

National Biodiversity Research Platform established

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The European Platform for Biodiversity Research Strategy is a forum for scientists and policy-makers to ensure that research contributes to the implementation of the EU Biodiversity Action Plans, which have the ultimate goal of halting the loss of biodiversity by 2010.

Member states participating in the European Platform for Biodiversity Research Strategy (EPBRS) have the opportunity to discuss and develop strategies to implement biodiversity research, ensure that biodiversity research across Europe is relevant to policy, and that scientific knowledge is communicated to legislators and other potential users. In doing this, EPBRS contributes directly to the European Research Area for biodiversity. The effectiveness of the EPBRS is greatly enhanced by collaboration with national platforms for biodiversity research, with similar aims, but at national level.

In May 2004, Ireland will host the EPBRS meeting under the Irish Presidency of the EU. The output of this meeting will feed directly into a stakeholder conference on a review of the European Biodiversity Action Plans, also taking place in Ireland in May 2004.

The agenda for the Irish meeting of the EPBRS includes the production of declaration documents to feed directly into the stakeholder conference, thereby ensuring that the wishes of Ireland and other European member states are included in the biodiversity action plans.

The Irish National Platform for Biodiversity Research (NPBR), set up under the auspices of the National Parks and Wildlife Service and the Environmental Protection Agency (EPA), was inaugurated in August 2003. The platform has drawn together individuals and organisations from science and policy that represent a broad spectrum of biodiversity research in Ireland.

The aims of the NPBR are to:

- Provide scientific advice and recommendations on the National Biodiversity Plan, with particular reference to Action 40 which calls for the identification of priority areas for biodiversity research.
- Identify national biodiversity research needs

and gaps in current knowledge to prioritise research, taking the advice of all relevant stakeholders, in order to support policy and management decisions.

- Assist the co-ordination of inter-disciplinary biodiversity research programmes (involving both policy and social scientists).
- Ensure the exchange of information within the research community.
- Facilitate information exchange between researchers and policy-makers, thereby ensuring that research meets the needs of policy.
- Identify sources of funding for biodiversity research, and facilitate active dialogue with funders of biodiversity research at a national and international level.
- Ensure national research is linked to international policy and research, where appropriate.
- Transfer knowledge locally, nationally and through the EPBRS Europe-wide.
- Encourage participation in, and advice on, the content of the EU Framework Programmes.

Since its establishment, the NPBR has convened two working groups to address the aims of the platform: one working group on defining an agenda for Irish biodiversity research and a second on creating an inventory of Irish biodiversity research. The outputs of these working groups will define a robust strategy for biodiversity research in Ireland. This will be used to source and secure funding to provide the research needed to implement various aspects of the Irish Biodiversity Action Plan.

- The NPBR aims to be as inclusive as possible of all interested parties in Irish biodiversity research, while also recognising that achieving consensus is less likely in an excessively large group. In order to facilitate this aim, interested parties who wish to contribute to any aspect of the NPBR or its working groups may contact the secretariat of the NPBR (BEC Consultants Ltd) through the platform website at:

www.biodiversityresearch.ie



Small-white orchid *Leucorchis*

Back to the Wild

NUI Galway study on cutaway wetlands

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Anyone who has ever travelled through the midlands of Ireland will be aware of the vast areas of peatland currently being milled by Bord na Móna. What many people are unaware of, however, is that much of this peatland is coming to the end of its working life and that, by 2030, there will be in excess of 80,000 hectares of 'cutaway' in Ireland.



Tara Higgins carrying out water chemistry analysis at NUI, Galway

Cutaway is the term used to describe a bog in which all or most of the peat has been systematically removed by industrial means. At one time, it was thought that much of this cutaway could be rehabilitated for use in agriculture or forestry. Indeed, the worked-out bogs were envisaged as a sort of 'Promised Land' which would make an area about the size of Co Louth available as farmland. However, over half a century of research has indicated that these earlier estimates were misguided and, in reality, as much as 30% of cutaway will be unsuitable for economic uses. Ironically, it is this so-called 'unproductive' cutaway which is now attracting widespread interest in the science world.

Bord na Móna proposes allowing much of this land to flood and revegetate naturally, resulting in the formation of a wilderness mosaic extending through the midlands, encompassing areas of marsh and fen, stands of open water, considerable areas of scrub woodland and small nuclei of regenerating bog. The scale of these plans is exciting, involving between 15,000 and 20,000 hectares. Indeed, this represents one of the largest habitat creation opportunities ever experienced in Ireland, or indeed Europe, in modern times.

