

Bush Telegraph

The House Magazine of the Edinburgh Consortium for Rural Research

DIVERSIFYING THE RURAL ECONOMY

It seems to be a fact of life these days that getting stability and sustainability into the rural economy demands diversification and ensuring that a wide variety of business enterprises can flourish in the more remote areas of Scotland. This means using scientific and technical expertise to take advantage and capitalise on the positive aspects of living and working in a rural environment and minimise the disadvantages.

Recently I was listening on the radio to Professor Tim Lang (our 2011 Peter Wilson Lecturer) discussing the anomaly of Ginsters Cornish pasty, locally produced in Callington, Cornwall. However, to get to the Tesco supermarket next door, the pasty undertakes a round-trip of at least 250 miles to Avonmouth before arriving back on the supermarket's shelves in Callington.

The issue of food miles is becoming more important with transport being a significant

factor in the increase of greenhouse gasses in the atmosphere. I believe that the Peter Wilson Lecture in February will be particularly interesting to all concerned with the rural economy as food security climbs the political agenda.

The greatest asset the rural environment has is its landscape. Fashioned over thousands of millions of years and honed to its present shape by the glaciers of the last 2 million years, it has a wonderful diversity from the steep mountains of the Highlands to the rolling hills of the South of Scotland. Scotland's landscape is really the fundamental building block of our tourism industry. As an Earth scientist, I find that understanding a little bit about how the landscape formed increases immensely my appreciation.

I greatly admire the work that Scottish Natural Heritage did at Knockan Crag in the NW Highlands in creating an interpretative centre that makes the low angle fault, the great

Moine Thrust, accessible and understandable to visitors and that they leave with a real feel for the powerful forces involved. The landscape and the plants and animals it supports are the basis for a developing nature tourism industry and this will be the subject of an autumn workshop.

Professor Stuart Monro
ECRR Scientific Director

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Professor Jim Atkinson, Director of the University Marine Biological Station at Millport, alongside the Research Vessel Aora with ECRR directors when they visited the Station in June 2010

Royal (Dick) School of Veterinary Studies



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IMPROVING ANIMAL LIVES

Improving the well-being of animals world-wide and challenging what is currently acceptable in the way animals are used and treated will be the focus of a new Centre of Excellence.

The Jeanne Marchig International Centre for Animal Welfare Education at the University of Edinburgh will form an integral part of the University's Royal (Dick) School of Veterinary Studies.

The Centre will create a focal point for Animal Welfare Education across the globe. It will establish new veterinary courses, collaborating with international partners to improve the understanding of animal welfare issues.

The Centre which is being set up with a £2

million donation from the Marchig Animal Welfare Trust, will be a key resource of expertise for animal welfare education. It will engage with politicians and governments with the aim of improving animal welfare and seeking alternatives to the use of animals in research.

The Royal (Dick) School of Veterinary Studies will offer a certificate, diploma and masters degree courses in animal behaviour and welfare through full time and on-line learning working with partner organisations particularly in developing countries. It will also strengthen the current provision of animal welfare and ethics in veterinary education.

Professor Elaine Watson, Head of the Royal (Dick) School of Veterinary Studies considers that improving animal welfare should be one of the main goals of the veterinary profession. The objective of the Centre will be to make determined progress towards a situation where all animals are free from distress, suffering and hunger through instruction and training at all levels.

The new Centre will also provide a platform for debating the important ethical issues which practitioners are faced with every day in veterinary practice and research. Professor Watson is delighted that the Royal (Dick) Vet has been given the opportunity to set up this important new Centre and about the role it will play in raising awareness of animal welfare globally.

The centre, which will be run by a newly created post of centre director, will be based on the first floor of a new £42 million teaching building for the Royal (Dick) School of Veterinary Studies, due to open next year.

Madame Jeanne Marchig, who established the Marchig Animal Welfare Trust in 1989, thinks that the centre will provide an important role in education striving to improve the quality of life for animals. Its generally agree that by debating the issues, raising awareness of concerns and pushing the boundaries of what is considered acceptable across different borders a positive impact can be made for future animal welfare both within and outside of the veterinary profession.



An architectural drawing of the new £42 million teaching building for the Royal (Dick) School of Veterinary Studies at Easter Bush.

