Issue No. 64 Winter 2008/09

Bush Telegraph

The House Magazine of the Edinburgh Consortium for Rural Research

TWENTY YEARS A'GROWING

ECRR will be 20 years old this year. The Edinburgh Centre for Rural Research, as it was then known, was instituted in 1989 as a facilitating organisation to assist the member organisations to work together for their mutual benefit and to promote inter-disciplinary research.

ECRR was established originally to serve research workers at Edinburgh University and affiliated Institutes based at the science park around Bush Estate. Since 1989 many other Institutes have become members, even though their main centre of operations is in other parts of Scotland. ECRR currently has twenty member organisations with bases spanning the whole of Scotland. The common theme is that the organisations are active in one or more aspects of basic, strategic and applied research relating to land, freshwater, coastal and marine resources and their use. This includes farming, forestry, aquaculture and recreational pursuits, all as part of the fabric of the diverse natural environment that gives Britain its distinctive character.

The ECRR is managed by a Board with the Directors selected from each of the member Institutions. The Board, which meets formally twice a year, is chaired by a senior member of Edinburgh University nominated by the University Court. The current chairman is Vice Principal Professor Mary Bownes.

The day-to-day work of the ECRR is carried out by the Scientific Director and the Secretary/Treasurer. They are guided in their duties by an Executive Committee which meets about six times a year under the chairmanship of Professor John Oldham, Head of R&D at SAC.

The ECRR functions as a low-cost, without-frills "networking" organisation. The total cost of running the ECRR, which is shared between the member Institutions, is about 20,000 pounds a year. ECRR is unique in the large number of Institutions in its membership, and in the low cost structure which strives to keep bureaucracy to the minimum and the healthy exchange of scientific information and ideas to the maximum.

IN THIS ISSUE

Professor Stuart Monro

INCOMING SCIENTIFIC DIRECTOR

Professor Stuart Monro, OBE, BSc, PhD, CGeol, FGS, FHEA, FRSSA, has agreed to take on the position of ECRR Scientific Director when Dr Chris Browitt retires from the post in September 2008.

Stuart is currently Scientific Director at Our Dynamic Earth and co-chair of the Scottish Science Advisory Committee. He has over 34 years of research experience with the British Geological Survey as a Principal Geologist. He is currently Visiting Professor in the School of GeoSciences at Edinburgh University and a member of Edinburgh University Court.

Stuart is a leading practitioner in promoting science in many capacities:

- Teaching geology at all levels in the Open University;
- Member of the Council of the Open University;
- Non-Executive Director of the Edinburgh International Science Festival;
- chair of the Earth Science Trust;
- Trustee of National Museums Scotland.

The Roslin Institute, University of Edinburgh

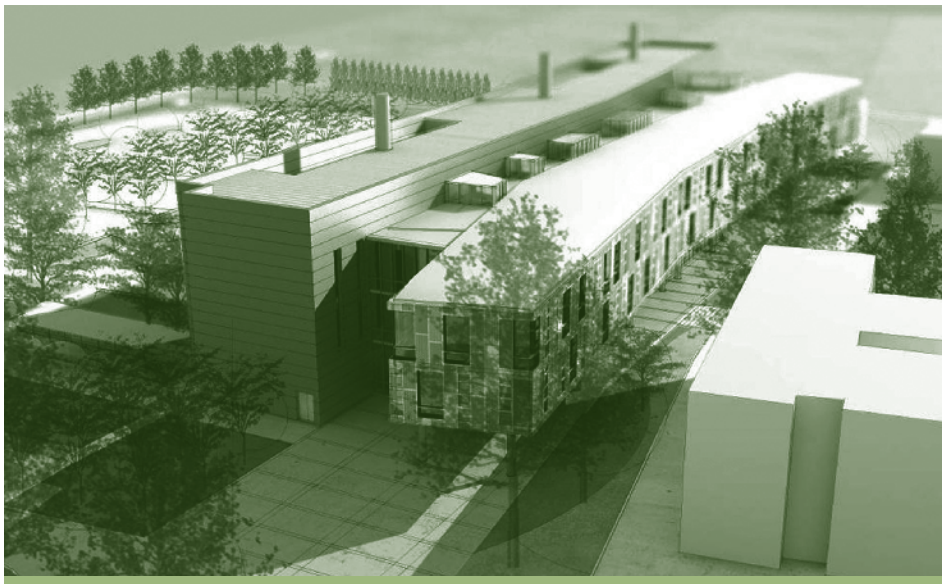
Patricia Hart
Communications Officer
The Roslin Institute, University of Edinburgh
Roslin, Midlothian EH25 9PS
Email: patricia.hart@roslin.ed.ac.uk

RESEARCH STUDENT EXCELS

Bethan Lowder, a PhD student in Ross Fitzgerald's lab recently came third in the Society for General Microbiology, Young Microbiologist of The Year competition, 2008. The final which included a shortlist of 12 PhD students and post-docs from the UK and Ireland was held in September 2008 at the SGM meeting in Trinity College, Dublin.

