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National Biodiversity Data Centre
Documenting Ireland's Wildlife

Biodiversity IRELAND

ISSUE 24 | SPRING / SUMMER 2023

Restoring Ireland's ponds
natural solutions for biodiversity loss and climate action

Commonly Encountered Moths
New Poster and Swatch

Global Biodiversity Information Facility
Ireland's biodiversity on global stage

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 https://www.biodiversityireland.ie/

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Forester © Liam Lysaght

The staff of the National Biodiversity Data Centre

Owen Beckett, *Research Officer,* has responsibility for the identification of insects as part of the Protecting Farmland Pollinators EIP Project. He is also using his specialist expertise to assist with the validation of wasp records submitted to the Data Centre.

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, *Senior Ecologist,* is responsible for the development of, and oversees delivery of, the All-Ireland Pollinator Plan, and is responsible for the plant and vegetation work programmes of the Data Centre. This includes management of the National Vegetation Database and contributing to development of the Irish Vegetation Classification System.

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.

Dr Saorla Kavanagh is the Project Manager of the Protecting Farmland Pollinators project which seeks to test evidence-based actions to make farmland more pollinator-friendly. This is a five-year project funded under the European Innovative Partnership programme.

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.

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

Last December, the National Biodiversity Data Centre achieved a very significant milestone in its development when it was established as a Company Limited by Guarantee, with oversight provided by the Heritage Council. Minister of State Malcolm Noonan T.D. made the announcement on December 13th 2022, coinciding with his attendance at the 15th Conference of Parties of the Convention on Biological Diversity in Montreal. This decision by the Government places the National Biodiversity Data Centre on a secure footing with its own strong governance structures and an ability to better deliver on its ambitions for future growth.

The Board of Directors is Professor Yvonne Buckley, Colette Byrne, Ciara Carberry, Dr Micheál Lehane, Dr Colm Lordan, Ted Massey, Dr James Moran, Máire Ní Bhraonáin and Geraldine Tallon, and chaired by John McCarthy, former Secretary General of the Department of Environment, Community and Local Government. The Board provides a strong blend of experience in public sector governance, knowledge of biodiversity science and community-led activities.

The establishment of the National Biodiversity Data Centre as a new company comes after 16 years of the Centre being managed by Compass Informatics on behalf of the Heritage Council under a Service Level Agreement. Over that time, the Centre has developed and matured into one of the leading biodiversity centres in Europe, underpinned by a state-of-the-art bioinformatics infrastructure developed by Compass Informatics. The establishment of the National Biodiversity Data Centre as a State-sponsored company marks a very significant new chapter in the development of the Centre. It should provide opportunities for the Centre to become better equipped and better resourced to meet the data and information needs if Ireland is to address the current Climate and Biodiversity Emergency.

This exciting new chapter builds on the success achieved under the previous National Biodiversity Data Centre. The dedication of the staff employed at different stages over the years, the expertise and professionalism of Compass Informatics, the support of key public sector partners, in particular the Heritage Council and National Parks and Wildlife Service, and the very large network of experts and recorders who have given generously of their knowledge and time to help achieve so much, have all contributed to this success.

The Board and staff of the newly established National Biodiversity Data Centre CLG are currently working on putting in place the governance, organisational and strategic planning elements appropriate for a new CLG, while continuing to deliver on its existing programme of work. Over the coming months, we hope that you will all begin to see evidence of the benefits of the National Biodiversity Data Centre's new structure through an expanded and more ambitious work programme around Ireland's biodiversity. I would like to take this opportunity to thank everyone who has been so supportive of the work of the National Biodiversity Data Centre to date, and I hope very much that we can continue to rely on your support as we embark on our new adventure.

Dr Liam Lysaght

CHIEF EXECUTIVE OFFICER
National Biodiversity Data Centre

First meeting of the new Board of Directors held at the Heritage Council on 16th December 2022: (from left) Dr James Moran, Colette Byrne, Ted Massey, Ciara Carberry, Dr Liam Lysaght, Virginia Teehan (CEO Heritage Council), Dr Micheál Lehane, Máire Ní Bhraonáin, John McCarthy, Chairperson. (Directors absent from the photograph are Directors Professor Yvonne Buckley and Dr Colm Lordan)

Irish Stoat Survey with Vincent Wildlife Trust

© Ruth Hanniffy

The Irish Stoat Survey invites the public to report sightings of the Irish Stoat throughout Ireland. We welcome any observations of stoats, including live animals or dead specimens, such as roadkill. Despite the fact that the Irish stoat is believed to have been continually present on the island of Ireland for at least 12,500 years, there is little reliable information on its population. They are elusive mammals, who are rarely seen, and who leave few field tracks and signs, such as hair or droppings. They often avoid the standard monitoring methods used for other mammals.

The survey is a collaborative project between Vincent Wildlife Trust, the National Biodiversity Data Centre, University of Galway and the Centre for Environmental Data and Recording (Northern Ireland). Financial assistance for this survey was provided by the Irish Environmental Network and the National Parks and Wildlife Service.

The subspecies of Irish stoat differs from other stoats in the rest of Europe because it does not turn white in winter, and the line dividing the chestnut-coloured upper fur and the creamy-coloured fur on its belly is usually irregular. However, like all stoats, it has a distinctive black tip to its tail, a long sinuous body, short legs and a flattened head. There are no weasels in Ireland, so the stoat fills the niche occupied by both species in other places.

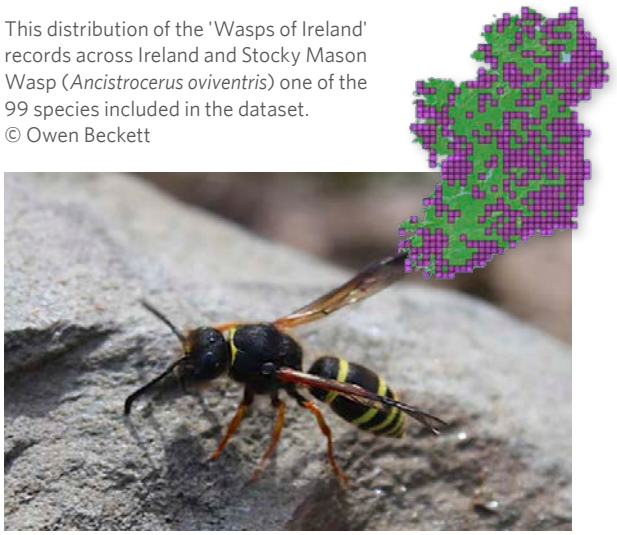
If you have any queries, you can contact the project at: Irishstoat@vincentwildlife.ie

To find out more, see https://biodiversityireland.ie/surveys/irish-stoat-survey/

Biodiversity Maps hits its six millionth record

A major milestone was reached when the number of records available to view on Biodiversity Maps hit the six million mark. Biodiversity Maps now maps 6,000,031 records of 17,398 different species from 172 different datasets. Biodiversity Maps is the national data and mapping portal that promotes the open sharing of data on Ireland's biodiversity.

The six million record milestone was reached with an update to the Wasps of Ireland dataset. The Wasps of Ireland dataset is a recently created collection of wasp records from across Ireland. Before its creation, almost none of the existing wasp records had ever been digitised and mapped, so this was an important step in providing the foundations for conserving wasp species in Ireland. The dataset currently contains 3,878 records, spanning 99 different species, and is being continually updated as new records are submitted by our recorders. The wasp dataset also incorporates a survey of Spider Hunting Wasps compiled by Dr Aidan O'Hanlon. There are 851 records in this survey, with data feeding in from various sources, including field observations, research in museums, and records submitted through Ireland's Citizen Science Portal to the National Biodiversity Data Centre.



This distribution of the 'Wasps of Ireland' records across Ireland and Stocky Mason Wasp (*Ancistrocerus oviventris*) one of the 99 species included in the dataset.
© Owen Beckett

Later this year, a new Ants of Ireland dataset will also be created, so for the first time there will be dedicated species information pages and distribution maps for wasps and ants on the National Biodiversity Data Centre website. The two new datasets are intended for use in drawing up the first conservation 'Red List' for wasps and ants in Ireland, which will be a significant step in aiding their conservation.

Red Grouse


Red Grouse © Kendrew Colhoun

The Red Grouse is amongst the most iconic, yet rarely seen, of Irish avifauna. A member of the wider family of grouse and ptarmigan, it is associated with ling heather, upon which it depends for nesting, foraging and cover. Its Latin name *Lagopus* is derived from the ancient Greek *lagos* (hare) and pous (foot), which is likely a reference to the feathered toes and feet of this bird.

Growing genetic evidence suggest that the Irish population is unique as the Red Grouse in Britain (*scoticus*) is arguably a different species from the Willow Ptarmigan found on the continent. In turn, the Irish *hibernicus* are further distinct from both *scoticus* and Willow Ptarmigan. Confounding matters are previous introductions of British birds (mainly from Scotland), though researchers from University College Dublin found no overlap in the genetic profiles of Irish and Scottish samples, recommending that the genetic integrity of the Irish population should be protected. While they are strong fliers, Red Grouse are territorial, not dispersing far from natal sites. Given this tendency, and changes in landscape and land use in recent decades, it is not surprising that populations became genetically isolated and that 'residency' of a bog means just that.

Red Grouse occur at low densities and are always associated with heather-dominated habitats – lowland raised bogs, and upland and lowland blanket bogs. They feed almost exclusively on heather and require young shoots for food and taller bushier plants for nesting cover. Densities in Ireland (typically 2-3 pairs/km^2 of suitable habitat) are markedly different to, for example, managed Scottish grouse moors, where there can be in excess of 100 birds in the same area post-breeding. The differences are most likely due to a combination of habitat composition, grazing pressure, poor nutritional quality of the heather, and predation pressure.

Whilst the first Breeding Bird Atlas 1968-72 suggested that a marked decline in Ireland began around the 1920s, it was not until after the species was red-listed (in 1999) that the first dedicated national survey took place in 2006-08. That showed a 50% reduction in the range of Red Grouse since the first Breeding Atlas and estimated a population of around 4,200 individuals in the mid-2000s. At that time, the range decreases were most acute in the midlands and south-west. Given the close association between this species and heather, it is obvious that anthropogenic activities associated with bogland would have profound effects on grouse. Large-scale mechanised peat extraction in midland raised bogs greatly reduced the extent and quality of habitat for grouse and others. There and elsewhere, peat extraction, afforestation and over-grazing resulted in significant additional losses in heather extent and quantity.

