BUSH TELEGRAPH

The House Magazine of the Edinburgh Centre for Rural Research

Web Watch …

ECRR

Links to ECRR members' websites can be found at *www.ecrr.org.uk*

EU Research

Details of much that you might want to know about the 6th Framework Programme: *europa.eu.int/comm/research/index_en.html*

The Dutch Way

At Wageningen a joint university / research centre organisation has been created. *www.wur.nl*

Planet Science

Resources and help for young people interested in science. www.scienceyear.com

Links to Links

The IoB provides a useful index to scientific links on everything from genomics to space science. www.iob.org

Science News

www.newscientist.com
www.nature.com
www.sciencemag.org

Inside …

And more …

Conferences….

Stop Press -

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No 44

CONTENTS

*Please note that a number of articles normally appearing in the Bush Telegraph this month will be coming out in the December issue including those from NMS and Millport.

Editorial

It's the start of the conference season again both in Scotland and the rest of Europe. There are two very good ones advertised in this issue of Bush Telegraph.

Conferences are a very important opportunities for scientists to present their research findings to other scientists for scrutiny but perhaps more importantly to those nearer the *coal face* who have to utilise the findings in a more practical sense. It may therefore be an opportunity for scientists to refine their research in line with what end-users need or more cynically what sponsors are prepared to fund.

Whatever their motives presenters need to harness their possible best communication skills to project their work in such a way that sponsors and those likely to use the findings can see the real benefits that accrue from the research. To do this the presenter must put him or herself into the mind of the audience and use a format and language that is understandable to the non-specialist. It is still too often the case that excellent scientists cannot speak to others in an appropriate way and cause science to once again to be misunderstood. It's not an easy task to communicate effectively but as most good orators are not born but made then it is only a matter of getting better with more practice!

Please remember there is an electronic version of Bush Telegraph available on the ECCR website at www.ecrr.org.uk

Why not let your colleagues at home and overseas know what's going on so that BT contributes a little to spreading the word that investment in science is worthwhile.

Mike Steele
Editor

Correspondents please note.

Deadline for copy for next issue is November 22nd 2002.
All contributions, comments and suggestions can now be e-mailed to M.Steele@ed.sac.ac.uk **with copies to** m.talbot@bioss.ac.uk **please.**

ROTA OF SOLICITED CONTRIBUTIONS TO BUSH TELEGRAPH

MARCH

British Geological Survey
Biomathematics & Statistics Scotland
University of Edinburgh, School of Earth, Environmental & Geographical Sciences
Royal Society for the Protection of Birds
SAC Research Division
University of Edinburgh, School of Engineering & Electronics
Heriot-Watt University, Department of Biological Sciences

JUNE

University of Edinburgh, School of Biological Sciences
Centre for Ecology & Hydrology
MRC Human Reproductive Sciences Unit
University of Edinburgh Royal (Dick) School of Veterinary Studies
Royal Zoological Society of Scotland
SAC Animal Biology Division
Napier University, School of Life Sciences

SEPTEMBER

Edinburgh Centre for Tropical Forests
Lasswade Veterinary Laboratory
National Museums of Scotland
Roslin Institute
Royal Botanic Garden Edinburgh
Scottish Natural Heritage
University Marine Biological Station, Millport
University of Edinburgh, Centre for the Study of Environmental Change & Sustainability

DECEMBER

University of Stirling, Institute of Aquaculture
Moredun Research Institute
Forest Research Northern Research Station
University of Edinburgh, Centre for Tropical Veterinary Medicine
Scottish Agricultural Science Agency
Scottish Centre for Animal Welfare Sciences
Scottish Crop Research Institute
Scottish Vertebrate Wildlife Centre

EVENTS DIARY 2002/2003

Nov 4	Directors' Lunch	Institute of Ecology & Resource Management University of Edinburgh, Kings Buildings 12.30pm Hosts: Prof John Grace & Prof Keith Smith
	Board Meeting	Institute of Ecology & Resource Management 14.00
	Reception	John McIntyre Centre, Pollock Halls 17.30-20.00
Dec 2	Directors' Lunch	MRC Human Reproductive Sciences Unit Little France Host : Prof Robert Millar
Feb 14	Annual Lecture	Prof John Lawton, CEO, NERC Royal Society of Edinburgh, George St 17.00
Mar 3	Director's Lunch	SAC, Bush Estate 12.30pm Host : Prof John Oldham
May 8	Meeting	Scotland's Landscape - a Fixed Asset? One-Day Forum, SNH Battleby Centre, Perth.

SCIENTIFIC DIRECTOR'S NOTES: ***Professor Ian Aitken***

How one assesses summer 2002 depends very much on one's standpoint but there is likely to be a large measure of agreement that, weatherwise, it has been pretty poor, at least until late August. However, the season has been notable in other respects. Amongst these has been publication of various inquiries arising from the devastating outbreak of foot-and-mouth disease in 2001. These include the 'Lessons Learned' review and the scientific appraisals carried out by the Royal Society (London) and the Royal Society of Edinburgh (RSE). Not surprisingly, both individual and common conclusions and recommendations have emerged, all of which will require to be sifted, analysed and evaluated before detailed government responses can be expected. What is clear, however, is that the 2001 outbreak must mark a watershed in how major infectious diseases of livestock are handled and in the resources which government commits to that end. Public opinion would not countenance a repetition of 2001.