Bethan, who is in the third year of her PhD, was awarded a cash prize for her work on the evolution of host-adaptation by *Staphylococcus aureus*. Ross said of Bethan's award, "I am extremely pleased that Bethan was successful in the Young Microbiologist of The Year competition. She deserves this award and hopefully she will inspire other research students.

Bethan Lowder, Roslin research student



Model of the new research building for the Roslin Institute

BUIDING GETS GO-AHEAD

Midlothian Council has granted planning permission for a new £58 million landmark research building for The Roslin Institute at the Technopole.

The building, funded by the Biotechnology and Biological Sciences Research Council and the University of Edinburgh, forms part of the University's Easter Bush redevelopment project and will be opposite the site for the new vet school and the existing small animals' hospital building. This will unite the teaching, research and clinical work of the University's Royal (Dick) School of Veterinary Studies.

The Director of The Roslin Institute, Professor David Hume said of the planning approval, "This is a very exciting step in The Roslin Institute's expansion plans and will provide state of the art facilities in which we can undertake the research that will make the Institute the World leader in Animal Biosciences."

Mirroring the genetic basis of much of the Institute's research, the building design is based on the appearance of a pair of chromosomes. One side of the building houses the laboratory functions and the other houses the office functions with a circulation space between the two, incorporating social and support functions, breakout areas and meeting spaces.

The move to the new building will bring staff of The Roslin Institute onto the same campus as their vet school colleagues and bring them together with the other members of The Easter Bush Research Consortium (EBRC), including the Moredun Research Institute and the Animal Sciences Researchers of the Scottish Agricultural College (SAC). The partnerships within the EBRC, and integration with clinical practice and education in the Royal (Dick) School of Veterinary Studies, provide major opportunities for application and exploitation of the research of the consortium partners.

Centre for Ecology & Hydrology - Edinburgh

Professor JN Cape
Head of Station
Centre for Ecology & Hydrology
Bush Estate, Penicuik,
Midlothian EH26 0QB
Email: jnc@ceh.ac.uk

TROPICAL RAIN FORESTS – A VITAL RESOURCE

A team of scientists from CEH Edinburgh – both staff and students – participated in a series of major field measurement campaigns in Borneo this past summer. They were part of a NERC-funded consortium to measure and model the emission of trace gases from tropical rainforest, and the impact on the formation of particles (secondary organic aerosol) above the forest. The CEH team was led by Dr Eiko Nemitz, and involved shipping almost £1M of equipment half way round the world, and getting it into place at the Danum Valley field station in Sabah, which is supported by the Royal Society.

Why study the tropical rain forest in South East Asia? Little is known about rain forests other than in Africa and the Amazon basin, both of which may be described as 'continental', whereas the Borneo rain forest has a more maritime climate. Rain forests are important sources of biogenic emissions of volatile organic compounds (VOCs), and the area, while relatively pristine, is typical of forests which are being converted into plantations of oil palms.

The objectives were to look at four questions:

- What is the global warming potential of emissions from primary forest, secondary forest, oil palm plantations?
- What are the emissions of organic compounds from forest and oil palm?
- What is the effect of biogenic emissions on air chemistry (forest vs. oil palm), in particular on the formation of oxidants and particles?

Rain forest, Danum Valley - Photo: P. Misztal

- What is the effect of the emissions on local / regional / global climate?

The equipment arrived, but not all in working order! However, a workable system was duly assembled and installed, and provided the first direct measurements of canopy-scale trace gas and particle fluxes over both the tropical rain forest and from an oil-palm plantation. The initial findings confirmed that the scale of emissions from the rain forest canopy was as important as predicted and also matched estimates based on ground-based measurements of emissions from individual tree species. The main gas emitted is isoprene, which is oxidised in the atmosphere to form secondary organic aerosol (particles) and contributes to the formation of ozone in the lower atmosphere. The measurements clearly showed that isoprene is emitted from leaves during photosynthesis. The CEH data are now being worked up in detail for comparison with simultaneous measurements made from the NERC/Met Office FAAM aircraft by other research groups.

A second campaign over an oil palm plantation (which involved moving the equipment some distance over logging roads) was successfully established – and showed that isoprene emissions from the plantation were several times greater than from the rain forest. The implications of the change in land use for effects on atmospheric chemistry and greenhouse gases are still being evaluated.