Heriot-Watt University



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SEA CHEMISTRY

Some 101 scientists from 21 of the UK's top scientific institutions have begun working together on the UK's first research programme to investigate the impacts of ocean acidification.

They will be collaborating to understand the impacts of carbon dioxide (CO₂) on the chemistry of the ocean, which is changing due to the absorption of CO₂ from the burning of fossil fuels as well as from other anthropogenic (human) sources. Once the CO₂ has been absorbed from the atmosphere it fundamentally increases the acidity of the seawater, which in turn will have considerable consequences for the life and processes within.

This 'acidification' of the ocean is also likely to have significant impacts upon marine biogeochemistry and biodiversity, however, changes could extend beyond this to the whole Earth System via effects on air-sea gas exchange and sedimentation of material through the oceans. The scale and nature of the effects of ocean acidification are still poorly known and requires substantial research so that society may deal with it effectively.

Scientists at Heriot-Watt University are co-ordinating research into how climate change might affect biodiversity in our offshore waters, and which might have a serious impact on future medical treatments. Dr J Murray Roberts, Reader in Biodiversity at Heriot-Watt University, leads the project. "Many people don't even realise that there are very large scale cold-water coral reefs off the west coast of Scotland and that these are homes to a wide variety of other marine life. This in itself is important because some of the most important developments in new drugs,



Dr Murray Roberts preparing deep-sea exploration equipment (www.arthowardphotography.com)

including anti-cancer therapies, come from marine organisms, particularly sponges. To date these have often been tropical sponges, but cold-water sponges are now becoming a new focus of attention.

"We recently logged 100 species of sponges in cold-water coral reefs at Mingulay, so any threat to these reefs means a threat to local biodiversity and in turn a threat to potential new drug treatments.

Work has already begun to set up the new aquaria to keep corals alive at Heriot-Watt University. The research will take three years and involve intense periods of fieldwork to maerl beds and cold-water coral reefs. Researchers will spend at least two months at sea using the UK's deep-sea remotely operated vehicle ISIS to study the cold-water corals at both Mingulay and Rockall Bank.

Professor Sir John Beddington, Chief Scientific Advisor to the Government, commented:

"Ocean acidification may be a relatively recently identified phenomenon but its potential impact is likely to have wide ramifications through the ocean. We need to understand how much of a problem it might

be, how quickly we will start to feel its effects and how we might mitigate any impacts. The UK has been at the forefront of ocean acidification research and this Programme will ensure the excellent work continues. By following a multi-disciplinary approach, looking at a range of aspects of ocean acidification, we can bring together scientists across disciplines in order to gain as complete a picture of how the ocean will react to increasing acidity and how its diverse life forms will cope or adapt in the future."

The £12M, 5 year UK Ocean Acidification Research Programme is funded by the Natural Environment Research Council (NERC), the Department for Environment, Food and Rural Affairs (Defra) and the Department of Energy and Climate Change (DECC). Outputs from the programme will feed into the cross Government Climate Change Adaptation programme and it is anticipated that it will make a significant contribution to the Living With Environmental Change (LWEC) programme. The UK programme will collaborate with international colleagues – primarily with the German BIOACID programme, the European research programme EPOCA, and the emerging US Ocean Acidification research programme.

The Roslin Institute University of Edinburgh



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AWARDING EXCELLENCE

Professor David Hume has been appointed one of 13 new Wolfson Research Merit Awards.

Jointly funded by the Wolfson Foundation and the Department for Business, Innovation and Skills (BIS), the scheme aims to provide universities with additional support to enable them to attract to this country or to retain respected scientists of outstanding achievement and potential.



Professor David Hume welcomes Rt Hon Michael Moore MP, Secretary of State for Scotland, when he visited the Roslin Institute in July.

IT'S A DOG'S LIFE

Dylan Clements, a clinical research associate at The Roslin Institute, and Institute researchers Mark Bronsvort, Ian Handel and Kim Summers with web co-ordinator Damon Querry have launched a web-based UK-wide epidemiological study of canine health called Dogslife. The aim of Dogslife is to monitor the lifestyle and health of a cohort of Kennel Club Registered Labrador Retrievers through

their first year of life. The study is unique in that it is the first large scale longitudinal study of canine health collecting data about the lifestyle of dogs and how this influences the development of disease.

