodiversity Week and Heritage Week. The Biodiversity Week Dash in May received 340 records, while our Heritage Week Dash in August received 134 records. Thanks to all who took part.

If you have dragonfly and damselfly records from 2023, which you have not yet submitted, please submit them as soon as possible so that they can be included in this year's reports. Also, 2024 is the final year of the survey and we will be focusing on filling gaps in the survey coverage and maximising the number of species recorded in each 10km grid square. We will also be looking for any additional data that is available on dragonfly and damselfly occurrence from 2019-2024, so if you know of any individual or group who has dragonfly and damselfly records from that period and might be interested in contributing their data for a new Atlas, and an analysis of species conservation status, please let us know at dragonflyireland@biodiversityireland.ie

Dave Wall

CITIZEN SCIENCE OFFICER

National Biodiversity Data Centre

Comma (female shown) is rapidly extending its Irish range. © Jesmond Harding

Butterflies

I began butterfly transect walking in 2007. For anyone new to the Irish Butterfly Monitoring Scheme (IBMS), the main survey involves counting butterflies that appear within five metres above and in front of the walker and 2.5 metres on each side of a fixed route, ideally, once a week for each week between April 1st and September 30th, during good weather. I doubted that I'd still be transect-walking in 2023. Why do I do it? I am obsessed with beauty. But gazing on loveliness can be a one-dimensional, purely private aesthetic immersion. Recording butterflies systematically and reporting the results to a national body that cares about biodiversity, and interprets the results, has purposed my commitment.

A garden should be a wild place, not just a plant collection

The year I began, the transect walks seemed a lonely passion. But now I see a community of recorders, all contributing to our knowledge of the abundance and phenology of our butterflies, and how this alters according to the season, locality, habitat, and climate change.

The surprises thrown up by butterflies provides pleasure. The mass migration of millions of the Painted Lady in 2009 and 2019; the northward advance of the Comma from its landfall in Wexford in the early 2000s; the expanding distribution of the Holly Blue; and the collapse of the Marsh Fritillary when warmth in March and April is succeeded by cold conditions, followed by years of population explosions when early June is filled with this aerial Harry Clarke masterpiece, live in my memory.

My transect in 2023 brought some surprises. After a wet, mild overcast April, and a dull first two weeks in May, I began to worry. But summer was born in the third week of May, and more butterflies duly appeared. The Marsh Fritillary boomed on my transect and I enjoyed recording high numbers. All is right with the world if our butterflies are thriving. Fine weather continued until late June, making picking good days to walk the transect easy.

July and August poured with rain, but nature surprised us this year. On just one day, August 16th, I counted 112 Small Tortoiseshell and 96 Peacocks. This compares with 134 Small Tortoiseshells and 17 Peacocks over the entire transect season in 2022. I found 36 Brimstones on August 9th, while I saw a mere 44 throughout 2022. The warmth and sunshine in May and June 2023 did the trick!

Serious science underpins the transects. The European Grassland Butterfly Indicator, which receives transect data from the IBMS and from 15 other countries, tracks the abundance of 17 grassland butterflies across the EU. The data arising from the European Grassland Butterfly Indicator influences the EU's policies and proposals, including the EU Nature Restoration Law, which aims to propose to restore at least 20% of the EU's land and sea areas by 2030 and repair all ecosystems in need of restoration by 2050. At home, the charisma of butterflies helps to drive the uptake of pollinator initiatives, and a broader public appreciation of the need to manage our green spaces and gardens in sympathy with nature.

Nature conservation starts at home, in the garden. The Garden Butterfly Monitoring Scheme, managed by the National Biodiversity Data Centre, dates from 2020, and involves volunteers counting the maximum number of each butterfly species seen in their garden during a 15-minute period, during fine weather.

A garden butterfly scheme is also run by Butterfly Conservation Ireland. Both schemes are great incentives to improve our garden habitats for butterflies. Native planting to create a wildflower meadow, marsh, nettle bed, mini-woodland edge and hedgerow will enhance the garden far more than double-flowering dahlias and buddleia. Gardens can make a real difference to some butterfly species. A recent study by the British Trust for Ornithology shows that that half of the 22 species considered saw a significant increase in their abundance within study gardens between 2007 and 2020. On average, the increases seen in gardens were greater than in non-garden habitats. Brimstone, Orange-tip, Holly Blue and Ringlet doubled in number! Join the garden recording schemes and see what can be achieved here!