As it dealt exclusively with the Scottish experience the RSE Inquiry took both specific and broader views by considering the impact of the outbreak not just on agriculture but on the wider rural socio-economic structure. As the ECRR Forum had done previously, the Inquiry recognised and emphasised the interdependence of agriculture and other rural businesses and recommended, *inter alia*, that future disease control strategies should "take account of the wider interests of the rural economy and involve the appropriate stakeholders." How this can best be achieved remains to be determined but, as the ECRR Forum recommended, one vehicle could be regular cross-sectoral themed events designed to promote and reinforce understanding of the interdependence of rural businesses and the value of co-operation.

At the time of writing, one further report awaits publication. That is the inquiry carried out under the chairmanship of Professor Phil Thomas, former Principal of SAC, into the outbreak in Cumbria, one of the areas that was particularly badly affected by FMD. Publication is imminent and the report, like those already produced, should command attention if the benefits of experience are to be gained.

SHOWS AND OTHER HAPPENINGS

After an imposed fallow year agricultural shows made a welcome return during the summer but compliant with new biosecurity requirements in the animal sector. Scotland's flagship event, the Royal Highland Show at Ingliston, was judged a great success although some others during July and August were adversely affected by the weather. Overall, however, regional and local shows appear to have attracted entries and public support.

Never far from the headlines, GM crops had a double billing. First came the news that the Prime Minister intended to lead a campaign to win public support for their commercial production in Britain. The admission, a few weeks later, by the company concerned that previously released batches of seed contained a contaminant has caused consternation and drawn into question whether scheduled new trials will go ahead.

Coverage was received also by two zoonotic pathogens. *E. coli* O157 was incriminated as a cause of illness on a campsite in Strathspey and *Cryptosporidium parvum* contamination of public water supplies was detected in the West of Scotland. Fortunately, neither incident had significant public health consequences but each served as a reminder of the continuing need for

vigilance in surveillance of human and animal infections.

In the flurry of media attention given to the stories on GM crops and zoonotic infections it is to be wondered what calls, if any, were made on the relevant scientific expertise available through ECRR and readily accessed via its website : *www.ecrr.org.uk*

LOOKING AHEAD

***Dates for noting**:*

- Wednesday 6th – Saturday 9th November : Scottish Natural Heritage with others is holding an International Conference on "Nature and People : Conservation and Management in the Mountains of Northern Europe" in the Festival Theatre, Pitlochry. This is SNH's key contribution to the International Year of Mountains 2002(IYM). Details and registration forms are available from Mrs Helen G. Forster, SNH, 2 Anderson Place, Edinburgh EH6 5NP (Tel:0131-446-2420).
  Email helen.forster@snh.gov.uk

- Friday 14th February, 2003 : ECRR Annual Lecture to be given by Professor John Lawton CBE FRS, Chief Executive, Natural Environment Research Council, entitled "Life on a little known plant and unsustainable development". The Lecture is co-sponsored by ECRR, Institute of Biology (Scottish Branch) and the Royal Society of Edinburgh and admission is by ticket only. Further details will be given in the December issue of the *Bush Telegraph.*

- Thursday 8th May, 2003 : a one-day meeting to be organised by ECRR on "Scotland's Landscape – A Fixed Asset?" The venue will be the SNH Battleby Centre, near Perth and, like the Post FMD Forum held last year, the meeting will seek to offer a programme with good cross-sectoral appeal. Further information will be provided early in 2003.

LATE NEWS

The Edinburgh University Court has appointed Professor Mary Bownes to serve as the University's representative on the ECRR Board from 1 October 2002. Professor Bownes replaces Dr D E S Truman.

An acknowledgement of Dr Truman's contribution to the work of ECRR will appear in the next BT issue.

CENTRE FOR THE STUDY OF ENVIRONMENTAL CHANGE AND SUSTAINABILITY

Dr Andy McLeod
Director, CECS
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UNIVERSITY RESTRUCTURING

The restructuring of the University of Edinburgh that has been described previously in the Bush Telegraph (March 2002, P10) places CECS in the new School of Earth, Environmental and Geographical Sciences (an interim name) that is part of the College of Science and Engineering. The new School comprises a range of expertise from past departments: Geology & Geophysics, Geography, most of the Institute of Ecology and Resource Management and Meteorology. The School presents many new opportunities for development of environmental research and teaching at the University.