Dogslife is funded by the Kennel Club Charitable Trust, and is being lead by The Roslin Institute and the Royal (Dick) School of Veterinary Studies. The website is www.dogslife.ac.uk.

DEVELOPING-WORLD RESEARCH

The United States National Science Foundation (NSF) has awarded 15 grants, one of them to a group including The Roslin Institute, in the inaugural year of the Basic Research to Enable Agricultural Development (BREAD) program. These projects are designed to support basic research that will build a foundation for generating sustainable, science-based solutions to agricultural problems in developing countries. The five-year program is jointly funded with the Bill & Melinda Gates Foundation.

The success of The Roslin Institute and its partners in winning this funding is all the more evident when one considers that more than 130 US institutions in 45 states, partnering with more than 200 institutions in 68 countries, submitted proposals for the inaugural competition.

The Roslin Institute contribution to this project is jointly led by Bruce Whitelaw and Alan Archibald, and will involve transferring expertise from Roslin to colleagues in ILRI. Bruce said "We are very pleased to be involved with the BREAD program and with this multi-continental collaborative group. The programme provides opportunities for the Institute's technological advances in the genetic modification of production animals to be used to help small farmers rear stock that will provide more reliable food production, thus alleviating hunger and poverty in the developing world."

LEARNING THE ROPES

Katherine Staines, a PhD student in The Roslin Institute's Division of Developmental Biology, recently won the UK Centre for Bioscience's Student Award.

The award aims to raise awareness in the biosciences of some of the issues affecting students. It gives all UK students the opportunity to describe their experiences in studying biological sciences, and their opinions of teaching and learning. This year the topic was "How would you advise new bioscience students to make the most out of practical work?" and entries included essays, posters, leaflets, and podcasts.

If you want to read Katherine's prize winning entry, visit <http://www.bioscience.heacademy.ac.uk/funding/essay/award10.aspx>



Katherine Staines, prize-winning PhD student from the Roslin Institute

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CELEBRATING SUCCESS

HRH The Princess Royal joined staff and supporters of The Moredun Foundation this Summer to help celebrate Moredun's 90th Anniversary. The event, which was held at Moredun's headquarters on 30 June, highlighted some of the research achievements made by Moredun in working to improve animal health and welfare, both nationally and internationally.

During her keynote address HRH The Princess Royal congratulated Moredun for the vital contribution they had made to livestock industry over the last 90 years. She highlighted the fact that one of Moredun's strengths was its ability to use a multi-disciplinary and collaborative approach to tackle livestock disease and commented on the pride that the Foundation should feel when looking at its achievements over the last 90 years. She also underlined the importance of future research in the continuing fight to protect both livestock and people.

Ninety years on, and still governed by farmers, Moredun continues to apply cutting edge science and technology to develop effective treatments, diagnostic tests and vaccines to safeguard livestock health. The Moredun Group now employs over 200 scientists, vets and support staff who continue to help find solutions for major challenges to modern farming such as the consequences of a changing climate; ensuring safe and sustainable food and water supplies, conserving biodiversity and finding solutions to infectious disease. Today, many of the veterinary medicines and vaccines that are routinely used on farm have either been researched, developed or tested at Moredun.

Moredun's work does more than safeguard livestock health. It safeguards human health too, as some of the pathogens that infect animals may also be transmitted to people (for example, *Campylobacter*, *E.coli*, Toxoplasmosis, Cryptosporidia, and Chlamydia). Wildlife has benefitted from Moredun's research too as work includes diseases that affect deer, squirrels and sea mammals.



HRH The Princess Royal shares a joke with Dr Hugh Reid, Moredun Foundation Research Fellow.

MAJOR EU FUNDING

The Moredun Research Group in Edinburgh has received the largest grant ever to be awarded by the European Union in the field of animal health.

More than nine million euros has been secured by a Moredun-led "Paravac" consortium, in order to develop vaccines for worm parasites that infect livestock.

The announcement was made by Cabinet Secretary for Rural Affairs and the Environment Richard Lochhead at a reception at the Scottish Parliament in June.