By 2030, there will be 80,000 ha of cutaway in Ireland

A taste of what is to come is exemplified in the Lough Boora Parklands in Co Offaly, where Bord na Móna has created a number of experimental wetlands and angling lakes on the existing cutaway. The project has proved to

offer enormous and wide-ranging benefits for both the local communities and the environment. Indeed, one of the wetlands, Turraun, has been designated a statutory nature reserve in recognition of its conservation value.

The wetlands within the Lough Boora Parklands have been the subject of two years' extensive research by Tara Higgins, a PhD student in the microbiology department at NUI, Galway. Tara's research, which receives funding from Bord na Móna, focuses on four wetlands which vary in terms of their design and the nature of the underlying cutaway. Tara hopes that her research, using a combination of chemical analysis and phytoplankton as bioindicators of water quality, will identify the primary factors influencing water quality in the cutaway wetlands. Such information would then enable future cutaway wetlands to be designed for optimal water quality.

One of the largest habitat creation opportunities experienced in Europe in modern times

The results of Tara's research indicate that the type and depth of the residual peat layer in the cutaway is the single biggest factor impacting on water chemistry, and has knock-on effects on the phytoplankton community. Lakes created on *Sphagnum* peat cutaway are highly acidic and were found to have extremely high levels of primary productivity but very low phytoplankton species diversity. Conversely, the lakes created on cutaway where the peat was extracted down to the fen peat and mineral subsoil layers have a slightly



Common blue damselfly *Enallagma cyathigerum*



Turraun Wetland, Lough Boora, Co Offaly, which has been designated a nature reserve.

alkaline pH, far lower levels of primary productivity and much higher species diversity. "The very high level of primary productivity recorded in the acidic cutaway lakes was completely unexpected," Tara remarked, "since natural acid-bog lakes are usually very unproductive systems."

The cause was found to be a very small number of acid-tolerant phytoplankton species, in particular dinoflagellates and coccoidal green algae which inhabit the acidic cutaway lake in massive numbers. In the more alkaline lakes, on the other hand, the phytoplankton community was found to be more diverse, comprising an interesting mixture of groups including diatoms, green algae, chrysophytes, cryptophytes and cyanobacteria.

Unexpectedly high levels of primary productivity

Earlier this year, Tara Higgins won the annual Jones Environmental Award at Sligo Institute of Technology in recognition of her research. The Award is a competition organised by the Chartered Institute of Water and Environmental Management (CIWEM), to encourage young scientists in their research.

The Environmental Change Institute

National University of Ireland, Galway

The Environmental Change Institute (ECI) at NUI Galway was established in September 2000 with an award of €9.6m from the Higher Education Authority (HEA) under Cycle II of the Programme for Research in Third-level Institutions (PRTLII). The Institute was also successful in Cycle III of the PRTLII, securing €1.02 in additional research funding.



Views of the exterior of the new Environmental Change Institute, NUI Galway

Heading up the ECI is its Director, Prof Emer Collieran, Chair of Microbiology at NUI Galway, who has gained international recognition over the past twenty years for her research in environmental microbiology.

Construction of a new building for the ECI began in January 2002 at a prominent site by the River Corrib on the NUI Galway campus, and was completed in July 2003. The first ECI staff moved into the building in August 2003. (The main contractor on the development was McNamara and the architect was Kelly Todd Architects.)

The new building is jointly occupied by the ECI and the National Centre for Biomedical and Engineering Science. The ECI component occupies an area of 1,000m² on the ground floor and includes two wet laboratories, a purpose-built physical modelling suite housing an 8m x 3m tidal basin, a state-of-the-art Geographical Information Systems (GIS) facility with a training room and GIS research laboratory, and office space for 30 post-graduates, 10 post-doctoral fellows, four visiting researchers, two technical staff, two GIS staff and several administrative personnel.

The focus of environmental-change research at the ECI is based on recognition that the environment is not static and that its components (atmosphere, geosphere, hydrosphere and biosphere) are interdependent and interactive. It also reflects the increasing pace and scale of environmental change over the past 100 years, resulting from accelerating anthropogenic impacts.

A key feature of the ECI is the interdisciplinary nature of the research, incorporating significant collaboration between the faculties of science, arts, commerce, engineering and medicine. The successful coordination of such wide-ranging research is achieved through regular



communication between project leaders, Priority Research Area (PRA) leaders and the Institute's Director, and is facilitated by the new building acting as a focal point for environmental research.