Nineteen butterfly species have visited my garden, and 15 bred. A garden should be a wild place, not just a plant collection. Butterflies that visit and breed highlight your success in building habitats, something that I really want to encourage. I have become familiar with some individual residents; one Small Copper stayed for a whole month, sunning himself from the same spot each morning, on a tall dock that gave commanding views over his territory, from which to watch for a potential rival or a lonely lady!

Finally, butterflies and moths have their own organisation, Butterfly Conservation Ireland. New members are welcome to join, and all are welcome to attend the walks in great butterfly habitats, and even more welcome to help on conservation workdays!

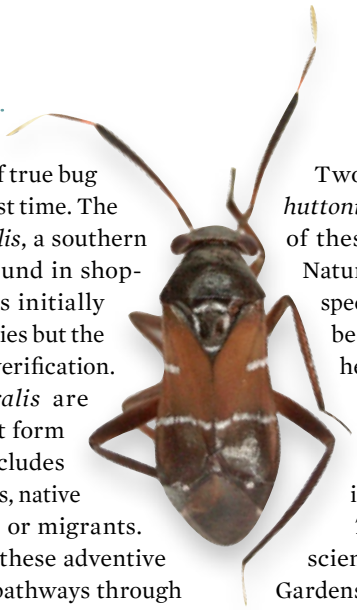
For more see *https://butterflyconservation.ie/wp/*

Jesmond Harding

FOUNDER MEMBER AND CONSERVATION OFFICER
Butterfly Conservation Ireland

Jesmond's book, The Irish Butterfly Book, is available directly from Jesmond and selected book shops.

The Brimstone (male shown) has been abundant on my transect this year. © Jesmond Harding



Pilophorus cinnamopterus (Miridae) - (imago), Molenhoek - NS-terrein © B. Schoenmakers

Bugs

Since the last update, more species of true bug have been found in Ireland for the first time. The first to mention is *Eurydema ventralis*, a southern European shieldbug, which was found in shop-bought imported vegetables. It was initially thought to be another *Eurydema* species but the identification was corrected during verification. Species such as *Eurydema ventralis* are categorised as adventive and do not form part of the Irish list as that only includes species which are established outdoors, native or otherwise, and natural vagrants or migrants. Nevertheless, it is important to list these adventive occurrences as it demonstrates the pathways through which species introductions happen, and it may be the precursor of establishment.

Next, in 2021, two species of the genus *Pilophorus, clavatus* and *cinnamopterus*, were added following independent records in July of that year. Both species were found outdoors in suitable habitat and so both can be added to the Irish checklist. *Pilophorus* species are aphid predators and the immature stages especially are considered to resemble ants. The adults have silvery lines running across the wings and the shape and position of the lines are important identification features. There are four species in Britain but none were known from Ireland before 2021.

Pilophorus clavatus was found at a wetland site in the eastern *Burren* during an invertebrate survey. A single adult was beaten off willows, with which the species is known to be associated. The adult of *P. clavatus* has dark wings crossed with a pair of narrow silver lines and distinctive clubbed antennae. The natural state of the habitat and western location would suggest this is an overlooked native, but confirming that will require more records. Willows are routinely examined for their bugs and this species has never been seen before, so it is most likely a rare but previously overlooked species. There is no reason to presume it is not established, but to date this remains the only adult specimen found.

The second *P. cinnamopterus* was found by Larry Doherty in a park in Clonmel, Co Tipperary. This is a striking red and black species associated with Scots Pine. The Clonmel park is a recent development, and the trees were all planted, so when and how the bug arrived there is uncertain. Plenty of people have investigated Scots Pine elsewhere in Ireland without finding it at other sites, which suggests it is a recent arrival. The Clonmel population seems to be doing well – adults and nymphs were seen in 2023.

Two new species were found in 2023: *Nysius huttoni* and *Tupiocoris rhododendri*. Full details of these records will be published in the Irish Naturalists' Journal. There is no doubt that both species are established here and are likely to have been for some time. They owe their presence here to a human-mediated introduction that must have brought them to Europe from their native range. Both have spread in Europe since, and have now been detected in Ireland.

Tupiocoris rhododendri was unknown to science before 1971 when it was found in Kew Gardens. *Tupiocoris* is a genus of plant bugs found in North America and eastern Asia, but its origin is unknown. The characteristics of the species suggest it is originally North American. The species feeds on *Rhododendron* and it can be found on both naturalised and cultivated plants. The second species, *Nysius huttoni*, originated in New Zealand.