In 2021/22, the National Parks and Wildlife Service (NPWS) commissioned a survey to determine the national population (and change since 2006/08), including threats and pressures on Red Grouse nationally, repeating the established survey methods and design from the 2006-08 survey. With significant citizen science input via the National Biodiversity Data Centre, NPWS regional staff and staff working for KRC Ecological Ltd., around 500 1km squares were re-surveyed across Ireland. While results are currently being finalised, the population has not recovered, with a further 14% reduction in range at 10-km square level since 2006-08. The midlands region has suffered the greatest losses, with the largest range contraction and lowest numbers found there. The full 2021/22 report will be published as an Irish Wildlife Manual later in 2023 and can be found on the NPWS website: https://www.npws.ie/publications/irish-wildlife-manuals .

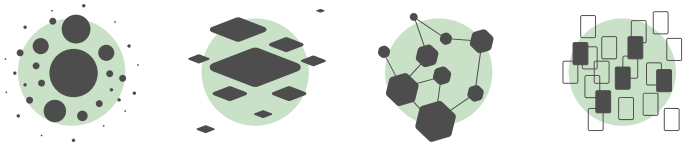
by Kendrew Colhoun, Coordinator of the 2021/22 National Red Grouse Survey (Ornithologist and Company Director of KRC Ecological Ltd.), and Sinéad Cummins Terrestrial Bird Ecologist, National Parks and Wildlife Service.

The Global Biodiversity Information Facility

GBIF - the Global Biodiversity Information Facility - is an international network and data infrastructure funded by the world's governments and aimed at providing anyone, anywhere, open access to data about all types of life on Earth.

What is GBIF?

The Global Biodiversity Information Facility's (GBIF) is a network of governments and organisations that enables the publication of biodiversity data and shares it with the world. GBIF includes dozens of participating countries (including Ireland) and almost 2,000 data publishers and brings together a global scaled data infrastructure which allows for the advancement of scientific research, promotes technological and sustainable development, and facilitates the conservation of biodiversity and the equitable sharing of its benefits. In March 2023, there were over 2 billion records in the GBIF network (Figure 1).



2,308,912,574 Occurrence records

85,099 Datasets

2,019 Publishing institutions

8,694 Peer-reviewed papers using data

Figure 1. Summary of the GBIF network data

How does GBIF work?

The GBIF Secretariat (which is based in Copenhagen, Denmark) coordinates providing data-holding institutions around the world with common data standards, best practices and open-source tools, enabling them to share biodiversity information. They do this by working through a network of participating countries and organisations known as 'participant nodes'. Participant Nodes are an agency or institution that has been designated to promote, organise and facilitate biodiversity data sharing activities within its area. and The National Biodiversity Data Centre is Ireland's GBIF participant node.

The data shared by GBIF comes from a large range of sources and includes everything from museum specimens collected in the 18th century, to DNA barcodes and citizen science data captured on smartphone apps in recent days. Figure 2 highlights that the data published by GBIF includes occurrence records from around the globe.

Ireland and GBIF

Ireland became a member of GBIF in 2008, and as stated previously the National Biodiversity Data Centre serves as the GBIF node for Ireland. Biodiversity data contained in the Data Centre's database feeds into the GBIF portal to ensure that future international and global maps can include Irish data. It also means that the GBIF data resources of more than 2 billion global biodiversity records are available to the Irish research community. Data can be accessed through the GBIF data portal https://www.gbif.org/.

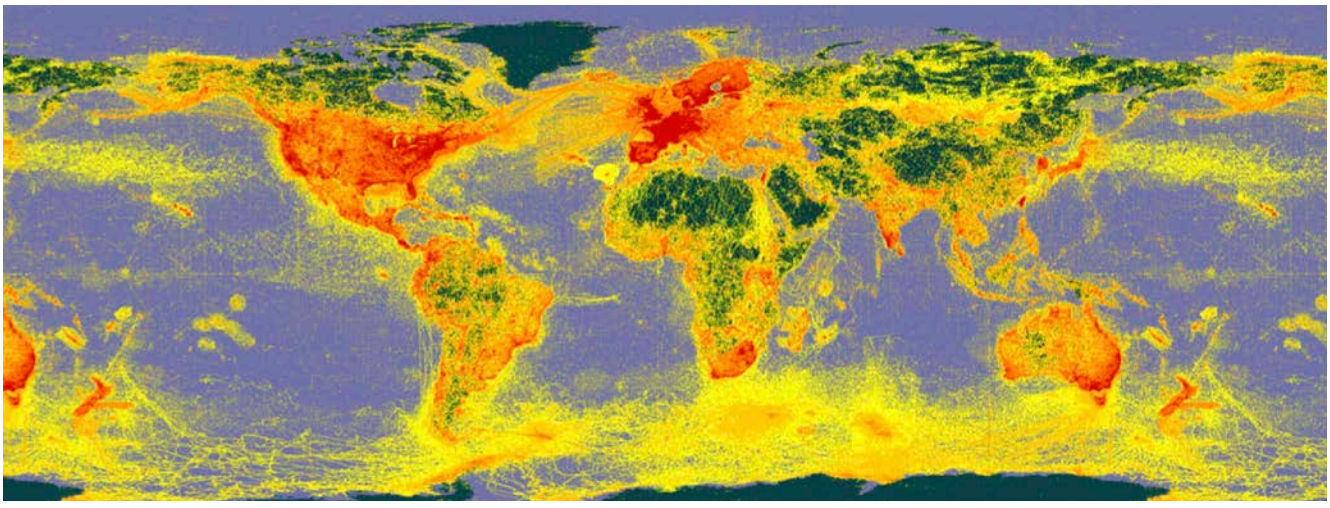
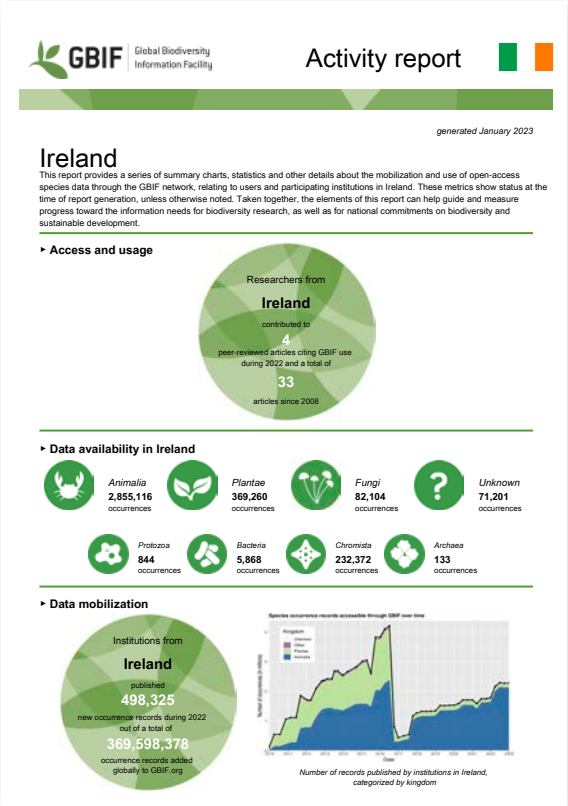


Figure 2. Species occurrences published by GBIF as of March 2023 (www.gbif.org)

Figure 3. Ireland's Activity Report from GBIF (https://analytics-files.gbif.org/country/IE/GBIF_CountryReport_IE.pdf)


GBIF Global Biodiversity Information Facility

Activity report

generated January 2023

Ireland

This report provides a series of summary charts, statistics and other details about the mobilization and use of open-access species data through the GBIF network, relating to users and participating institutions in Ireland. These metrics show status at the time of report generation, unless otherwise noted. Taken together, the elements of this report can help guide and measure progress toward the information needs for biodiversity research, as well as for national commitments on biodiversity and sustainable development.

▸ Access and usage

Researchers from Ireland contributed to 4 peer-reviewed articles citing GBIF use during 2022 and a total of 33 articles since 2008

▸ Data availability in Ireland

Animalia 2,855,116 occurrences; Plantae 369,260 occurrences; Fungi 82,104 occurrences; Unknown 71,201 occurrences

Protozoa 844 occurrences; Bacteria 5,868 occurrences; Chromista 232,372 occurrences; Archaea 133 occurrences

▸ Data mobilization

Institutions from Ireland published 498,325 new occurrence records during 2022 out of a total of 369,598,378 occurrence records added globally to GBIF.org

Number of records published by institutions in Ireland, categorized by kingdom

Figure 5. Excerpt from Ireland's Activity Report

Figure 4. Excerpt from Ireland's Activity Report

Rank	Country or area	No. of occurrences
1	Ireland	2,228,371
2	United Kingdom	1,001,275
3	United States of America	178,542
4	Germany	63,977
5	Netherlands	57,733
6	France	51,780
7	Belgium	12,620
8	Colombia	3,062
9	Sweden	2,265
10	Norway	1,551

Ireland's GBIF Activity Report can be seen in Figure 3. It highlights everything from the number of records published through GBIF, to the number of per-reviewed research articles that use Irish data in their publication. This report can be automatically generated on the GBIF website for any country.

Over 2.1 million occurrence records across 86 datasets are published from Ireland's network of data providers to GBIF, and a further 1.3 million records of data about Ireland feed into GBIF from 36 different countries. The United Kingdom is the largest provider of Irish occurrence data outside of Ireland. Extracted from Ireland's Activity Report, Figure 4 highlights the top data contributions about biodiversity in Ireland from different countries.

Figure 5 shows the classification of Irish data across selected taxonomic groups. Birds and flowering plants account for the highest occurrences of Irish data published to GBIF with almost >1.6 million occurrences in those two taxonomic groups alone.

If you have published data through the National Biodiversity Data Centre's Citizen Science portal, then once the record has been verified this data will be shared with GBIF and will contribute these statistics about Ireland!

Who is involved from Ireland?

In October 2022, Dr Liam Lysaght (National Biodiversity Data Centre) was elected as new chair of GBIF Governing Board during the Governing Board's 29th meeting in Brussels. He took over the role from Dr Tanya Abrahamse of South Africa, who held a five-year term. Gemma Weir (National Parks and Wildlife Service) is Ireland's Head of Delegation to GBIF and Dr Michelle Judge (Data Manager – National Biodiversity Data Centre) is Ireland's GBIF Node Manager. Any queries about GBIF can be directed to the Node Manager by emailing mjudge@biodiversityIreland.ie.

Michelle Judge

DATA MANAGER AND GBIF NODE MANAGER

National Biodiversity Data Centre

GBIF Governing Board chairs past - Tanya Abrahamse (left) - and present - Liam Lysaght (right).
Photo Maheva Bagard Laursen / GBIF Secretariat

Pond creation

– a powerful tool for biodiversity and climate action

The Ponds for Biodiversity Legacy4LIFE project aims to build Irish capacity and expertise in pond creation, management, and conservation. It is actively working to enhance public awareness of the value of these small wetland habitats for biodiversity, water quality, climate mitigation/ adaptation, as well as public health and wellbeing.

