

Biodiversity

I R E L A N D

Bulletin of the National Biodiversity Data Centre
Issue 1 – Spring 2008

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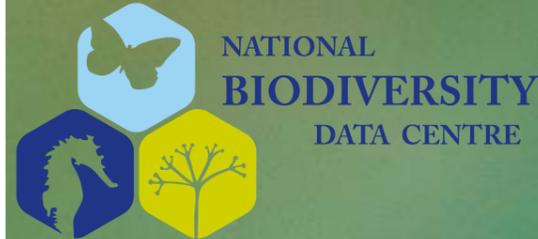
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Editorial

Welcome to Biodiversity Ireland – the Bulletin of the National Biodiversity Data Centre. This is a new biannual publication that will provide a forum for highlighting key developments in the recording of Ireland's biological diversity. We hope that you find the bulletin fills a niche in the provision of biodiversity information. The format for the bulletin will evolve with future issues, but to ensure that the publication fills the needs of the readers we would like to hear your views on the scope and content of this first issue.

This publication coincides with the end of the first year of operation of the Centre, a year of steady progress towards providing a national framework for all aspects of biodiversity data management. So what have we been up to in the last year?

The **National Vegetation Database** was established to hold all available vegetation data and to enable a National Vegetation Classification to be undertaken in the future. Invasive species are a very significant issue in Ireland, and potentially, can have serious economic impacts. The establishment of the **Invasive Species Database** is an important first step in the production of an early warning system for invasive species. Initially the database and mapping system will display all known records of the top 24 alien plants in Ireland. This is in partnership with EnviroCentre, Quercus, the National Botanic Gardens, the Central Fisheries Board and other data holders.

The **Water Beetles of Ireland Initiative** is a national database showing the distribution of 238 species recorded in Ireland and the pilot **Butterfly Monitoring Programme** will be continued for the summer of 2008. Both these initiatives will provide valuable data that could be used to assess habitat quality and to track environmental change.

Work is well underway on a number of national databases involving the digitisation of paper records, including **micro- and macro-moths, non-marine molluscs, and freshwater fish of Irish lakes** (in partnership with the Central Fisheries Board). An additional issue is where a taxonomic group is well documented, but where the digital data is stored in disparate databases. This is the case for cetaceans and the Data Centre is involved in the integration of various datasets into one **Joint Irish Cetacean Database**.

Not all of the focus is at the national level; the Centre is working in partnership with Paul Green, the Co. Waterford Recorder for the Botanical Society of the British Isles, to create a **Web Flora of Co. Waterford**. This will demonstrate the value of undertaking systematic survey work at the local level and should make a significant contribution to plant conservation at the county level. On the Information Technology side, a database and mapping system is being developed that will allow web access to records held at the Centre. This system will be up and running by the summer. It's an exciting development that has taken hard work, commitment and vision and will be a big step for Irish biodiversity.

Eugenie Regan
Editor

A letter from Minister John Gormley T.D.

In 2001, at the EU summit of Heads of State and Government, the European Union set a target to halt the loss of biodiversity by 2010. As a party to the Convention on Biological Diversity, Ireland had already committed to working towards the conservation and sustainable use of biodiversity but it is clear that the EU target presents us with a greater challenge and one that requires a robust and concerted response. The National Biodiversity Plan, published in 2002, sets out a wide programme of work across a range of sectors aimed at protecting and enhancing Ireland's biodiversity. The Plan includes a commitment to develop a biological records centre, so the opening of the Biodiversity Data Centre is an important and welcome development.

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My Department is currently coordinating the development of a second National Biodiversity Plan that will cover the period 2008-2012. The implementation of the Plan will be the responsibility of a wide range of Government Departments and Agencies. As well as traditional nature conservation measures, the Plan must contain an ambitious programme of work in important economic sectors such as agriculture, marine and forestry. In order to inform the right policy decisions, it is critical that we have strong and reliable biodiversity data available to us. The Biodiversity Centre fills a gap that had existed in our biodiversity infrastructure until now. The Centre will play an important role in providing reliable data as we develop new policies as well as monitoring our progress in implementing those policies.

One of the key challenges facing the Centre is to develop biological baselines to allow us to more effectively monitor any changes in our biodiversity. In particular, we will need to closely monitor the impacts of climate change on our natural environment. As well as the impacts on our natural flora and fauna, climate change could lead to other challenges, such as the establishment of new invasive species, and this will need to be closely monitored.

The Programme for Government includes a clear commitment to develop the National Biodiversity Centre as a central database to record the richness of Ireland's flora and fauna and to serve as a centre for research excellence. My Department is fully committed to work with the Centre to meet these aims. The Centre will be a valuable resource, not only for my Department but also for the wider ecological community, the academic sector and the NGOs. I should also note the important international role of the Centre. Ireland has recently signed up to the Global Biodiversity Information Facility (GBIF), which collates and disseminates biodiversity data from around the globe. It is important that Ireland plays its part in contributing to this important initiative and the Centre will be responsible for managing Ireland's interface with the GBIF.

Finally, I would like to congratulate the Board and Director of the National Biodiversity Centre for their hard work in getting the centre operational. The Centre has made significant progress in its first year and will have an important role in supporting the delivery of the 2nd National Biodiversity Plan.

John Gormley T.D.
Minister for the Environment, Heritage and Local Government

The Biodiversity Data Centre at WIT's Carriganore Campus, Waterford.

A new component of Ireland's biodiversity infrastructure

Liam Lysaght

Ireland, along with its EU partners, has agreed a target to halt biodiversity loss by 2010. If the loss of biodiversity is to be halted, the first stage is to identify what we have, where it occurs and how its status is changing over time. This is a substantial challenge.

The Convention on Biological Diversity, agreed at the Earth Summit at Rio de Janeiro in 1992, and ratified by Ireland in 1996, made a paradigm shift. It has resulted in new structures being established within government departments and local authorities.

One of these new structures is the National Biodiversity Data Centre, established in January 2007 as a centre of research excellence on Ireland's flora and fauna. The responsibility of the Data Centre is to mainstream the use of biological data, provide a national strategic focus for data collection and to ensure that comprehensive and reliable data are available to inform public policy and for use by researchers and conservationists.

Ireland is fortunate that already a significant amount of data exists on biological diversity. This is thanks to the years spent by many naturalists, often in a voluntary or unpaid capacity, documenting the status and distribution of organisms in Ireland and its offshore waters. One of the first tasks facing the Centre is to bring those data together in a common system and display them in association with other data sets, both biological and environmental, thereby bringing added value to those data. This can only be achieved with the active participation and support of the biological recording community, and will only happen if the Centre can provide a service that is of benefit to the data providers.

The service that the Centre is currently developing will allow data to be mapped and displayed on a state-of-the-art web-based mapping system. This system is built around a basic principle, namely; that the system must make biological data available for use by third parties to further conservation objectives without detracting from the ownership rights and identity of data providers.