RESEARCH ACTIVITIES

Sustainable Forestry

The Sustainable Forestry Group, led by Paul van Gardingen, continues to develop methods for increasing knowledge and tools for sustainable forest management in the tropics with funding from the Department for International Development (DFID). Their project on *Modelling of the growth and yield of tropical forests* in Indonesia, Guyana and Brazil is in its final stages whilst a project on *Multiple Objectives for Forest Management* is in the early development phase. The Group have been awarded a further contract to develop tools supporting forest management systems in Brazil. Together with the Edinburgh Centre for Tropical Forestry (ECTF) and the International Institute for Environment and Development (IIED) they organised a meeting on *Forests and Poverty Reduction* at Edinburgh University on 13 June 2002 with funding from DFID, the World Bank and the Food and Agriculture Organisation (FAO). Their most recent projects include a contract from the Ministry of Foreign Affairs in Finland to advise the Finnish government on *Strategies for utilizing forestry for poverty reduction* and providing advice to the government of Ghana as part of the *Forest Sector Development Project: Phase II* funded by DFID.

Biodiversity

Simon Allen of CECS was a contributor to a project on *Biodiversity in Scotland* led by RSK Environment Ltd, which compiled a report for the Ministerial Group of the Scottish Executive. Simon was invited to give the formal presentation that launched the Report at the first Scottish Biodiversity Forum on 26 February 2002.

Climate Change

CECS contributed to a scoping study for the Sustainable Development Commission led by the Edinburgh Centre for Carbon Management (ECCM) on a *Policy Audit of the UK Climate Change Programme*. This study examined whether the policies and programmes set out in the UK Climate Change Programme are likely to achieve the

Kyoto and other targets for greenhouse gas emissions and what further policies and programmes might be required. The contributions of current or alternative policies and programmes for reducing carbon emissions to the wider objectives of sustainable development were also considered. The scoping study was followed by the award of a contract to complete a full Audit Report that will be completed in September 2002.

CECS was a partner in a project team including Queen's University, Belfast and Napier University that undertook a climate change study entitled *Implications of Climate Change for Northern Ireland: Informing Strategy Development*. The Report was funded by the Scotland and Northern Ireland Forum for Environmental Research (SNIFFER) and was launched on 15 April 2002 in Belfast by Dermot Nesbitt, Minister of the Environment. The full report can be downloaded from the SNIFFER web site http://www.sniffer.org.uk. Simon Allen subsequently gave an invited presentation on *Living in Scotland in a changing climate* as part of the Environment Day of the Orkney Science Festival on 2 September 2002.

Sustainable Development

Together with the Policy Studies Institute, London and the University of Westminster, CECS is part of a team co-ordinating the *UK Sustainable Development Research Network* (*SDR-Network*) for the Sustainable Development Unit of the Department of the Environment, Food and Rural Affairs (DEFRA). The network promotes high-quality cross-cutting research that integrates the environmental, social and economic pillars of sustainable development and aims to help policy makers make better use of evidence and research. The project has established a web site and a database of research organisations and projects involved in sustainable development research. CECS focuses on organisations and projects in Scotland, Northern Ireland and the north of England and takes a lead role in ecological aspects of sustainable development. The *SDR-Network* holds an annual conference, and regular meetings of an advisory group and user forum to aid with identification of research gaps and opportunities for DEFRA. Arising from these consultation exercises the *SDR-Network* has produced a Report entitled *Towards a New Agenda for UK Sustainable Development Research* that can be obtained from CECS. The *SDR-Network* web site and database are available at www.sd-research.org.uk. ECRR member organisations are invited to contact CECS if they have relevant sustainable development research activity and wish to be included in the database. The Network also produces an electronic newsletter about new research publications, conferences, funding and jobs. Membership of the *SDR-Network* is open to anyone interested in sustainable development research.

The *SDR-Network* held its first Annual Sustainable Development Research Conference at the DTI Conference Centre, London on the 4 December 2001 attended by over 100 leading UK natural and social scientists. The conference speakers included Professor David King, the government's Chief Scientific Advisor, who opened the conference by examining how climate change policy will affect energy research. NERC Chief Executive, Professor John Lawton outlined the Research Council's perspective on sustainable development research and identified 'sustainable energy' and a 'sustainable rural economy' as key government priorities. A conference Proceedings will be published shortly. The next Annual Conference will be held on 12 December 2002 in London and will include presentations on: the World Summit on Sustainable Development; Planning - evidence for reform; Children's health and the environment; Rebuilding biodiversity; and the UK's Sustainable Development

Research Policy. Further details will be available on the *SDR-Network* web site.

POSTGRADUATE COURSES

CECS continues to offer a one-year full-time postgraduate Masters or Diploma programme (MSc/Dip) in Environmental Sustainability. Staff from a number of ECRR organisations have contributed to our teaching and seminar programme. Our sixth cohort of 23 students will commence studies in October 2002. The course continues to be extremely popular and applications for admission far exceed the available places.

The items described above highlight the role that CECS undertakes in co-ordinating interdisciplinary teams from within Edinburgh University and beyond in order to address complex environmental problems through research and postgraduate teaching. Further details of CECS activities, including a regular seminar programme in the Autumn and Spring terms, can be found on the CECS website at www.cecs.ed.ac.uk
or contact
cecs-office@ed.ac.uk.