Briefly there is good evidence of northward spread in other species. The unmistakeable plant bug *Heterotoma merioptera* has certainly spread north. It appeared around Lough Neagh in the early 2000s but can now be found easily in many locations. Likewise, the Hairy Shieldbug, *Dolycoris baccarum*, is now present in the northern third of Ireland. Green Shieldbug, *Palomena prasina*, has reached virtually the whole of Ireland, but 50 years ago, it was distinctly southern absent from north of Dublin. Juniper Shieldbug, *Cyphostethus tristriatus*, has changed status from a rare species to a common one is just a few years. This species can be found on Lawson's Cypress across the island, which has allowed it to spread beyond the limited range of native Juniper. If you have even one of these trees in your garden and it has cones, there is now a very good chance Juniper Shieldbug will be present.

Please keep looking for shieldbugs and any of the other Heteroptera species and send the records to the NBDC. These will be verified in due course and added to the existing database.

Dr Brian Nelson

INVERTEBRATE ECOLOGIST
National Parks and Wildlife Service

Photos from one of the BCI workshops over the summer
© Noel Marry

Bats

Summer 2023 was a busy time for Bat Conservation Ireland! In 2023, we resumed in-person training, with a number of evening and weekend workshops. These were held in counties Meath, Cavan and Wicklow in the summer months and were very well attended by amateur enthusiasts, professional ecologists and NPWS staff.

In view of increasing demand for batty training, we applied for and were successful in receiving funding from the Heritage Council to help develop an online training platform. We are currently filming and recording modules on how to identify bats using tuneable detectors, how to design bat surveys, how to survey for bats in buildings, bridges and trees, along with various other topics.

We hope this development will help ensure the demand for training is met and that it will help both volunteers and professionals upskill at their leisure during the winter months. We plan to keep adding material to this in the coming years while continuing in-person training in the summer where needed. We are looking forward to launching the first modules in November this year.

We also warmly welcomed a new member of staff, Dr David Clarke, to our ranks in May. David researched and developed monitoring schemes for long-tailed bats in New Zealand. He returned home this year and almost immediately took up the new ecologist role with us. David has had a busy summer getting to grips with the Irish Bat Monitoring Programme and up to speed with the Irish species. David will present a talk on his experiences of working on bats in New Zealand at our AGM in December, Bat Conservation Ireland members are welcome to attend.

The Irish Bat Monitoring Programme continued in 2023. Hundreds of surveyors, north and south, contributed to counts at brown long-eared bat roosts; walked transects along rivers counting Daubenton's bats; and drove transects while bat detecting along roads across the island. Despite the rain in July hampering the survey efforts of some teams, it still looks like we will have good coverage for all our schemes for 2023.

From May to August this year, we ran pilot woodland bat species monitoring trials in Meath, Cavan, Kildare and Wicklow, with the help of NPWS and volunteer teams, who carried out walked transects and static monitoring of bats. We look forward to analysing the data and making recommendations for how to proceed. Hopefully by spring 2024 we will have devised a robust method for monitoring population trends in whiskered and Natterer's bats.

Thanks to all volunteers who contributed to our monitoring schemes in 2023!

Dr Niamh Roche
BAT CONSERVATION IRELAND
niamhr@batconservationireland.org

Sightings

During the six-month period from April 1st to September 30th 2023, IWDG validated 1,773 sighting records. Included in these data are the results of 114 land-based 'effort' watches. These sightings comprised an impressive 11 species of cetacea and basking sharks. The most frequently recorded species are ranked as follows: bottlenose dolphin (21%), common dolphin (19%), minke whale (16%), harbour porpoise (14%), basking shark (8%), humpback whale (6%), fin whale (2%). Included among the also-rans were Risso's dolphin, pilot and killer whale, northern bottlenose whale and blue whale. 224 sightings (12.6%) could not be validated to species level and were allocated to appropriate non-species categories.

