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Issue 8 – Winter 2011

A Golden Era for recording of Biodiversity?

NATIONAL BIODIVERSITY DATA CENTRE
Documenting Ireland's Wildlife

Biodiversity Ireland Issue 8 Winter 2011
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Editorial

Liam mentions in his director's comment that this is possibly a golden era for recording biodiversity. I think he's right. Looking through this issue of Biodiversity Ireland, the activity that has been going on this year is astonishing! BioBlitz 2011 mobilised over 130 scientists while over 150 people attended the Data Centre's workshops. Thousands of records of butterflies, dragonflies, bryophytes, bugs, mammals, and more have been collected this year from across the country and this data is feeding in to a world-class information system. On top of this, Irish scientists are discovering new species to science in Irish waters and lands. Hallmarks of a golden era.

A pinnacle of this golden era is to my mind the launch of the updated version of Biodiversity Maps. Probably the best in the world, this system has revolutionised access to information on Ireland's biodiversity. But a system such as this is nothing without top quality data.

Irish ecologists, both amateur and professional, are highly skilled and are an invaluable resource. They rose to the challenge this year of highlighting the diversity of Ireland's wildlife during the BioBlitz. Each site surpassed everybody's expectations in terms of the numbers of species recorded. The whopping 1,088 species recorded in Killarney is an amazing achievement and just shows how diverse our landscape is.

Biodiversity Tales again reflects the enormous activity of volunteers and Bridget O'Neill's article on moths and climate change highlights the valuable contribution that we can all make to the understanding of our biodiversity. The discovery of a new species of fish from a fish market just shows the huge gaps that remain in our understanding of nature around us.

These and many other stories feature in this issue of Biodiversity Ireland. We hope you enjoy them. In the meanwhile, if you have any feedback on this magazine we would very much welcome it.

Eugenie Regan

Dr. Eugenie Regan - Editor

Director's Comment

A golden era for the recording of biodiversity?

As I write, word has filtered through that the Cabinet has approved publication of the Second National Biodiversity Plan. Although long overdue, this is a very welcome development. A national plan is a prerequisite for any concerted programme of actions and has the potential to mobilise very significant on-the-ground benefits for biodiversity.

One of the key objectives of the National Plan is to mainstream biological diversity in the decision making process. What is often not appreciated is that biodiversity, at the end of the day, is a knowledge-based policy initiative; it is about knowing what the biodiversity resource of an area is, how it functions and how it is impacted upon by anthropogenic factors. Success has to be measured in terms of delivery of biodiversity benefit - everything else is just process. Thus, mainstreaming of biodiversity is really all about knowledge transfer.

> "mainstreaming of **biodiversity** is really all about **knowledge transfer**"

The focus of the Data Centre's work over the last five years has been to build the national framework for knowledge transfer across the biodiversity and other sectors. Up until now, Biodiversity Maps has been of value to a relatively discrete body of researchers and recorders who are already knowledgeable about Ireland's biodiversity. But with the release of the latest version of Biodiversity Maps this month, which now enable users to identify the biodiversity interest of sites and areas, the system will be of value to a much wider audience. It will be of value across the spectrum from those just casually wanting to find out what is known about the species recorded in their locality to all aspects of planning for biodiversity, whether it is part of policy development, strategic planning or development control. It provides the mechanism to condense what is known by natural historians and scientists and translate it in the form that is of value to the specialist and non-specialist audience, heretofore a systemic weakness of national efforts to conserve Ireland's biodiversity.

But Biodiversity Maps is only a tool, and its value will be determined by the quantity and quality of data it mobilises for conservation. Most of the national experts and organisations involved in biological recording in Ireland appreciate the added value gained from sharing of data on a common platform and to a national standard, as evidenced by the large body of data already available through Biodiversity Maps; as of end of September the database contains just short of 2 million records of over 11,000 species from 77 datasets. Impressive and all as this figure is, there are still many gaps in our knowledge and the challenge of the Data Centre will be to work with its partners to fill these gaps.

It is hoped that the publication of the Second National Biodiversity Plan will be a significant impetus for real biodiversity benefit over the lifetime of the Plan. The contribution that the Data Centre has made by the application of state of the art information and communication technology to create the platform and database infrastructure for biodiversity data sharing and knowledge transfer could be the catalyst for a golden era for the recording of biological diversity in Ireland. We certainly need some new impetus if the loss of Ireland's biodiversity and the further erosion of Ireland's natural capital is to be halted.

Dr. Liam Lysaght, Centre Director

A Race Against Time

BioBlitz

Ireland's most successful BioBlitz to date took place over 24 hours on Friday 20 May to Saturday 21 May 2011. Over 130 scientists were involved in the day and thousands of species were recorded. The five sites that took part were · Ballycroy National Park · Dromore Wood Nature Reserve · Killarney National Park · Liffey Valley Park, Waterstown · and Raven Nature Reserve/Wexford Wildfowl Reserve. Killarney National Park won this year's competition with a massive 1088 species tally over the 24 hour period. This is double the number of species recorded by the Connemara National Park team last year. All of the 2011 sites exceeded the 2010 winning tally, so the standard of recording in all five sites was remarkably high.

Each site assembled an impressive team of highly skilled recorders, all of whom gave of their time and expertise freely to help make this a huge voluntary effort to promote the conservation of biological diversity. Thank you to all who participated including those not listed.

The winning team at Killarney National Park

Raven Nature Reserve & Wexford Wildfowl Reserve

Dominic Berridge • Marion Brady • Willie Carr • Cathy Connelly • Don Conroy • Jimi Conroy • Breda Curran • Dave Daly • Maurice Eakin • Rochelle Fritch • Stefanie Fleischer • Shona Hayes • Tara Higgins • Robbie Hudson • Rebecca Jeffrey • Martina Kovacova • Maria Long • Ferdia Marnell • Ken Maye • Alan McGuire • Aoife Moore • Claire Moore • Tom Moore • Emma Moynihan • Tony Murray • Áine O Connor;Tom O'Connor • Eamonn O'Donnell • Michael O'Donnell • Geoff Oliver • Paul Phelan • Eugenie Regan • Lorcán Scott • Philip Strickland • Frankie Tennant • Deirdre Toomey • Alyn Walsh • Freddie Walsh • Margaret Walsh • Roy Watson • Andrea Wenner • Janet Whelehan • Chris Wilson • Mike Wyse Jackson

Killarney National Park

Tina Aughney • Chris Barron • Tara Buckley • Fidelma Butler • Eoghan Dalton • Helen Dalton • Cathy Eastman • Jon Fern • Kathryn Freeman • Tom Gittings • Jervis Good • Ulla Harris • Therese Higgins • Hazel Keane • Usna Keating • Sheila Kennedy • Tim Lavery • Niall Leahy • Liam Lysaght • Caroline MacDaeid • Clare McIntyre • Frank McMahon • Val McLoughlin • Naomi Mothersoul • Niamh Ní Dhúill • Michael O'Leary • Phillip Perrin • Bill Quirke • Helena Quirke • Darren Reidy • Frank Ring • Eugene Ross • Jenny Seawright • Thomas Sheehan • Rosalyn Thompson • Anneke Vrieling • Lauren William

Liffey Valley Park, Waterstown

Roy Anderson • Daniel Buckley • Christina Campbell • Vicky Campbell • Letizia Cocchiglia • Laurence Colleran • Paul Corcoran • Terry Doherty • Serena Dool • Claire Dunphy • Rosaleen Dwyer • Úna Fitzpatrick • Ger Fitzsimons • Nicola Foley • Amy Geraghty • Thomas Harold Broe • Patrick Kavanagh • Mary Kelly-Quinn • Killian Kelly • Naomi Kingston • Tim Kovar • Shane Lombard • Deirdre Lynn • Shane McGuinness • Karen Moore • Evelyn Moorkens • Fergal Mullally • Sandra Murphy • Debbie Nelson • Myles Newman • Emer Ní Dhúill • Paul O'Callaghan • Nicola O'Gorman • Aoife O'Rourke • Hazel Proctor • Sylvia Reynolds • Julian Reynolds • Niamh Roche • Olaf Schmidt • Paul Scott • Noleen Smyth • Dara Stanley • Jane Stout • Pascal Sweeney • Therese Thyne • Angus Tyner • Maria Walsh

Wexford Wildfowl Reserve

Dominic Berridge • Marion Brady • Willie Carr • Cathy Connelly • Don Conroy • Jimi Conroy • Breda Curran • Dave Daly • Maurice Eakin • Rochelle Fritch • Stefanie Fleischer • Shona Hayes • Tara Higgins • Robbie Hudson • Rebecca Jeffrey • Martina Kovacova • Maria Long • Ferdia Marnell • Ken Maye • Alan McGuire • Aoife Moore • Claire Moore • Tom Moore • Emma Moynihan • Tony Murray • Áine O Connor;Tom O'Connor • Eamonn O'Donnell • Michael O'Donnell • Geoff Oliver • Paul Phelan • Eugenie Regan • Lorcán Scott • Philip Strickland • Frankie Tennant • Deirdre Toomey • Alyn Walsh • Freddie Walsh • Margaret Walsh • Roy Watson • Andrea Wenner • Janet Whelehan • Chris Wilson • Mike Wyse Jackson