Work Smarter!

LEARN: LINK Environmental & Academic Research Network links your organisation's research needs to motivated students looking for real-life projects to complete in the environment sector. Our web catalogue is easy to use for organisations and students alike, collects project titles from over 30 environmental organisations, including SNH and SEPA, and is advertised to over 200 higher education courses, covering all of Scotland's Universities.

The service is extremely cost effective, as it is free to use; open to all organisations with an environmental remit and the resources to support a student project; and we may also be able to help with student expenses.

Having your small-scale research needs tackled by a student allows you to tap in to the new talent emerging, create links with academia, and raise your profile to the wider public.

The projects on the LEARN catalogue cover a wide range of topics, and are not restricted to purely environmental issues. They can be desk- or field-based and involve anything from habitat survey to website design. Previous projects have covered resource management, transport, politics and policy, education, information technology, natural sciences, energy and many more.

Now is a great time to post project titles on the site as the new academic year is starting soon, and students will be desperate for research ideas to fulfil their academic courses, whilst benefiting from the real-world experience a placement can give.

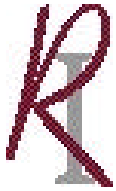
LEARN needs a new funder from March 2003 and until this is secured, its future is uncertain. LEARN runs on a very small budget (circa £10 -£15,000pa) and furthers the aims of a large number of organisations. If you have ideas, enthusiasm, or funds, we would love to hear from you.

The website www.scotlink.org/learn is where you can access a wealth of information about how to use the service, what to think about when putting a project proposal together, view the annual report or the list of completed projects and more. You can even enter a project title online.

If you would like any more information regarding LEARN, please visit our website or email me direct: learn@scotlink.org.

Gill Calder
LEARN Project Officer

News from Roslin



A New Director for Roslin…but who?

As many readers will be already aware, Professor Grahame Bulfield will be leaving Roslin Institute at the end of October to take up an appointment as Vice Principal and Head of the College of Science and Engineering at the University of Edinburgh.

Grahame had planned to retire in 2003 and arrangements to identify a successor have been accelerated to accommodate his leaving six months earlier than expected. The BBSRC has widely advertised the post in *Nature* and elsewhere and appointed headhunters *kmc* to help identify suitable candidates. Deadline for applications was 20 September, so if you haven't applied…..

A Selection Committee including Professor Julia Goodfellow, CEO of the BBSRC and Dr John Brown, Chairman of Roslin Institute's Governing Council is due to make its choice from a short list in late November. Dr Harry Griffin will be Acting Director from 1 November until the new Director takes up his or her appointment but in the meantime speculation builds.

Faraday bid approved by DTI

A proposal by a Roslin Institute-led consortium of universities and research Institutes, animal breeding and animal health companies and bodies such as MLC and MDC to set up a Farm Animal Genetics and Genomics Faraday Partnership was one of six successful bids announced by the Secretary of State Patricia Hewitt on 5 September.

The aim of the Faraday Partnership scheme is to foster collaboration between researchers and industry and the new partnership aims to bring together all those in the UK that carry out research on farm animal genetics and genomics or are interested in exploiting the technology for commercial benefit.

Seven local research organizations are already involved: Hannah , Moredun, Rowett, SAC and the Universities of Glasgow and Edinburgh. The interim Steering Committee is chaired by David McBeath of Merial and hopes to be able to announce the appointment of a CEO to lead the Partnership shortly.

'Animals and Biotechnology' by the AEBC:

The Agriculture and Environment Biotechnology Commission's Report on Animals and Biotechnology was published on 2 September. Given the emphasis in the report on genetic modification and cloning, it was ironic that AEBC made their first visit to Roslin a week later.

The AEBC'S Report (www.aebc.gov.uk) was disappointing. It called for a new Strategic Body to be set up to examine the issues raised by genetic biotechnology (*sic*) and asked for new methods and funding to engage the public in decisions about genetic biotechnology. The Report recommended that arrangements should be made to ensure consumers could choose whether to eat meat from GM or cloned animals.

There was, however, little recognition of the international dimension to these issues. GM meat is likely first to enter the food chain outside the UK but there was no discussion of the difficulties in monitoring import of GM and non-GM meat products (or of the impossibility of distinguishing meat from cloned or non-cloned animals!). A more detailed critique of the Report will appear in Roslin Institute's next Annual Report, to be published early next year.

Harry Griffin

ROYAL BOTANIC GARDEN EDINBURGH

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PLANT CONSERVATION GENETICS

Global recognition of the importance of biodiversity was formalised with the signing of the *Convention on Biological Diversity* and the subsequent development of national and international Biodiversity Action Plans. These Biodiversity Action Plans provide a framework for the identification and prioritisation of conservation research, and highlight the importance of the conservation of genetic biodiversity, as well species and habitat diversity. Recent developments in molecular genetics have facilitated conservation genetics research, with cost-effective and non-destructive assays now available to provide insights into the population genetic structure of organisms of conservation interest. This interface between population genetics and conservation biology is a rapidly developing discipline, and is a major topic of interest for the *Conservation Biology and Population Genetics* group at the Royal Botanic Garden Edinburgh.