Last May, An Taisce launched their two-year Legacy4LIFE programme. Legacy4LIFE, which is funded by the EU LIFE Programme, consists of three project strands:

- Ponds for Biodiversity
- Advancing Farm-to-Fork
- Green Communities - Development of a Low Carbon Town Plan

All three distinct projects aim to develop community-based supports for Ireland's natural environment with a focus on ecosystem resilience and biodiversity enhancement. A focus on collaboration at institutional, public sector and the wider community level is at the core of the programme.

The Importance of Ponds

Ponds provide society with a number of ecosystem services, such as pollution management and flood control. They also provide community recreation and leisure spaces, all of which largely benefit public health and wellbeing. Ponds constitute biodiversity hotspots within the landscape, hosting a wide range of aquatic plants and animal species for their small size (Cereghino et al., 2007). They also provide stepping stones between different aquatic and terrestrial habitats and therefore can be part of a larger wetland ecosystem.

Ponds have the potential to support an incredible two-thirds of all freshwater species, and demonstrate the ability to host more biodiversity than rivers and lakes, particularly macroinvertebrates and less common species. They tend to outnumber larger wetlands, such as lakes, due to their ability to occur in virtually any terrestrial environment (Cereghino et al., 2007). Remarkably, even the smallest ponds can provide valuable habitats for a range of species, including: insects such as damselflies, dragonflies, pond skaters and whirligig beetles; amphibians such as frogs and newts; and birds such as Mallard, Moorhen, Snipe, Willow Warbler, Sedge Warbler and Reed Bunting, as well as providing productive hunting grounds for Ireland's nine species of bat.

Pond Development Officer, Aoife O'Rourke, carrying out some pond dipping for an outreach event. © Rob Gandola

The creation of ponds brings multiple water quality benefits as they have the potential to alleviate stream water quality from agricultural and urban pollution by catching runoff before it enters adjacent waterways (Robotham et al., 2021).

Ponds play a vital role in sustainable solutions towards climate change mitigation as they have large carbon sequestration abilities, with 20-30 times more carbon dioxide sequestration potential compared with other habitats typically managed for carbon uptake and storage, such as woodlands and grasslands (Taylor et al., 2019). Good management of the surrounding habitat of a pond through the incorporation of a grassland and woodland border will also increase effective levels of carbon sequestration. Permanent and naturally vegetated ponds are the most efficient at sequestering carbon dioxide, particularly those dominated by thick moss swards and aquatic grasses (Gilbert et al. 2018).

They also provide a range of ecosystem services that will aid adaptation measures to the impacts of climate change. This includes holding water in the landscape to help alleviate flood impact. Additionally, ponds allow society to adapt to climate change by providing areas for recreation and leisure, which is greatly beneficial for public mental health and wellbeing.

A recent workshop took place at Clashduv Park, Cork City, on March 25th 2023. Aoife O'Rourke, the project's Pond Development Officer, and technical pond creation advisor, Feidhlim Harty, led the creation of a new community pond, in collaboration with Green Spaces for Health, Cork City Council, and LAWPRO, not to mention the fantastic local community who turned out for the Meitheal. This pond will be included as one of the project's demonstration sites and we hope it will attract wildlife for many years to come.

Threats to Ponds

Ponds are threatened by a number of human activities as well as natural processes. In Ireland, dramatic changes in the landscape associated with intensified agriculture and increased urban sprawl, such as land drainage for agriculture and habitat loss from urbanisation, have led to their decline, and left very little habitat left for them to flourish. In addition, pollution, including runoff from agriculture, can result in increased nutrient loading and the contamination of ponds, resulting in biodiversity loss (Biggs et al., 2005). The latest EPA data reveals that just over 50% of Irish water bodies (i.e. rivers, lakes, estuaries and coastal waters) are in satisfactory condition (Trodd et al., 2022).

Climate change is now also a major threat to future abundance and viability of ponds. In Ireland specifically, ponds are at risk of drying out, desiccation and erosion from the increased occurrence of heatwaves that are now experienced in summertime. This can result in significant habitat loss for species. They are also exposed to increasing flash floods, which can result in the displacement of existing species as well as the introduction of unwanted invasive species. Invasive Alien Species can threaten the functionality of a pond, making it uninhabitable for residing local flora and fauna. Flooding can also bring pollutants into ponds, having a negative effect on biodiversity.

Maria Young, from Green Spaces for Health; Feidhlim Harty, Consultant; and Aoife O'Rourke © Mandie Rekaby

The biodiversity in ponds is also heavily under threat from Invasive Alien Species, diseases and infilling. Sadly, over 50% of Ireland's amphibian wetlands have been lost to drainage, industrial peat extraction, pollution and natural senescence in the past 100 years.

The Legacy4LIFE Pond Team hopes to help reverse this decline in ponds by encouraging development of healthy pond systems across the country. This will be achieved by:

- Assessing the current status of ponds in Ireland
- Collaborating with key stakeholders to facilitate the development of ponds
- Producing educational material, including a Pond Hand Book, a Pond Local Authority Report, and two beautifully illustrated information pamphlets to guide Local Authorities and communities on the importance of ponds for biodiversity, and how to create, manage and monitor a pond.

As there are so many identified threats to ponds, it is critical that the importance of ponds and their protection is understood at societal level and also recognised through policy. Unfortunately, the importance of ponds has largely been overlooked to date, with little to no consideration given in Ireland's national climate or biodiversity related plans. They are not specifically protected under the EU Water Framework Directive. Perhaps the most promising development to date regarding small waterbodies, such as ponds, is the recent publication of a COP14 document, by the Ramsar Convention on Wetlands, which outlines a draft framework for the inventory, classification, management and restoration of small wetlands (Ramsar, 2022).

The successful creation of a national pond network via the incorporation of pond creation into national development plans will also support Ireland's commitments under the EU Biodiversity Strategy and bolster new developments in legislation for biodiversity under the new Nature Restoration Law, which it is hoped will be passed by 2024.

On a more localised level, creating a pond in your garden or community is a simple, relatively inexpensive and effective way to bring wildlife into your local area, thus giving many people a way in which to take practical and important action.

To learn more about the Legacy4LIFE 'Ponds For Biodiversity' Project and view our pond resources as they become available, please visit the Legacy4LIFE webpage on the An Taisce website:
https://www.antaisce.org/legacy4life

Aoife O'Rourke

POND DEVELOPMENT OFFICER
Legacy4LIFE 'Ponds for Biodiversity', An Taisce.

Francesca Loughran

AGRICULTURAL & PONDS RESEARCHER
Legacy4LIFE 'Ponds for Biodiversity', An Taisce.

Two smooth newts on display at one of our many outreach events. © Aoife O'Rourke.

Codie Preston and son Darach Preston pond dipping at an outreach event in Marlay Park, Dublin. © Aoife O'Rourke

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

Anticipating invasive plant pest threats to Irish biosecurity

In 2019, the Department of Agriculture, Food and Marine published its '*Plant Health and Biosecurity Strategy 2020-2025*'. This strategy made several recommendations for developing risk anticipation and preparedness processes to counter future plant pest threats to Irish biosecurity. Since the publication of this strategy, there have been several notable developments in plant health governance in the Department, one of which has been the creation of a Pest Risk Analysis Unit (PRAU) in 2020. PRAU is based in the Department's Plant Sciences Division (PSD) and is tasked with coordinating risk analysis on plant health matters across several divisions. The main functions of the PRAU are to undertake horizon scanning for emerging plant pest threats to Irish biosecurity, conduct risk analysis of identified threats, and communicate these risks to the relevant audience.

One important strategic development the PRAU undertook was to establish a connection with the National Biodiversity Data Centre to identify areas of potential collaboration. This connection has led to several initiatives between the institutions which complement our respective roles in protecting Irish biosecurity. These include:

- Establishing an 'Irish Invasive Alien Species Risk Assessor Network', which has brought together risk assessors with policy roles relating to invasive species from across the island of Ireland to explore collaboration and joined up approaches in risk assessment, education, research, and communication.
- The listing of Irish high priority invasive plant pests on the National Biodiversity Data Centre biodiversity record alert system. This development will lead to the communication of a possible regulated pest outbreak on the island of Ireland to the PRAU when a record is submitted to the NBDC. Should such an event occur, this will lead to early detection of an outbreak, increasing the chances of successful eradication.

Over the coming years, the PRAU intend to further develop our connection with the National Biodiversity Data Centre to explore additional ways to complement our respective communication, education and research. It is the intention of the PRAU to raise awareness amongst informed citizen scientists of emerging plant pests, the threat they pose to Irish biosecurity, and the measures being taken to prevent the introduction of new plant pests into the island of Ireland.

One emerging threat is Beech Leaf Disease, a disease of beech trees in the USA. Beech Leaf Disease was first observed impacting several beech tree species in Ohio (USA) in 2012. The disease appears to be caused by a nematode named *Litylenchus crenatae mccannii*. The exact origin of this pest and how it entered the USA is currently unknown. Likely sources include several Pacific countries where there are similar strains of the species. Once introduced, this pest can spread rapidly, and is now widespread in the north-eastern USA and has entered Canada, inflicting severe damage to native beech forests. Mortality is high in infested trees and measures to limit the spread in North America have yet to be successful. An assessment undertaken by the PRAU found this pest would pose a considerable threat to Irish beech trees if introduced. Currently, trade in beech trees between the EU and the third countries is prohibited under EU legislation, limiting the threat of unintentional introduction into Ireland. Nevertheless, the Department Forestry Inspectorate Division have raised awareness of this pest in the forestry sector and in conjunction with PSD are participating in a European project (FAGUSTAT), assessing the status of Beech Leaf Disease in the region. A factsheet covering the pest was produced between the PRAU and PSD specialist for nematology and is available on the DAFM PRAU website: https://www.gov.ie/en/publication/7b101-pest-risk-analysis-unit-plant-pest-risk-register-factsheets/.