In-canopy measurements- Photo: E. Nimitz

Finally, back in Danum Valley, a third campaign also included measurements of vertical profiles of trace gases and particles within the rain forest, to be used in modelling emissions, reactions and transfer of biogenic organic compounds. This involved operating from platforms mounted on one of the larger trees in the forest – the scientists involved had the appropriate safety training on tree climbing before departure!

The overall campaign has proved to be a great success, providing 2 Tbytes of data for analysis and write-up over the next two years, and key information on the role of East Asian tropical forests and land-use changes in affecting local, regional and global atmospheric chemistry.

Royal Botanic Garden Edinburgh

Shauna Hay
Royal Botanic Garden Edinburgh
20A Inverleith Row, Edinburgh EH3 5LR
Email: shauna.hay@rbge.ac.uk

YEW CONSERVATION

The Yew Conservation Hedge Project, recently launched at the Royal Botanic Garden Edinburgh (RBGE), will systematically replace the existing perimeter hedge around the Botanics with a new yew (Taxus baccata) hedge.

The project, costing around £50,000 and funded from the Garden's own budget and through on-going fundraising, is being led by Tom Christian who explained that the project is expected to last several years and when completed will provide RBGE with vital DNA information on a unique living gene-bank with great potential for scientific research.

He said: "The old hedge will be extracted and replaced in small sections to keep the project workable and avoid disturbing too large an area at a time. Time must also be allowed for fundraising and the planning of collecting trips and the growing on of the young plants. The first section is predicted to be replanted in 2012 when the first batch of plants should be ready."

The existing hedge, just under a mile long, is comprised mostly of holly which has grown too large and old and is dying back in places. Just as in many other botanic gardens, lack of space is an issue in the ex situ conservation of woody plants at RBGE. The Yew Conservation Hedge Project goes someway to combating this, as it allows RBGE to cultivate a collection of yew containing around 2,500 genotypes without taking up any extra space.

Yew Trees have long been highly sought after by humans. From the 11th to the 16th centuries, Europe's yew forests were felled in order to provide timber for longbows. Centuries later, yews around the world are increasingly sought after by pharmaceutical companies because they contain the compound palacitaxel, used in the manufacture of a powerful anti-cancer drug. Unsustainable harvesting to meet demand, as well as the danger of disease, means it has become increasingly urgent for horticulturists to conserve the yew.

The Auld Yew Tree at Loudoun Castle in Ayrshire

The Fortingall Yew, in the churchyard of the village of Fortingall in Perthshire, is around 2,000 years old and is claimed to be the oldest living tree in Europe.

The yew hedge at RBGE is to comprise plants of known wild origin collected from throughout Europe, and plants grown from cuttings taken from "heritage yews" from throughout Britain and Ireland – a number of heritage trees have already been sampled from throughout Scotland such as the 1,000-year-old *King's Tree* at Loch Lomond, where Robert the Bruce assembled his troops in 1306 and the 700-year-old *Auld Yew Tree* at Loudoun Castle in Ayrshire, where tradition has it that the Act of Union was drawn up in 1707.

Interpretation boards will be erected on both sides of the hedge telling visitors and passers-by the stories behind the yews and other interesting facts about these fascinating trees.

Institute of Aquaculture, University of Stirling

Professor Gordon Bell
Nutrition Group, Institute of Aquaculture
University of Stirling
Stirling FK9 4LA
Email: g.j.bell@stir.ac.uk

FATTY ACIDS & AUTISM

Autism is a serious neurodevelopmental disorder impairing socialisation, communication and behaviour that has increased in prevalence over the last 15 years with around 1 in 100 of the UK population currently affected. Pilot studies in children with autism, as well as related neurodevelopmental/neurodegerative disorders including ADHD, schizophrenia, bipolar disorder and dyslexia, have suggested that there may be abnormalities in the fatty acid compositions of phospholipids (PL) that are essential for normal neuronal and visual development. If such deficiencies are present in autism patients then they may respond to supplementation with Omega-3-rich fish oils and lead to improvement in symptoms.

The aim of this CSO funded project was to determine whether children with autism have a lipid metabolism disorder that can result in reduced concentrations of essential highly unsaturated fatty acids (HUFA) in red blood cell (RBC) membranes and an increased RBC type IV phospholipase A2 (PLA2) concentration. The latter enzyme is involved in release of HUFA from PL membranes and as such is a modulator of inflammatory reactions. Increased PLA2 concentrations have been found in other neural disorders.