Conservation genetics research at RBGE can be divided into three broad categories:

1. Genetic resource management

The genetic variation within a species essentially represents its potential to adapt to a changing environment. However, as with other forms of biodiversity, genetic biodiversity can be lost due to habitat perturbations, with population fragmentation, exploitation and land-use changes all potentially leading to genetic erosion. Examples of current projects at RBGE addressing these issues include:

Investigating the genetic impacts of population fragmentation caused by open-cast mining, and the success of landscape-restoration programmes for the conservation of genetic resources of New Caledonian *Araucaria* species;

Establishing whether local agroforesty practices are adequately conserving genetic diversity in the economically important South American tree *Inga edulis* (Leguminosae);

Assessing the genetic diversity of *ex situ* conservation collections of European elms to complement parallel studies on their susceptibility to Dutch Elm Disease.

2. Reproductive ecology

Molecular data can also be used in a conservation context to address questions that are primarily ecological in nature. These essentially involve gaining basic insights into the biology of a study organism to facilitate its conservation. For instance, halting and reversing the decline of a given species ultimately requires successful reproduction and dispersal, and yet for many high conservation priority plant species, modes of reproduction, and patterns and distances of dispersal are unknown.

Examples of current projects addressing these issues at RBGE include*:*

- Establishing the influence of population size, spatial separation and landscape features on patterns of gene flow in species of conservation importance

- Assessing the relative importance of sexual versus asexual reproduction in the Irish Lady's-tresses Orchid (*Spiranthes romanzoffiana*) to guide management strategies

- Investigating the spatial scales over which genetic isolation occurs in populations of endangered sub-arctic willows (*Salix* spp.) to facilitate the design of reintroduction programmes.

3. Taxonomy and evolution

There is an old adage in conservation biology that it is not possible to know whether something is common or rare (and hence what its conservation needs are) unless it can be defined and recognised. This problem is particularly acute in groups that are undergoing active evolution – species that have arisen recently can be difficult to distinguish, and their isolation from their progenitors may be incomplete. Research at RBGE is underway on a range of projects in this area including:

Assessing the status of taxonomically controversial plant species currently afforded high conservation priority under the UK Biodiversity Action Plan system and other international conservation legislations

Establishing the evolutionary processes underlying biological radiations to try to evaluate the mechanisms responsible for species diversification

Providing data to contribute towards the development of new conservation strategies in actively evolving groups – in which the evolutionary process (as well as its products) is a target for conservation.

The conservation genetics research group at RBGE has developed considerably

within the last five years, and externally funded grants currently support three post-docs, ten PhD students and two MSc students.

Araucaria rulei is an endangered conifer endemic to the Pacific ocean island of New Caledonia. It is a nickel indicating species, and is under threat from open-cast mining for nickel – the major source of export income for the island. Alex Ponge, a molecular biologist at RBGE, is investigating the population genetics of this species to contribute towards programmes concerned with its conservation.

The Scottish Centre for Biotechnology Education (SCBE)

Think back to one of your school teachers and imagine the science they learned as students. What scientific and technological developments have occurred since then? It may be that your teacher continues working today with little or no opportunity to update their knowledge and skills. The pace of change in biotechnology has been particularly rapid and public debates have arisen from developments such as The Human Genome Project, Dolly the sheep, xenotransplantation, GM crops, chip technology, designer drugs, etc. With the many pressures placed on the profession, there is little time for science teachers to keep abreast of the wide ranging advances. Students may well be leaving school with inadequate preparation for certain subject areas in further and higher education or to work in Scotland's successful bioindustries. Students should leave school with an awareness of issues emerging from biotechnology and the knowledge that will enable them to make well-informed opinions and decisions.

Several projects currently aim to bridge these gaps between the schools and provide teachers with opportunities for updating of knowledge and skills in biotechnology, (see Box). The Scottish Centre for Biotechnology Education (SCBE) has been set up to bring these projects together, enhance their scope and to provide co-ordination across these initiatives.

Teachers at the 2001 Biotechnology Summer School

Scottish Biotechnology Initiatives for School Teachers

Biotechnology Summer School (see picture): This annual week-long event is now in its 6th year. Fifty teachers from all over Scotland attend Edinburgh University to hear about recent research developments, learn up-to-date practical work, visit local biotechnology industries and discuss methods of teaching challenging issues.