The development of this system is technically very complex but we are very fortunate to have the support of the National Biodiversity

Network in the UK and the Natural History Museum in London. The Centre has also acquired licences for the use of OSi maps and aerial photography so the resources devoted to the development of the system are quite significant. Having this facility for individuals and organisation to display data should be a real incentive for data providers to contribute data to the system.

Once the framework for the national biological data management system is put in place, one of the real challenges facing the Centre is to establish the process which transforms data into knowledge, to inform public policy and ultimately result in conservation action. In most instances the process will be to promote survey work to fill in some of the information gaps that exist in datasets, and then review the data systemically to determine objectively the status of species, and identify conservation priorities. The outcome of this process should be an objective, and realistic, setting of actions for conservation, making it easier to set targets and assess progress towards meeting those targets. This is of particular relevance to the current target to halt biodiversity loss by 2010; without having such a process in place, it will be difficult to report on what extent Ireland has been successful in meeting this target.

With the establishment of the National Biodiversity Data Centre, it is hoped that this will not be the case in future.

With an eye to the future there are still two components of what could be called the 'biodiversity infrastructure' that require further development. These are a programme of systematic surveys of the biological resources of the country and a suite of scientifically structured baselines against which future changes to Ireland's biodiversity can be tracked.

In this regard, the two national initiatives that would be of inordinate value to the conservation of Ireland's biodiversity are a National Habitat Survey and a Countryside Survey. A National Habitat Survey would produce a comprehensive database presented as a GIS mapping layer of the extent and distribution of habitats in Ireland. This would be an invaluable tool to prioritise conservation efforts at the national, regional and local level and would enable habitat information to feed in at the strategic planning stage of public bodies, in particular of local authorities in the production of Co. Development Plans.

The establishment of a Countryside Survey would provide a statistically structured sample of the national vegetation and habitat resources of the country as a baseline against which future changes can be tracked. Once undertaken, repeat surveys on a periodic basis, of say every 5 or 10 years, would produce detailed quantitative data on what changes are occurring in the countryside. This kind of statistically based information on what is happening at the national scale would be invaluable information to inform all aspects of public policy dealing with conservation, land use and planning.

The National Biodiversity Data Centre is still very much in its establishment phase and is still laying the foundation for the work that it will do over the next 10 years or so. The projects the Centre is currently involved in are a combination of strategically important initiatives to be built on over the coming years, and demonstration projects of the approach the Centre will adopt in delivery of its work programme. With these tentative first steps we hope the Centre can build a real momentum towards mainstreaming the use of biological data and assisting in the conservation of Ireland's biological diversity.

The new Irish Water Beetle

Garth Foster

Back in May the Data Centre's training course was oversubscribed. I had suggested to Eoin O'Callaghan, by way of a substitute, that he could visit me when working in Kerry the following week. He duly turned up at Ballyheigue on 14th May, but he hadn't reckoned on my never reading text messages on my mobile, let alone switching the thing on - so he had to stay there all day until I returned from a day's collecting.

That evening, going through the beetles he'd brought along, there was an *Ochthebius* even small by the standards of *Ochthebius*. I thought it must be *O. nanus* Stephens, rather an embarrassing find because I had accidentally introduced it to the Irish list, a record corrected by Nelson & Foster (2005). I am going to be deliberately vague now, not only to squeeze out some more excitement, but also because (a) we are not absolutely certain what it is we have and (b) we should avoid prejudicing a formal publication by Eoin. Essentially, when I dissected a male, it was obviously not *nanus*, and it took Manfred Jäch, the world expert on Hydraenidae at Vienna Museum, to suggest what it really might be.

As such our species X is the first Irish water beetle not to be known from Britain and, what is more, it could be another glaciation survivor. It doesn't turn white in the winter like hares and stoats, two species recently claimed to be glacial refugia survivors. But it certainly likes white habitats, being found at depth on marl in lakes in the Burren, rather like another glacial relict, the water flea, *Eurycercus glacialis*.

On the way back to Larne on 19 May I detoured to where it had been found and failed to find it, because I was searching in the fen surrounding the lough, still under the impression that it might be *nanus*. However four of us, Eoin, David Bilton, Julian Reynolds and me, descended on the site on 29 July. It took just over three hours to find one specimen, in deep water. Armed with the likelihood that this was the deep water species X, another three hours yielded ten more specimens, just enough to achieve the original purpose of supplying Manfred with more material, and Madrid Museum with material in absolute alcohol for DNA analysis - Eoin's sample had been preserved in formalin, which unfortunately denatures DNA.

Another day-and-a-half's working seven sites produced no more until we came to two marl lakes on the limestone pavement below Mullaghmore. There the beetle was common in deep water, one of the sites having been surveyed for water beetles several times in the past - but always, of course, sticking to the shallows that are preferred by most beetles. But that is where this cliffhanger begins.....



Mullaghmore in the Burren where the new species has been found (Andrew Byrne)

The National Biodiversity Data Centre is working with Prof. Garth Foster on the Water Beetles of Ireland Initiative funded by the National Parks and Wildlife Service. The ultimate aim of the Initiative is to produce an on-line Atlas of native Irish water beetle species. This Atlas will, hopefully, be used to inform future policy and conservation priorities. To date, the Initiative has had a successful water beetle workshop and created new interest in water beetle recording in Ireland. This summer will be the final field season before the production of the final Atlas. So, if you have an interest and know of some interesting habitats in your area - jump in! New recorders are always welcome.

Mapping the World's biodiversity

Paul Flemons, Australian Museum



Biodiversity underpins all that we take for granted. All aspects of our lives can be attributed to and are dependent upon biodiversity.

In this context the current global biodiversity crisis has serious implications for our future well being and survival. Even with the importance of biodiversity being widely accepted, there are still many competing demands on land and resources upon which both human consumption and biodiversity depend. Biodiversity conservation planning provides one means by which we can take steps, using scientific principles, to achieve a sustainable balance between the needs of human populations and the conservation of biodiversity.

Until recently, the data that underpin biodiversity conservation planning were all but inaccessible to anyone outside of the custodial institutions or the government agencies responsible for conservation planning.

In 2001, this began to change for the better when the Global Biodiversity Information Facility (GBIF) was initiated. In April 2004 GBIF established a prototype data portal that enabled institutions around the world to be able to share their data. Since then many more institutions have joined the GBIF network and so at 17th January 2008 there were some 214 institutions sharing 141,139,985 records.

The basis upon which this data sharing has been possible, apart from the hardware and software infrastructure established by GBIF, is the development of data sharing standards and protocols by the Taxonomic Databases

Working Group (TDWG) now known as Bio-diversity Informatics Standards (BIS). The standards developed by BIS have been instrumental in a broad range of data sharing initiatives across the globe. Two of the most significant standards for data sharing developed by TDWG to date are:

Database schemas for sharing biodiversity data (Darwin Core (<http://www.tdwg.org/activities/darwincore/>) and ABCD (<http://www.tdwg.org/activities/abcd/>) and protocols for data exchange DIGIR (Digital Generic Information Retrieval) (<http://digir.sourceforge.net/>), BioCase (<http://www.biocase.org/index.shtml>), and TAPIR (TDWG Access Protocol for Information Retrieval) (<http://www.tdwg.org/activities/tapir/>).