At present, more than 40 postgraduate students and 18 post-doctoral researchers are directly employed on 37 research projects at the ECI. The various projects are organised in the following PRAs: biodiversity, climate change, marine environment, waste, social and economic impact, human impact and modelling systems.

The majority of the Cycle III €1.02m award is facilitating the setting up of a state-of-the-art GIS facility which will introduce the latest technology to support advanced research projects. Equipment procured by the GIS facility includes a satellite receiver and high-speed ISDN lines for data transfer from NUI Galway's atmospheric research station at Mace Head, Connemara. Access to state-of-the-art GIS hardware and software is essential in order to underpin and facilitate high-quality interdisciplinary research in environmental change. Particular resources that will be used in GIS research at the ECI include small area census data, digitised mapped imagery, selected raster (marine) maps, and orthophotos (or live satellite pictures).



View of interior of ECI building

Online

Thermal springs

EcoServe has published online results from an ecological survey of Irish thermal springs, a project sponsored by the Heritage Council under the 2003 Wildlife Grant Scheme. Please visit the site for a look at Ireland's answers to Old Faithful!

www.ecoserve.ie/projects/springs/index.html

Footprinting

I was wondering if anyone is involved in ecological footprinting or any related methods? I am just starting my PhD degree in the Geography Department in UCC, and I am looking at ecological footprinting, so I would really like to hear from anyone who has an interest in this area.

Richard Collins, richardcollins@VOILA.FR

Seeking employment

My name is Shelley Dwyer and I am from Newfoundland, Canada. I am a graduate of a Marine Environmental Technology program from Memorial University of Newfoundland. I have always wanted to experience living and working in Ireland, and I am therefore seeking employment there. I have done course work in environmental chemistry, biology, aquatic ecology, geography, sampling, etc, and both my education and past employment have given me experience with laboratory work and fieldwork. I am a very efficient worker, and I would love to gain valuable work experience in Ireland. Any assistance or information you can provide will be greatly appreciated. Shelley Dwyer shelley_dwyer@yahoo.ca

ENVIRON 2003

ENVIRON 2003, the 13th Irish Environmental Researchers Colloquium, was hosted by the Environmental Change Institute and took place in NUI Galway from 8-10th January, 2003.



ENVIRON 2003 Committee: Dr Maria Tuohy, Dr Mike Carty, Dr Vincent O'Flaherty, Dr Mike Gormally, Dr Su-Ming Khoo, Ms Helen Garnett, Prof Emer Colleran and Dr Martina Prendergast (conference co-ordinator).

ENVIRON is the annual meeting of the Environmental Sciences Association of Ireland (ESAI). The ENVIRON 2003 colloquium was officially opened by Prof James Browne, registrar and deputy president of NUI, Galway. The keynote speaker was the noted broadcaster and author Éamon de Buitléar, who delivered a wonderful visual presentation on "Life in the Wild" and wowed the audience for over one and a half hours with interesting anecdotes and footage of wildlife in the Irish countryside.

Over the course of the two days, almost 300 delegates attended. Every university was represented, as well as many of the institutes of technology and environmental consultancy companies, and there were many contributions from environmental stakeholders in local government and industry.

The colloquium featured over 100 oral presentations and 80 poster presentations and brought together virtually all scientific disciplines engaged in environmental research in Ireland.

Although research topics in any environmental area were welcome, the main thematic areas of ENVIRON 2003 were: air; water; marine environment; agriculture and forestry; environmental monitoring and analysis; ecosystem management; and (for the first time) society & economy.

Specifically, some of the topics addressed by the speakers included: public attitudes towards waste management; environmental law in relation to fisheries policy; environmental monitoring and analysis; and aspects of ecosystem management and biodiversity.

The event is a unique forum for the exchange of new data, views and ideas between basic researchers and professionals engaged in environmental management and

protection, and provides an opportunity to explore environmental issues in a broader societal and economic context.

Prize winners

The winner of the ESAI-sponsored best oral presentation was Deirdre Mullins, Centre for Environmental Research at UL, for her presentation entitled *Biodiversity at landscape scale: GIS application in assessing optimal patterns in lowland afforestation*.

The judging panel had a particularly difficult time choosing a winner in this section, as there were five entrants who had scores within one or two points of each other.

The winner of the poster prize was Caroline O'Reilly, NUI Galway, for her presentation entitled *Addition of an aerobic biological sulphide-scrubbing system to an anaerobic reactor treating high-sulphate wastewaters*.