Ballycroy National Park

Tina Aughney • Michael Bell • Ken Bond • Dermot Breen • Brendan Canning • Caitriona Carlin • Helen Carty • Cameron Clotworthy • Maria Cullen • Chris Eschmann • Mags Flaherty • Howard Fox • Martin Gammell • Mark Hill • Rory Hodd • Chris Huxley • Lynda Huxley • Padraig Keirns • Sean Lysaght • Jessica Lysaght • Caitriona Maher • Brian Mongan • Colette O'Flynn • Chris Peppiatt • Anthony Pickering • Gerry Sharkey

Dromore Wood Nature Reserve

Leif Barry • Penny Bartlett • Sinead Biggane • John Breen • Karla Breen • Amanda Browne • Ann Bunyan • Andrew Bryning • Andrew Byrne • Peter Capsey • Shane Casey • John Conaghan • Kieran Connolly • Mary Conway • Aislinn Deenihan • Brendan Dunford • Jamie Durrant • John Forde • Janice Fuller • Emma Glanville • Anthony Griffin • Niamh Guthrie • Seamus Hassett • Thomas Harrington • Feidhlim Harty • Seamus Hassitt • Geoff Hunt • Kate Lavender • Stephen Lester • John Lovatt • David Lyons • Frances Lucy • Sinead Macken • Jimmy Marron • Sally Anne Marron • Kate McAney • Congella McGuire • Veronica McGuire • Niamh McMahon • Lou McManmon • James Moran • Ger Morgan • Anne Mullen • Fion Murphy • Susan Naughton • Rory O'Callaghan • Lorna O'Carroll • Ruairí Ó Conchúir • Sarah Ann O'Loughlin • Ken O'Neill • Sharon Parr • Nick Parry • Cilian Roden • Sean Ronayne • Veronica Santorum • Catriona Scully • Tanya Slattery • Paddy Sleeman • Dyan Smith • Ger Staunton • Linda Tough • Patricia Tully • Lynda Weekes

The site with the most species recorded	Killarney (1088 species)
The site with the most species recorded per area	Liffey Valley (10.6 species per hectare)
The site with the most species recorded per recorder	Killarney (24.2 species per recorder)

What's in your Backyard?

A new and exciting update of Biodiversity Maps has made it possible to understand our local area like never before.

Possibly the best in the world...

Online access to biodiversity data is the major function of the National Biodiversity Data Centre. Biodiversity Maps was created to facilitate this access and it is at the forefront of biodiversity informatics worldwide. But the Centre didn't want to stop there. We wanted the best and most useful online mapping system possible. So we've made Biodiversity Maps even better!

Listening to users – the development of an exciting new tool

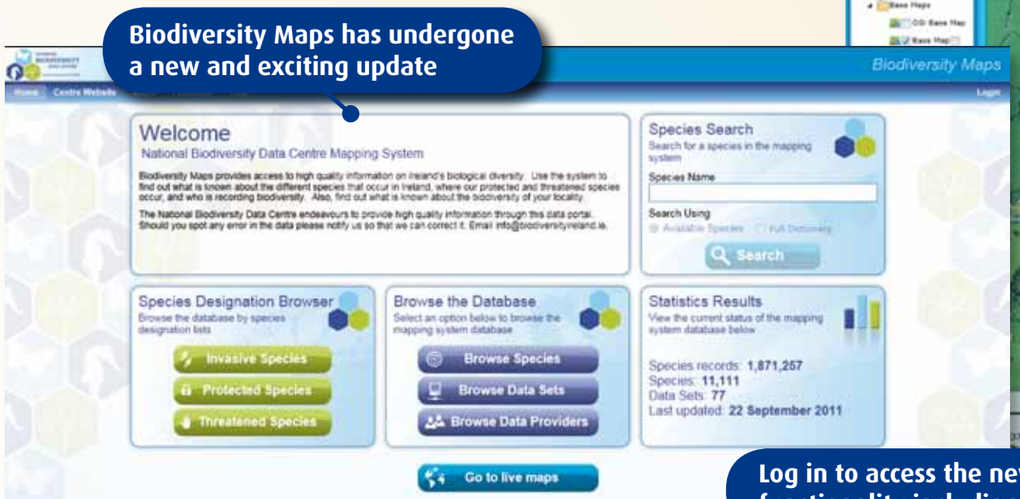
Listening to feedback from the data users and providers, we realised the need for a reporting tool. So we set to work on it. Biodiversity Maps now allows a user to report from a 10km, 2km or 1km square or from a specific area (SAC, SPA, NHA, ASSI, nature reserve and townland) or to report by a custom polygon. The report will generate an excel file with the species name, record count, date of last record, title of dataset from which the last record came and species designation. This is an important tool for Environmental Impact Assessments and Appropriate Assessments. However, it will also give us an insight into what's known about our local area and provide an opportunity for us all to help fill in the gaps.

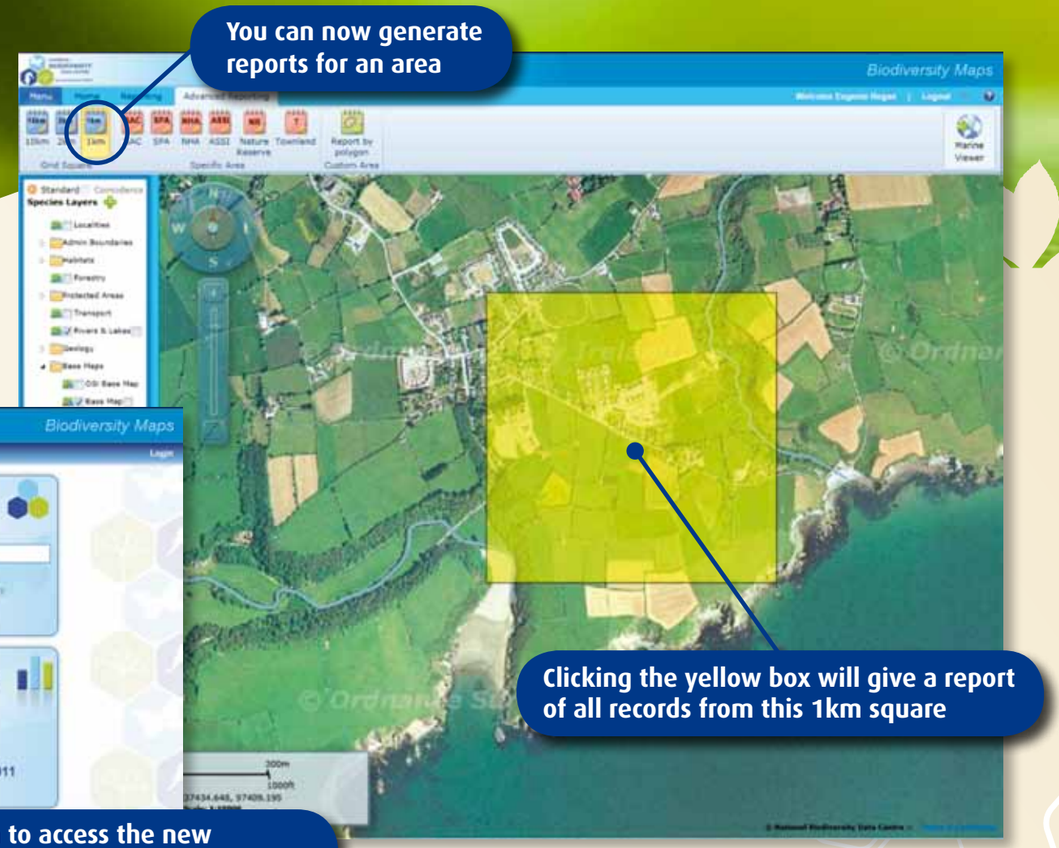
Species profiles

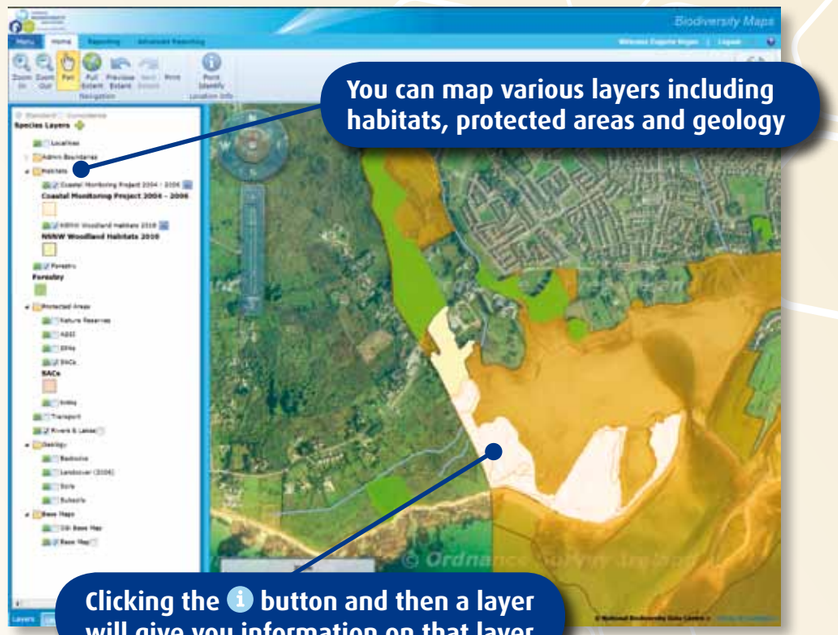
Another important improvement is to the individual species page. Each species profile page has two maps of its distribution, graphs of the number of records per month and the number of records per year, and details of the earliest and latest records and total number of records. This display gives huge added-value to the data within the National Database. Now we can easily see flight periods for moths and butterflies, migration times for whales and birds, etc. A whole new world of data at our fingertips!