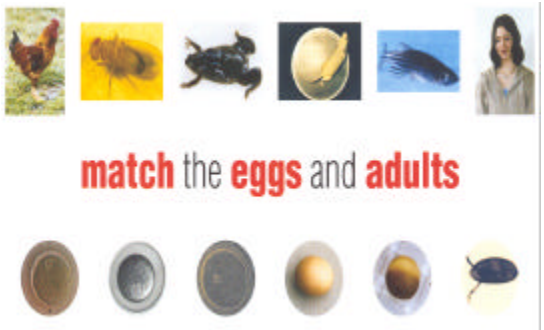
Science and Plants for Schools (SAPS) Biotechnology Scotland Project: Staff at Edinburgh University and Dollar Academy develop curriculum-related practical work and resources, run 'hands on' workshops for teachers and technicians and provide telephone and on-line support.

Scottish Schools Equipment Research Centre (SSERC): SSERC develop materials (including on-line) across the science curricula, provide advice on equipment and advise on Health and Safety Matters.

Scottish Colleges Biotechnology Consortium : This 4-college partnership delivering accredited education and training to support the needs of the bioindustries for well-trained technical staff, as well as providing support to schools.

The University of Edinburgh provides significant support to the SCBE; Professor Mary Bownes in ICMB is the Director of the Centre and has successfully secured funds to launch the organisation and to develop related initiatives:

- £50,000 from Scottish Enterprise Edinburgh and Lothians (SEEL) to develop the centre's business plan, seek further funding and provide co-ordination across the activities.
- £120,000 from the Darwin Trust of Edinburgh to employ a post-doctoral researcher who will work with teachers to develop new kits to support the delivery of biotechnology in the classroom.
- £9,250 from BBSRC to establish an interactive workshop using puzzles (can you match the egg to its owner – see picture), classroom materials and video displays to convey the concept of how genes and environmental factors can influence development. A successful pilot was run during the Edinburgh International Science Festival 2002.



The Guess-the-Egg puzzle helps show that a single cell contains all the instructions necessary to produce an adult.

SCBE will work with the existing initiatives, other further and higher education institutions across Scotland, and the biotechnology industries themselves. In addition, SCBE has close links with the Scottish Executive through the appropriate agencies (e.g. HM Inspectorate of Education and Learning and Teaching Scotland). The output of SCBE and its partners underpins two key commitments of the Scottish Executive.

- *Science Strategy for Scotland*: Especially the objective to "ensure that enough people study science to a standard which will enable the future needs of the country to be met".
- *A Smart, Successful Scotland*: Scotland is recognised as a leader in the field of biotechnology. The Scottish Executive identified the biotechnology cluster as one of the key sectors for greater growth in Scotland.

SCBE aims to be inclusive and to work with all interested groups. If you can help with the development of resources for teachers or would like to subscribe to *the Messenger* (SCBE's soon to be launched newsletter) please contact the Project Manager: Dr Antony Weir, Darwin 707, ICMB, King's Buildings. a.weir@ed.ac.uk

NATURE AND PEOPLE: CONSERVATION AND MANAGEMENT IN THE MOUNTAINS OF NORTHERN EUROPE

INTERNATIONAL CONFERENCE PITLOCHRY, 6-9 NOV 2002

Scottish Natural Heritage's 2002 conference is a key contribution to the International Year of Mountains 2002 (IYM 2002) and has been arranged in partnership with the Centre for Mountain Studies , Perth College/UHI Millennium Institute, IUCN (The World Conservation Union), the Food and Agriculture Organization, the Royal Geographical Society with the Institute of British Geographers, Perth and Kinross Council, the British Council "Scotland in Sweden" programme and Scottish Enterprise Tayside.

The main themes of this conference centre around the broad objectives of The International Year of Mountains 2002 (IYM 2002), namely to celebrate and secure greater care of the natural qualities of the world's mountains, as well as to recognise the diverse benefits that mountains provide to both mountain and other populations. At this conference, the geographic focus is on the mountains of the North Europe, notably Faroes, Finland, Iceland, Ireland, Norway, Sweden and UK. It is a contribution to a wide programme of events being promoted by non-governmental organisations and public bodies as Scotland's contribution to IYM 2002.

The mountains of all these countries are geologically linked, either though past phases of ancient mountain building, or through more recent and contemporary volcanic activity connected with the opening of the Atlantic. For all of them the maritime influence is often not far away; indeed these mountains often directly meet the sea. Northerly latitudes bring severe climatic influences, and their fauna and flora reflect a very recent recovery from the last glaciation. Finally, the low productive capacity of this terrain provides a difficult living environment for the people of these nations, who have traded and exchanged cultural influences over than a millennium. The links between people and their mountain environment are at the heart of the conference.

The key objectives of the conference are:

- to link science and policy developments in the mountains of Northern Europe;
- to highlight management needs in terms of stimulating and sharing best practice; and
- to make connections between these objectives in order to share ideas and information and inform policy and research agendas.

There will be a welcoming Reception at Pitlochry Festival Theatre on the evening of Wednesday 6 November. The Conference Sessions on Thursday 7 and Friday 8 November will be led by keynote speakers and will include opportunities for discussion. The themes of the six Conference Sessions are:

Session 1: Scene setting and context
Session 2: The mountain environment – perspectives
Session 3: Change – land uses and challenges ahead
Session 4: Management – influences and scientific opportunities
Sessions 5: Nature and people – trends and prospects
Session 6: Final plenary session

Conference speakers are from Austria, Finland, Iceland, Italy, Norway, Sweden, Switzerland, and UK.