The standout sighting events were a two-week period between August 19th and September 3rd, when a group of three northern bottlenose whales, *Hyperoodon ampullatus*, entered the inner Bantry Bay, where they could be seen almost daily. On occasion, they were within a few hundred metres of the shore, between the Eagle Point campsite, Whiddy and Garnish Islands, providing exceptional views of their regular 'breaching' behaviour. Their last confirmed sighting was of a single animal on September 10th. This event provided whale enthusiasts a rare opportunity to watch this deep-diving beaked whale at close quarters, without having to venture to deep shelf edge waters. At time of writing there have been no stranding reports of this species from the general area, which gives us hope that all three whales made their way back out of Bantry Bay, into deeper, safer waters.This episode, however, was unlikely to be an isolated occurrence, given a sighting of a pair of bottlenose whales off the Blaskets, Co. Kerry, just three days prior to their arrival in Bantry Bay, and a subsequent stranding of a juvenile at Ballymacormick Point, Co. Down, on August 24th, while around the same time there were several incidents of this species reported between West Sussex and Scotland, the Faroes and northern France.

three Northern Bottlenose Whales entered the inner Bantry Bay, where they could be seen almost daily

Another standout report was of blue whales seen and photographed from a yacht on a north passage, sailing through the Edoras Bank, west of the Rockall plateau on August 15th. Although some 750 km northwest of Erris, Co. Mayo, the location is within the Irish Continental Shelf area and as sightings of the planet's largest creature are so rare, we are quite happy to claim these as Irish records. Big thanks to Bas van der Linde for reporting this sighting and sharing this image of one of the three blue whales he observed during this encounter.

From April 1st to September 30th 2023, the IWDG Cetacean Stranding Scheme validated a total of 180 records of stranded cetaceans on the island of Ireland, up from 149 records during this time period last year. These figures include 17 species: basking shark (n=1), loggerhead turtle (n=1), bottlenose dolphin (n=5), common dolphin (n=71), striped dolphin (n=9) white-beaked dolphin (n=1), Risso's dolphin (n=3), harbour porpoise (n=40), long finned pilot whale (n=9), minke whale (n=9), sperm whale (n=2), humpback whale (n=1), fin whale (n=1), northern bottlenose whale (n=1), Sowerby's beaked whale (n=1), Cuvier's beaked whale (n=1), and True's beaked whale (n=1).

There were a total of 28 known live stranding events, 17 of which involved common dolphins, four striped dolphins, one bottlenose dolphin, three harbour porpoises, one long-finned pilot whale, and two unknown cetacean species.

The number of common dolphin strandings has been on the rise since 2011, as well as harbour porpoises, though on a smaller scale. Harbour porpoise records have risen from an average of 28.6 per year between 2000 and 2010, to an average of 44.4 per year between 2011 and 2022. We have already reached a total of 56 records in 2023, primarily along the east and southeast coasts. Therefore, it is almost certain the peak of 58 animals, which was reached in 2020, will be surpassed this year.

Blue whale, off the Edoras Bank, northwest region, August 15th
© Bas van der Linde

IWDG's Deep Diving and Rare species Investigation Programme (DDRIP) has now continued into its second year, with a total of ten animals having been examined to date: one dwarf sperm whale, one pygmy sperm whale, one white beaked dolphin, one Risso's dolphin, one Cuvier's beaked whale, two True's beaked whales, one Sowerby's beaked whale, one fin whale and one humpback whale. The project aims to carry out post-mortem examinations on deep diving and rarely stranded species in partnership with the Regional Vet Labs, with partial support from the National Parks and Wildlife Service. IWDG have provided biological samples from animals examined under DDRIP to several ongoing research projects.

Please report all whale, dolphin and porpoise strandings, alive or dead, to the IWDG. The IWDG, with support from the NPWS and the National Biodiversity Data Centre, maintain the official database of stranded cetaceans in Ireland. This is one of the longest running stranding schemes in Europe which allows us to monitor any potentially unusual trends.

Pádraig Whooley
SIGHTINGS OFFICER
Irish Whale and Dolphin Group
sightings@iwdg.ie

Stephanie Levesque
STRANDINGS OFFICER
Irish Whale and Dolphin Group
strandings@iwdg.ie

Explore Your Shore!

The strong recording effort on the marine side of things continued through the summer, bringing a welcome boost in building baseline data for a previously neglected area of Ireland's biodiversity recording effort. Since April, we have received 3,873 marine species records, keeping 2023 on track to be our best year to date for recording marine species. Thank you to all who took time to submit records, and please keep them coming. In August, we were delighted to upload our 15,000th validated marine record collected under the Explore Your Shore! project, a lesser spotted dogfish egg case, which was submitted by prolific Clare based recorder, Jamie O'Neill. This year, we promised to validate and upload marine species records on a more regular basis, and we have met this target, with uploads every two months.