A schema in its simplest form is simply a set of database fields, a definition of what each field is and should contain, and how the fields relate to each other. A protocol, in the context of the BIS data exchange standards is a set of rules and methods by which one computer can communicate with another computer to exchange data. The introduction of a standard schema and protocol for data sharing has meant that data custodians are able to:

- Maintain their internal database structure to best meet their own internal collection management and data management needs.
- Share their data with the world in a format that will enable it to be combined with any other data that conforms to the standard.
- contribute to the worlds biodiversity conservation efforts through being a biodiversity data provider.

Another huge advantage of the use of standards for data sharing or provision is that a data custodian can expose (to the internet) one instance (ie copy) of its data that can then be used by any number of data portals, each of which may have a different need, use or emphasis in accessing that data. A case in point is the Australian Museum which shares its data with the world (see Figure 1) through a TAPIR (TDWG Access Protocol for Information Retrieval) provider, with a whole range of different data portals providing access to that data for their different purposes. See <http://www.youtube.com/watch?v=x9404is3RJ8> to get a better understanding of TAPIR.

As a result the one dataset can be used in many different ways by different communities, without requiring any more effort for the data custodian than that which is required for serving the data to one community.

An example of one such portal is BioMaps (www.biomaps.net.au) which has been developed by the Australian Museum (in partnership with Rio Tinto). BioMaps was originally developed in 2006/07 and accesses museum biodiversity data from around the world that was collected in Australia, with records from many international Museums such as the Paris and Bishop Natural History Museums as well as Australian museums. BioMaps not only provides access to distributed biodiversity data for Australia but also provides tools for modelling biodiversity distribution.

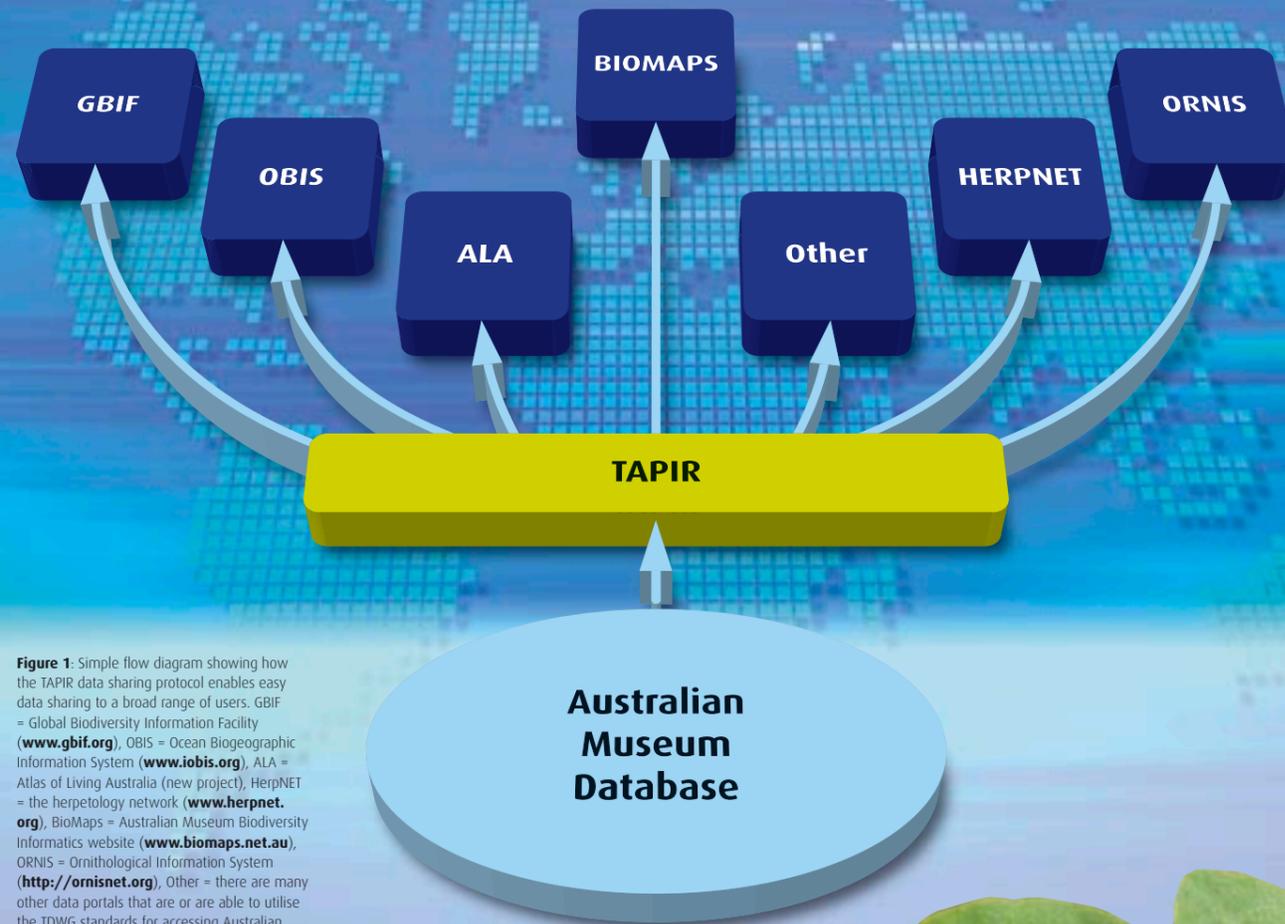


Figure 1: Simple flow diagram showing how the TAPIR data sharing protocol enables easy data sharing to a broad range of users. GBIF = Global Biodiversity Information Facility (www.gbif.org), OBIS = Ocean Biogeographic Information System (www.iobis.org), ALA = Atlas of Living Australia (new project), HerpNet = the herpetology network (www.herpnet.org), BioMaps = Australian Museum Biodiversity Informatics website (www.biomaps.net.au), ORNIS = Ornithological Information System (<http://ornisnet.org>), Other = there are many other data portals that are or are able to utilise the TDWG standards for accessing Australian Museum data.

Ireland has recently joined GBIF with the National Biodiversity Data Centre being the Irish node. The two main aims of GBIF are to freely deliver primary data about biodiversity to everyone in the global community using digital technologies and to ensure that the primary data are being collected and stored in such a way that they will remain accessible to future generations. See www.gbif.org for further information.

The usefulness of portals such as BioMaps is in reality less to do with the skills of the programmers that develop the site and more to do with the amount of data that custodial institutions make available to the internet for these portals to access. As good as BioMaps might be at enabling users to search for, map and model biodiversity data, it is the amount and quality of the data that is really the factor that makes such sites useful.

Many of these applications are well beyond what most would generally consider as applications for biodiversity data.

This serves as a lesson that we cannot suppose that we know and understand all the potential users of our data, and the benefits they might bring to society. It also serves to strengthen the case for all institutions that collect biodiversity data, to make that data available to the broader community through internet based publicly accessible data portals.