Patients were recruited at the Royal Hospital for Sick Children in Edinburgh and biochemical analyses were conducted by the Nutrition Group, Institute of Aquaculture, University of Stirling, and the Victoria Infirmary, Glasgow. Blood samples were collected from 208 children and of these 49, 39 and 52 individuals met criteria for inclusion in the study in the autism, developmental delay (DD) and typically developing (TD) groups, respectively. Although not included in the main trial, RBC & HUFA were also measured in 21 patients with autism who had been excluded from the main trial due to them having consumed fish oil within the previous 6 months.

Comparing autism patients, matched with TD controls, no evidence of significant differences between groups for the main HUFA analysed were observed. However, P values for the ratio arachidonic and eicosapentaenoic acids (ARA/EPA) in RBC and plasma were 0.047 and 0.021, respectively, suggesting a trend of increased ratio in the autism group compared to the TD controls. Similarly, the P values for n-6/n-3 ratio in RBC and plasma were 0.054 and 0.035, respectively, suggesting a trend of increased ratios in the autism cases compared to TD. Evidence suggests that increased ARA/EPA ratios can promote inflammatory conditions that can be attenuated by fish oil consumption. However, these differences would not be different if a stricter significance value was adopted to take account of multiple comparisons. There was no evidence of increased RBC PLA2 concentration in children with autism. Comparing autism patients with autism patients consuming fish oils showed that EPA, DHA and total n-3 were all significantly increased while ARA, 22:4n-6, 22:5n-6, total n-6, n-3/n-6 and 20:4n-6/20:5n-3 were all significantly reduced (P = 0.0005-<0.0001).

There is no good evidence that abnormal fatty acid metabolism plays a role in the general pathogenesis of autism. However, the study suggests that there may be suboptimal Omega-3 fatty acid status in children with autism, as well as those that are TD or DD, since their levels are lower than those reported in adults. Given the trends described above there is also evidence that some children with autism have elevated n-6 HUFA and ARA/EPA ratio. To establish whether individuals with autism with suboptimal Omega-3 fatty acid stautus might benefit from fish oil supplements a study examining patterns of expression of lipid metabolism genes might be revealing. Such individuals have been identified in patients with ADHD and similar studies in autism patients could allow better targeting of responsive individuals.

For more information contact Prof. Gordon Bell, Institute of Aquaculture, Prof. Anne O'Hare, Dept. of Child Life & Health, Edinburgh University and Dr Donald MacDonald, South Glasgow University Hospitals NHS Trust.

Professor Gordon Bell is a biochemist and project leader in the Nutrition Group at the Institute of Aquaculture. The Nutrition Group has confirmed evidence of a range of psychiatric, neurological and neurodevelopmental disorders that respond to nutritional intervention using essential fatty acid concentrates. The Group was involved in the development and in vitro testing of "Lorenzo's Oil". The product "Lorenzo's Oil 3" is now an accepted nutritional intervention in the control and treatment of adrenoleukodystrophy.

Scottish Agricultural College

Professor John Oldham
Head of Research & Development, SAC
West Mains Road, King's Buildings
Edinburgh EH9 3JG
Email: john.oldham@sac.ac.uk

MEETING CLIMATE CHANGE TARGETS

New research by SAC economists shows farming and forestry could make up to a 25% cut in greenhouse gas emissions by 2020 at very little cost. In fact some options can actually save them money. The SAC findings are part of a climate change analysis requested by the Committee on Climate Change (CCC), an independent body providing expert advice to government. The study, by SAC's Land Economy and Environment Research Group, focused on Agriculture, Land Use, Land Use Change and Forestry, a sector that contributes about, 50 Mt of CO2 equivalent or 8% of the UK total.

According to SAC's Dominic Moran, calculations suggest that farmers growing arable crops or grass who paid close attention to fertiliser management, made better use of manures and reduced ploughing, through minimal tillage methods, could cut emissions and their bills. Livestock farmers using maize silage instead of concentrates also came out on top. Meanwhile improvements to animal fertility or additives that altered digestion also offered benefits.

However, forestry has the potential to offer the biggest and some of the cheapest inroads into the UK's 80% target. "Increased tree planting could make a major difference" said Dr. Moran, "but policy makers face difficult choices about where that could be. For example we cannot use peat moorland and the better land might be needed for increased food production, energy generation or development."

Slurry spreading

FOOD SUPPLIES IN A CHANGING CLIMATE

For the first time, crops contribute more to the Scottish economy than livestock, but the risks of switching to arable farming just now make it a real gamble. That was a particularly sobering message from SAC's Outlook Conference – Food Security in a Climate of Change held at Murrayfield Stadium.