Over to you - filling in the gaps!

It is often difficult as interested naturalists to know how to make a meaningful contribution to the understanding of Ireland's wildlife. We see a stoat crossing the road and wonder whether that observation would be of interest to anybody. Now we can go to Biodiversity Maps and generate a report for our local area. A few of us at the Data Centre have generated these reports for where we live and have discovered that common species had never been recorded. So we're now recording rabbits, rats, butterflies, and trees from our back gardens and local areas. Often it is the common species that we know so little about. So your records can make a valuable contribution.







Mercury Rising

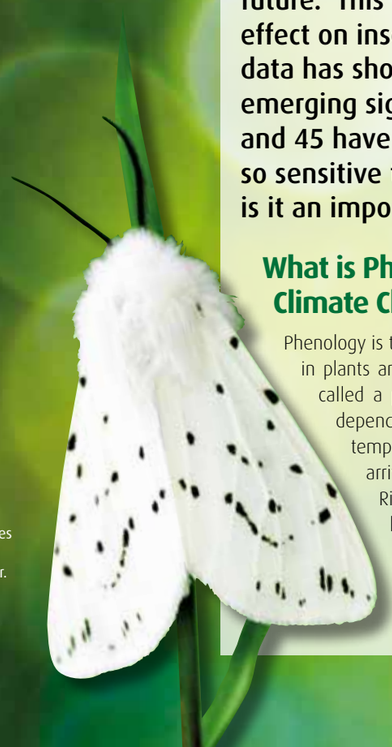
The garden tiger is another species that is emerging earlier every year (Roger Hale)

Bridget O'Neill reveals that Irish moths are appearing earlier each year with rising temperatures

Temperatures in Ireland have increased over the past century due to climate warming and are predicted to keep increasing at least in the near future. This temperature increase can have a large effect on insects and analysis of MothsIreland data has shown that of 58 species of moth, 49 are emerging significantly earlier now than in 1971 and 45 have a longer flight period. Why are moths so sensitive to changes in temperatures? And why is it an important area of research?

What is Phenology, and how is it used in Climate Change Research?

Phenology is the study of the timing of biological events, such as flowering in plants and migration in birds and animals. Each of these events is called a phenophase, and occurs around the same time each year depending on local weather conditions. For example, higher temperatures in Spring can result in phenophases, such as the arrival of birds and appearances of flowers, occurring earlier. Rising spring temperatures due to climate warming over the last half century has led to earlier budburst in trees and earlier arrival of migratory birds to Ireland. However, very little information on the response of insects to warming has been reported to date.



Species such as the white ermine that emerge in spring are responding to temperature increases more so than those emerging in summer. The white ermine is emerging two days earlier every year. (Shutterstock.com)

Why Moth Phenology?

There are several good reasons to look at insect phenology in climate change research. Most importantly is that insects are extremely sensitive to temperature. Most insects are ectothermic ("cold-blooded") and therefore depend on the temperature around them for their growth and metabolism. Higher temperatures accelerate growth in insects, and can speed up phenological life events like reproduction, migration and emergence from hibernation in the spring. One of the most visible groups of insects are moths. Moths are an excellent group for analysing as they are pretty, easy to find, and people enjoy watching them. These are very important characteristics, particularly when scientists are looking for recorded observations of species over time to compare against changes in temperature.

MothsIreland (http://www.mothsireland.com/) is a group of amateur naturalists who systematically observe and photograph moths, recording the number of individuals of each species they see. These records are extremely useful for indentifying first and last sighting each year, and for calculating the length of the flight period (number of days between first and last sighting). The number of days between the last sighting in autumn and the first sighting in spring indicates the period each year when moths are dormant, or hibernating during the cold winter months. We obtained records of first and last sighting of 58 common large-bodied moth species from MothsIreland over a period of 39 years, from 1971 to 2009. We compared these phenology records to temperature records across the country over the same time period to see if temperature was having an impact on moth behaviour in Ireland.

Changes in Moth Phenology with Rising Temperatures

Temperatures in Ireland have increased over the past century due to climate warming and are predicted to keep increasing at least in the near future. This temperature increase can have a large effect on insects. Of the 58 species of moth we looked at across Ireland, 49 are emerging significantly earlier now than they were at the start of the observation period (1971), and 45 have a longer flight period.

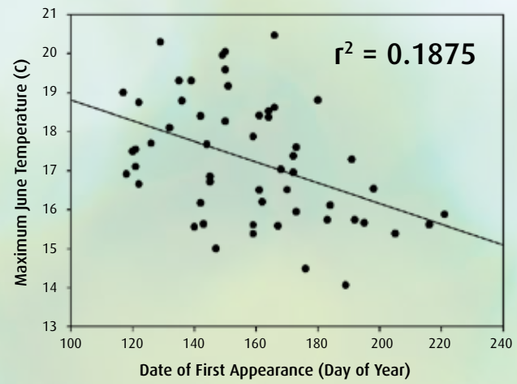
Different moth species emerge at different times of the year depending on what types of plants the larvae, or caterpillars, feed upon. Of the 58 moth species we looked at there are five that emerge in the early spring in Ireland (March-April), and these have been found to be emerging two days earlier per year. The 37 species that emerge in late spring (May-June) are emerging one and a half days earlier per year and the 16 species that emerge in the summer (July-August) are emerging one day earlier per year. Species that emerge in the spring are responding to temperature increases more so than those emerging in summer. This may be because rising spring temperatures also lead to earlier budburst in trees.

Advancing flight seasons of moth species in Ireland may guarantee that caterpillars will still have young leaves to feed upon. (Shuterstock.com)

Young leaves are tender, full of protein and water and usually have fewer chemical defences than older leaves, making them an ideal food source for caterpillars. The caterpillars that feed on these young leaves have a short window to eat and grow before the leaves become too tough and too well defended for consumption. It is very important for these moth species to keep pace with budburst to ensure survival, leading to the marked advancement of first sighting date which has been recorded over the last 39 years. While increasing temperatures are leading to advancing first sighting dates for moth species that emerge in the summer as well, these are not advancing as fast. Moth species emerging in the summer feed on plant parts that are less dependent on temperature, such as roots and mature leaves, so their emergence dates are more flexible.

Climate change is leading to advanced phenology of many species. Stories of early flowering and longer allergy seasons have become common news items. Advancing flight seasons of moth species in Ireland may guarantee that caterpillars will still have young leaves to feed upon. These advancing first sighting dates are also leading to longer flight seasons, which may cause problems, particularly with pest species. These pest species may also become active earlier in the year giving them a longer period in which to inflict damage on crop plants or forestry species. More observation of moth phenology is needed in order to predict how these species will continue to adapt to increasing climate change.

The flame carpet moth appears earlier with higher June temperatures



Biodiversity Tales

Bryophytes

A few years ago whilst on holiday in west Cork, I parked the car opposite the Marian Shrine on the west side of Glengarriff on the Kenmare mountain road. Initially I was delighted to note that the local Tidy Towns committee hadn't power-sprayed off the moss that carpeted the large, sloping slab of rock wherein the statue of Virgin Mary resided. The moss was a fantastic display of hues and colours – olive greens fading into ochreous yellows fading into dark umbers fading into chestnut browns. Until recently, I would have simply have bored the family with my observation and moved on. However, only a few months previously I had met up with Jo Denyer (a Council member of the British Bryological Society (BBS)) who had impressed upon me the dearth of bryological recording in Ireland. Thus I signed up as the county recorder for Meath and re-awakened identification skills left dormant for about 15 years. Thus inspired, I took a small sample of the most abundant moss on the Glengarriff slab and identified it at home as *Hedwigia integrifolia*.

Later that year, a few days before Christmas, I sauntered up the slopes of Slievenaglogh in the Cooley Peninsula. I spent a few hours recording mosses I was familiar with on the heath, bog and flush habitats. Closer to the rocky outcrops at higher altitudes, I was getting into unknown bryophyte terrain but was overjoyed to see on a large boulder a small patch of a bronzed chestnut moss that I recognised immediately - *Hedwigia integrifolia*. I was also best pleased to find that this was a new record for county Louth (its main stronghold in Ireland being Cork and Kerry). Initially I assumed that I had discovered one unique site on one rock but in the months to follow it turned up in abundance in the boulder fields and rocky outcrops in and around the Long Woman's Grave, in the heart of the Cooley Mountains. Last year on a BBS training day in the Cooleys, Sam Bosanquet of the BBS discovered a further 10 new county records for Louth and the area has now its rightful place as important bryophyte terrain in the forthcoming Red Data Book of Irish Bryophytes.