As is traditional, COFORD, the National Council for Forest Research and Development, sponsored a poster prize in the forestry category. The unanimous winner in this section was George Smith, Dept of Botany, TCD, with his presentation, *Establishing native woodlands in clearfelled conifer plantations*. Congratulations to all winners!

The conference dinner was held at the Galway Bay Hotel in Salthill, with over 135 delegates in attendance. A local band, Spengo, performed and we danced and drank into the wee hours.

A big thank you to all who participated and especially to the sponsors, to whom we are extremely grateful. Good luck to the organisers of ENVIRON 2004, and see you all in the University of Limerick from Friday, 30th January to Sunday, 1st February 2004.

13th International Conference on Aquatic Invasive Species

Frances Lucy
Institute of Technology, Sligo

The 13th International Conference on Aquatic Invasive Species will take place in the Lynch West County Hotel, Ennis, Co Clare, on September 19-24th, 2004. The conference will be hosted by the Institute of Technology, Sligo.

The spread of aquatic non-native species is a worldwide problem that is increasing in frequency. Invertebrate, fish and plant species continue to be introduced via pathway vectors. These can cause significant damage to coastal and freshwater ecosystems, and to the economies that depend on them.

In Ireland, the zebra mussel *Dreissena polymorpha* has spread to many lakes in less than a decade, while the Japanese seaweed *Sargassum muticum* continues to colonise shorelines around the Irish coasts. Many other exotic species have colonised aquatic systems in Ireland. Additional aquatic organisms which could successfully extend their range to Ireland include species which have implications for human health, aquatic ecosystems and aquaculture, eg. *Gymnodinium catenatum*, a dinoflagellate which can cause paralytic shellfish poisoning; Chinese mitten crab *Eriocheir sinensis*; and *Gyrodactylus salaris*, a parasite on salmon stocks.

It is becoming increasingly important to foster international co-operation on the invasive species issues through exchange of scientific information. The International Conference on Aquatic Invasive Species is being held outside North America for the first time in 2004, giving an opportunity to share recent scientific research. The meeting welcomes the dissemination of information on species ecology; new technologies; advancements in prevention, monitoring and control; discussion of policy and legislation; and improvement of public awareness on invasive issues, which may help prevent new introductions.

The conference will include topics on introduced aquatic species and their vectors, potential impacts, prevention, monitoring and control. There are opportunities for presentations and poster sessions in a variety of relevant topic areas. Interest is already being shown by workers from Ireland, Britain, mainland Europe, Canada, North and South America, Asia and Australasia.

This conference series attracts approximately 400 participants, representing academia, industry, government agencies, NGOs and others with a need to know more about the issues.

It is very opportune that Ireland is the 2004 conference venue as this gives focus, both nationally and internationally, to aquatic invasive species issues in this country.

Members of ESAI are invited to contribute to the meeting. More information is available on the conference website: www.aquatic-invasive-species-conference.org



Zebra mussels

NEWS FROM EUROPE

BIOMARE project results



The BIOMARE project (implementing and networking of long-term, large-scale marine biodiversity research in Europe) concluded successfully a while ago. The project can be called a success in many ways. BIOMARE resulted in a network of enthusiastic researchers who are motivated to integrate marine biodiversity research, and related knowledge and information, on a pan-European scale.

There were several regional meetings and workshops, and although the discussions weren't always easy, the atmosphere always remained open and stimulating. Most certainly, the hospitality of the local organisers contributed to this, and we would like to thank them again for the organisation of both the scientific as well as the social parts of the events.

The results of BIOMARE have been disseminated at several important occasions (more information is available at the website: www.biomareweb.org) and the project has resulted in the production of two books, which include a CD:

European Marine Biodiversity Research Sites. Richard M Warwick, Chris Emblow, Jean-Pierre Féral, Herman Hummel, Pim van Avesaath, Carlo Heip. Netherlands Institute of Ecology - Centre for

Estuarine and Marine Ecology, Yerseke, The Netherlands, 2003

European Marine Biodiversity Indicators. Jean-Pierre Féral, Maia Fourt, Thierry Perez, Richard M Warwick, Chris Emblow, Carlo Heip, Pim van Avesaath, Herman Hummel. Netherlands Institute of Ecology - Centre for Estuarine and Marine Ecology, Yerseke, The Netherlands, 2003

If you would like to obtain a copy of the books, please fill in the order form (available on the BIOMARE website). The cost of the two books and CD set is €30, covering the mailing costs.