Farmers Monitoring Moths on their Farms

Herald
©Mireille McCall

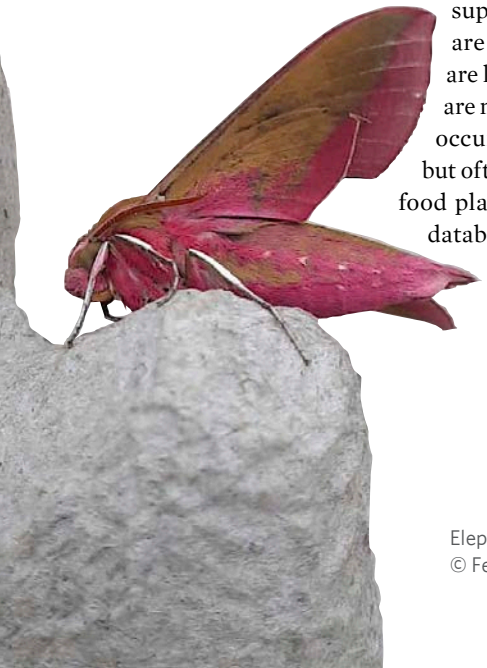
In 2022, the National Biodiversity Data Centre organised an exciting Moth Monitoring Scheme run by farmers on their own land. Twenty farmers from Kildare, Laois and Wicklow took on this challenge and over the course of the project, independently operated moth traps to successfully monitor their farms' moths.

This project was funded under the European Innovation Partnership programme, run by the Department of Agriculture, Food and Marine, and run by Owen Beckett, Project Manager, and Dr Saorla Kavanagh, Project Coordinator, both employed by the National Biodiversity Data Centre.

This project has for the first time tested the viability of a farmer-led pollinator monitoring technique in the Irish context and has developed a simple farm moth monitoring system that is suitable for a national roll-out. The project also provided information on whether the number of moth species varies according to farm type and land use within the farm.

Background

Ireland is home to over 1,500 moth species, magnificent organisms that are often overlooked. Some moths fly at night and some during the day. Both day and night flying moths are important pollinators, keeping plant populations diverse and abundant, which in turn supports crop yields. Some species are widely distributed, while others are limited in their distribution. There are myriad reasons why a moth species occurs in one place and not another, but often it is related to the caterpillar's food plant(s). MothsIreland manages a database of all species of moth found on the island of Ireland, and maps their distribution, but there are gaps in the plotted distributions of many species, both at county and habitat level, especially on farmland.



Elephant Hawkmoth
© Fergal Byrne

Forty-three of the 578 species of Irish macro-moths are threatened with extinction, while the conservation status of Ireland's micro-moths is unknown. However, evidence from elsewhere suggests that many species are in decline. Habitat destruction and degradation, driven by land-use change and chemical pollution, are the leading causes of this decline.

Farmland in Ireland comprises nearly two-thirds of the total land surface. Farmers and their wider communities are at the heart of the solution to protecting our pollinators. Irish farmland has experienced widescale loss of pollinators over the last 50 years and the National Biodiversity Data Centre's All-Ireland Bumblebee Monitoring Scheme has demonstrated that these declines are ongoing.

Objectives of the project:

1. To test the usability of a non-lethal moth (pollinator) monitoring technique across farmland of different types in the Irish context.
2. To test the time allocation, cost effectiveness and farmer buy-in of this technique.
3. Based on the outcome, to develop a simple farm moth monitoring system suitable for wide roll-out, and which could be included in the national pollinator monitoring scheme in line with EU recommendations.
4. To test whether the number of specimens varies according to farm type (beef, dairy, mixed and tillage) and land use within the farm (land managed for production where no intervention for the benefit of biodiversity has occurred versus land where intervention for biodiversity has occurred).

Setting the trap

Following training, farmers participated in 10 moth-trapping nights between the end of June and mid-October 2022. Once every two weeks, two moth traps were set up on each farm, followed by weekly trapping sessions during October. Farmers checked each trap first thing in the morning and sent photographs of each moth caught to the Project Manager for identification. All farmers received feedback on the moth species identified on their farm. Farmers dedicated approximately one hour to this project for each trapping session. Collectively, the moth traps were operated on 180 occasions by the farmers.

Some results:

Over the course of the trapping period, a total of 874 moths were identified. Some 112 moth species were recorded across the 20 farms. This includes macro-species and larger, more distinctive micro-species. Almost all the farmers' sites represent new locations for each of the 112 species recorded.

Across the four farm types, mixed farms recorded the highest species total, with 88 moth species recorded. Beef and dairy farms recorded similar moth species totals, with 74 and 71 species respectively, while tillage farms collectively recorded 54 species.

Farmer engagement

Several farmers took a great interest in the moths they caught, which were previously unknown on their land, and expressed their interest in moth trapping outside of the project or in alternative locations to those selected. Others also mentioned their desire to keep the traps for use in the future. Several farmers expressed their interest in further involvement should the project continue beyond the current proposal.

During the recruitment phase, there was little difficulty in meeting the requirement of 20 farmers for the project, signifying an interest among Irish farmers in biodiversity and contributing to citizen science. Additionally, once farmers from outside of the project found out about the monitoring programme, emails started to come in with requests to join up. With such a successful buy-in during the pilot, it is feasible that a similar level of uptake would be experienced throughout Ireland.

Assembled LedEmmer moth traps placed beside a hedgerow (left) and in the centre of a field (right). © Rachel Creighton. Traps situated along the hedgerow exhibited a greater variety and frequency of moth species. This is not surprising, as hedgerows often contain caterpillar foodplants as well as nectar sources for adult moths.

Recommendations for future work

The absence of a requirement for entomological expertise to actively trap the moths gave this project a very broad scope, as well as reducing the administrative burden. The trapping schedule provided enough data for long-term monitoring while simultaneously not overexerting the participating farmers.

We have developed a robust and scientifically rigorous farmer-led moth monitoring scheme. The success of this project demonstrates the value of a nationwide and longer-term monitoring scheme whereby the distributions and population trends of moths on Irish farmland can be accurately monitored. To find out more or download the project report, see https://biodiversityireland.ie/projects/farmer-moth-monitoring-project/

Buff Arches
©Mireille McCall

Commonly Encountered Moths

National Biodiversity Data Centre
Documenting Ireland's Wildlife

Ireland is home to over 1,500 moth species. Forty-three of our 587 species of Irish macro-moths are threatened with extinction, while the conservation status of Ireland's micro-moths is unknown. Evidence from elsewhere suggests that many species are in decline. Habitat destruction and deterioration, driven by land-use change and chemical pollution are leading causes of this decline. MothsIreland manages a database of all species of moths found on the island of Ireland and maps their distribution. To find out more about Ireland's moths, visit the MothsIreland website www.mothsireland.com
Please submit records to the National Biodiversity Data Centre (http://records.biodiversityireland.ie/)

Humming-bird Hawk-moth
Macroglossum stellatarum

Oak Eggar
Lasiocampa quercus

Fox Moth
Macrothylacia rubi

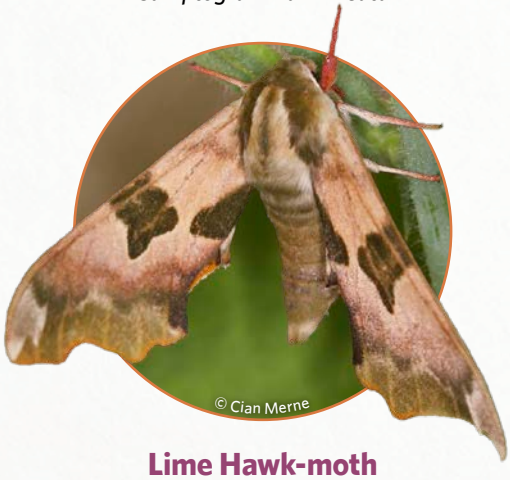
Six-spot Burnet
Zygaena filipendulae

Magpie Moth
Abraxas grossulariata

Yellow Shell
Camptogramma bilineata

Ruby Tiger
Phragmatobia fuliginosa

Garden Tiger
Arctia caja

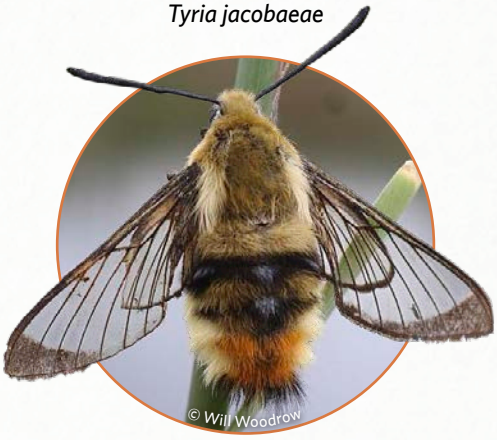


Lime Hawk-moth
Mimas tiliae

Cinnabar
Tyria jacobaeae

Poplar Hawk-moth
Laothoe populi

Forester
Adscita statices



Narrow-bordered Bee Hawk-moth
Hemaris tityus

Common Carpet
Epirrhoe alternata

Emperor Moth
Saturnia pavonia

Clouded Buff
Diacrisia sannio

Red-necked Footman
Atolmis rubricollis

Buff-tip
Phalera bucephala

Brimstone
Opisthograptis luteolata

Clouded Border
Lomaspilis marginata

White Ermine
Spilosoma lubricipeda

Protecting Farmland Pollinators
eip-agri
An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture Food and the Marine
European Union
European Regional Development Fund

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 March there were 6,156,348 records of 17,470 species across 173 datasets on Biodiversity Maps.

Recently added or updated datasets:

Butterflies of Ireland post-2021
894 records

Stoneflies of Ireland
313 records

Wasps of Ireland
552 records

Bees of Ireland
521 records

Water Framework Directive Lake Macrophyte Status Survey Data 2007 to 2019
81,515 records

Dragonfly Ireland 2019 to 2024
3,974 records

Ladybirds of Ireland
369 records

Moths Ireland
59,973

Natterjack Toads of Ireland
7 records

Citizen Science:
Ireland's Citizen Science Portal *https://records.biodiversityireland.ie/* continues to see a large volume of records submitted. The first species recorded through the Citizen Science portal in 2023 was the Eastern Grey Squirrel recorded in Co. Meath on the 1st of January. By March 31st there were 26,482 records submitted through the portal, with the Robin taking the most recorded species spot and the Common Buzzard taking a very close second place.

Perkins' Mining Bee rediscovered in Ireland after nearly 50 years

Following in the footsteps of the Tawny Mining Bee, which was rediscovered in Ireland in 2012, 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 our Research Officer Owen Beckett while surveying in Co. Carlow. A female was seen entering her nest close to the river Barrow on April 6th 2023. The Perkins' Mining Bee is one Ireland's 80 solitary bee species, meaning that it nests singly and does not form colonies like bumblebees do. It is also one of 26 mining bees that construct their nests underground. The females are slightly smaller than a Honey Bee in size, with a predominantly black body and sparse brown hairs on their thorax. The most distinctive identification feature is the bright red band on the abdomen, which none of our other mining bees possess. The males have a similar colour pattern, but are smaller and slimmer in size and shape.