Hedwigia integrifolia on the Cooley peninsula. A first record for Louth (Maurice Eakin)

Maurice Eakin, National Parks and Wildlife Service

Dragonflies

Female black darter dragonfly (Ulla Harris)

The 2011 dragonfly year got off to a very interesting start with a sighting of the beautiful **downy emerald**, *Cordulia aenea*, from a new site in south Kerry on the 26th April by Fionn Moore. This brings the number of Irish locations for this species to five. With so few Irish sites, this species has been assessed as endangered to extinction in Ireland. Then on the 16th May Ian Rippey recorded the **Irish damselfly**, *Coenagrion lunulatum*, from the Burren. This species has a northern distribution in Ireland and hasn't been recorded from the Burren before. This damselfly is absent from Great Britain with the nearest populations in Europe in the Netherlands! The **Irish damselfly** is one of our rarest odonates and is considered vulnerable to extinction in the recent Red List so a completely new site for this species is an exciting find.

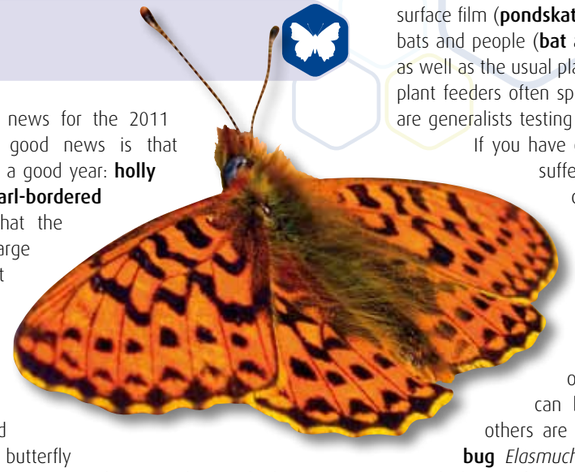
Later in the summer, on the 11th July Ulla Harris recorded a **red-veined darter**, *Sympetrum fonscolombii*, at Kilmore Quay, Co. Wexford. There are only a handful of records for this migrant dragonfly for Ireland – a lovely record Ulla! Another rare migrant, the **lesser emperor dragonfly**, *Anax parthenope*, was recorded by Geoff Campbell on the 23rd July in Co. Louth and on the same day by Gabriele Tzeschlock and Peter Doyle from Lough Ennell, Co. Westmeath. A coincidence that both sightings of this rare dragonfly were both from the same day?

Opposite page: A number of new sites were discovered in May for our rarest butterfly, the pearl-bordered fritillar (Oisin Meagher)

This is the first year of the DragonflyIreland facebook page and it has been a great success. Lots of interesting records and great photographs were posted over the summer from over 170 fans. The page has turned into an active forum for dragonfly enthusiasts. We are very grateful for all records sent in to Dragonfly Ireland.

Eugenie Regan, National Biodiversity Data Centre

Butterflies



There's good and bad news for the 2011 butterfly season. The good news is that three species have had a good year: **holly blue**, **comma** and **pearl-bordered fritillary**. It appears that the **holly blue** suffered large declines over the past few years and 2011 marks an increase in the population. It is thought that this rise and fall in numbers is the result of a parasitoid wasp. The **comma** butterfly appears to have had an expansion this year. The Wexford Naturalists' Field Club has had a huge increase in records coming from all corners of county Wexford. The Irish Butterfly Monitoring Scheme volunteers have also noted an expansion in this species. With the establishment of the monitoring scheme, information on our butterflies has vastly increased. However, the rarer species are still lacking targeted monitoring. This year a small project was conducted on the **pearl-bordered fritillary** butterfly to map the distribution of this, Ireland's rarest, butterfly. Excitingly, a number of new sites were recorded for this species.

The bad news is that overall butterfly numbers are way down in 2011 compared with previous years. The summer of 2011 has been an exceptionally cold summer and this could explain the low numbers. Butterfly numbers are very sensitive to temperature and will naturally fluctuate over the years. However, our only protected species, the **marsh fritillary**, has had worryingly low numbers. Firstly, volunteers have recorded much lower numbers of adults flying in June but also searches for larval webs in September have been disappointing. The reason for this is not yet known. It could be related to the very cold winter or to the cold summer. The **marsh fritillary** is also parasitized by an ichneumon wasp – so perhaps the wasp got the upper hand this year?

Eugenie Regan, National Biodiversity Data Centre

Bugs

Bugs in the system?!

Most Irish insects (almost 90%) belong to one of four major groups, the Diptera (flies), Hymenoptera (bees, wasps ants, etc.), Coleoptera (beetles) or Lepidoptera (butterflies and moths). The next most speciose group is the Hemiptera. These are insects characterised by having sucking mouthparts and include **froghoppers**, **cicadas**, **aphids**, **shieldbugs** and **pondskaters**. There are three major types of Hemiptera and one, the Heteroptera, is often called the true bugs, but to aficionados just Hets. This relatively small insect group is arguably the most diverse group of insects in the world. Think of a habitat or way of life and there is almost certainly a bug that exploits it. So you can find bugs on the surface of the open ocean (**sea skaters**), underwater in lakes and rivers (many types of **water bug**), on the surface film (**pondskaters** and **water measurers**), parasitically on bats and people (**bat** and **bed bugs**) and under bark (**flat bugs**) as well as the usual places amongst and on plants. Many bugs are plant feeders often specific to a single plants species, but others are generalists testing anything with their adaptable mouthparts. If you have ever picked raspberries you probably have suffered a 'bite' from an **anthocorid bug** which can be surprising irritating. There are many predatory bugs usually on other insects and invertebrates including the **thread-legged bugs** (*Empicoris* species) that specialise in feeding on the insects caught in webs of spiders or the spiders themselves. **Bed** and **bat bugs** and some others feed on mammalian blood. Species can be found in obvious, large aggregations, others are highly secretive. And there is the **parent bug** *Elasmucha grisea* that is one of the few insects which cares for its young.

Bugs range in size from about 1mm to over 20mm, so include some of the smallest and largest of insects. They are extremely varied in appearance. It is easy to appreciate the patterns and colours of shield bugs (google **rainbow shieldbug** or **samurai bug** for example) but there are others which are highly ornamental such as the **lace bugs** (Tingidae). Others are mimetic (ants are especially mimicked by the young stages of **Nabid bugs**). But others are just plain bizarre such as some **leaf-footed bugs**.

Irish bugs: There are just over 300 species of Heteroptera recorded from Ireland but that includes examples of virtually all the types mentioned above. Finding all the Irish species is a challenge requiring looking in treetops, amongst mosses, in intertidal crevices and in the nests of house martins! Not many people have studied Irish bugs. It is over 65 years since the last checklist, but it is hoped to produce an updated catalogue next year. As part of this process I have gathered over 11,000 individual records and these will shortly be available through Biodiversity Maps. If you have records of bugs, I would really like to hear about them and add to the database. Identifying bugs can be tricky, but there are good identification guides to our species in books or on the web. If you want advice or help then please get in touch at Brian.Nelson@ahg.gov.ie.

Brian Nelson, National Parks and Wildlife Service

Picromerus bidens – a distinctive shieldbug (Shutterstock)

Marine Fishes

A new species of fish discovered in Irish offshore waters

During 2003, a new species of *Chimaeroid* **rabbitfish**, *Chimaera opalescens* was discovered in the north-eastern Atlantic. The new species was noticed by scientists while examining deep-water fish captured by French trawlers fishing on the continental slope (950-1400m) off north-west France, Ireland and Scotland and was officially described in a paper recently published in the Journal of Fish Biology.

Despite the differences in body patterns and morphological features, the French scientists noted that specimens of *C. opalescens* have previously been misidentified as *C. monstrosa*, the only other species of *Chimaera* known from the north-eastern Atlantic. The geographical range of *C. opalescens* overlaps with that of *C. monstrosa*, which is generally abundant at 300-400m but occasionally occurs in inshore waters (<200m). A juvenile specimen of *C. opalescens* (previously misidentified as *C. monstrosa*) was subsequently found in southern Greenland waters, indicating that the geographical distribution of *C. opalescens* may extend to boreal regions.

Chimaeras (**rabbitfishes**) belong to a primitive subclass of fishes (Holocephali) dating back to the Devonian Period (416-359 million years ago) and share many characteristics with sharks, skates and rays (Elasmobranchii) indicating a common albeit unknown ancestor. Extant Holocephalan species represent a small fraction of a previously successful and diverse group. Although only 43 living species are known worldwide, several others remain to be described. Indeed, since 1990, at least 17 new species have been verified, including two from the NE Atlantic: **pale rabbitfish** (*Hydrolagus pallidus*) and **Lusitanian chimaera** *Hydrolagus lusitanicus*. At least nine species are now known to occur in the NE Atlantic, including seven of these from Irish waters.
The increasing commercial exploitation of deep-water fishes and scientific surveys of deep-sea biodiversity, aided by improved knowledge about the taxonomy of the group and the development of DNA barcoding techniques are likely to lead to the discovery of many more new species.

Declan T G. Quigley, Sea Fisheries Protection Authority

Chimaera opalescens – a fish new to science fished from Irish waters and discovered by scientists at a French fish market (Samuel Iglesias)

Birds

The 2007-2011 Bird Atlas is over, well at least the active data collection from 4 winters and 4 breeding seasons. However, there remains a period of about 18 months in which additional data sources are input, 'strange' observations are validated, text and maps drafted before the book is sent to the printers. Without giving too much away, there are certainly significant changes in range or abundance for many species and explaining these trends will give BirdWatch Ireland staff members many hours of intellectual entertainment. The project website is still open (www.birdatlas.net) and readers can submit any outstanding observations; we still need positive 'proof of breeding' for various scarce species. Did you see a **kestrel** nesting near you, hear the creaking gate calls of young **long-eared owls**, have a pair of **spotted flycatchers** nesting in the creepers on your home? These are all useful as long as you can recall a specific date and can work out the 10 km square in which you live.