In a report written for GBIF in 2005 Arthur Chapman documented a myriad of ways in which basic species information was being used around the world. These included a broad range of applications including:

- Scientific applications such as taxonomy, ecology, genetics
- Land management applications for conservation, agriculture, forestry, fisheries and mining
- Health and public safety
- Forensics and bioprospecting
- Education and ecotourism
- Art and history
- Society and politics
- Recreational activities
- Human infrastructure planning

Paul Flemons, Collection Informatics Manager at the Australian Museum, has won the prestigious Ebbe Nielsen Prize for 2007 awarded by the Global Biodiversity Information Facility (GBIF). This prize is awarded to a promising researcher who is combining biosystematics and biological diversity informatics research that supports the objectives of GBIF in an exciting and novel way. It is, essentially, biodiversity informatics' equivalent to a Nobel Prize. Paul's work includes BioMaps (www.biomaps.net.au), Faunanet (www.faanet.gov.au), and GBIFMAPA (<http://gbifmapa.austmus.gov.au>).



Insect eggs on the underside of leaf (Liam Lysaght)

How a TAPIR is helping to save the world's biodiversity! (Sarah Cooper)

Biodiversity tales



Vascular plants

Early Sand Grass

(*Mibora minima* (L.) Desv.)
The front cover of the 2006 issue (No. 16) of *Irish Botanical News*, shows an illustration of early sand grass. Inside is an account by T. O'Mahony of finding this addition to the Irish flora in May 2005. Probably a previously overlooked native, early sand grass is a small tufted grass of exposed sandy coastal habitats. It is considered native to these habitats in Spain, Portugal and several other western European countries. In Great Britain it is considered native in its western coastal sites, and it is a widespread native of sand dune and sea cliff sites in Guernsey and Jersey. The site of the discovery in west Cork (vc H3) is Cannawee Dunes, Barley Cove, where early sand grass was apparently restricted to a tiny area of stabilised sand and a nearby cliff top. However, O'Mahony recently reports on extending the known area and population substantially (*Irish Botanical News*, no. 17, 2007).

Recurved Sandwort

(*Minuartia recurva* (All.) Schinz & Thell)
One of the most interesting botanical discoveries of recent years is of a population of recurved sandwort by Paul Green in the Comeragh Mountains in Co. Waterford (vc H6). Initially misidentified when found in 2001, the story of the find and correct identification is recounted with photographs in *BSBI News* (No.104, January 2007).

Recurved sandwort was previously only known in Ireland and the British Isles from two adjacent sites in the Caha Mountains. The Comeragh site is 160 km to the east. It was first seen by Miss V. Gordon during a BSBI field meeting on 21st July 1964. John J. Moore made a detailed survey later that year, as reported in *The Irish Naturalists' Journal* (Vol. 15). The nearest European site is in North Portugal. John J. Moore refers to lack of evidence of glacial activity immediately around the Caha plants, and speculates that it survived the most recent glaciation *in situ*.

In his 1982 Boyle Medal discourse, 'The Flora of Ireland in its European Context', D. A. Webb considers the origins of 15 species found in Ireland and not in Gt. Britain, including recurved sandwort, which he regards as alone (among the 15) meriting the term *alpine* without qualification, "for it extends through most of the major mountains of Central and Southern Europe." D. A. Webb's conclusion is that in the case of most of these species, including recurved sandwort, survival from a wider pre-glacial distribution is the "least unlikely" explanation for their current status. Further comparative work on the Caha and Comeragh sites, might add further weight to Webb's conclusion, and shed more light on the origins of at least one of the native Irish species not found elsewhere in these islands. **Gerry Sharkey**



Marine invertebrates

Twenty-nine new sponge species have been discovered on Rathlin Island, Northern Ireland by researchers from the Ulster Museum. Rathlin is something of a sponge hotspot, being exposed to strong tides that funnel through the North Channel. This research showed it to be one of the best areas in Europe for sponge biodiversity: 136 species of sponge were found in total. Sponges were collected by scuba diving; this enabled the scientists to sample a habitat that had previously been little studied (bedrock 30-50m) and may have contributed to the number of new species found.

A number of interesting records were made during a diving survey of the Northern Ireland coast; these included a live fan mussel *Atrina fragilis*, found near to Rathlin Island. The fan mussel is one of the largest European molluscs, reaching up to 48cm in length. It buries in soft sediment with only the top part of the shell valves visible at the surface. It is vulnerable to damage by fishing gear such as dredges and many populations have been destroyed. Very few living populations are known: the last live individual was recorded from Northern Ireland in 1971, and the only other UK An



An example of some of the marine invertebrates found on our coast (Ulster Museum).

populations are near Plymouth. In the Republic of Ireland the only recent records of live individuals are from Galway Bay (1962, 1970) and Valentia (1975).

Claire Goodwin, Ulster Museum.



Butterflies

Following an exceptional year in 2006, many species emerged unusually early in 2007 but a wet mid-summer resulted in a considerable diminution in butterfly activity during this part of the season.

A substantial number of painted ladies were seen in Donegal in early June but the resultant Irish generation from these migrants was relatively sparse.

During a mild winter red admirals were observed in all stages of development – adult, egg, larva and pupa - on Howth Head, Dublin, thus providing the first conclusive evidence of their ability to successfully overwinter in Ireland. In the Raven Nature Reserve, Wexford, clouded yellows were seen in both early and late season and commas were noted several

The red admiral has been found to be able to successfully overwinter in Ireland (Liam O'Saigh)

times. In conjunction with sightings in previous seasons, this suggests that perhaps these two species have the capacity to take up permanent residence in the south-east. Also in Wexford, the skippers first discovered in 2006 were found in considerable numbers at a number of sites. Closer scrutiny confirmed that they were in fact Essex skippers rather than the anticipated small skippers which occur closer on our neighbouring island.

In Donegal, systematic searching has yielded additional sites, and five new EU Habitats species the the larger sites the species appears to have hang-in on margins in – in the absence of



A new Irish insect – the carpenter bee

This bee was unknown in Ireland until July 2007 when two staff members of the Butler Community Centre in St. John's Park, Co. Waterford, Michael Simpson and Thomas McGrath, trapped "a big bluebottle". This was shown to the writer who determined the species and its Irish status as 'new to Ireland'. The bee, *Xylocopa violacea* (a female), was sent to the National Museum of Ireland, Natural History via Colm Ronayne who confirmed the species and status. This is now a voucher specimen in the Museum. It is most unlikely that the only carpenter bee that arrived in Ireland was the one to be caught. It is far more likely that there are others about. So, keep an eye out for large, all black bumblebees with purplish wings.

Michael O'Meara



Terrestrial invertebrates

The inaugural year of the Data Centre saw a number of important new developments and publications on Irish invertebrates.

An Invasive Species Ireland website went live during the year following several years of north-south discussions involving EHS and NPWS and a team of experts.