This species has only ever been found in Ireland in Co. Carlow and from just four different sites, so it has always been scarce here. Since it had not been seen since 1977, it was feared to have disappeared from Ireland and was classed as Regionally Extinct. It is also very scarce in Britain, with the only recent sightings coming from Cornwall and southwest Wales.

It flies in two generation per year, the first from late March until late May and the second from early July until late August. The first generation is fond of visiting flowers of blackthorn and willows in particular, whilst the second generation forages mainly on umbellifers such as Hogweed and Angelica. Because it is so rare, it is difficult to determine its ideal habitat, but it appears to like semi-natural areas of woodland edge and scrub where its preferred nectar and pollen sources are abundant.

Despite the exciting rediscovery of this species, many other bees are declining in Ireland and a third of our wild bee species are at risk of extinction. To help combat this problem, the All-Ireland Pollinator Plan was set up in 2015. The plan contains a range of measures which you can take to help conserve pollinators in your local area. You can find out more and get involved here: https://pollinators.ie

Although it is very rare, its rediscovery indicates that the Perkins' Mining Bee is still here and may be found elsewhere. Keep an eye on blackthorn and willow blossom during the spring and on Hogweed and Angelica flowers during the summer, especially if you are in Co. Carlow or neighbouring counties.


Perkins' Mining Bee © Owen Beckett

If you think you've spotted it, remember to take a photograph and submit your record to the National Biodiversity Data Centre: https://records.biodiversityireland.ie/record/solitary-bees

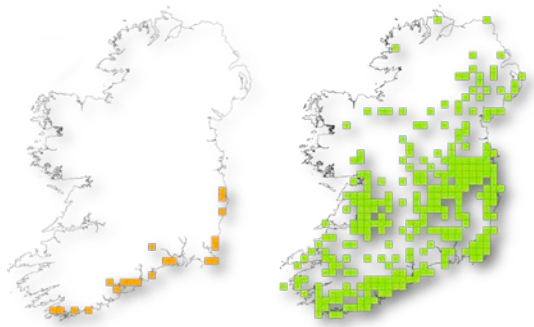
Dragonfly Ireland 2019-2024

With the final tally in from the National Biodiversity Data Centre and the Centre for Environmental Data and Recording in Northern Ireland, 4,246 dragonfly and damselfly records were received and validated in 2022. A huge thanks to all who took time to contribute to the survey last year.

This means we enter the fifth and penultimate year of the Dragonfly Ireland (DFI) 2019-2024 project, with 17,378 validated records of 29 dragonfly and damselfly species. But, of course, we still have 10km grid squares from which we have received no record to date. We would really, really like to fill these gaps, so if you take a look on our web pages (https://biodiversityireland.ie/surveys/dragonfly-ireland/), you will find a section dedicated to helping you locate our blank squares so that you can help fill them! Ideally we would like you to conduct a Dragonfly Recorder site survey (or several!) within each square, but any records would be appreciated. Can we fill all the blank squares in 2023?

In March, we were at the Irish Freshwater Sciences Association meeting in Galway to present some of the preliminary findings of the survey, including some early results highlighting the impacts of climate change on dragonflies and damselflies in Ireland. This includes the spread of the Emperor Dragonfly across Ireland, as highlighted in the last issue. But it also includes changes observed in the flight period (the period during which adults emerge, fly, feed and reproduce) of a range of Irish dragonfly and damselfly species, with a common trend of more adults emerging earlier in the season. We need to explore these data further to understand what implications these observed changes may have for Irish dragonflies and damselflies, their ecology and conservation status.

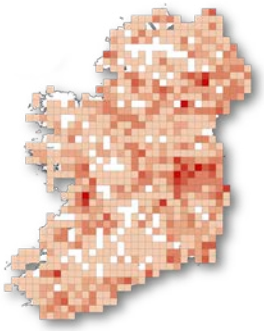
DFI Range Expansion of Emperor Dragonfly



2030 -2003
No records
Present

2019 -2022
No records
Present

DFI combined records 2019-2022 from NBDC and CEDaR



Number of Records
1 - 10
11 - 25
26 - 75
76 - 140
141 - 230
231 - 442

In 2022, 24 dragonfly and damselfly species were recorded, with Blue-tailed Damselfly the most frequently recorded species, followed by Common Blue Damselfly and Common Darter. The least frequently recorded species were Downy Emerald and Golden-ringed Dragonfly, however this was the third year in a row that Golden-ringed Dragonflies were recorded on the Waterford/Kilkenny border.

As we look forward to the 2023 recording season, we ask you to please keep those records coming in, as the more data we have, the better we can map distributions, assess conservation status, and explore the impacts of climate change and water quality on these fabulous species. We are delighted to announce a full programme of workshops again for 2023, with workshops planned for Wicklow, Sligo, Galway, Tipperary and Cork. Our thanks go to the Heritage and Biodiversity Officers in each county and to the county councils for their generous support for our workshops. You can book your place online now at https://biodiversityireland.ie/workshops/

Finally, we are happy to say that a version of our popular Dragonflies of Ireland poster as Gaeilge is now available to download from:

https://biodiversityireland.ie/publications/

Dave Wall
—
CITIZEN SCIENCE OFFICER
National Biodiversity Data Centre

DFI workshop at Tolka Valley 2022

Explore Your Shore!

It has been great to see a really strong start to marine recording in 2023, with 2,207 records submitted in the first three months of the year. 5,409 marine species records were submitted in 2022, and in the past four years, we have validated and uploaded 12,753 marine species records, submitted by you, to the Explore Your Shore! dataset on Biodiversity Maps, as well as to international databases. These are Open Access data, and free for anyone to use. Please keep up recording on as many new shores as possible as we are building a nice baseline dataset for the Irish coast and are already seeing some interesting results. In 2023, we are endeavouring to validate your records more quickly and are aiming to upload validated records on a monthly basis... so far, so good!

Last year we asked you what you thought of Explore Your Shore! so far and your responses were overwhelmingly positive, so thank you! One clear message we did receive is that you didn't like overly restrictive survey methods, preferring to roam more freely over the shore. We listened and have introduced two new surveys designed to allow you to record with more freedom, while focusing on an overall monitoring goal.

New Survey: Great Rocky Shore Bioblitz.

Help us to find Ireland's most biodiverse rocky shore by recording as many marine species as possible from your local rocky shore. The data from this survey will help us identify marine biodiversity hotspots around the Irish coast and establish baselines for intertidal marine species. This in turn will help us select the best shores to monitor for changes in the distribution and occurrence of marine species, linked to climate change and water quality. Record and photograph as many species as possible during a walkover survey and revisit the same shore again and again, at different times of year, to see if you can add additional species to the list.

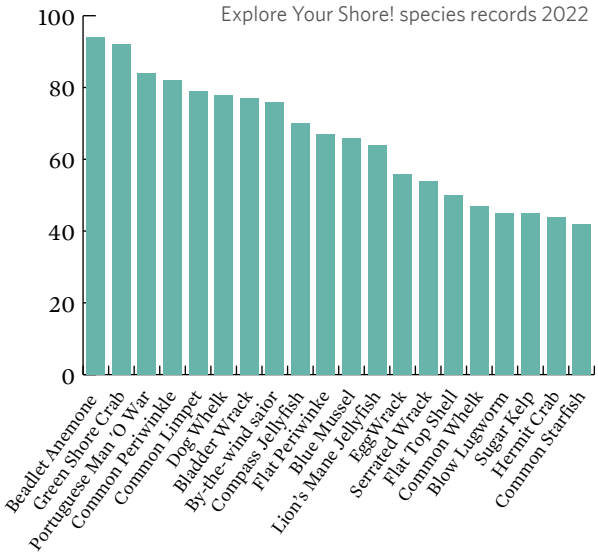
New Survey: Adopt-a-Rockpool.

Find your favourite rockpool and record what's in it four times per year - in spring, summer, autumn and winter. The data from this survey will help identify changes in marine species in your rockpool by season, and over time. This will help monitor changes in the occurrence of marine species linked to season, climate change and water quality. Record and photograph as many species as possible from your rockpool each time, and remember to look under rocks, in crevices and beneath seaweed.

A reminder that for all Explore Your Shore! surveys, you can now submit images of species you cannot identify, and we will do the identification for you! You will find details of the surveys at www.exploreyourshore.ie

While on the topic of surveys, a reminder that we are keen to receive records of all species from each shore, even the very common ones, so please do submit all the usual suspects in addition to the weird and the wonderful!

During the first three months of 2023, Explore Your Shore! has been out and about around the Irish coast with local Clean Coasts groups, conducting on-site training in species identification and recording. Many of those who showed up had attended our online training talks under the Clean Coasts Observer Programme, and this was our first chance to get to grips with the nitty gritty of marine species identification on the shore. Thanks to all who have attended these events to date.



Dave Wall

CITIZEN SCIENCE OFFICER
National Biodiversity Data Centre

Explore Your Shore!
Clean Coasts Training
at Spiddal, 2023

Birds

Black-headed Gull
© Ken Kinsella

Climate-wise, it was a fairly mixed winter, generally mild and frost-free, with very dry spells in early autumn and February, an awful lot of rain in between, and here in Wicklow, two short bursts of snow and real wintry stuff, one in early December and one in March.

Bird flu has not gone away, but I'll start on more upbeat matters that kick off in spring. The long-anticipated arrival of migrants commences in early March, typically with Sandwich Terns and Wheatears on the coast, followed rapidly by Sand Martins and other Hirundines, then the warblers creep in and announce their presence with bursts of song from still dormant-looking trees. Migration has even started inland in Wicklow – Richard Nairn reported a Chiffchaff in his woodland at Ballard (Ashford) on March 27th and I had a single Swallow on March 30th, at Ballyduff. The Willow Warblers and Blackcaps should appear any day soon. The most unexpected event, even making national news, has been the large influx of Alpine Swifts. These are large, brown and white swifts (in comparison to our usual dark blackish-brown and smaller Common Swift) that seem to have overshot their likely destination in Iberia or France in prevailing southerly winds, with seven first seen at Dungarvan (Waterford) on March 13th and six days later, nine were hawking the Main Street in Bray (Wicklow). At the time of writing, they have even been seen as far north as Ballycastle (Antrim) and overall, 50 birds are thought to be in Ireland.