There has been some uptake of our new surveys, and this is welcome, but we want more people to take up recording using the three Explore Your Shore! surveys. Mostly the forms are similar, but for the surveys, you will record a bit of detail on how long you spent recording and how many times you have visited the site. It's a small bit of added effort, but adds a great deal of value to the submitted records, so please give our Big Beach Biodiversity Survey, Great Rocky Shore Bioblitz, and Adopt-a-rockpool surveys a try if you haven't done so already.

We are seeing increasing numbers of people using the facility to upload records of unidentified marine species. This is a great way to increase your number of submitted marine records even when you are stumped by an identification. You can, of course, still ask for help with species identification by posting your queries on our Facebook page (@ExploreYourShore), but please do remember to log your record via ExploreYourShore.ie once an identification is confirmed.


Face to face with a shore crab at the Clean Coasts roadshow in Belmullet

Seashore Splashes were run for Biodiversity Week and Heritage Week this year. The Biodiversity Week Splash was a bit of a washout (pun intended!), with just 60 records, but the Heritage Week Splash attracted a tsunami of 806 records. For World Ocean Day in June, we conducted our first 'Round-Ireland Bioblitz', which attracted a fair bit of interest, with 423 records submitted. We intend to move to an annual Bioblitz focused on World Ocean Day, and maybe a winter recording event, too!


Exploring the shore on Inis Oírr

Our collaboration with Clean Coasts continued with field training sessions in Dublin, Belmullet and Inis Oírr in April. Field training sessions were also held at the Ellen Hutchins Festival in Bantry, Cork, in August. Explore Your Shore! attended and gave updates at the Irish Ocean Literacy Network (IOLN) meetings in Cork and Galway, and we will be at the Dublin IOLN event in November, too.

Our first 'Explore Your Shore! Hub' certificate was awarded to Galway Atlantaquaria, who ran a fantastic summer season of events on the shore in Salthill. We are actively looking for additional Hubs around the coast. Becoming a Hub means we can support you with training events and posters, and work to develop collaborations and, of course, you will receive a Hub Certificate to display in your business premises. So, if you are an educational or outdoor event business or institution, with a marine focus, anywhere around the coast, and would like to become a training and recording Hub for Explore Your Shore!, please email dwall@biodiversityireland.ie.

This summer, we supported a number of excellent local initiatives conducting seashore educational and recording activities in Waterford, Wexford, Galway, Donegal and Carlingford Lough, with information and posters. If you are interested in including information on Explore Your Shore! in your coastal education and recording events, please email dwall@biodiversityireland.ie

Finally, keep your eyes peeled for a new look to the Explore Your Shore! website in the coming months as we refresh the content and appearance. As always, keep up to date via our website at *www.ExploreYourShore.ie* and on Facebook @ExploreYourShore

Dave Wall
CITIZEN SCIENCE OFFICER
National Biodiversity Data Centre

BirdWatch Ireland wardens collecting corpses on Rockabill
© Steve Newton

Birds

Unfortunately, it was mostly bad news for our internationally important tern populations this season. What we hoped would not happen, did happen, and Highly Pathogenic Avian Influenza (HPAI) arrived in three of our largest colonies, Lady's Island Lake (Wexford), Dublin Port, and Rockabill, in late June and early July, causing significant mortality in all key species of tern and gull. Both adults and chicks died, and our teams of wardens had to switch from nest monitoring and ringing chicks to glorified corpse collectors wearing full PPE, spending long spells of time disinfecting themselves and equipment.

For most species, the early nest censuses were promising, very similar to 2022 levels, with the exception of Sandwich Terns in Wexford, where a 26% decline was noted. This species had been widely impacted by HPAI across the North Sea in 2022. This year, for some species, Common Terns in particular, the impact here was severe, and we estimate that 20% of the adults and 50% of the young may have succumbed at our colonies. Additional mortality will have occurred elsewhere while the birds were foraging or during post-breeding dispersal. For long-lived species like seabirds, adult mortality is a much more important factor in comparison to breeding success in a single year. We will only see the effect of this deadly virus when we start nest censusing in 2024.