On Scotland's livestock farms the dramatic results of decoupling production from support payments was being clearly seen, while for those growing crops, the results of a greater exposure to market forces had been brought into sharp focus by what was happening to world economies and the supply of credit.

Julian Bell, Senior Rural Business Consultant with SAC, used the example of fertiliser costs to warn those planning next season's plantings. The cost of fertiliser was now so high that half of the value of this year's harvest would be needed to pay for it. As support payments became less of a cushion, business was becoming increasingly risky.

Meanwhile many livestock farmers have already decided to cut production and reduce stock numbers. In his report, SAC Senior Agricultural Policy Consultant Douglas Bell asked if the livestock needed to guarantee a sustainable industry needed were still there. In the last ten years there had been a 22% cut in sheep numbers, 9% in cattle and 43% in breeding sows with milk production at a 37-year low. Lower supplies had pushed up output prices, but inputs had risen sharply as well, so margins were little changed. The truth was that most livestock farmers were still heavily reliant on support payments of some kind although, as politicians were making clear, the payments had only a limited future.

Against the stark economic challenges facing farming Dr Alan Renwick of SAC's Rural Policy Centre asked if we could afford to worry about biodiversity and the environment. The public wanted reasonably priced, good quality local food, but still demanding environmentally friendly standards and conservation. While, for example, the loss of sheep from the hills had benefited some habitats others were suffering from under grazing. European experience showed land abandonment is bad for biodiversity which requires land.

One key question for Dr. Renwick concerned the use of support payments supposed to help conservation and rural development. Should money be spent protecting particular sites or habitats when climate change may soon mean they no longer support the plants and animals involved and which, meanwhile, have slowly moved north or further up the hill?

Royal (Dick) School of Veterinary Studies

Margaret Bennett
Moredun Research Institute
Pentlands Science Park, Bush Loan,
Penicuik, Midlothian
Email: Margaret.bennett@moredun.ac.uk

VET SCHOOL PLANS

On a visit to The Royal (Dick) School of Veterinary Studies on October 7, Her Royal Highness The Princess Royal planted a tree to mark the start of construction of the new £42 million teaching building.

The three-storey building for 1,200 students and staff will contain state-of-the-art lecture theatres, seminar rooms and laboratories, as well as an innovative teaching studio and learning landscape, and will be located alongside the Hospital for Small Animals.

The addition of the building will finally unite all of veterinary teaching and practice at The Dick. It will form part of a wider £100 million development on the site, which will include a new research building for The Roslin Institute, now part of the Vet School, and a £3 million cancer treatment centre equipped with advanced imaging and radiotherapy facilities for animals

These bespoke facilities, together with the highly praised and innovative new curriculum, are set to equip Dick Vet graduates with the training and skills essential for the significant challenges veterinary medicine will face in the 21st century.

Also, over the next 10 years there are plans to relocate the Large Animal Surgical Suite and Hospital, placing it alongside the Hospital for Small Animals.

Head of School, Professor Elaine Watson, commented on how fitting it was that the Princess Royal should be planting the first tree. "The Dick Vet has reached many milestones in its achievement over the last 17 years and our patron has been at our side throughout. Over the next five years the Easter Bush site will be transformed from the Veterinary Field Station to the Easter Bush Campus. We are hugely grateful for the Princess Royal's support for and interest in our work and delighted that she was able to be with us today as we prepare to enter this latest phase in our development."

Pictured with HRH The Princess Royal at the Ceremonial Tree Planting are University of Edinburgh Principal, Sir Tim O'Shea and Professor Elaine Watson.

Late news: In the 2008 UK Research Assessment Exercise the Royal (Dick) School of Veterinary Studies was the top ranked vet school in the UK with the highest percentage of "world-leading" research.

COLORADO STATE UNIVERSITY

An International Memorandum of Understanding between Colorado State University and the Dick Vet was revealed as the Princess Royal planted the first tree at the new teaching building site at Easter Bush. The "Sister School" status with CSU, one of the leading Colleges of Veterinary Medicine in the US, is set to create a powerful veterinary science base spanning two continents, and opening up unrivalled opportunities for staff and students at both institutions.

Student clinical externship and vacation project exchanges are due to start in 2009. Ultimately it is hoped there may be the opportunity for joint research studentships, staff exchange programmes, and even joint faculty appointments.

Professor Elaine Watson is pictured signing the International Memorandum of Understanding with colleagues from Colorado State University, Dr Sherry Stewart (left) and Dr Terry Nett (right).