Our wintering swans and geese are likely to be heading north soon. Whoopers are well monitored by a keen bunch of enthusiasts guided by Graham McElwaine: over a weekend in mid-January, 6,083 swans were counted and 'aged' (adult or juvenile), with 22.4% young, indicating a good breeding season in Iceland in summer 2022. This is one of the highest proportions of young recorded for a good while and mean brood size was a respectable 2.19. Unfortunately, bird flu has reappeared in our Whoopers, with at least seven dying in the first couple of weeks of February at Kilcolman SPA/BirdWatch Ireland Reserve, north Cork, where a herd of 100+ overwinters. Young birds were most affected. Not too far away, at Dromineer (Lough Derg, Tipperary), about 45 Black-headed Gulls plus a couple of Cormorants died. There is a still a lot of debate about the right course of action if an outbreak occurs. The authorities advise us to stay away and don't touch, but our continental colleagues urge us to reduce onward transmission by rapid collection and appropriate disposal (incineration/burial) of carcasses. Given the seabird breeding season is just over a month away, it is high time we had some practical support (government-provided training and PPE for reserve wardens?) and better advice on procedures for the general public.

I have chatted with a good few winter Garden Bird Survey participants in the last month or so – most report a very poor recording season, including a lack of winter finches (Siskins and Lesser Redpolls). These birds are still present in the wider countryside, where sufficient natural food must be plentiful and they have not had to resort to the peanuts and sunflower seeds on offer. On the rare occasion they appeared in my garden, larch and alder cones were much preferred!

I should also mention the very well attended 8th Irish Ornithological Research Conference held at University College Cork on March 10th and 11th 2023. An amazing programme of short talks and posters interspersed with keynote addresses, including Pat Smiddy summarising his recently published 'Birds of County Cork'; David Cabot on a lifetime's fascination with the Greenland Barnacle Goose; and Killian Mullarney on how he got started birding and painting, which culminated in the publication of the seminal 'Collins Guide'. Congratulations to John O'Halloran, John Quinn and Sandra Irwin for organising the event.

Dr Steve Newton
SENIOR CONSERVATION OFFICER
Birdwatch Ireland
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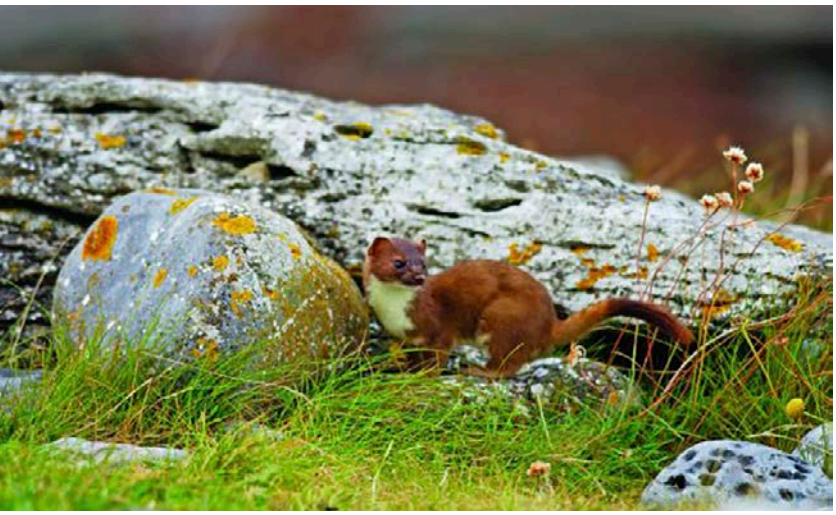
Whooper Swan © Ronnie Martin

Mammals

A new National Otter Survey has just been commissioned by the National Parks & Wildlife Service (NPWS). The contract to run the survey was won by Queen's University Belfast and the project will be led by Dr Neil Reid. Survey work will start in summer 2023 and continue into 2024. Much of the survey is being undertaken by NPWS staff, but there is also a citizen science element. The general public are encouraged to take part and to submit records of otters (live sightings, roadkill, paw prints, spraints) through the dedicated portal on the National Biodiversity Data Centre website: https://biodiversityireland.ie/monitoring/

The last national survey was completed in 2012, and calculated that otters were present at over 90% of sites in suitable habitats. The full report from that survey can be read/downloaded here: https://www.npws.ie/sites/default/files/publications/pdf/IWM76.pdf.

The first Species Action Plan for the lesser horseshoe bat in Ireland has been published by the Irish Government. The Species Action Plan is the product of extensive collaboration between NPWS and the Vincent Wildlife Trust, with input from a wide range of stakeholders, including the OPW, Coillte, the Heritage Council, the six Local Authorities which cover the bat's range, the Forest Service, Department of Agriculture, Teagasc, Transport Infrastructure Ireland and Bat Conservation Ireland. The aim of the plan is to guide, inform and provide structure for the conservation management of this important species over the next five years (2022-2026). Although the bat's population size is increasing, the range of the species has been declining. A steering group of stakeholders met for the first time in October 2022 to discuss the implementation of the actions detailed in the plan; the next meeting will take place in April 2023. You can read/download the Lesser Horseshoe Bat Species Action Plan here: https://www.gov.ie/en/publication/f8071-lesser-horseshoe-bat-species-action-plan-2022-2026/#



Irish Stoat © Carrie Crowley/Crossing the Line Films

The Convention on Migratory Species (CMS, also known as the Bonn Convention) has a number of daughter agreements, one of which is EUROBATS. Under the auspices of this agreement, bat scientists from across Europe, the Middle East and North Africa meet annually to progress the conservation of European bat populations. Every four years, administrative and scientific focal points from each country come together for a Meeting of the Parties (MoP) to agree new resolutions and finalise the work programme for the following quadrennium. The most recent EUROBATS MoP took place in Croatia in October 2022. Some 36 countries were represented and a number of significant resolutions were passed, including one on managing the impacts of wind farms on bats. You can read the full record of the meeting and see all the resolutions here: https://www.eurobats.org/official_documents/meeting_of_parties

The European Mammal Atlas project, which aims to update the original Atlas of European Mammals, published by Tony Mitchell-Jones et al. in 1999, has hit some delays. Covid disrupted fieldwork in many countries in 2020 and 2021, leading to an extra year being added to the project timeline. The Atlas is now due for publication in 2025. More recently, the war in Ukraine has required a re-think on the boundaries of the project. It was initially planned to map mammals all the way to the Ural mountains in Russia, but current circumstances make that impossible and Russia has now been excluded from the project. Find further details on this project here: https://www.european-mammals.org/

Finally, a national stoat survey has just been launched by the Vincent Wildlife Trust. This new survey is being run in partnership with the National Biodiversity Data Centre, the Centre for Environmental Data and Recording in Northern Ireland and the University of Galway.

The Irish stoat (*Mustela erminea hibernica*) occurs only in Ireland and on the Isle of Man. Stoat fossil bones found in caves in County Cork date back to 27-35,000 years ago, so it is one of Ireland's longest established mammal species.

Despite its long history on the island, it is an elusive and under-recorded species, with only 2,000 records in the National Biodiversity Data Centre database and many apparent gaps in its distribution. The use of camera-traps has revolutionised mammal recording internationally and some pilot projects have demonstrated the value of this technology for stoats too, a species that has been notoriously difficult to survey. The new survey will start in spring 2023 and run until the end of 2025. Hopefully this survey will heighten awareness of this special Irish mammal and encourage people to submit sightings of live and dead stoats so we can fill in some of those distribution gaps and learn more about stoat ecology and habitat usage. More information here: https://www.vincentwildlife.ie/news/irish-stoat-citizen-science-survey-2023-2025-has-launched

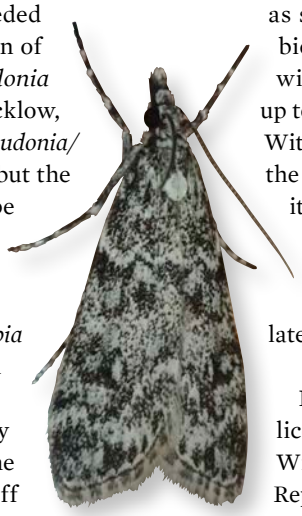
Dr Ferdia Marnell

HEAD OF ANIMAL ECOLOGY
National Parks and Wildlife Service

Otter © Eddie Dunne

Moths

Four further species were added to the Irish moth list in 2022, bringing to nine the number of species added in 2022. Some of these have only recently been confirmed as they needed to be critically examined by examination of the genitalia. The first of these was *Eudonia murana*, trapped in Glenmalure, Co. Wicklow, by Christian Osthoff in May. Many of the *Eudonia/Scoparia* species are difficult to identify, but the early date suggested that this one might be worth a closer look and Ken Bond later confirmed the identification.



Eudonia murana ©Christian Osthoff

Two species were added in July. First up was the migrant Splendid Brocade, *Lacanobia splendens*, trapped by Tony Bryant in Tramore, Co. Waterford, followed shortly afterwards by an *Epinotia cinereana* by Stephen Cotter in Killarney, Co. Kerry. The effort put in by Christian Osthoff paid off again in September when he recorded Large Ranunculus, *Polymixis flavicincta*, in Arklow, Co. Wicklow.

These bring to 160 the number of moth species added to the Irish list since 2001. Of these, 121 are micro moths, with just 39 macro moths. Many of these are now known to be resident, with some, e.g. *Cameraria ohridella*, Horse Chestnut Leaf-miner, and Blair's Shoulder-knot, *Lithophane leautieri*, spreading rapidly. The Irish list now stands at 1,510 species, of which 590 are macro moths, and 920 micro moths. With new species being added every year, it will be interesting to see what new species turn up in 2023. The total of 1,510 species is still a long way behind the figure of c.2,500 species that have been recorded in Great Britain.

Epinotia cinereana © Stephen Cotter

Thank you to all those recorders who have submitted their moth records for 2022. If anyone has still to submit their records for 2022 or previous years, please do so as soon as possible through https://records.biodiversityireland.ie/start-recording. This will allow us to keep the distribution maps as up to date as possible.

With the weather getting a bit milder, many of the spring species have made an appearance and it won't be long until the early summer species are on the wing. This is an ideal time to take up moth recording as the numbers are not as overwhelming as they can be in mid/late summer.

Licence: I would remind recorders that a licence is needed from the National Parks and Wildlife Service to operate a light trap in the Republic of Ireland. You can apply directly to the NPWS for a licence or you can be added to the MothsIreland Group Licence by contacting me at: info@mothsireland.com.

Thanks to Ken Bond for his work in confirming the more difficult to identify species.