Numbers of roseate terns nesting in Ireland continue to increase (Shutterstock)

In reviewing the summer just gone, although rather dismal weather-wise, and initially poor for resident breeding species such as the **great** and **blue tits** nesting in boxes in your garden, conditions improved dramatically by the time the migrant species arrived from their African/Mediterranean wintering areas. It appears that hirundines (**swallows** and **house martins**) had a bumper year and many warblers also bred well. In the previous report I noted the impact of the hard winter on species such as **grey wagtails** and **stonechats**. They remain very scarce but given a few years their populations should recover. Amazingly, our smallest resident species, **wren**, **long-tailed tit** and **goldcrest** were all present and breeding in woods, hedgerows and gardens.

There were mixed fortunes for some of our scarcer species of conservation that are the focus of ongoing our new programmes. For example, **merlins** had a very poor year; few 'traditional' territories were occupied and of those that were, many nesting failures. Red-listed **curlew** were the focus of a new project in Donegal and intensive survey work only succeeded in locating 4 territories. There has been growing concern for this iconic wader and it appears that the national population is likely to be a tiny fraction of what it was 25 years ago. On the other hand, numbers of **roseate terns** nesting at our two internationally important colonies, Rockabill (Dublin) and Lady's Island Lake (Wexford) continue to increase with in excess of 1,100 pairs and the former and a record 155 pairs at the latter. Productivity was also very high and very few losses at the chick stage were recorded.

As I write towards the end of September, seawatchers on the west coast have documented incredible movements of Arctic nesting seabirds, notably **Sabine's gulls**, down the west coast for the '**Seatrack**' project. An astonishing 865+ were counted passing the Bridges of Ross (Clare) on the 17th September. Additionally, Ireland has hosted several flocks of North American-breeding **buff-breasted sandpipers**. These birds should be heading to the pampas grasslands of South America but the flocks of 15 at Loop Head (Clare) and 14 at Tacumshin (Wexford) are the largest recorded outside of the Americas!

Although days are getting noticeably shorter, there is still much to look forward to: what sort of summer have our Canadian-breeding **brent geese** had and will we get an influx of Scandinavian **waxwings**? For those of you that prefer to do your birding from the comfort of home, the 2011-12 Garden Bird Survey season will commence at the beginning of December. Start stocking up your feeding stations and check **www.birdwatchireland.ie** for details.

Steve Newton, BirdWatch Ireland

Bats

Bat workers don't just record bats

Bat Conservation Ireland manages three monitoring schemes that greatly rely on the time and dedication of many volunteers. The Car-based Transect Survey (2003-2011), the All-Ireland Daubenton's Bat Waterway Survey (2006-2011) and the Brown Long-eared Roost Monitoring Scheme (2007-2011) have approximately 500 volunteers annually completing surveys. Volunteers are encouraged to record any other fauna encountered while out in the hours of darkness. This is an ideal opportunity to see many of Ireland's elusive mammal and bird species and this is reflected in the data collated over the years.

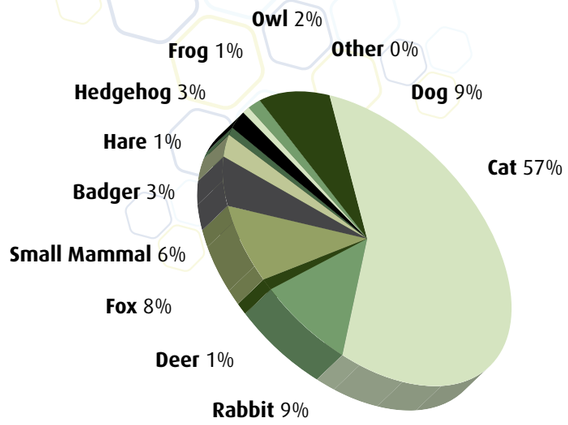
In 2006 when the waterways survey was first undertaken, there was no section on the survey forms to records other fauna sightings. This was rectified for 2008 after many surveyors requesting such. **Barn owls** occasionally turn up at waterway survey sites with four sightings in 2008, two sightings on rivers in 2009, four records from 2010 and three records, so far, for 2011. Long-eared owls have turned up similar numbers along the rivers with a total of 13 records over the last four years. **Owls** are often recorded on the time expansion bat detectors used in the Car-based survey with their social calls more often than not recorded on the mini-discs. Occasionally, to the surveyors delight, an actual sighting of a bird sweeping along the hedgerow is noted.

During the **brown long-eared bat** roost surveys, one of the bat roosts was also confirmed to be a **barn owl** site. The bats are roosting in the attic while the owl has taken up residence in one of the 3rd floor rooms in the derelict mansion. As to be expected, the **grey heron** is frequently recorded along the waterway survey sites with over 54 waterway sites with sightings of this bird. Other bird species encountered include **kingfisher**, **chough**, **water rail**, **moorhen**, **mute swans** and two **buzzard** recordings in 2011. All of these records are submitted to Birdwatch Ireland to be included in their Bird Atlas.

Other mammals, apart from bats, are frequently recorded by volunteers. **Otters** have added to enjoyment of the waterway surveys with 15 records from 2008, eight sightings in 2009, 11 sightings in 2010 and, to-date, nine sightings for 2011. **Mink** and **pine marten** have also been spotted with the odd **badger**, **fox**, **hedgehog** and **hare** records noted. While **cats** and **dogs** on the night-time prowl are the most commonly encountered mammal during the car-based survey, recordings of **hares**, **rabbits**, **hedgehogs**, **pine marten** and small mammals such as **pygmy shrew**.

The National Biodiversity Data Centre launched a new Atlas of Irish Mammals surveys which aims to map the distribution of all of Ireland's mammals including records from 2010 to 2015. While we all have our favourite fauna groups, this is an ideal opportunity for all naturalists to contribute to this important project. So where ever you are, if you see any mammals, regardless of how common the species is, take note and log it onto the http://mammals.biodiversityireland.ie and watch the picture build up about all of our mammal species.

Tina Aughney, Bat Conservation Ireland



Living vertebrates, other than bats, observed during 2010 by the Car-based Transect Survey, n=285. See Annual Report for more detail www.batconservationireland.org

Terrestrial Mammals

The big news is the there is now a major mammal recording initiative underway in Ireland, with the Atlas of Mammals in Ireland project. The Mammal Atlas is a compilation of existing mammal datasets and a system for collecting new records. Since its release in spring of this year, the database contains 1,733 new records of 25 species submitted by 240 recorders. This includes, for example, all the verified sighting of walrus in Ireland, thanks to the review of the records undertaken by Don Cotton and published in the Irish Naturalists' Journal.

A special online submission for has been developed for the initiative and to date 1,224 records have been received through this route. One third of the records received were of **Irish hare** and **red fox**. Another third of records comprised about 10% each of **rabbit**, **hedgehog** and **red squirrel**. Interestingly, almost as many **hedgehog** records were received as those for **rabbit**, which would lead one to believe that recorders don't see much value in recording the ubiquitous **rabbit**.

Thanks to data from a study using hair tubes in County Galway by Vincent Wildlife Trust, and other sightings submitted by recorders, there are already 94 records of the Irish **stoat**. This is good start to mapping what is one of Ireland's most elusive mammal species. Similar numbers of **pine marten** records have been received reflecting the increase in its distribution in Ireland.

Valuable records have been received of our non-native and invasive species. Staff at NPWS provided records of the **American mink** that they successfully trapped after saboteurs released animals from a farm in Co. Donegal. Two new sighting of **muntjac deer**, one from Rathnew, Co. Wicklow and another from near Ovens, Co. Cork were received. The Cork record is worrying as this is far away from the known Wicklow population. There have also been new sighting of oddities like **Siberian chipmunk** in Naas, Co. Kildare in September, **racoon** in County Cork in April, and **feral ferret** near Youghal, Co. Cork.

The mammal most frequently reported to the Atlas of Mammals was the Irish hare (Edward Delaney)

The Data Centre's 'Tracking Irish mammals –traditional and novel methods' workshop led by Dr. Peter Turner in September was fully booked and proved very successful. It is also good to see that the large collaborative INTERREG funded Mammals in a Sustainable Environment (MISE) project led by Waterford Institute of Technology has commenced and is likely to do a great deal to promote mammal recording in the south-east.

Liam Lysaght, National Biodiversity Data Centre

Whales and Dolphins

The seven month reporting period March to September 2011 straddles both the low and high seasons for cetacean reporting in Irish coastal waters. During this period IWDG received and validated 1,250 sighting records, of which 88.2% were categorized to 11 cetacean species. Also reported were 166 **basking shark** and nine **leatherback turtle** records. July was the busiest month with 348 sightings reported.

As always the **harbour porpoise** was the most frequently reported cetacean species with 297 sightings (23.8%), followed by **bottlenose dolphin** 215 (17.2%), **minke whale** 169 (13.6%), **common dolphin** 138 (11%), **fin whale** 51 (4.1%), **Risso's dolphin** 17 (1.4%), **humpback whale** 16 (1.3%), **killer whale** 11 (0.9%), **pilot whale** 7 (0.6%), **sperm whale** 3 (0.2%) and **Atlantic white-sided dolphin** 1 (0.1%).