This promises to be an interesting forum for reporting and discussing non-native (alien) plants and animals, including invertebrates, which may pose threats to native industry and wildlife. The site is still in development but there is already one invertebrate pest covered – the New Zealand flatworm *Arthurdendyus triangulatus*.

omnivorous sheep. Elsewhere in Ireland, while more sites have been found, it appears that numbers may have declined slightly. But much remains to be discovered about the factors that determine fluctuations in its populations. Additional purple hairstreaks sites were found in the south-west, so this oak-canopy species should be looked for wherever oak is present. **David Nash**

The front page on the website is very professional in appearance and known invasive aliens are introduced by a rather slick cartoon (eventually this could become annoying) which leads to various categories of 'Most unwanted' animals and plants then selected through a series of click-bar choices. Many of the entries currently lack photographs and some of the categories are still vacant but the site is well designed, particularly with a view to grabbing the public's attention. This is important, as dealing effectively with potential new pests requires early warning and therefore some means of engaging as wide an audience as possible. There is a strong emphasis on 'getting involved' and a column called 'Alien Watch' with a report form for



The New Zealand flatworm – an invasive species in Ireland threatening our native earthworm fauna (Roy Anderson)

potential new sightings, a form for joining the mailing list and contact details for queries. The site provides an interesting example of how to set up an eye-catching public interface.

Some invertebrates reported new to Ireland could fall within the 'invasive aliens' bracket, though by no means all. The majority are either species in obscure groups which have been overlooked until now or part of the natural fauna in Britain or western parts of Europe which have spread naturally into Ireland.

A few may be cosmopolitan but innocuous for other reasons. The real troublemakers are thankfully few in number and the new website will help to target them. The hairy fungus beetle *Mycetophagus multipunctatus* is an example of the more benign kind of natural 'invader'. The genus *Mycetophagus* has not previously been recorded in Ireland although seven species occur in Britain. Then a small colony of *M. multipunctatus* was discovered in a bracket fungus on dead standing willow at Rea's Wood National Nature Reserve near Antrim. Its occurrence, out of the blue, probably reflects recent establishment by natural means. Such events are becoming more frequent with the advent of global warming. Other finds, such as the small weevil *Trachyphloeus aristatus* in Phoenix Park by Stephen McCormack, are more difficult to classify. But, since this insect is small and relatively obscure, it is likely to have been overlooked until now. How small animals move from location to location is a fascinating subject in itself and no more so than when trying to prevent harmful pests from entering the country. The rise and rise of the harlequin ladybird in Britain provides a case in point. In November a customer at Tesco's, Lisburn was alarmed to find a 'creepy-crawly' among their freshly purchased Cambridgeshire celery hearts. This was reported to a Department of Agriculture inspector and became the first authenticated record in Ireland of the harlequin ladybird (the actual specimen is figured below). Unfortunately this is very unlikely to be the last we hear of the harlequin and it seems only a matter of time before this damaging insect becomes established in our countryside. In most parts of the world to which it has been introduced as a control agent for greenfly, it has decimated native ladybird species by feeding on their larvae when greenfly are scarce.

Some introductions do not immediately establish in the wild but remain in sheltered, disturbed places close to man. The clerid beetle *Korynetes caeruleus* (figured) may well be an example - several were captured in an antique shop in Belfast in 2006 (Nash & Anderson 2007).



Keep a close look out for this aggressive invasive beetle, the Harlequin ladybird (Roy Anderson)

This species feeds on wood worm *Anobium punctatum* so its appearance in such a strange place is not entirely unexpected. It bears a striking similarity to a common native beetle *Necrobia violacea*, which feeds on dry animal carcasses and is sometimes called the bone beetle. There is a small possibility that *Korynetes* is already established in Ireland but overlooked from confusion with *Necrobia*. Martin Cawley added a fifth site to the known localities for the spectacularly coloured ground beetle *Lebia crux-minor* during the year. A single specimen was taken in moss at Doonweelin Lake, Co. Sligo. This insect is said to parasitise an uncommon leaf beetle, *Galeruca tanaceti*, associated with limestone pasture and wetland margins, and in consequence is even more infrequently encountered. Very little is known of its habits in Ireland.

Studies of native Diptera continued to progress during the year. Tom Gittings reported the capture of the soldier fly *Odontomyia angulata* at Lough Skeardeen in the Burren. This insect is both new to Ireland and endangered in Britain. It is apparently associated with spring-fed lake systems subject to seasonal fluctuations such as occur in karstic regions like the Burren. Speight & O'Connor (2007) reported three species of sawfly new to Ireland and O'Connor et al. (2007) reviewed the state of knowledge of Irish lesser fruit flies (Drosophilidae). A new water bug *Micronecta griseola* was added to the Irish List by Cuppen & Nelson (2007) from Lough Graney, Co. Clare. The *Micronecta* of the Britain and Ireland are not easy to separate and Ireland has only two of the four British species so more may be detected in time.

O'Connor & Ronayne (2007) added a fourth stylopoid species to the Irish list, *Stylops melittae*, extracted from specimens of three species of stylopid Andrena (Hymenoptera) in the National Museum Collection. *Stylops* parasitises wild bees and was formerly regarded as an aberrant beetle (Coleoptera) but the group to which it belongs is now given its own order, the Strepsiptera. These insects are allied not to the beetles but to two-winged flies (Diptera) and resemble flies but have no functional mouthparts and the antennae are complex, usually pectinate (branched). The eyes are also unique and said to be closer in structure to those of trilobites than to modern insects.

The hairy fungus beetle, *Mycetophagus multipunctatus* - a natural invader (Roy Anderson)



Irish Hymenoptera have been the subject of a number of publications in the last two years, particularly with regard to red listing and evaluation of threat status of the larger Hymenoptera (bees). As an addendum to publications on red listing in 2006, a paper appeared in 2007 in which conservation

priorities for Irish bees were highlighted and explored (Fitzpatrick et al. 2007). The paper made the point that it is one thing to publish a red list such as the Irish bee list (Fitzpatrick et al. 2006), quite another to evaluate threat status in a way that can be acted upon by the relevant authorities. From this and previous publications it is clear that the larger Hymenoptera are in a parlous state in Ireland (and Europe) with 30 Irish species red listed and 17 given conservation priority status.

Although not specifically stated in the above works, the ongoing eutrophication of the wider environment from intensive agriculture seems to be the main trigger for these declines. Key insect food plants, particularly clovers and other nitrogen-fixing leguminosae, are made less competitive by the overflow of nutrients across the landscape, in this case nitrogen. Nitrogen from intensive livestock units, unlike phosphorus, has the ability to travel long distances in rain and can affect remote habitats. It is no accident that many threatened bees have retreated to the west coast where prevailing winds are relatively free from the contagion of agricultural nitrogen.

The clerid beetle, *Korynetes caeruleus*, found in an antique shop in Belfast (Roy Anderson)



The decline of nitrogen-fixing plants in other parts has had serious knock-on effects on dependent fauna. Added to the continuing physical destruction of habitats, nitrogen eutrophication provides a grim outlook for many of our most characteristic and well-loved insects.