Our teams of wardens had to switch from nest monitoring and ringing chicks to corpse collectors

Over the last couple of decades, we have seen range shifts is a variety of species. Of particular note were the arrivals of Little Egrets and Great Spotted Woodpeckers as breeding species, natural colonists responding to climate change (egrets) or demographic factors elsewhere (woodpeckers). Most recently we have also been graced with Common/Eurasian Cranes breeding at a Bord na Móna bog in the midlands. Since the millennium, the NPWS and the Golden Eagle Trust have reintroduced three raptors: initially, Golden Eagles in Donegal, later Red Kites in Wicklow and White-tailed Eagles in Kerry and elsewhere.

Osprey © Colin Rigney

The Golden Eagles are rarely mentioned these days, and we can infer they are struggling to reestablish a viable population, whereas Kites are common on the east coast and White-tailed Eagles, despite the rather alarming number that have been shot or poisoned, seem to be fine and are breeding successfully, particularly in the southwest, west and some of the large lakes in central Ireland.

The most recent reintroduction of a large bird of prey, to the south coast, is the piscivorous Osprey. This is going to be a very different sort of field experiment. The kites and eagles are essentially 'resident' species, whereas Ospreys are highly migratory; the majority of those breeding in Britain overwinter in West African wetlands. At the same time as the NPWS were announcing the release of the first batch of young birds (nine), news was circulating that a pair had bred successfully in Northern Ireland. Maybe these birds might 'show the ropes' to the reintroduced ones and help them migrate successfully? Young Ospreys that make it to West Africa will probably not return north for a couple of years, so we will have to be patient before we can judge the success of this project. Further batches of young birds will be released in future years.

Dealing with the HPAI crisis in our seabirds over the summer left me little time to monitor and reflect on how other species fared. I noted that House Martins were really struggling to find mud to build nests in the May 'hot spell', but that all seemed okay with plenty of active nests once the wet weather returned later in June.

Dr Steve Newton
SENIOR CONSERVATION OFFICER
Birdwatch Ireland
snewton@birdwatchireland.ie

Green-flowered helleborine, *Epipactis phyllanthes* © Andrew Malcolm

Autumn Lady's-tresses (*Spiranthes spiralis*), Co Down. © Jake Dalzell

Bird's-nest orchid, *Neottia nidus-avis* © Andrew Malcolm

Vascular Plants

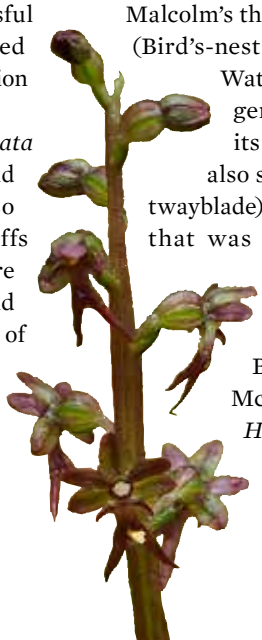
This summer's weather did few favours for either plants or botanists. A chilly spring, followed by a hot dry spell, made everything appear at once, hopes then being dashed by a wet chilly July, and a stormy August. Nevertheless, there have been some wonderful botanical finds across the country this year.

New orchid records are always exciting, and E*pipactis helleborine* (Broad-leaved helleborine) caused rather a stir when it appeared unexpectedly on the lawn of Trinity College Dublin following 'No-mow May'. The very rare and aggravatingly similar *Epipactis dunensis* (Dune helleborine), which is known in Ireland only since 2019, in a handful of Co Dublin sites, continues to thrive at its first recorded Irish location in the Dodder Valley, where it was seen this year by Mike Wyse Jackson and Paul Green. On the subject of happy helleborines, in Co Waterford, Andrew Malcolm revisited a successful colony of *Epipactis phyllanthes* (Green-flowered helleborine), which has been known at this location since 2009.