Nematode parasites pose the greatest threat to global agricultural productivity. Control of parasitic worms currently relies almost exclusively on the use of drugs, a solution threatened by the emergence of worm populations that are resistant to the drugs used to control them.

An alternative, greener and more sustainable approach is to control these infestations by vaccination, and one of the specific aims of this grant will be to develop at least one prototype vaccine to the point of uptake by the commercial sector or through Government/philanthropic agencies.

The €9m grant, from the EU's Framework 7 research funding call, will fund a series of projects from more than 20 academic partners across the globe over the next three years.



HRH The Princess Royal commented "It is always a real pleasure to come and visit Moredun"

Royal Botanic Garden Edinburgh



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FORESTS IN PERIL

A new study documents waves of forest degradation advancing 120 km across East Africa in just 14 years. Scientists from 12 organisations in Europe, Africa and the USA showed that forest exploitation started with the removal of the most valuable products first, such as timber for export, followed by the extraction of less valuable products such as low value timber and charcoal in strict sequence. This 'logging down the profit margin' in tropical forests follows the same pattern of removal seen for fish in unmanaged oceans.

The study published in Proceedings of the National Academy of Sciences USA tested an economic model that predicts the sequential removal of products from high-to-low value. Researchers visited forests at varying distances up to 220 km from Tanzania's largest city, Dar es Salaam, in 1991 and again in 2005, tracking the trees that remained. They found that waves of degradation moved, on

average, 9 km a year out from the city. For example, charcoal extraction extended 50 km from Dar es Salaam in 1991, but in 2005 it was found up to 170 km from the city.

In 2005, on average, forests had 48 tree species per sample and stored 46 tonnes of carbon per hectare at 200 km distance, but this had declined to only 14 species and 5 tonnes of carbon in the forests closest to the African city.

Dr Antje Ahrends, Royal Botanic Garden Edinburgh and lead author of the paper, said, "The degradation waves have spread rapidly. Urban migration and rising demand for timber, particularly in China, are amongst the major reasons for this. By the end of the study, high value timber logging production took place over 200 km from the city. This is very likely to be unsustainable."

The ability to predict forest degradation is essential if new plans to protect forests using payments for ecosystem services are to be successful. Such schemes, like the proposed 'Reducing Emissions from Deforestation and forest Degradation' (REDD) being negotiated under the UN Framework Convention on Climate Change, may channel billions of dollars into conservation and poverty alleviation if

these instruments can be shown to verifiably reduce carbon dioxide emissions from deforestation and degradation.

Co-author on the study, Professor Neil Burgess, University of Copenhagen and WWF, said "REDD would create incentives for developing countries to conserve tropical forests and to adopt low-emission strategies for sustainable development. REDD could rapidly cut carbon dioxide emissions from deforestation and degradation, which are currently responsible for 15% of total emissions from human activity".

Much logging in Tanzania is illegal resulting in major financial losses. A trade survey by TRAFFIC estimated that in 2005 some 96 per cent of harvested timber was exported illegally, losing the Tanzanian government an estimated US \$58 million of revenue. Charcoal burning is similarly mostly illegal, but carried out by local people who have no alternative means of income, and is used in towns by poor people to cook their food. Policy interventions therefore need careful tailoring to the type of degradation activity, and care needs to be taken to provide alternative income sources and prevent increasing levels of poverty in an already poor country.

CORM BLIMEY!

A giant plant corm of an *Amorphophallus titanum*, weighing the same as two full grown men, looks set to be taking the Royal Botanic Garden Edinburgh straight into the record books.

As Garden staff celebrated, senior horticulturist Steve Scott who was gifted the corm in 2003 by Hortus Botanicus in Leiden, Netherlands, said it had grown from the size of an orange to measuring 952mm wide and 426mm high with a circumference of 280cm and weighing 153.95kgs.

Amorphophallus titanum is a plant native to Sumatra and best known for its pungent flower which smells of rotting flesh to attract pollinators such as carrion flies and beetles.



Getting to grips with the giant corm of the *Amorphophallus titanum* at the Royal Botanic Garden Edinburgh.