The Acari or mites are a very obscure but important group both for energy transformations and biodiversity in soils particularly in forested environments. They are little studied in Ireland. Arroyo & Bolger (2007) report a study of mite faunas in Sitka spruce stands and give three species new to Ireland. Compared to mites Irish spiders are well known. Oxborough (2007) gives additional records of some uncommon species in Ireland and adds the small ground spider *Meionota mollis* (Linyphiidae) to the Irish list.

Some excitement has been generated by the discovery of a colony of skipper butterfly at Fardystown, Co. Wexford. This was first advertised as the small skipper *Thymelicus sylvestris* (Wilson et al. 2007) but has now been amended to Essex skipper *Thymelicus lineola*. Not only is this a remarkable addition to the Irish skipper fauna which has heretofore had only one species, the dingy skipper, but it is counter-intuitive. Of the two skippers, the small would have been less unexpected since it occurs in western Britain while the Essex as its name suggests is largely confined to south-eastern England. Climate warming has brought similar dramatic changes to other insect groups in Britain and Ireland and it is to be expected that this will continue. Sadly, much useful information is probably being lost because of a lack of recorders on the ground in Ireland. It goes without saying that one of the primary aims of the Data Centre, in addition to collating and making available records, will be to encourage new recorders by focusing public attention on our native insects and invertebrates. Roy Anderson.



Nathusius' pipistrelle is the largest of our three resident pipistrelle species. It is a species widely distributed across Europe and considered to be a woodland bat, preferring lowland woods and parks. In the mid 80s it was considered to be a vagrant species in the UK with occasional records reported from the South and East coasts. But since then, a greater number of observations have been recorded from a greater geographical spread. All of this evidence suggested that this migratory species may be extending its range to more Western parts of Europe.

The first Nathusius' pipistrelle individual in Northern Ireland was identified in the hand on the 19th of September 1996 by members of the Northern Ireland Bat Group. This individual was recorded from Windsor Park in Belfast and was later confirmed by Tony Hutson of Bat Conservation Trust, UK.



Nathusius' pipistrelle *Pipistrellus nathusii*, a new bat species in the Republic of Ireland (Phil Richardson)

Detector records from Sligo were reported by a visiting Dutch bat worker in 1996 while Dr. Jon Russ recorded Nathusius' pipistrelles by detector from Moneymore, Co. Derry on the 26th August 1996. Maternity roosts of this species were then identified in an old stable block in Co. Antrim on 30th April 1997 by Dr. Russ and it is likely that similar summer roosts are also present in the Republic of Ireland.

As a result, bat workers in the Republic of Ireland are tuning their bat detectors to 39kHz and listening for the more slower and deeper pipistrelle echolocation. Nathusius' pipistrelle calls are lower in frequency than the typical echolocation calls of the common pipistrelle (42-48 kHz) and soprano pipistrelle (48-56 kHz). A feeding individual was noted by Brian Keeley in May 2003 in Ballinahinch, Co. Tipperary while singing males were recorded in Farnham Estate, Co. Cavan yearly from 2003. Since 2003, a number of records have been submitted to Bat Conservation Ireland including individuals recorded in 2004 at Lough Ramor, Co. Cavan, Castle Saunderson, Co. Cavan and Carrig Glas Demesne, Co. Longford. This species was recorded by visiting bat workers during the European Fieldcraft Workshop visit to Killarney National Park on the 18th, 19th and 20th August 2005. A singing male was also encountered in Cong Abbey, Co. Galway during the BC Ireland Bat Detector Training Course in May 2006 and a male roost was recorded

in a church in Belturbet, Co. Cavan in the same year. The All-Ireland Car-Based Bat Monitoring Scheme first recorded this species in 2005 from a location in Kilmainhamwood, Co. Meath. In 2006, during the same survey, a dramatic increase in the number of encounters was documented with records for the species in seven new locations. In 2007 this species was also picked up by three All-Ireland Daubenton's Bat Waterway Survey volunteers in Galway, Cavan and Dublin. Additional records were also recorded during bat detector surveys of Phoenix Park and Crossdoney, Co. Cavan in 2007. Although it is migratory in continental Europe, it is thought that the Nathusius' pipistrelle may be more sedentary in the UK and Ireland. However we cannot answer this vital question because there is still a great paucity of information on this species in Ireland. Bat workers; register your interest in receiving training to participate in the BATLAS 2007-2010 and help to increase our knowledge of this species distribution.

Acknowledgements

Records collated by Brian Keeley, Conor Kelleher, Tina Aughney, Jon Russ, Niamh Roche, Chris Peppiatt, Bee Kessopersadh and Scott Cawley Ltd. This article is a combined effort of BC Ireland committee members.



During 2007, 1,573 cetacean sightings of 15,263 individual animals were reported to the Irish Whale and Dolphin Group (IWDG). Thirteen species were recorded with harbour porpoise, common dolphin and minke whale the most abundant species, but also the rarely reported white-beaked dolphin and northern bottlenose whale. Most sightings of fin and humpback whales occurred in the autumn and winter.

Fin whales were seen regularly in west Cork throughout the autumn and in November they moved further west with frequent sightings of between 8-12 individuals between Cape Clear Island, the Fastnet Rock and towards Mizen Head. The IWDG have been carrying out photo-identification of these species since 2001 to record their inter-annual occurrence and site fidelity.

To date 41 individual fin whales and seven humpback whales have been identified in Irish waters. Without question the story of the year was the amazing saga of the travels of a juvenile humpback whale. It was first photographed in May in the Wadden Sea area of the Dutch North Sea and four months later was photographed off Toe Head in West Cork. Amazingly 50 days later it was recorded back off Ijmuiden, West of Amsterdam in the Netherlands!



Humpback Whale

This re-sighting was the first match of a humpback whale in European waters and the first match of an Irish humpback in any waters.

In addition, 144 strandings were reported to the IWDG, involving twelve species. This was the second highest annual total after 2006 with 147. As in most years, common dolphin and harbour porpoise were the most frequently stranded species but noteworthy was the high number of live strandings (28), up from 20 in 2006. At the end of December, two fin whales live stranded on the same day, one in Co. Kerry and one in Co. Galway was very unusual especially as both animals were below the length at weaning.

All cetacean records can be accessed and mapped on www.iwdg.ie.
Simon Berrow.

Biodiversity news

There is a lot going on in the world of biodiversity legislation and policy in Ireland at present. Throughout the country local Biodiversity Action Plans are being developed by 18 local authorities in conjunction with the Heritage Council. Full drafts have been produced and will be adopted by all local authorities by the end of 2008. Hopefully, these will highlight local areas of biodiversity interest that may be outside of current designated sites and can now be incorporated into any local authority plans.

Six National Parks and Wildlife Service (NPWS) wildlife manuals were published in 2007. They span diverse topics from Natterjack toad conservation status to lamprey populations in the Corrib and Suir catchments. These manuals can be downloaded from the NPWS website www.npws.ie. This website has been recently revamped and an interactive mapping tool added for searching NPWS species records. It's a great resource and well worth a look. In the meanwhile, on an international level NPWS have just fulfilled their Article 17 requirements under the Habitats Directive and reported on the conservation state of our protected habitats and species in Ireland. They used the green, amber, and red verdicts which can be interpreted as good, adequate, and bad, respectively. Not surprising, perhaps, with the Celtic Tiger is that most habitats are in a bad state. Let's hope that the next reporting in 6 years time will have a better story to tell.