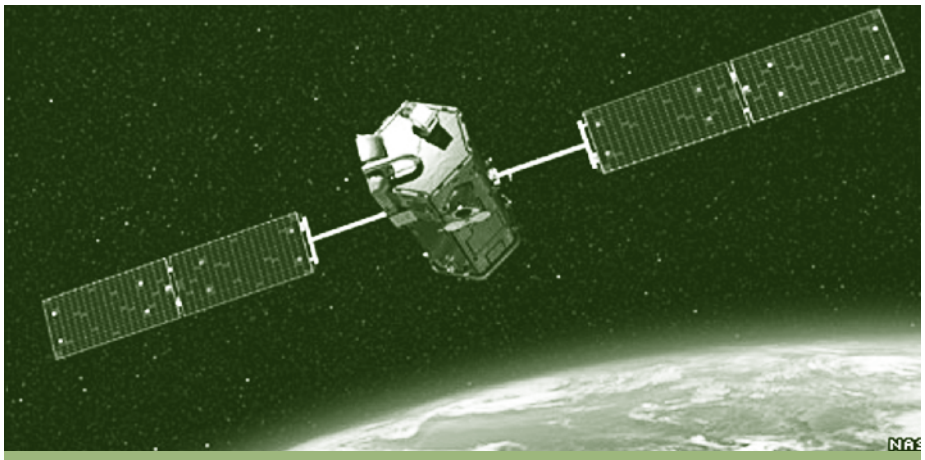
In Brief. . .

ORBITING OBSERVATORIES

Scientists will seek ways to curb global warming with the help of satellites that measure CO2 in the Earth's atmosphere. Researchers at Edinburgh University's School of GeoSciences are part of a team that will study data from instruments being launched by NASA and the Japanese Aerospace Exploration Agency.

The satellites will for the first time give region-by-region accounts of Earth's carbon emissions and also highlight areas of the planet which are absorbing the most CO2. They will provide fresh information on surface emissions and absorption of CO2 in remote regions such as the Amazon basin and African forests.

The data will allow scientists to identify more effectively those environmental conditions that encourage absorption of CO2, such as those found in forests and oceans. In the longer term, data from the satellites are hoped to contribute to the development of a better accounting system for carbon trading.



NASA's Orbiting Carbon Observatory

PRIZE-WINNING BREEDING

The Vales Sovereign potato bred at the Scottish Crop Research Institute in collaboration with Greenvale AP has won Tesco's 'Variety of the Year' in the Fresh Produce Category Awards 2008. The Fresh Produce category includes all fruit and vegetables so the success of Vales Sovereign was a notable achievement.

Vales Sovereign was bred for both flavour and versatility and is a good 'all rounder'. Following highly successful trials in 2007 it had sales of 25,000 tonnes in 2008 which are projected to rise to 40,000 tonnes in 2009.

RSPB 2008

The annual RSPB report on its science activities is an excellent example of how to communicate science to a wider audience. The most recent report *Conservation Science in the RSPB 2008* is now available and can be downloaded from www.rspb.org.uk

FOREST RESEARCH NEWS

Forest Research has a new quarterly newsletter, FR News. Topics covered in the latest issue include:

- New toolkit measures the health benefits of urban trees
- Landscape-scale conservation
- Assessing the fate of direct-sown seed
- Rural Research and Strategy Partnership launches Research Workshop Series
- Investigating the cause of extensive stem bleeding on oaks.

If you would like an email notification for each new issue of FR News, please send your contact details to: newsletter@forestry.gsi.gov.uk .

TREASURING LOTHIAN'S WILDLIFE

An office at Vogrie Country Park in Midlothian is set to play a key role in helping to safeguard biodiversity in Edinburgh and the Lothians. The Lothian Wildlife Information Centre has been given a grant of £42,000 by Scottish Natural Heritage (SNH) to help fund its work over the next three years.

The centre collects, collates and analyses information about the environment of Edinburgh and the Lothians from a wide range of sources. Amateur wildlife recorders, environmental consultants, research organisations, and conservation organisations like SNH and the Scottish Wildlife Trust are just some of the sources where the data comes from. This treasure trove of hundreds of thousands of records is available for everyone to consult, from local authorities dealing with planning applications as well as consultants acting for the developers, to local people who just want to know if a plant or animal in their garden is unusual.

SCIENTIFIQUE HONORÉ

Professor Geoffrey Boulton, formerly a Vice Principal and Regius Professor of Geology at Edinburgh University, was honoured in the French New Year's Honours List as "Commandeur dans l'Ordre des Palmes Academiques" for services to Science and French Culture.