Although the project has finished, the BIOMARE initiative has not ceased. It will be adopted by the Network of Excellence 'Marine Biodiversity and Ecosystem Functioning' which is planned to start early next year under the 6th Framework Programme.



Articles welcome

EnviroNews welcomes articles and photographs relevant to environmental sciences in Ireland, including news of projects, environmental initiatives, issues, publications, vacancies and websites. We welcome your comments, letters and emails. Please write to the council.

A guide to the fish associated with deep-water coral reefs

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The rate of discovery of reefs of the cold-water coral *Lophelia pertusa* in the eastern Atlantic has been remarkable, resulting largely from the increased use of underwater video in deep-water surveys. These reefs form a major three-dimensional habitat in deeper waters where little other cover for fish is available.

Present data indicates that reefs occur from northern Norway to south-west Ireland. However, *Lophelia* is recorded throughout the eastern Atlantic continental margin, down to south-west Africa, in the western Atlantic, and Indian and Pacific oceans. It is likely that new reefs will continue to be discovered in many areas. Thus, not only is this a significant habitat on a local scale, but it may also occur over a very wide geographic area.

The recently-completed EU 5th Framework-funded Atlantic Coral Ecosystem Study (ACES) examined the association of fish species with *Lophelia* in the north-east Atlantic, including the Trondheim Fjörd and Sula Ridge in Norway, Kosterfjörd in Sweden, the Darwin Mounds to the west of Scotland and the Rockall Bank, Rockall Trough and Porcupine Seabight off Ireland.

The fish fauna associated with a shipwreck west of Shetland was also studied. Video and still camera footage of the deep-water coral reefs was examined, and fish associated with the corals were identified, counted and their behaviour and habitat noted.

In total, data were collected from eleven study sites in total 52 hours of video and 15 rolls of still photographs. Video and still photographs were variously collected using a remotely operated vehicle (ROV), a bed-hop camera, and the SOC camera systems WASP (wide-angle survey photography vehicle), SHRIMP (seabed high-resolution imaging platform) and Bathysnap (time-lapse camera mooring).

It was possible to identify 90% of the fish observed to species level, and 6.6% to genus or family level - only 3.6% were not identifiable. In total, twenty-five species of fish from 17 families were recorded, most of them of commercial importance. A guide to the fish recorded during the study is available on the EcoServe website www.ecoserve.ie/aces

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ESAI web address: esaiweb.org

Editorial

ESAI Environmental Colloquium the biggest in Ireland

This is the 12th newsletter of the Environmental Sciences Association of Ireland. The issue includes a report from the last Environmental Sciences Colloquium, held in Galway in January 2003, and looks forward to the forthcoming Colloquium at the end of January in Limerick.

I have been informed by the organisers that over 120 oral presentations have been received and will be presented in five parallel sessions. In addition, over 70 posters will be presented. The Colloquium is fully subscribed and I'm sure will prove to be as big a success as previous meetings. The Colloquium still remains the largest and most diverse environmental meeting of its type in Ireland.

In addition to news of the Colloquium, the newsletter presents articles on a number of research projects being carried out in Ireland and we would very much like to

continue publishing such articles in future editions of the newsletter.

One article of particular interest is the establishment of the Irish National Biodiversity Research Platform. Biodiversity research issues now have a national body to provide advice and direction on the priorities for biodiversity research in Ireland and compile a catalogue of the existing resources and capabilities available to carry out such research.

I would encourage all readers to contribute articles and news of meetings, conferences, projects and job vacancies to the newsletter and also to take advantage of the ESAI website and listserver.

**Chris Emblow
Acting Editor**



Eamon de Buitléar chatting with Professor Emer Colleran at last year's Colloquium

ENVIRON 2004

The 14th Irish Environmental Researchers' Colloquium, ENVIRON 2004, will be held at the University of Limerick from Friday 30th January to Sunday 1st February 2004.

The email address for the Colloquium is environ2004@ul.ie. The organising committee will respond to email queries. You may also phone Maria Barry at (061) 213 081 during office hours. Please visit our website at www.environ2004.ul.ie

We hope that the vast majority of registrations and abstract submissions will be made via the website. Details of costs, how to register, how to submit abstracts and how to contact us are all on the website, as well as information on accommodation.

The ESAI AGM will be held at the Colloquium on Saturday, 31st January. The AGM will include an open discussion providing an opportunity for ESAI members to influence the work of the Association. All members are urged to attend.

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