As with previous years the large whale activity in the Southeast ended in late winter, with the last **fin whale** record off Dunmore East, Co. Waterford on 10th February. Typically, they were absent throughout the Spring, but offshore sightings from the Celtic Deep area in late May and off the Wexford coast in early June marked the return of fin whales to inshore waters.

There will always be a lot more **fin whales** than **humpbacks** in Irish waters during the whale season. A review of the relative numbers of these two species in the past decade shows that **fin whale** sightings consistently outnumber those of **humpbacks** by a ratio of 4:1, and actual animals by 12:1. But the gregarious and unpredictable nature of the smaller **humpback** more than compensates for any numeric inferiority.

Thus on 14th June IWDG was surprised to validate two simultaneous **humpbacks** in the Irish Sea, c90 miles apart. One of which was off Bangor, Co. Down, while the other was 20 miles off Anglesey, Wales. This is the second consecutive year that **humpbacks** have showed in the Irish Sea, and while we can't rule out these being chance encounters, we'll be keeping a close eye on **humpback** sightings in this area in 2012, to see if we can confirm three in a row, and thus the beginnings of a trend. The other outstanding cluster of **humpback** activity was off the Slea Head Peninsula/Dingle Bay area, which produced sightings of 1-3 animals on 10 days between 12th July and 28th August, putting West Kerry firmly on the "large whale" watching map of Ireland, but more importantly increased the Irish Humpback Whale catalogue to 17 recognisable individuals.

On the stranding front, between 1st March and end September, IWDG received 78 reports of 80 animals comprising 11 cetacean species, which mirrored precisely the species mix recorded by the sightings scheme. Some events don't easily fit into either "sightings" or "strandings" categories, which is one of the reasons why IWDG records both.

The most notable event saw both recording schemes dovetail to tell the full story of a sub-adult, male **sperm whale** that was first sighted swimming close to shore off Ballyteige Bay, Co. Wexford on 18th Aug (see image). It travelled 41 miles overnight crossing into Co. Waterford where it live-stranded on the Cunniger spit, near Dungarvan. It lived for 24 hours, until expiring in the early hours of 20th August. These events are unpredictable, and stressful, not just for the stricken animals, but for those who volunteer to remain with the animal in all weather, deal with the plethora of local agencies and of course take a certain amount of abuse from the public, many of whom have strong opinions on the "best" course of action. IWDG extend a huge thanks to those who attend these stranding events, which almost always have the same predictable outcome.

In this instance, given the species, and its proximity to Youghal in East Cork, where the masterpiece "Moby Dick" was filmed in 1955, it would we feel have been a great opportunity to explore the potential of retrieving the carcass with a view to public display of the skeleton in the locality. Perhaps next time!

All validated cetacean sightings and stranding records can be interrogated and mapped on **www.iwdg.ie**.

Pádraig Whooley, Irish Whale and Dolphin Group

Sperm whale, Ballyteige, Wexford 18th of August (Ruairi O' Brien)

Below: The whooper swan is departing earlier in Spring from Ireland
Left: The northern wheatear is a migrant which arrives in Ireland each spring but arriving earlier each year as a result of climate change.
Bottom: The sand martin is arriving in spring earlier now than 30 years ago

A Question of Timing

Alison Donnelly on a Trinity research project showing how Ireland's biodiversity is reacting to climate change

Climate change, in particular, rising temperatures, is impacting on plant and animal life in the Irish environment. The 'Climate change impacts on phenology' project examined historic records of the timing of life-cycle events (phenology) to determine if changes were driven by warming. We also looked to the future and made projections of the timing of bud-burst in birch trees using simulated future spring temperatures.

Outputs from the project included:

- Establishing the Irish National Phenology Network (IE-NPN).
- Raising public awareness of the use of phenology in current climate change research.
- Setting up a website to encourage the general public to record phenology.
- Extending the number of phenological gardens incorporating native species.
- Developing phenological models projecting how climate warming may impact trees in future
- Establishing a network of Irish phenologists.
- Including not only plants in analysis, but extending this to include birds and insects.
- Conducting a range of experiments on the environmental triggers of budburst.
- Hosting an international conference on phenology.

The main findings of the project were:

- Irish trees are leafing earlier now than 40 years ago and will continue in this trend at least into the near future.
- Many long-distance migrant birds (including northern wheater and sand martin) are arriving earlier now than 30 years ago and one winter visitor (whooper swan) is departing earlier in spring from their wintering grounds.
- Some moth species are not only appearing earlier in the season but are remaining active for longer periods.
- In experiments on birch and poplar we demonstrated that both temperature and day-length were important drivers of budburst.

Irish trees are leafing earlier now than 40 years ago and will continue in this trend at least into the near future. (Annelies Pletsers)

Out in the Blue

Simon Berrow reports on a project that filled knowledge gaps of mammals in our deep seas

Irish waters provide a range of habitats for whales, dolphins and porpoises with 24 species recorded to date. This diversity reflects the range of marine habitats from shallow continental shelf waters to deep-water canyons, offshore banks, shelf slopes and abyssal waters. Under the Habitats Directive member states are required to monitor all cetaceans, however there is very little information on these animals from our seas and, consequently, it is difficult to know how they are faring.

The PReCAST (Policy and Recommendations from Cetacean Acoustics, Surveying and Tracking) project aimed to provide robust scientific data on cetaceans in Irish waters. This data would support conservation policy and provide guidance to state agencies.

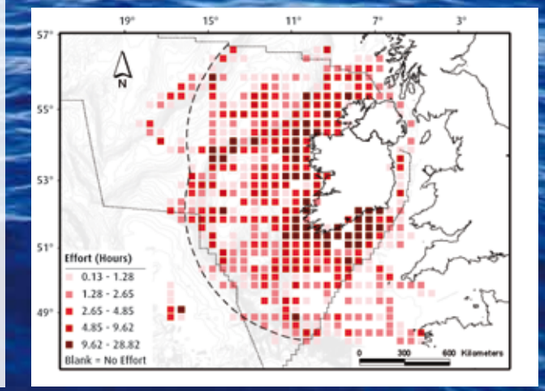
A total of 1,301 sightings of 17 different cetacean species were recorded from 630 days at sea and 53 hours of aerial surveys. In addition to the surveys new monitoring techniques were developed using acoustic detectors. These were specifically developed for monitoring small cetaceans in marine SACs. As a direct result of the work, an offshore cetacean atlas is being produced.

The main findings of the project were:

- The most abundant and widespread was short beaked common dolphin (Delphinus delphis) accounting for 55% of records.
- Long-finned pilot whale (was the most abundant and widespread cetacean in deep waters (200m+).
- The most common baleen whale encountered was the fin whale which was seasonally abundant off the south coast and northwest shelf slopes.
- Sperm whales were also frequently encountered on the shelf slopes and in deeper waters beyond and are possibly the most common large whale species in Irish waters.
- Overall the results show a high level of diversity in the spatial and temporal use of offshore marine habitats by cetacean and megafauna species in Irish waters.

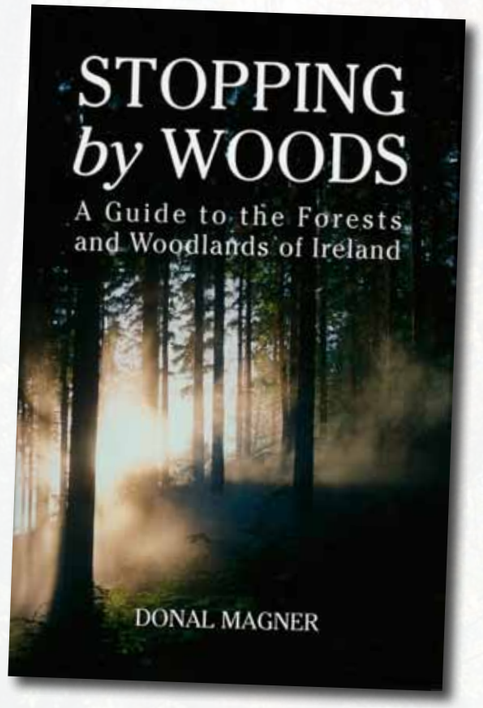
PReCAST was a partnership between the Irish Whale and Dolphin Group and the Galway-Mayo Institute of Technology and was funded by the Marine Institute under the NDP Sea Change initiative and the National Parks and Wildlife Service. All data will be lodged at the National Biodiversity Data Centre for access by interested parties.

Counting cetaceans (Simon Berrow)



Book Reviews

Liam Lysaght and Gerry Cullen review two newly published books on exploring Ireland's biodiversity



Donal Magner has produced a book that is long overdue. Stopping by Woods: a Guide to the Forests and Woodlands of Ireland exalts the many non-commercial benefits of Ireland's forest estate. The forest estate he deals with is the largely State-owned land managed by Coillte, NPWS and the Forest Service Northern Ireland – 340 properties spread throughout the island of Ireland, to which 20 million visits are made annually by the public, encouraged by the 'open forest' policy adopted by their managers.