SCOTLAND'S CHANGING RURAL BIODIVERSITY: POLICY AND ACTION NEEDS

A forum organised by the
Edinburgh Consortium for Rural Research
in association with Aberdeen Research Consortium
and the Scottish Biodiversity Forum

13 May 2009, SNH Battleby Centre, near Perth

PROGRAMME

Opening

- 08.45 Registration
- 09:10 Welcome: **Martin Price**, UHI
- 09:15 Scottish Biodiversity Strategy / Forum structures, 2010 biodiversity targets, current state of biodiversity in rural Scotland, **Greg Mudge**, SNH

Theme 1: Does biodiversity matter? To whom?

- 09:35 Biodiversity and ecosystem services, **Roy Haines-Young & Marion Potschin**, Centre for Environmental Management, University of Nottingham.
- 09:55 Biodiversity awareness and involvement in Scotland, **Rachel Bishop**, Progressive Partnership Ltd
- 10:15 Discussion

  10:50 Refreshments

Theme 2: Successes and failures in achieving biodiversity goals; and why

- 11:10 Management for biodiversity by NGOs, **Paul Walton**, RSPB
- 11:30 Conservation in protected areas and the wider countryside, **Ed Mackey**, SNH
- 11:50 Managing conflicting biodiversity goals in the uplands: consequences for biodiversity, **Steve Albon**, Macaulay Institute & **Steve Redpath**, University of Aberdeen.
- 12:10 Agricultural land management, **Davy McCracken**, SAC
- 12:30 Discussion

  13:00 Lunch and poster session

Theme 3: Integrating biodiversity in policy goals

- 14:30 Integrating biodiversity goals in the SRDP, **Jo O'Hara**, Scottish Government
- 14:50 Integrating biodiversity objectives in planning, **Michael Oxford**, Association of Local Government Ecologists
- 15:10 Discussion

  15:40 Refreshments

Theme 4: Working together to achieve multiple goals across sectors and scales

- 16:00 Habitat networks: linking across scales and land uses, **Duncan Ray**, Forest Research
- 16:20 Collaborative approaches to delivering biodiversity objectives: keeping it simple, **John Hambrey**, Hambrey Consulting
- 16:40 Discussion

Summing up:

- 17:00 Implications for policy and action: 2010 and beyond, **Alan Watt**, CEH
- 17:30-18:30 Reception Hambrey Consulting
- 16:40 Discussion

Background to Forum: Many parts of rural Scotland hold important biodiversity, often - but not always - within protected sites. This biodiversity - from the species to the landscape scale - has diverse values for Scotland's economy and people. Both species and habitats are influenced by a wide variety of forces of change at various scales, from the local (land management decisions), to the global (climate change). Within this complex context, the Scottish Government is committed to halting the loss of biodiversity by 2010. However, while we know that some progress has been made towards this target, knowledge of the current status of biodiversity across rural Scotland - especially outside protected sites - is variable. There is an urgent need to understand the current state of our biodiversity, possible future impacts of these drivers of change, and how we can manage our biodiversity effectively across large spatial scales and in integrated ways across sectors.

The aim of this one-day forum is to present and discuss current knowledge on the status and values of Scotland's rural biodiversity and to explore successes and failures in achieving biodiversity goals, how these goals are and could be integrated into key policies, and how diverse partners can work together at landscape and other scales to achieve biodiversity and other goals. In addition to presentations, there will be adequate time for discussion in the plenary sessions. To complement these sessions, individuals will be asked to present posters which will be available for discussion over a long lunch period and during the concluding reception.

Audience: Researchers, practitioners, policy-makers

Poster session: Posters will be a key element of the meeting. You are invited to submit the titles and abstracts of posters by 14 February 2009. Proposals will indicate which of the four main themes they refer to; posters will also be welcome on the theme of measuring biodiversity. Decisions on the acceptance of posters will be made by 14 March 2009. The poster session will take place during the 90-minute lunch break and the concluding reception. There will be an award for the best poster, based on voting by participants.

Registration fee: £50; £25 for students and unwaged. Speakers will be exempt from the registration fee.

Outcomes:

- book of abstracts of posters and presentations, available at conference
- PowerPoint presentations on the ECRR website together with the abstracts
- brief (maximum 4 page) summary document of the key points, to be produced by the organisers after the event to go on the website and to be circulated to the partners.

More information? For further information, or to book a place, please contact Angela Paterson at biodiversity.cms@perth.uhi.ac.uk or phone 01738 877761.

Poster submission: To submit proposal for poster please complete form (see www.ecrr.org.uk/poster_form.doc) and mail to biodiversity.cms@perth.uhi.ac.uk.

Venue: Travel to Battleby by public transport is not easy. We encourage car sharing and we will do what we can to assist.