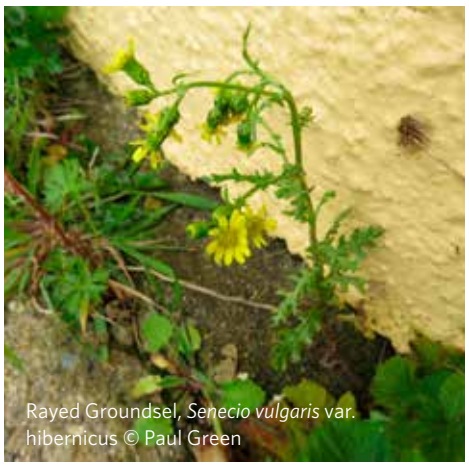
In Co Antrim, a new site for *Neotinea maculata* (Dense-flowered orchid) was discovered by David McNeill at Galyboly – only the second site in Co Antrim, and interestingly, located on basalt cliffs (the other site is on chalk). The Antrim sites are the most northern and western in both Ireland and Britain (except for one population on the Isle of Man, sadly not seen since 1985). Eamon Gaughan also found around 25 spikes of this species at a new location on the south side of Knocknarea, Co Sligo, some distance from where he first discovered it on this mountain in 2020. A new hybrid orchid for Co Antrim, X *Dactylodenia st-quintinii*, was found by David McNeill and Ric Else on Rathlin Island. Helpfully, this hybrid between G*ymnadenia borealis* (Heath fragrant-orchid) and *Dactylorhiza fuchsi*i (Common spotted orchid) was found growing with both parents.

An exciting new orchid for Ulster was discovered by Jake Dalzell and his mum Judith, who found a healthy population of *Spiranthes spiralis* (Autumn Lady's-tresses) at Dillard, Co Down, while out looking for Frog Orchid. Could this southern species be moving northwards? This is Ireland's most northerly location to date. Its Irish and British distribution can be seen in the BSBI's Plant Atlas 2020 https://plantatlas2020.org/.

Other nice orchid sightings this year include Andrew Malcolm's three beautiful spikes of *Neottia nidus-avis* (Bird's-nest orchid) just 1km from his home in Co Waterford. This species is known from the general area, but can be very random in its occurrence from year to year. Andrew also saved a colony of *Neottia cordata* (Lesser twayblade) from destruction in a spruce plantation that was being thinned. Surprisingly, spruce plantations with lots of moss, especially at higher altitudes, can provide good habitat for this species. A BSBI field meeting at Ballycroy, led by Co Mayo recorder Eoin McGreal, yielded the delicate and elusive *Hammarbya paludosa* (Bog orchid).



Lesser Twayblade, *Neottia cordata* © Andrew Malcolm


Rayed Groundsel, *Senecio vulgaris* var. hibernicus © Paul Green


Yellow saxifrage, Saxifraga aizoides © Eamon Gaughan


Nettle-leaved bellflower, *Campanula trachelium* © Paul Green


Fringed sandwort, *Arenaria ciliata* © Eamon Gaughan


Cowberry, *Vaccinium vitis-idaea* © Paul Green

New species/hybrids/varieties were recorded in several counties this year. In Co Wexford, *Equisetum x trachyodon* (Mackay's horsetail; *E. hyemale X E. variegatum*) was found in some abundance by Paula O'Meara, around a wet ditch at Ballykeerogemore; *Vaccinium vitis-idaea* (Cowberry) was seen scattered on a rocky knoll on Black Rock Mountain by Paul Green; while *Senecio vulgaris var. hibernicus*, (a rayed Groundsel) turned up uninvited in Paul's garden!

In Co Louth, Ciarán Flynn discovered *Fagopyrum esculentum* (Buckwheat) at the edge of an arable field in Ballagan. Meanwhile, in Co Antrim, David McNeill reports *Cerastium arvense* (Field mouse-ear), not recorded for nearly 50 years, at its only surviving Antrim location, Royal Portrush Golf Links. The NPWS-funded Aquatic Plant Project, led by Nick Stewart, turned up a number of new county records, including the non-native *Hottonia palustris* (water violet) at Lough Ennell, Co. Westmeath; and *Ceratophyllum demersum* (Hornwort) and *Chara virgauta* (Delicate stonewort) at Mass Lough, Co Laois.

Other interesting Irish finds included beautiful *Campanula trachelium* (Nettle-leaved Bellflower) by a river in North Tipperary, found by Paul Green and Lisa Dolan. close to where it was recorded by Praeger in 1913. Meanwhile, Eamon Gaughan twice braved Ben Bulben, in Co Sligo, to revisit some of its Alpine specialities also noted by Praeger, such as *Saxifraga aizoides* (Yellow saxifrage), *Arenaria ciliata* (Fringed sandwort) and *Silene acaulis* (moss campion).

Bridget Keehan
BSBI IRELAND OFFICER
bridget.keehan@bsbi.org
@BSBI_Ireland @IrishSectionBSBI

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