The book serves as a guide to these wonderful properties, arranged by county. Each county section begins with a brief context-setting paragraph about the forest sites covered and a map showing their location. This is followed by an account of each site, including a map of the property and directions on 'how to get to' the site. The text is interspersed throughout with well captioned photographs and text boxes that deal with items of special interest. The site accounts are extremely well written, and bring to life the unique history and character of each site. This is no small achievement and could only have been done by someone with a deep knowledge of the Irish forestry 'landscape' allied with an impressive breath of knowledge of history and heritage.

With the government looking to sell off State assets, its publication is timely. Our forest estate is a national asset, but the purely commercial value of the standing crop is only one side of the balance sheet; the non-commercial goods and services provided are arguably an even greater national asset to protect. Magner's book clearly demonstrates this to be the case and supports his claim that forests are indeed 'places of retreat, recreation and renewal'. In a country where the opportunities for roaming the countryside are limited, the sale of any of the prime forest sites would be a travesty.

The introductory section on the historic and policy context for forestry is extremely interesting. However, for an authoritative overview I would have expected some acknowledgement that aspects of forestry policy and practice are damaging to the environment. The increase in forest cover is lauded, yet no mention is made of inappropriate planting in deep peat and upland sites. The site account for the magnificent Glengarriff Wood, a National Nature Reserve, includes a photograph of the freshwater pearl mussel found there. Yet there is no acknowledgement of the fact that one of the greatest threats to Ireland's longest living animal and a species afforded special conservation status under the EU Habitats Directive is from siltation of waterways – one cause of which is forestry. Magner also notes for example, that 'broadleaf planting has surpassed the Government target of 20% set out in the 1996 forestry strategy', and concludes that 'as a result, the native broadleaf versus conifers debate has been largely resolved in Ireland'. I suspect this is articulated more as a wish than as a fact.

This reservation aside, Stopping by Woods is a wonderful publication that has achieved its objective of promoting all that is best about forestry in Ireland. The Irish forest estate is a wonderful national asset for all to experience and enjoy. Buy the book and explore.

Liam Lysaght, National Biodiversity Data Centre

Stopping by Wood - A Guide to the Forests and Woodlands of Ireland
By Donal Magner
The Lilliput Press

€35 for hardback and €25 for paperback

Another superbly put together book from the author of A Guide to Wildlife in Waterford City, the recently released A Guide to The Waterford Coast is a beautifully informative and entertaining book. It will appeal to those with a serious interest in the nature of the Waterford coast as well as the casual walker who just wants to know a little more about the landscape through which they are rambling.

Declan McGrath has stayed with the county he obviously knows and loves but this time he has concentrated on its unique and beautiful coastline. McGrath's easy conversational style and subtle use of images allow the huge amount of information that this book contains to be digested in a most enjoyable fashion, it is almost akin to a friendly chat at the kitchen table. The author's affinity for the area is apparent all through the book but particularly in the section describing beaches, coves and walks which reads as if the author is reminiscing over fond memories, recalling minute details which make the experience really quite personal. In fact it is the attention to detail, such as providing grid references for accessible car parking, that makes this book a 'must have' for those with an interest in the outdoors.

One of the more interesting aspects of this book is the broad range of interests that are addressed within its covers. Not only does McGrath include detailed information regarding the flora and fauna but he also relates significant detail on the area's geology climate and history. The initial chapter gives a brief introduction as to how the coastal landscape was formed and I have no doubt that readers of this book will view the shoreline rock formations and cliffs with a fresh, informed eye.

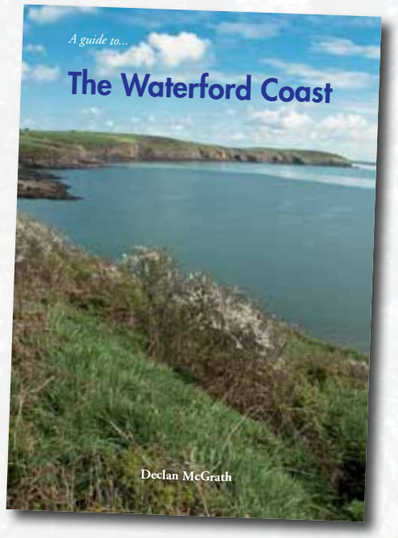
Following chapters deal with some of the maritime facilities which can be explored, in many cases giving their history and uses while the chapter on archaeological sites provides some fascinating snippets of information on many of the features that exist along the coast.

Prior to the concluding chapter, which examines some of the placenames found around the Waterford coast, the author discusses some of the changes taking place around the coast and stresses the importance of its future preservation and how vital it is that we recognise the need for a strategic approach to the management of coastal resources. This book will tell you what is so special about the Waterford coast, what is to be seen and why it should be preserved and protected.

Gerry Cullen, Tipperary Institute, Thurles

A Guide to the Waterford Coast
By Declan McGrath
The Lilliput Press

€25 from local shops or from D. McGrath, 10 The Estuary, King's Channel, Waterford.



Oak and beech at entrance to Curraghbinny, Co. Cork (John Magner)

Cladopodiella fluitans: a tiny, uncommon liverwort which grows amongst sphagnum in bog pools (seen here under compound microscope; each leaf is c.1mm long)

Dublin Naturalists Field Club scrutinising obscure acrocarps on masonry wall and Tufa spring, both north of Skerries

From left to right: *Palustriella commutata* showing pinnate branching typical of pleurocarpous mosses, thallose liverwort, *Plagiochila asplenioides*, leafy liverwort, *Hedwigia stellata*.

Biodiversity Beginners

Bryophytes

Maurice Eakin introduces us to the tiny world of mosses and liverworts

Photos: Maurice Eakin

Acrocarpous mosses are small and erect with no conspicuous branching. This photo shows three species of acrocarpous moss on a railway sleeper.

There are c.834 bryophyte taxa in Ireland (this includes varieties and subspecies) which comprises 595 mosses, 237 liverworts and 2 hornworts. Mosses are abundant in almost all habitat types and can tolerate conditions most vascular plants shun. They even proliferate where most unwanted – lawns, driveways, roof tiles, walls etc. Everyone is familiar with mosses but, alas, few can name even one species (except the enigmatic 'teddy-bear' moss!). It doesn't have to be like this. With a little effort and a bit of guidance, identifying the common species is relatively easy; like all things natural, but particularly with bryophytes, it's just a matter of 'getting your eye in'.

Broad Categories

There are two major types of mosses which, with a little observation, are quite distinctive: 'acrocarpous', which are small and erect with no conspicuous branching and tend to stay low to the ground or cling closely to a rock; and 'pleurocarpous' mosses which tend to be larger (all very relative, of-course!), with distinct branching. Liverworts also come in two broad categories - 'thallose' and 'leafy'. Thallose liverworts are the flat, often bright green plants that grow prostrate to the ground and most leafy liverworts have two opposing ranks of leaves arranged along the stem.

When and where to look?

Unlike many vascular plants, bryophytes can be identified at any time of the year. In denser vegetation the die-back of vascular plants in winter actually allows the bryophytes to be found more easily. Due to the high rainfall, the western seaboard of Ireland is a bryophyte hotspot and distribution maps for many species show the western counties blacked-out (as ever, that's also where recorders concentrate their efforts!). A visit to the semi-natural woodlands of Killarney or Glengarriff will reveal rocks and trees festooned with a panoply of species. Bryophytes occur in all habitat types and indeed they are often a more subtle guide to the underlying chemistry/geology than vascular plants. Wetlands are good for many pleurocarpous mosses but also for *Sphagna* (bog mosses). The *Sphagna* are actually in a class of their own and they tolerate a range from base-rich flushes to highly acidic bogs. There are about thirty species in Ireland, some very rare, and include the strikingly beautiful, golden *Sphagnum pulchrum*. The acrocarpus mosses are typically found adhering to rocks, tarmac or as epiphytes and identifying them to species level can be a daunting task. What may at first appear as simply a mossy rock may well be the habitat for 4/5 acrocarps, each subtly different. Not long ago, I watched with amazement as one of Britain's foremost bryologists examined a north Dublin willow branch for the best part of one hour!

Getting Started

Up until 2009 beginning basic bryophyte identification probably required attending a university degree course and the use of a compound microscope. Thankfully, that all changed with the arrival of Jo Denyer (denyerecology.com) to Ireland and the publication of 'Mosses and Liverworts of Britain and Ireland – a field guide' (published by the British Bryological Society (BBS) and available on www.britishbryologicalsociety.org.uk). Jo and the Dublin Naturalists Field club (DNFC) have organised field trips led by British bryological experts. The trips have been designed for the absolute beginner so all the more common and easily identified species are pointed out, their salient features explained. This is definitely the best way to get started and forthcoming field trips are presently being advertised (see BBS or DNFC websites).

What do you need?

Armed with the knowledge from the experts of a few species it is then feasible to expand your identification skills using the comprehensive key in the BBS 'field guide'. It is, without a doubt, the best 'botanical' key I have ever used and with a bit of patience and a hand lens (x10 and/or x20 magnification) it is easy to get to grips with the commonest 50 species or so, some of which show up with annoying regularity. A shoulder bag is very useful for the field guide and also to hold scraps of paper to retain samples of unidentified species. These can then be keyed out more thoroughly in the comfort of home or office. Where doubt still exists then the specimen can be sent off to someone a little more expert (all experts love to pass on their hard-earned knowledge). At this stage it is time to consider buying a compound microscope. Some species, particularly the acrocarps, require examination of microscopic details (the biblically-proportioned 1,012 pages of AJE Smiths The Moss Flora of Britain and Ireland will also be necessary – if you can use it you are now an expert!). A copy of the Check-list and Census Catalogue of British and Irish bryophytes updated 2008 (by M.O. Hill, T.H. Blackstock, D.G. Long and G.P. Rothero) is recommended since many counties in Ireland have few, if any, records and so there is a good chance of finding a new county record – they will be added to the forthcoming Atlas of Bryophytes (2013). Equipped with all or some of the above identifying bryophytes is an enjoyable and rewarding task. Even before a species can be identified it can often be admired for its beautiful translucence, its delicate leaf patterns or its subtle hues and colours. Even a basic knowledge of these small plants can greatly enhance a day in the Irish countryside.