In addition to the presentations, approximately 50 posters on related

conference themes will be displayed throughout the conference. Specific time will be set aside for viewing and discussing posters with presenters.

A conference dinner will be held on the evening of Thursday 7 November and a programme of Case Study Field Visits will take place on Saturday 9 November. These visits will consider aspects of the following:

- Forests and woodlands in the Scottish mountains
- Local communities and National Parks
- Nature conservation and recreation management

Conference fee

The conference fee is £175 for 6, 7 and 8 November; the conference dinner (£30) and case study field visits (£20) are optional extras. Places are still available at all of these events – but please note that a late booking fee (£25) becomes payable for bookings received on or after 9 September. A daily registration fee of £100 is available on 7 and 8 November.

The conference registration fee covers the reception on 6 November, the conference sessions on 7 and 8 November, including lunch and refreshments on these days. A copy of the abstracts will be provided on arrival for registered delegates and a copy of the conference proceedings will be sent to each delegate after publication. In addition, application can be made for a concessionary place (£100) at the conference. This is principally for those from the voluntary and educational sectors. Applications for concessions require to be made in writing to Helen Forster – details below.

Further information about the conference and booking forms are available from:

Mrs Helen G Forster
Nature and People Conference Secretariat
Scottish Natural Heritage
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Farm Animal Genetic Resources

Edinburgh - 26-27 November 2002

A Conference organised by the British Society of Animal Science, DEFRA, Rare Breeds Survival Trust and the Sheep Trust

INTRODUCTION

This conference is being held to create awareness of, and provide a forum for discussion of the changing government role in conservation of FAGR the impact of FMD on rare breeds, opportunities for increasing economic returns for those keeping rare breeds e.g. new markets, and the scientific basis for conservation of FAGR, including guidelines on managing populations at risk, new research on balancing gain and inbreeding, new reproductive/genetic tools to assist conservation.

Tuesday 26 November, 2002
Session 1: Policy

Conservation of farm animal genetic resources - a global view
Ricardo Cardellino, (FAO, Rome, Italy)

Conservation of farm animal genetic resources- a European view
Ela Martyniuk, Warsaw Agricultural University, Poland

Conservation of farm animal genetic resources - a national view
Rosemary Mansbridge RBST, Stoneleigh Park, Warwickshire, UK

Heritage Gene Bank: origins, actions and future role. *Dianna Bowles*
The Sheep Trust, York, UK

The UK government policy on FAGR Conservation. *Mike Roper*
DEFRA, London, UK

Session 2: Genetic basis for conservation

Genetic variation in animal populations
Bill Hill (University of Edinburgh, UK)

Managing populations at risk
John Woolliams (Roslin Institute, Edinburgh, UK)

Experiences from plant GR conservation
Mike Ambrose (BBSRC, UK)

Managing genetic resources in commercial breeding populations
Beatriz Villanueva (SAC, Edinburgh, UK)

Value of genome mapping and conservation. *John Williams (Roslin Institute, Edinburgh, UK)*

Conservation genetics of UK and continental sheep breeds: from molecules to management. *Mike Bruford (University of Wales, Cardiff, UK)*

Session 3: Other roles of rare breeds

Role of rare/traditional breeds in conservation: the grazing animals project
Richard Small (Liverpool John Moores University, UK)

Marketing opportunities

Wednesday 27 November, 2002
Session 4: Molecular and reproductive techniques to support conservation

Global statistics on *State of the Art* techniques
Michel Thibier (I'OAA/FAO, Rome, Italy)

Role of reproductive technologies: new and current methods semen techniques
Bill Holt (Institute of Zoology, London, UK)

Role of reproductive technologies: oocyte recovery. *Helen Picton (University of Leeds, UK)*

Role of new reproductive methods – case study:cloning. *David Wells (AgResearch, NZ)*

Biosecurity (disease transmission/safe techniques). *Tony Wrathal (VLA-Weybridge, Surrey, UK)*

Session 5: Conservation in action

Use of molecular genetic techniques: A case study on the Iberian pig
Miguel Toro (INIA, Madrid, Spain)

UK rare breeds: population histories and pedigree analyses
Saffron Townsend (RBST, Stoneleigh Park, UK)

UK conservation success stories - a case study: Longhorn cattle
Elizabeth Henson (Longhorn Cattle Society, Exeter,UK)

Workshops on:

- Implementing actions from the NCC Country report
- Appropriate conservation methods for the UK
- Prioritizing breeds for conservation
- Future R &D needs

CALL FOR PAPERS

Posters

Submitted posters would be welcomed in any relevant area.
One page summary to be emailed to the BSAS office bsasstaff@ed.sac.ac.uk by 15 October 2002. Subject heading: Farm Animal Genetic Resources - summary Details for summary from BSAS, PO Box 3, Penicuik, EH26 ORZ (0131 445 4508) or visit www.bsas.org.uk