Centre for Ecology & Hydrology



**Centre for
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DATA ON TAP

The new CEH Information Gateway (<http://gateway.ceh.ac.uk>) will allow researchers and the public to access a wide range of environmental data. It has been created by CEH as part of the Environmental Information Data Centre (EIDC), the Natural Environment Research Council data centre for terrestrial and freshwater sciences. The EIDC brings together wide-ranging nationally-important datasets and expertise in managing diverse types of environmental data.

The CEH Information Gateway will allow users to find, view and access data resources held by the EIDC and other data providers in the UK and beyond. At the heart of the CEH Information Gateway is the Data Catalogue – a repository of records that describe the nature and scope of CEH data resources.

Users of the CEH Information Gateway can:

- Search for datasets and find out details about them
- Overlay maps of key spatial datasets
- Download key datasets subject to terms and conditions of use
- Create a personal account to save search terms and give datasets ratings

Many of the datasets that can already be accessed through the CEH Information Gateway will be of general interest to the ECRR community. CEH will be working to add more datasets to the CEH Information Gateway over the next year.

The CEH Information Gateway was launched on 16th September 2010 at an Open Day at the headquarters in Wallingford, which also marked the completion of new laboratories



GLASSHOUSE REVAMP

There has been a complete overhaul of the glasshouse facility at CEH Edinburgh. This is currently used for a wide range of studies – from work on tropical plants such as *Acacia senegal* (which produces the valuable 'gum arabic') and conservation of endangered euphorbias of Ascension Island, to studies on genetic variation in Scots pine, polyploidy in *Campanula rotundifolia* and effects of invasive plants on pollination of native species.

and controlled environment chambers at Wallingford.

RE-STRUCTURING COMPLETE

The transition of CEH to four sites across the UK (at Wallingford, Bangor, Lancaster and Edinburgh) is now complete.

As from 1st October 2010 the Head of Site at CEH Edinburgh will be Dr Allan Watt (adw@ceh.ac.uk).

Staff at CEH Edinburgh work in two science sections, one predominantly on biogeochemistry projects, led by Dr Mike Billett, and the other on biodiversity and water-related projects, led by Dr Allan Watt. Staff work throughout the UK and indeed globally, but the base in Scotland allows easy access to the many field sites and monitoring activities in Scotland, as well as facilitating collaboration with other Scottish research institutes and universities.

Scottish Agricultural College

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MYSTERY SEAL DEATHS

SAC Consulting Veterinary Division, Wildlife Unit in Inverness is working in partnership with the **University of St Andrews' Sea Mammal Research Unit** to identify the cause of distinctive injuries recently suffered by a number of seals. The SAC unit has carried post mortems on five seal carcasses.

The vet in charge of the SAC-led Scottish Marine Mammal Strandings Scheme, Dr. Andrew Brownlow said: "We have heard a great range of interesting theories about the cause of the lesions and although we think there is good evidence pointing to the injuries having been caused by something heavy and mechanical, we don't often see any damage to the bones or harder body structures. The depth of lesions is the same depth along the length of the seals' bodies, so there may be some other process at work here".

FINNISH LINKS

SAC's links to Finland were strengthened on 17 August when the Finnish Ambassador to the United Kingdom and 16 members of the Finnish 'Middle of the Road Foundation' visited the Edinburgh campus.

Organised by Dr Sarah Skerratt, a senior researcher and Team Leader of Rural Society Research within SAC's Land Economy and Environment Research Group, the visit allowed SAC to showcase its wide-ranging activity and to highlight some key projects currently being carried out in partnership with Finland. These include:

- A collaboration with the University of Helsinki focusing on sustainable development

- The DESERVE Project with a number of partners, including the University of Oulu which aims to improve the viability of service provision in rural areas of both Scotland and Finland
- Joint working on the European O40 project to provide services and support for older people in remote, rural and peripheral communities

The Middle of the Road Foundation exists to promote understanding between Finland's rural and urban populations through economic and academic research and various cultural activities. Its visit to SAC was part of an urban-rural relations fact-finding tour of Scotland.

NEW APPROACHES FOR POTATOES

SAC is a member of a research consortium awarded a share of a £25m package to find ways of helping farmers and growers cope with recent changes to EU pesticide rules which banned some key crop protection products. The project involving SAC will investigate ways of controlling soil-borne pests of potatoes.