A key and a hand lens is all you need to get started with bryophytes.

News from the Centre

Invasive species workshop in Birr in July (Lynda Weekes)

Identifying and Recording Ireland's Biodiversity 2011

This summer the National Biodiversity Data Centre held an exciting programme of workshops along with our partners (Galway Mayo Institute of Technology, Killarney National Park, Teagasc, the Irish Peatland Conservation Council and Mayo County Council). There were 13 workshops in total, including introductions to identifying ants, crabs and crablike animals, bryophytes and lichens, caddisfly larva, invasive species, stoneflies, aquatic bugs, mammals, and sphagnum mosses. They were extremely successful workshops, generating genuine interest and knowledge in Ireland's biodiversity. Thank you to the leaders and participants for stimulating, enjoyable days!

Spot the Alien!

Invasive species are one of the world's greatest threats to biodiversity. The National Biodiversity Data Centre set up the 'Spot the Alien' project to increase awareness of invasive species and to encourage reporting of them with initial focus on three species; the New Zealand flatworm, the harlequin ladybird and the red lily beetle. If you see any of these please let us know at invasives.biodiversityireland.ie.

Red Lily Beetle (Shutterstock.com)

Other news from the National Invasive Species Database include a sighting of a muntjac deer in county Cork on 11 August. This is the first verified record for the south of the country. If muntjac deer establish in Ireland they could have a negative impact on our wildlife and also have socio-economic impacts.

Irish Butterfly Monitoring Scheme

The butterfly monitoring scheme is going from strength to strength. There are now over 150 volunteers counting butterflies each week during the summer months across the country. Eleven field meetings were organised this summer in Clonakilty, Cork, Ballyvaughan, Donegal, Portrane, Cape Clear, Glendalough, Horse and Jockey, Garryland, Glengarriff and Curracloe. These were an opportunity to see new species and meet other volunteers. Everybody had great fun – but the highlight had to be the butterfly limericks in the Burren – which made us laugh until we cried!

Irish Butterfly Monitoring Scheme Wexford field meeting in August

Another venture this year was our Facebook page. This has proved very popular and useful for exchanging ideas and photographs. We would like to sincerely thank our volunteers for their huge enthusiasm and dedication.

We want your records!

Have you seen a rabbit, fox, or seal recently? The Data Centre, working with NPWS and NIEA, has recently launched an Atlas of Mammals in Ireland website. The aim is to map the distribution of all mammals found on the island of Ireland and its territorial waters up to 2015. For the first time ever, Irish Whale and Dolphin Group, Bat Conservation Ireland, Irish Wildlife Trust, Biology.ie and some of Ireland's leading mammal scientists have come together to document the distribution of all 64 species of Irish mammals. Please send any mammal sightings to mammals.biodiversityireland.ie.

1.9 million records and still expanding...

The National Biodiversity Database now contains over 1.9 million records of over 11,000 species. We plan to have over 2 million records by the end of 2011. Databases recently uploaded to the mapping system include:

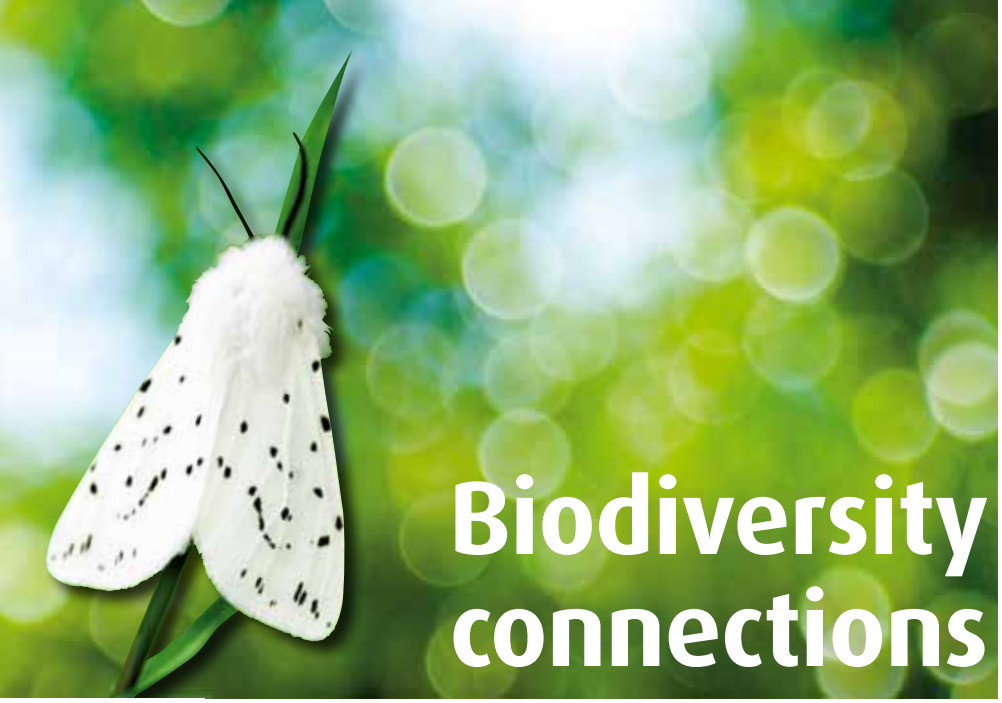
ESAS bird sightings from 1980 to 2003	264,441 records of 108 species
The Flora of County Clare:	29,117 records of 1049 species
Inland Fisheries Ireland data on freshwater fish in Irish lakes	6,035 records of 27 species
EPA River Biologists data	29,291 records of 95 species

Biodiversity Interns

The Data Centre was delighted to host two internships this summer and one work experience placement. Gerry Cullen from the Tipperary Institute worked on a project with Naturally Waterford developing biodiversity walks within county Waterford, Stephen Ryan worked on marine datasets within the Centre and uploading them to the mapping system, while Andrew Power worked on a website for threatened species and habitats.

We would like to thank them for their valuable contribution to the work of the Data Centre.

From left – Gerry Cullen, Stephen Ryan and Andrew Power who all worked at the Data Centre this summer.



Biodiversity connections

Current All Ireland Red Lists

- Ireland Red List No. 6 – Damselflies and Dragonflies (Odonata)
- Ireland Red List No. 5 – Amphibians, Reptiles and Freshwater Fish
- Ireland Red List No. 4 – Butterflies
- Ireland Red List No. 3 – Terrestrial Mammals
- Ireland Red List No. 2 – Non-marine Molluscs
- Ireland Red List No. 1 – Water beetles
- The Regional Red List of Irish Bees

Some current Irish recording projects

• **Atlas of Mammals of Ireland**	mammals.biodiversityireland.ie
• **National Invasive Species Database**	invasivespecies.biodiversityireland.ie
• **Irish Butterfly Monitoring Scheme**	butterflies.biodiversityireland.ie
• **Irish Pollinator Initiative**	pollinators.biodiversityireland.ie
• **Ecojel**	www.jellyfish.ie
• **Seasearch Ireland**	seasearchireland@gmail.com
• **Purse Search Ireland**	www.marinedimensions.ie
• **Irish Basking Shark Project**	www.baskingshark.ie
• **ISCOPE (Irish Whale & Dolphin Group)**	www.iwdg.ie
• **Orchid Ireland**	www.habitas.org.uk/orchidireland
• **Bird Atlas 2007-2011**	www.birdwatchireland.ie
• **Batlas 2010**	www.batconservationireland.org
• **Butterfly Ireland**	www.butterflyireland.com
• **Moths Ireland**	www.mothsireland.com
• **Lichen Ireland**	www.habitas.org.uk/lichenireland
• **Dragonfly Ireland**	www.habitas.org.uk/dragonflyireland

Upcoming national events

2-3 November	**Rebuilding Biodiversity** IEEM annual conference, Liverpool
5 November	**An introduction to common lichens** National Botanic Gardens
10 November	**Agri-Environment Conference** Athlone
30 November	**Lecture on Ireland's Lilliputian Flora** National Botanic Gardens
2 March	**Freshwater Biologists' Meeting** Trinity College Dublin
7-9 March	**Environ 2010 Colloquium** University College Dublin

The National Biodiversity Data Centre is an initiative of the Heritage Council and is operated under a service level agreement by Compass Informatics. The Centre is funded by the Department of Arts, Heritage and the Gaeltacht.

NATIONAL BIODIVERSITY DATA CENTRE
Documenting Ireland's Wildlife

compass informatics

An Chomhairle Oidhreachta
The Heritage Council

An Roinn Ealaíon, Oidhreachta agus Gaeltachta
Department of Arts, Heritage and the Gaeltacht