PUBLICATIONS

A Book of Summaries will be given to all delegates. The full papers will be published as part of the BSAS Occasional series by Nottingham University Press

Earthquake Update

Alice Walker
British Geological Survey

Earthquakes can occur anywhere in the world, although they are not uniformly distributed, with the majority at plate boundaries. Globally, there are around 800 'moderate' earthquakes, (magnitude 5 to 5.9), 120 'strong' ones (magnitude 6 to 6.9) and around 20 'major' earthquakes, of magnitude 7 or greater, each year. There are many more smaller ones; 70,000 collated internationally in 2001, most unknown except to seismologists who study them. The main hazards following a larger earthquake include ground shaking, landslides, tsunamis and ground liquefaction. Fires may rage due to ruptured gas or water mains, and access for emergency services may also be blocked. The great fire in San Francisco following the 1906 earthquake, lasted three days and was more damaging than the shaking itself. Firestorms after the 1923 Tokyo earthquake, killed over 38,000 people. Two recent fatal earthquakes occurred in El Salvador and India on 13 January (magnitude 7.8) and 26 January, 2001 (magnitude 7.9). They killed 800 and 20,000 people, respectively.

Here in the UK, we are not immune from earthquakes (Fig. 1), and experience, around 200 earthquakes each year with about 20 of these felt by local residents. The largest earthquake to affect the United Kingdom was centred on the Dogger Bank, 120 km NE of Great Yarmouth, on 7 June 1931. It had a magnitude of 6.1 and caused minor damage on the east coast of England where many chimneys fell down. The largest onshore earthquake since 1900, occurred in North Wales on 19 July 1984 and had a magnitude of 5.4. It was felt over a large area of Britain and caused some damage as far as Liverpool, up to 120 km away. More recently, an earthquake with a magnitude of 4.2 occurred near Warwick on 23 September 2000 and another near Melton Mowbray in October 2001. Both were felt up to 150 km away and over areas of 15,000 km^2 and 25,000 km^2, respectively. In a number of cases, objects such as ornaments, pictures or toys fell or were displaced. In a few cases, heavy objects were also said to have been displaced, including washing machines, cookers and lounge furniture. No damage was reported.

The third earthquake to strike central England in the space of 2 years was centred on Dudley, in the West Midlands, on 23 September 2002, with the larger magnitude of 5.0 on the Richter Scale (20 times bigger than the previous two). Again, people were awakened from sleep over a wide area and the felt effects stretched from Dublin to the east coast of England and from the Yorkshire to south of London. In the epicentral area of the West Midlands, there was much alarm and some damage to chimneys and roofs, with plaster cracking on interior walls. Information on these effects has been gathered through some 8000 responses to BGS questionnaires distributed nationwide through the media and internet. The value of such information at a time when sophisticated instruments can determine the epicentre, depth and fault motion of the earthquake, is in the calibration of historical British earthquakes. For these, there are only felt reports gathered from the archives but they are of equal importance in quantifying, numerically, the small risks which must be taken into account by our industries and utility providers.

With these recent experiences, and the knowledge that the 1931 Dogger Bank earthquake released more that 45 times the energy of the Dudley earthquake, it is clear that the latter would have caused £millions of damage and probably some injuries, had it not been centred far offshore in the North Sea. A smaller earthquake (magnitude 5.8) near

Maastricht in 1992, which resulted in damage estimated at £60 million, supports that conjecture.

Earthquakes, both globally and in the UK, are monitored using the BGS seismic network of 146 seismometer stations (Fig. 2). Data is transferred to Edinburgh four times a day (or on demand during periods of particular interest) using either dial-up telephone lines or the public internet. It is analysed within 1 to 2 hours, to determine the location, magnitude and nature of an event (e.g. earthquake, explosion, sonic boom, or mining-induced seismicity) for wide dissemination. Interest from BGS' wide spectrum of customers in government, industry and academia, and from the media and the public is often intense. A 24-hour on-call service is operated, with computer connections between staff members' homes and the BGS Edinburgh office allowing rapid analysis. For more information visit the website www.earthquakes.bgs.ac.uk.

UK Earthquakes 1970 - 2002

ECRR MEMBER ORGANISATIONS

University of Edinburgh

Heriot-Watt University

Napier University

University of Stirling

Scottish Agricultural College

Biomathematics & Statistics Scotland

British Geological Survey

Centre for Ecology & Hydrology Edinburgh

Forest Research

DEFRA Lasswade Veterinary Laboratory

Moredun Research Institute

MRC Human Reproductive Sciences Unit

National Museums of Scotland

Roslin Institute

Royal Botanic Garden Edinburgh

Royal Society for the Protection of Birds

Royal Zoological Society of Scotland

Scottish Agricultural Science Agency

Scottish Crop Research Institute

Scottish Natural Heritage

University Marine Biological Station Millport

ECRR web site : www.ecrr.org.uk