ECRR DIARY 2009

Feb 11	Executive Committee	SAC, Edinburgh	11.00
Feb 17	ECRR Annual Lecture	Professor John Beddington, UK Chief Scientist, RSE, George St, Edinburgh	17.30
Mar 4	Executive Committee Directors' Lunch	Venue TBA Heriot Watt University, Riccarton	11.00 12.30
Apr 29	Directors' Lunch Main Board & AGM	Venue TBA	12.30 14.00
May 13	ECRR Forum	Scotland's changing rural biodiversity SNH Battleby Centre, Perth	8.45 18.30
Jun 8	Directors' Lunch	R(D)SVS, Edinburgh University Directors' Lunch	12.30 12.30
Jun 26	Executive Committee	Venue TBA	11.00
Sep 3	Executive Committee Directors' Lunch	Venue TBA BGS, King's Buildings, Edinburgh	11.00 12.30
Oct 5	Directors' Lunch	Venue TBA	12.30
Nov 11	Directors' Lunch Main Board	Venue TBA	12.30 14.00
Dec 7	Executive Committee Directors' Lunch	Venue TBA RBGE, Edinburgh	11.00 12.30

CONFERENCES & WORKSHOPS 2009

Feb 20	Snowdrop Conference	Royal Botanic Garden Edinburgh
April 7-8	2nd European Ramularia Workshop – A new disease & challenge in barley production	University of Edinburgh
April 22-23	Advances in epidemiology & control of rusts	Science & Advice for Scottish Agriculture, Gogar
May 13	Scotland's changing rural biodiversity: policy & action needs	SNH Battleby Centre, Perth
June 2-4	Integrated agricultural systems: methodologies, modelling & measuring	SAC Edinburgh
Sept 2-4	EUCARPIA – Biometrics in plant breeding	Scottish Crop Research Institute, Dundee

ECRR Member Organisations

University of Edinburgh	www.ed.ac.uk
College of Science & Engineering	
College of Medicine & Veterinary Medicine	
College of Humanities & Social Science	
Scottish Agricultural College	www.sac.ac.uk
Research & Development	
Education & Training	
Heriot Watt University	www.hw.ac.uk
University of St Andrews	www.st-andrews.ac.uk
Napier University, School of Life Sciences	www.napier.ac.uk/fhls/lifesciences
University of Stirling, Institute of Aquaculture	www.aquaculture.stir.ac.uk
UHI Millennium Institute	www.uhi.ac.uk
University Marine Biological Station Millport	www.gla.ac.uk/centres/marinestation
Moredun Research Institute	www.mri.sari.ac.uk
Forest Research, Northern Research Station	www.forestresearch.gov.uk
The Roslin Institute, University of Edinburgh	www.roslin.ac.uk
Biomathematics and Statistics Scotland	www.bioss.sari.ac.uk
British Geological Survey	www.bgs.ac.uk
Centre for Ecology & Hydrology Edinburgh	www.ceh.ac.uk
MRC Human Reproductive Sciences Unit	www.hrsu.mrc.ac.uk
National Museums of Scotland	www.nms.ac.uk
Royal Botanic Garden Edinburgh	www.rbge.org.uk
Royal Society for the Protection of Birds - Scotland	www.rspb.org.uk
Scottish Agricultural Science Agency	www.sasa.gov.uk
Scottish Crop Research Institute	www.scri.sari.ac.uk
Scottish Natural Heritage	www.snh.org.uk
Scotland & N. Ireland Forum for Environmental Research	www.sniffer.org.uk
Edinburgh Centre for Tropical Forests	www.nmw.ac.uk/ectf
Scottish Centre for Animal Welfare Sciences	

CONTACTING ECRR

Scientific Director:	Dr Chris Browitt	Email: cbrowitt@staffmail.ed.ac.uk
Secretary/Treasurer	Mike Talbot	Email: m.talbot@bioss.ac.uk
Bush Telegraph Editor	Mike Steele	Email: mike.steele@sac.ac.uk

ECRR, University of Edinburgh, Room 3618, JCMB, King's Buildings, Edinburgh EH9 3JZ
Tel: 0131 650 4890 Fax: 0131 650 4901

FUTURE ISSUES

Contributions to the Bush Telegraph are welcomed. All contributions, comments and suggestions can be emailed to Mike Steele at mike.steele@sac.ac.uk.

DISTRIBUTION

For queries about Bush Telegraph distribution please contact Mike Talbot at mike.talbot@bioss.ac.uk.

ON THE WEB

Back issues can be viewed at http://www.ecrr.org.uk

COPY DEADLINE

Deadline for copy in the next issue is 1 April 2009

Printed by The University of Edinburgh, Printing Services www.pps.ed.ac.uk