The Forest Service is currently incorporating recommendations from the large-scale BIOFOREST project (see www.bioforest.ucc.ie) into their policy and guidelines to promote biodiversity in commercial forests. It is also involved in a European-wide research network, to explore how ecologically sensitive forest habitats can be developed for sustainable tourism and environmental awareness.

The National Biodiversity Plan gave a commitment to establish a Biodiversity Forum to provide a mechanism for stakeholder involvement in biodiversity policy and planning. The Biodiversity Forum, chaired by Dr. Peter Wyse Jackson, has been established under the auspices of Comhar-the Sustainable Development Council. The Biodiversity Forum is currently working on a biodiversity briefing paper as its submission on the preparation of the 2nd National Biodiversity Plan, due to be published later in 2008. Further details of the work of the Biodiversity Forum are available from Comhar <http://www.comharsdc.ie/>.

National Biodiversity Data Centre annual recorder's event 2007

Moths and Butterflies – tracking changes in the countryside in the 21st century.

We held our first recorder's event in August which was attended by over 80 people. The aim was to identify national priorities for survey work on butterflies and moths. Two speakers, Dr. Tom Brereton of Butterfly Conservation and Dr. Pete Carey from the Centre for Ecology and Hydrology, gave an international perspective on the importance of baseline monitoring programmes while David Nash, Angus Tyner, and Maurice Hughes gave an overview of what's happening in Ireland. Four workshops were held; spider, bumblebee, and butterfly and moth identification and a workshop on setting up butterfly transects. There was also a demonstration of moth trapping. The trap contained seven individuals of the barred hook-tip (*Drepana cultraria*) the next morning. We were delighted to discover that this is the first record for this species in the Republic. Carriganore is not just a pretty location for the Centre!

Following from recommendations made at the event, the Centre will continue to pilot a National Butterfly Monitoring Programme in 2008. We have created a National Microlepidoptera Database and are in the process of inputting historical data from various sources, including museum specimens. The creation of a national database is the first essential step towards assessing the conservation status of this group. The establishment of a network of Rothamsted traps was another recommendation from the recorders and the Centre are currently working towards setting these traps up in various locations around the country.

Thank you to everybody for their involvement and input on identifying priorities for Lepidoptera recording in Ireland.



Barred hook-tip (*Drepana cultraria*) recorded for the first time in the Republic at the National Biodiversity Data Centre's recorder's event in August (Elen O'Sullivan).

Thoughts from the editor - Why? Conservation, perhaps?

My two-year old is about to move into the age of 'why?' and I want to pre-empt her. Why do we record? Is it a stamp-collecting exercise? Or is it for some wider objective? For those of us who have biological records sitting in shoe boxes, computers, or even scribbled on some scrap of paper in the glove compartment of our car, why did we collect this data?

For me, it is the love of nature. Stopping to observe a dragonfly hovering over a pool. Dashing over boulders and through scrub to catch and record it. Falling over before getting there and landing face down in mud. However, in the choice of my career, my overall aim has been to make a difference. Maybe only a small difference, but something. Those records sitting on my computer are doing nothing. They are just sitting there. All that work. All those wet days. Getting extremely wet, then hungry, then tired, and then to see an otter swimming and playing only metres away, then very fulfilled and suddenly the tiredness disappears and the recording continues....

The National Biodiversity Data Centre is in its infancy. Our hope is that by bringing records together in one central database they will have added value. Perhaps our knowledge of the distribution of a species increases, we realise it is restricted to a particular habitat and we can focus research priorities. Perhaps our knowledge of an entire group is enhanced and we can produce an Atlas which would spark further interest in that group. Perhaps Red Lists are produced resulting in priority species being named and targeted for conservation. Perhaps legislation will be enforced due to this increase in our knowledge. Who knows? But I do know that those records hiding in closets are not adding any value. In Ireland, we know so little about our flora and fauna. So those closet databases are invaluable.

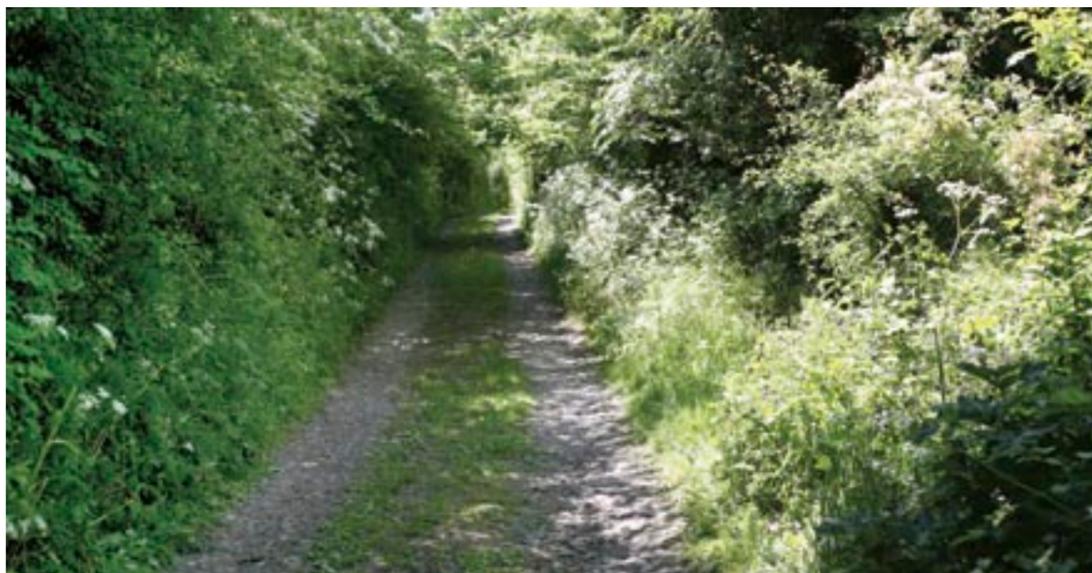
Road-side verges

Writing in 1989, Frederick Aalen said: *'In a country whose rural life and traditions have been so central to the search for national identity, it is remarkable that the rural landscape which enshrines so much of the island's history, seems to be so poorly understood, generally undervalued and persistently abused by private and public activities.'*

Having lived in Ireland for a few years, my impression is that after almost 20 years, Aalen's observation still applies. It is the way in which road-side verges are often treated which leads me to make this observation.

The network of roads, country lanes and boreens cover the length and breadth of Ireland, up hill and down dale, crossing all rock, glacial debris and soil types, some wet and shaded, others dry and exposed. Between them, they offer a niche for most wild plants and their associated invertebrates (insects, spiders, etc.).

Wild thyme *Thymus polytrichus* at a roadside (Liam Lysaght)



An Irish country lane (Liam Lysaght)

Road-side verges are the one habitat in which more of us have a stake in than any other, either as owners – actual or assumed or, more commonly as travellers, whether on foot to the local shops or on a tour bus negotiating country roads. Yet look at how they are commonly managed. Boreens orange with total-kill herbicides, immaculate new dwellings fronted by a dead zone of bare soil.