Large Ranunculus © Christian Osthoff

Michael O'Donnell
MOTHSIRELAND
www.mothsireland.com

Bats

We haven't even started the field season but we've already hit the ground running in 2023! March saw the first Irish Bat Conference in almost six years, when 130 delegates convened in Athlone to hear the latest in Irish and international bat research and conservation. The conference was opened by Minister Malcolm Noonan, who is himself a former Daubenton's Bat Waterways volunteer, and we then had a series of excellent speakers for a packed day. Keynote talks were from Fiona Mathews (UK) about bats and windfarms; Enda Mullen from the NPWS about bat legislation; and Hugo Rebelo (Portugal) who described work of Portuguese wineries to become more climate resilient and bat friendly. We also had eight student speakers presenting on a variety of research done on bats from Cork to Britanny.

We are already looking forward to the launch of results of the Bats and Bugs project in the Royal Irish Academy on April 21st. This project was funded by the Community Foundation of Ireland and NPWS in 2021 and 2022, with the aim to determine more about the ecosystem services Irish bats provide in terms of pest insect consumption. Volunteer bat roost custodians across Ireland sent samples of bat droppings from 120 sites to UCD for DNA analysis. UCD's James Nolan and Gwen Hurpy will present their work at this event and we will also launch a beautiful explainer animation video about the project. For details and tickets, see Bat Conservation Ireland's Events page (www.batconservationireland.org/events).

Following on from the TidyTowns Ireland Special Awards 2022, Sneem Tidy Towns made quick work of their prize from Bat Conservation Ireland to paint a batty mural on the entrance to Sneem Creche/Tourism Office. We were delighted to see this pipistrelle bat (and its dinner!) come to fruition and to sponsor such an innovative way to share awareness and conservation of our beautiful Irish bats.

In May this year, we will collaborate with the NBDC to run a workshop on recording bats, which will be held in Dalgan Park, Co. Meath. This will include talks on Irish bat ecology and identification. We will also check out preserved specimens and use bat identification guides to key them out to species. Weather permitting, we will take a walk around the grounds of Dalgan Park after dark to see what bats are present and listen in on their calls using bat detectors.

We are also gearing up for Biodiversity Week towards the end of May, with Bat Groups across the country planning a series of in-person bat walks and talks. We will also host some online talks and social media stories during the week, so keep on eye on our Facebook page for details to come.

We have a couple of weekend in-person training events coming up this summer, too. The first, in June, will be a bat identification and surveying workshop and we have a weekend bat handling workshop coming in August. Both will be held in Virginia, Co. Cavan, and details will be on our events page in due course.

As always, we welcome volunteers to join our yearly Irish Bat Monitoring Programme. This kicks off in May, with counts at brown long-eared bat and lesser horseshoe bat roosts. The All-Ireland Daubenton's Bat Waterways Survey Scheme, which takes place in August, is particularly suited to new participants. To sign up for more information or for training, please get in touch via our website (www.batconservationireland.org/contact-us).

The 10th Irish Bat Conference took place in Athlone in March 2023

The mural created by Sneem Tidy Towns

Dr Niamh Roche

BAT CONSERVATION IRELAND
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Cetaceans

Sightings

During the period October 1st to March 30th 2023, the IWDG validated 523 sighting records, including 51 land-based 'effort' watches. These sightings comprised eight species of cetacea and basking sharks. The most frequently recorded species are ranked as follows: harbour porpoise 35%; common dolphin 17%; bottlenose dolphin 16%; fin whale 8%; minke whale 4%; humpback whale 4%; basking shark 2%; with Risso's dolphin seen just once. 72 sightings (14%) could not be validated to species level and were allocated to a non-species category.

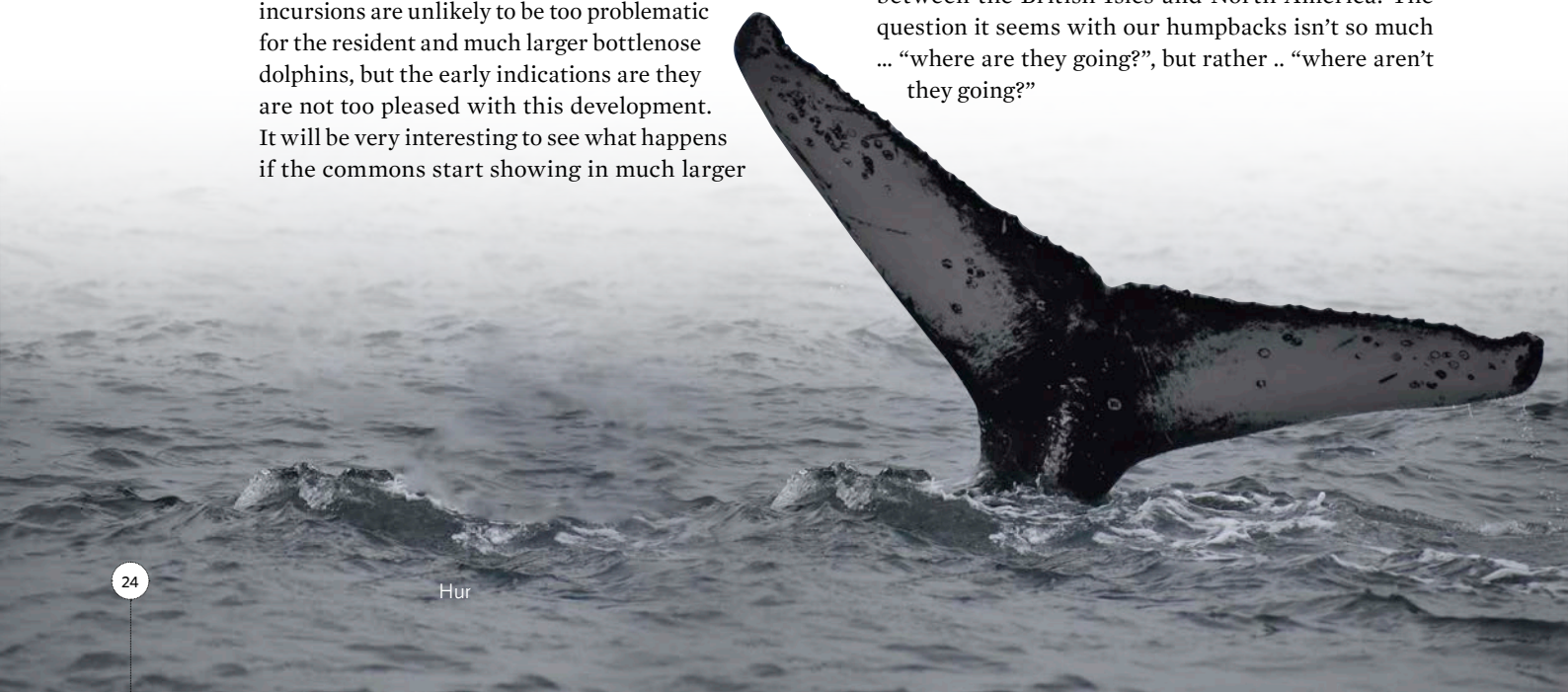
With the exception of a few bottlenose hotspots, such as the Shannon Estuary and increasingly along the Antrim and North Channel area, common dolphins are numerically our dominant coastal dolphin species and, given the right feeding conditions, can be seen in impressive aggregations extending into the hundreds, occasionally more. Over this winter, there have been some standout sightings that have however had more to do with their unusual locations, rather than numbers. On January 29th, a single animal was observed in the River Bride, a tributary of the Blackwater c2 km east of Tallowbridge, Co. Waterford. On March 14th, three common dolphins were filmed in the River Lee in the heart of Cork City. Thankfully neither of these events seem to have resulted in a stranding, although this can't be completely ruled out.

In every month from December to March there have been sightings of common dolphins in the Shannon Estuary, with 11 validated reports of small groups following the Tarbert to Killimer ferry. Such incursions are unlikely to be too problematic for the resident and much larger bottlenose dolphins, but the early indications are they are not too pleased with this development. It will be very interesting to see what happens if the commons start showing in much larger feeding groups, as this may well impact on the resident population of 150+ bottlenose. IWDG and the Shannon Dolphin Project are keeping a close eye on this story as it evolves.

We saw our last humpback whales of the winter off Helvic Head, Co. Waterford, on December 11th, but we didn't have long to wait for our first of the 2023 season, as between March 2nd-10th there were 5-6 humpbacks spread out between Kenmare River and Bolus Head on the Iveragh Peninsula. Photo ID confirms these were sub-adults and as none had been previously documented in Irish waters, they have been added to the Irish Humpback Whale Catalogue which now contains 124 recognisable individuals. So a nice start to our humpback season, which seems to start earlier each year.

This remarkable match was not only the first Ireland to Canada match, but was also the first humpback match between the British Isles and North America.

IWDG, in collaboration with International researchers, have also confirmed our first links to the Caribbean breeding area, with matches of two older animals on the Irish Catalogue (HBIRL06 & 15) to the Silver Bank and Semana Bay area of the Dominican Republic. In early December, we had our first match to Russia, when HBIRL55 was photographed in Teriberka, east of Murmansk in the Barents Sea. Finally, in early January, another first for our 'Irish' humpbacks with a match of HBIRL11, who was filmed in Winter 2010 breaching off Hook Head, Co. Wexford, an event which featured on the *Wild Journeys* series on RTE. Photo ID images place this individual in Newfoundland in summer 2018 and 2021. This remarkable match was not only the first Ireland to Canada match, but was also the first humpback match between the British Isles and North America. The question it seems with our humpbacks isn't so much ... "where are they going?", but rather .. "where aren't they going?"



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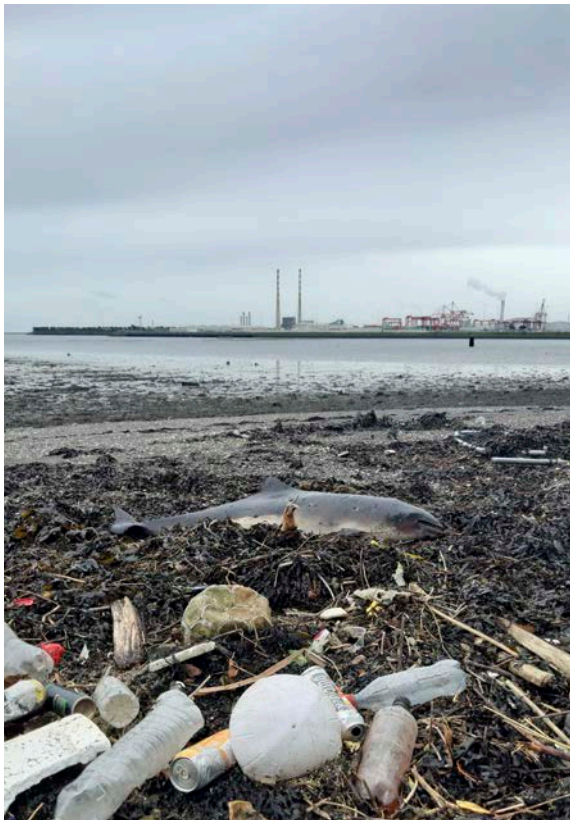

Harbour Porpoise stranded at Clontarf, March 13th 2023. ©Gerry Flaherty

Strandings

The Cetacean Stranding Scheme validated a total of 186 records of stranded cetaceans on the island of Ireland, up from 153 records during this time period last year. These figures include 12 species: bottlenose dolphin (n=2), common dolphin (n=102), striped dolphin (n=9) white-beaked dolphin (n=1), harbour porpoise (n=30), long finned pilot whale (n=5), minke whale (n=2), sei whale (n=1), sperm whale (n=1), Sowerby's beaked whale (n=1), Cuvier's beaked whale (n=1), and True's beaked whale (n=1). In addition, IWDG received three records of stranded loggerhead turtles.