Free living nematodes (FLN) are becoming a major problem for potato growers. Populations of the tiny, thread-like creatures are expected to increase due to climate change and the removal of approved "nematicide" chemical controls. They feed on potato roots, causing direct damage and reducing yields and quality. They also indirectly transmit Tobacco Rattle Virus (TRV).

Research Nematologist Dr. Andy Evans is SAC's representative on the team. By assessing the damage FLN feeding causes to the roots of selected commercial potato varieties in field trials they will evaluate new control strategies and study the effects on tuber quality and virus transmission. In parallel, molecular markers will be developed to help in the breeding of new, TRV-resistant, varieties.

FARM EFFICIENCY

Research into farm efficiency, carried out by SAC for Government, shows Scottish farming performs well when compared with those in the other UK countries and the EU. Using data provided by farm accounts surveys, or their near equivalent, researchers found that in Scotland dairying performed especially well while sectors such as cattle and sheep production or general cropping also maintained a high ranking. However, when compared with others, the Scottish cereal sector faced limitations.

The work was commissioned by DEFRA to assess efficiencies across England and Wales. Figures from Scotland, N Ireland and then EU were included for comparison. The data used spanned the period 1989 to 2008.

The researchers focussed on "relative technical efficiency" which allowed them to rank farms and farm types according to the maximum outputs they could achieve from a given level of inputs. Statistical techniques ruled out the effects of random events like weather or disease.

According to Dr Andrew Barnes, SAC Team Leader in Resource Economics,

"All of Scotland's agricultural sectors perform well within themselves and against each other, but it is when they are compared with others that differences emerge. For livestock they rank high, especially in dairying, with a small dip for cattle and sheep in the LFA. While the efficiency of cereal producers is really excellent in Scottish terms, they still rank behind both England & Wales and N Ireland. The reasons are unclear, but there could be some underlying structural or biophysical reason giving the others an advantage."

Also revealed by the study was how few



of the farms altered their position within broad efficiency bands. On average 60% of them stayed within their set level. Only 20% improved significantly, while another 20% fell into a lower group.

Dr Barnes carried out the Scottish work with colleague Dr Cesar Revoredo-Giha. The research they contributed to also showed that, when compared with EU examples like the large farms of Poland, some UK farm types still had room for improvement.

AWARDING MERIT

Award-winning SAC Senior Economist Dominic Moran has been conferred with the title "Professor" at SAC's Graduation ceremony in Bute Hall, University of Glasgow.

Dominic specialises in policy analysis and environmental and resource economics in both developed and developing countries. His personal award of a Chair in Environmental Economics recognises his outstanding achievements in research, scholarship, leadership and engagement with research users.

Professor Moran's research focuses on applying economics to environmental management and bringing together experts from different branches of the natural and social sciences to tackle resource allocation problems. He and his colleagues work mainly on what are known as 'public goods' from agriculture and rural land use. This includes studying the demand for, and supply of, environmental amenity, clean air and water, biodiversity, and animal welfare.

Mark Batho, Chief Executive of the Scottish Funding Council, said: "I am delighted that the Scottish Agricultural College has won this award against stiff competition from the rest of the UK. This demonstrates the quality of the sustainable developments and programmes that the College is producing and their commitment to this important area."

GREEN GOWN AWARD

A groundbreaking SAC-led research project which helps farmers, land managers and foresters choose the most cost-effective ways of reducing greenhouse gas (GHG) emissions, has won a prestigious Green Gown Award. The Green Gown Awards have become established as the most significant recognition of best practice within the further and higher education sector and reward exceptional initiatives linked to sustainability.



Professor Bill McKelvey, SAC Principal, and Professor Dominic Moran.

The SAC work, led by Professor Dominic Moran, produced a robust method by which those involved in land management can decide which of the technically feasible ways of reducing their GHG emissions will be most effective and economically efficient. While forests and farmland can play an important role in storing carbon, the agriculture, land use and forestry sectors are responsible for a significant proportion of the UK's GHG emissions. Previously it had not been easy to decide which emission control strategy was the best option. The team produced "Marginal Cost Abatement Curves" which allow calculations to be made through to 2022.

The project was commissioned by the UK CCC, with funding from the UK government and the devolved administrations including the Scottish Government.