This summer, I have seen vervain *Verbena officinalis* and catmint *Calamintha ascendens*, both rare or under-recorded species in Clare, in verges

at risk from herbicide. Bumblebees were busying themselves feeding and effecting pollination at the same time. And yet we know bumblebees are in sharp decline. It is time to make the connection. Many of us are in a position to nurture the wild flowers in the road verges adjacent to our houses and the bonus is not just a rich flora, but insects such as bumblebees and ladybirds as well. All the management a road-side verge requires, in addition to trimming for safe vision, is to be cut once a year.

It is time to raise national awareness of the role which road verges play in supporting biodiversity and to value them accordingly.

Yours sincerely,

Stephen Ward,
14 Green Road, Ballyvaughan, Co. Clare

One of Europe's
common birds,
the great tit



Book review

PECBMS (2007). State of Europe's Common Birds, 2007. CSO/RSPB, Prague, Czech Republic, 2007.

Birds are one of the few groups of organisms for which there are reasonably good monitoring schemes in most European countries. Ornithological societies across Europe, including BirdWatch Ireland, have recognised the potential of these data to look at changes in bird populations on a pan-European scale, and have established a Pan-European Common Bird Monitoring Scheme (PECBMS). This scheme has developed a statistically based methodology to use monitoring data from 20 European countries, including Ireland, to produce a suite of European common bird trends and indices.

The third report, covering the period 1980 to 2005 was published recently, and is available at www.ebcc.info/pecbm/html.

The report produces indices and trends in population for 124 common bird species, which largely confirm what is already known about the status of bird species in Europe. The report shows that common farmland bird populations have declined by 44% across Europe from 1980 to 2005. Interestingly, the report shows that whilst a difference in farmland birds was apparent between 'old' EU and 'new' EU member states up until the mid-1990s, this difference is no longer apparent, with both sets of countries now showing a continuous decline. For common forest birds the picture is less bleak, as the average decline is 9%. Populations of common forest birds have remained largely stable in the west and east of Europe, but considerable declines are apparent in the Scandinavian and the Mediterranean countries.

The report presents quantitative data for the trends in all 124 species considered common in Europe. Many of the species included do not occur in Ireland, however, the six species that have shown the greatest declines in Europe during the period include grey partridge and northern lapwing, both species of serious conservation concern in Ireland. As against this, for species such as the yellowhammer, the decline in Ireland appears to be greater than for the European average. Therefore, having this European perspective is extremely useful to better understand the changes in Irish bird populations.

Of course, it is not all doom and gloom. The report shows that of the 124 species reviewed, the populations of 29 have increased significantly. Of the ten species that have increased most over the period 1980 to 2005, six occur commonly in Ireland. These are raven, chiffchaff, buzzard, blackcap, collared dove and woodpigeon.

Liam Lysaght

Biodiversity beginners

What is a biological record?

The first thing that came to my mind when asked to supply records to a Record's Centre was 'what do you want?' I had been working for some time on my Ph.D. and had lots of information associated with my beetle records. This article is a quick introduction for those of you asking the same question I did some years ago.



The key elements of a biological record are shown above. The minimal information needed are who, what, where, and when. Who collected the record? The full name of the person who recorded the animal or plant. Sometimes the determiner might be different from the collector (for example, you sent your tiny wasp to the Irish expert at the National Museum, Natural History for identification) and this is also important information. What was recorded? A common name is often not reliable, so the latin name, genus and species, is important. Where? A six-figure grid reference is perfect as well as locality name which may be the townland. When? Day, month and year.

Why and how are other important questions that can provide very useful information to somebody looking back over your record in years to come. Why was the observation made? As part of a recording scheme? How the observation was made could be critical. For example, were you standing on a boat or on dry land when you saw that fin whale? Did you catch that beetle with a net while it was flying through the air or in a pitfall trap?

The core database for the Centre will be in Recorder 6. This is a recording software package that is used by most organisations in the British Isles, including CEDaR in Northern Ireland. It is easy to use and accepts lots of additional information pertaining to your record. If you do not have Recorder 6, we will have an excel template on our website with which you can quickly format your records to be compatible with Recorder 6 and easy to upload to our system. We will also have a guidance note for data providers on our website.

All that's remaining is to get out there collecting!

Eugenie Regan



Biodiversity connections

Useful contacts – Naturalists’ field clubs

Belfast Naturalists’ Field Club
<http://www.habitas.org.uk/bnfc/>

Dublin Naturalists’ Field Club
<http://www.dnfc.net/>

Galway Naturalists’ Field Club
<http://homepage.eircom.net/~gnfc/>

Offaly Naturalists’ Field Club
Contact: Labhaoise McKenna,
email: lmckenna@offalycoco.ie

West Clare Wildlife Club
<http://www.wcwc.ie>

Wexford Naturalists’ Field Club
<http://www.wexfordnaturalist.com>



Some current Irish recording projects

- **Moths Ireland** – <http://www.mothsireland.com/index.htm>. An active recording scheme for moths co-ordinated on a volunteer basis by Angus Tyner. See the website for details.
- **Irish Water Beetles Initiative** – Please see previous article. While quite a specialised area, specimens would be welcome and assistance for identification is available to those interested. Please send any records to Garth at latissimus@btinternet.com. Unidentified specimens welcome but must be accompanied with grid reference.
- **Lichen Ireland** – If you would like to participate in this project please contact Damian McFerran at damian.mcferran@magni.org.uk or Howard Fox at howard.fox@opw.ie.
- **Invasive Species Ireland** – a joint venture between EHS and NPWS to implement the recommendations of the 2004 Invasive Species Ireland Report. www.invasivespeciesireland.com. To become involved in the Invasive Species in Ireland forum contact j.kelly@qub.ac.uk.
- **Biology.ie** have various recording schemes including the Feral Ferret Surve and Nature’s Calendar. This is a brilliant website where records can be easily submitted on-line.

There are on-going recording projects run by different groups, including Bat Conservation Ireland, BirdWatch Ireland and AlgaeBase. Please see their websites for further details.

Upcoming national events

4-6 April 2008	Everyone Counts: the Power of Citizen Science, 40th All-Ireland Conference on Bird Conservation, Newtownmountkennedy, Co. Wicklow http://www.birdwatchireland.ie
22 May 2008	World Biodiversity Day
8-13 June 2008	13th International Peat Congress, Tullamore, Co. Offaly http://www.ipcireland2008.com
24 August – 1 Sept.	Heritage Week 2008 www.heritageweek.ie
19-21 September	Muc Mhara: Ireland’s Smallest Whale, Irish Whale and Dolphin Group conference, Killiney, Co. Dublin www.iwdg.ie

There are on-going events across Ireland. Go to the websites of the Naturalists’ Field Clubs, BirdWatch Ireland, Botanical Society of the British Isles, IWDG for details of events in your area.

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 the Environment, Heritage and Local Government.