As expected, numbers were highest for common dolphins, followed by harbour porpoise. There were a total of 12 known live stranding events; ten of which involved common dolphins, one striped dolphin, and one unknown cetacean species. The number of common dolphins has been on the rise since 2011, as well as harbour porpoises, though not on the same scale. IWDG have also noticed a decrease in the number of cold-water species, such as the Atlantic white-sided dolphin.

A total of five animals have now been examined under IWDG's Deep Diving and Rare species Investigation Programme (DDRIP), which 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. The animals examined are as follows: one dwarf sperm whale, one pygmy sperm whale, one Cuvier's beaked whale, one True's beaked whale, and one Sowerby's beaked whale.

Please report all cetacean sightings and strandings (alive or dead) to IWDG, either on www.iwdg.ie or on the IWDG Reporting App. With support from the National Parks and Wildlife Service and the National Biodiversity Data Centre, the IWDG maintains 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 unusual trends.

The following courses in CECAS, Leap, West Cork, in late May and September are available to anyone interested in contributing to the IWDG's recording schemes and who would like to learn more about whales, whale watching field skills and species ID.

See https://www.eventbrite.ie/e/iwdg-residential-whale-watching-weekend-course-may-2023-tickets-555394599197

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Vascular Plants

It is a pleasure to report on some interesting plant records made in the early part of this year from across Ireland. Megan Morris asked if she was correct in her identification of a grass (*Secale cereale* (Rye)) she had found on waste ground near Lismore, in Co. Waterford, in February. Rye is being increasingly grown as a commercial crop in Ireland. It is still very rare as an escape from cultivation, with the earliest Irish records only dating back to the 1980s. Megan's record was a new county record and joins only Counties Armagh and Wexford with post-2020 sightings in the wild. Also, in Co. Waterford whilst visiting a friend in February, I stopped at Tallowbridge to take yet another look for *Geranium columbinum* (Long-stalked Crane's-bill), which was first found here in 1971 by Tony O'Mahony on the roadside bank and wall. It was seen up to 2005, and searches since have failed to find it. To see the Long-stalked Crane's-bill again in large numbers is very pleasing, even if it only had leaves showing. This is only one of two sites for the Crane's-bill in the county.

Ciarán Flynn spent some of the winter looking at Horsetails that are wintergreen in Co. Louth. Ciarán's dad Enda joined him in January to look for *Equisetum hyemale* (Rough Horsetail) as it hadn't been seen in the county for over 100 years, when last seen by William de Vismes Kane in 1906. There is one other record for Co. Louth made in 1902 by Nathaniel Colgan at Cooley. The latter is the site they looked for, and with Enda walking ahead, he found the Rough Horsetail first. It just goes to show that there are plenty of old records still waiting to be rediscovered!

On the opposite side of Ireland, in Co. Clare, Cian Ó Ceallaigh's record of *Empetrum nigrum* (Crowberry) on the top of the sea-cliffs south of Doolin, which he posted on social media, came to the attention of one of the joint BSBI Vice-county recorders Phoebe O'Brien as it was a new site, and the first for the hectad. Crowberry has only been recorded from six other hectads in Co. Clare. Phoebe was asked to check a patch of *Ruscus aculeatus* (Butcher's-broom) by Rosie and John Rutherford, which they had found north of Limerick City. This is a new site for this shrub, which is uncommon in Ireland. Here it is thought to be persisting where planted many years ago. Another plant that Phoebe ponders over – whether it was originally planted – was a large stand of *Anemone nemorosa* (Wood Anemone) under a small grove of Horse Chestnuts by the bridge at *Annaghneal* as it is a new site. Could it have been planted, as at one time there was a school opposite the site. We may never know!

In Longford, David McNicholas has found a nice population of *Pyrola rotundifolia* (Round-leaved Wintergreen) on Corlea Bog, a Bord na Móna cutaway, the first record for Longford for this rare plant in Ireland.

Rosie Rutherford looking at a patch of *Ruscus aculeatus* (Butcher's-broom).
© John Rutherford

Anemone nemorosa (Wood Anemone) by bridge at Annaghneal.
© Phoebe O'Brien

Ruscus aculeatus (Butcher's-broom).
© John Rutherford

Geranium columbinum (Long-stalked Crane's-bill) on roadside wall, Tallowbridge.
© Paul Green

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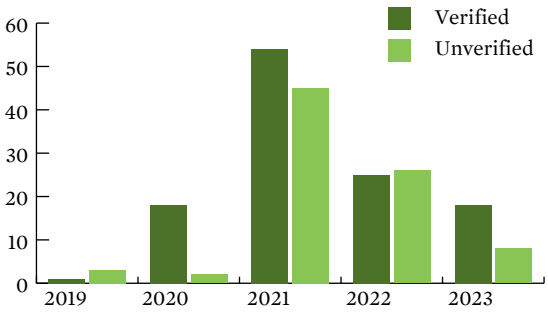
Invasives.ie
Invasive Alien Species in Ireland

Rose-ringed Parakeets © Paulo Rodriguez, Dublin, 2021

Over the years of receiving sighting records of invasive alien species, a pattern of submissions - following the natural order of species ecology - is seen. From the calendar year, it starts with sightings of flowering winter heliotrope and overwintering Harlequin ladybird, and from March/April onwards, the emergence of the distinctive yellow spathe of American skunk cabbage. Some plants with emergent growth in spring such as giant hogweed, the invasive knotweeds and Himalayan balsam can be seen and are recorded, but require a sharp eye. It is not until summer when these are fully grown and stand out, that a flurry of records are submitted.

American Skunk Cabbage © Jan-Robert Baars

However, more recent trends are emerging - both good and bad. From early April until October, there are regular submissions of suspected Asian hornet sightings. If it arrives and establishes in Ireland, it has the potential to impact on wild and domesticated pollinators, such as the honeybee, largely through predation. Considering Asian hornet are not in Ireland, the increasing awareness of their potential arrival and vigilance to report a suspected sighting is a good trend and what's needed.



Verified and unverified sighting records for Rose-ringed parakeet from 2019

It is far better to report a suspected sighting of a potential invader that turns out to be wrong, than not submit a suspected sighting that turns out to be correct and it goes un-responded to.

A not so good trend emerging over the last few years, is the flux of verified sightings over winter and into spring of the non-native Rose-ringed Parakeet. The peak of sighting submissions correlates with the birds visiting bird feeders at a time when supplies of wild food are scarce, and with claiming nesting territories at a time when leaf cover is absent or low. Their distinctive call and bright green colour surely helps to spot them, too!

Looking to Britain and Europe, Rose-ringed Parakeets have become a nuisance in urban centres where they form large raucous flocks, causing upset (from noise) to urban dwellers and dominating at bird feeders where they outmuscle smaller native species. Perhaps more worrying is the evidence showing they will compete with cavity-nesting species such as Nuthatch for nest sites, with the larger species displacing the native. It is clear there is a need to prevent another non-native species becoming widely established. A breeding pair were captured and taken into captivity in 2022 and management options for response are under consideration for this year. However, regardless of removal method, it is certain that for any approach to be sustainable, new and ongoing releases would need to stop outright. It is the view of experts that escapes alone are unlikely to be responsible for the number of birds now present in Dublin and elsewhere. It is also important to state that any such intentional releases of non-native species is illegal under the EC (Birds and Natural Habitats) Regulations 2011 (Regulation 49).
For information on invasive species and to submit sightings, visit: https://invasives.ie

Colette O'Flynn
INVASIVE SPECIES OFFICER
National Biodiversity Data Centre

Identification and Recording Workshops

The National Biodiversity Data Centre's workshops aim to improve field identification skills and raise standards of data collection and management. Places are limited so advance online booking is essential.
To stay up to date on plans for workshops, see https://biodiversityireland.ie/workshops/ or sign up to our newsletter.
Below is just a selection of our upcoming workshops

Identifying and Monitoring Ireland's Butterflies – May 20th

Join this workshop, run by Jesmond Harding from Butterfly Conservation Ireland, to learn how to identify and monitor Ireland's butterflies. Butterflies are an ideal insect group to monitor as there are a small number of species and they have strong associations with foodplants and vegetation types.

Lullymore, Rathangan, Co Kildare.

Introduction to Ireland's Grasses – June 10th

Following an introduction to grasses in Ireland by Dr Úna FitzPatrick, you'll be tested by specimens collected for the workshop, before taking some time in the afternoon to practice in the field.

National Biodiversity Data Centre, Waterford

An Introduction to Dragonflies and Damselflies – June 17th

Join the National Biodiversity Data Centre and Tipperary County Council Heritage Office for an introduction to the Dragonflies and Damselflies of Ireland, where to find them, and how to identify and survey them. In the afternoon, workshop leader Geoff Hunt will help you explore Cabragh Wetlands to practice your field skills.

Cabragh Wetlands Visitor Centre, Cabragh, Thurles, Co. Tipperary.

An Introduction to Ireland's Decomposers – June 17th

In this workshop, Dr. Aidan O'Hanlon introduces this essential group of organisms, focusing on a small family of beetles, the Silphidae, or carrion beetles. From species identification to ecology and survey methodology, it is hoped to equip recorders with the skills to capture information on carrion beetle distribution in Ireland.

North Bull Island Nature Reserve, Dublin.

Ireland's Native Trees and Shrubs – September 2nd

Oisín Duffy will introduce participants to many of Ireland's native tree and shrub species, as well as some non-native species which have naturalised here and are now common. Following instruction on key identification features, an outdoor session will allow participants to practice their newly learned skills in the field.

National Biodiversity Data Centre, Waterford

To book a workshop, see
https://biodiversityireland.ie/workshops/

National Biodiversity Data Centre
Documenting Ireland's Wildlife

National Parks & Wildlife Service

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

An Chomhairle Oidhreachta
The Heritage Council