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ENVIRONMENT PRIZE

The University of St Andrews and ConocoPhillips have announced the call for entries for the St Andrews Prize for the Environment 2011 – with over £78,000 in cash prizes to be won.

Now in its thirteenth year the primary objective of the prize is to find innovative solutions to environmental challenges. The solutions should be combine good science, economic reality and political acceptability.

The prize offers people from all backgrounds around the world the chance to help transform their environmental ideas into reality and also provides a network of connections and support.

The deadline for entries is October 31, 2010. For full details about the prize and how to enter go to: www.thestandrewsprize.com

MELTING AWAY

Researchers have discovered a significant ice cap melt in Greenland, recording the biggest indication of climate change to date.

The team from the Universities of St Andrews, Aberystwyth and Ohio State, were 'amazed, but not shocked' to monitor the breakup of a huge portion of the floating ice shelf off the front of one of the largest glaciers in the region.

The discovery of the breakup of a 250km sized berg follows a record melt in Greenland accompanied by the large scale breakup and retreat of the ice sheet's largest outlet glaciers.

Despite predicting the breakup of the Petermann Glacier following an earlier visit in 2009, the scientists had not envisaged it on such a vast scale.

Dr Richard Bates of the School of Geography & Geosciences commented, "We went up there last year as we suspected that there would be a breakup event in the near future. We believe that the melt water enter-



Dr Richard Bates surveying the ice melt in Greenland. Photo: Alun Hubbard.

ing these fractures is quite critical to break up together with the warmer oceanic waters that come up from down south throughout the summer.

"It is not a freak event and is certainly a manifestation of warming. This year marks yet another record breaking melt year in Greenland; temperatures and melt across the entire ice sheet have exceeded those in 2007 and of historical records.

Dr Bates is the geophysicist of the crew, responsible for the geophysical measurements through and around the glacier. At Petermann, this specifically extends to measuring the oceanic conditions in front of the glacier and importantly beneath the glacier along the fractures.

Petermann Glacier is one of Greenland's largest outlet glaciers which is 20km wide at its front and has a catchment area covering 8% of the entire Greenland ice sheet. It is also the largest floating ice shelf in the northern hemisphere which is fed, like a massive conveyor, by ice flowing from the grounded inland ice sheet.

SUSTAINABLY SPEAKING

A leading figure in sustainability in Scotland hopes to inspire researchers around the world to think before they travel. Jan Bebbington, a Professor in Sustainable Accounting at the University of St Andrews, made the point this summer by taking part in a major conference in Sydney – without setting foot outside Fife.

Rather than travel the 21,000 mile round trip to Sydney, her keynote lecture on biodiversity was presented by videocast to conference delegates. It resulted in approximately 3 tonnes of CO2 not being emitted to the atmosphere. The environmentally-friendly videocast also offered a bonus of allowing four colleagues from the University to contribute a multidisciplinary perspective to the conference.

Professor Bebbington, also Vice Chair (Scotland) of the Sustainable Development Commission, explained, "As a social and environmental accountant I have become increasingly aware of the threat that climate change poses to the wellbeing of many of our human family who occupy this planet".

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RESEARCH CONFERENCE

The Second Institute of Aquaculture PhD Research Conference took place in June 2010.

Conference opened with a thought provoking presentation from our keynote speaker Mr Peter Hajipeiris, Chief Technical, Sustainability & External Affairs Officer at Birds Eye Iglo; and industry champion of Aquaculture. His talk focused on the positive attributes of the aquaculture sector in meeting food demand, its place in maintaining food security in the long term, the global nature of the aquaculture sector and the need to maintain high quality branding in areas of retail, manufacturers and research. There was a lot of agreement between delegates that Peter had highlighted the key issues around food security, aquaculture sustainability and the need to communicate the positive at all levels of the industry.

Peter's talk was followed by three oral sessions in which nine PhD students presented their research results and importantly how this research is liable to impact the development in the relevant sectors of the industry.

The international nature of our students was in evidence, the nine presentations given by eight nationalities; from Bangladesh, Egypt, France, Germany, Holland, Malaysia, Spain and the UK. The nationality of the nine says a lot about the international nature of the research collaboration in the Institute. The subject matter in the talks covered the wide range research areas conducted in the Institute of Aquaculture, including Disease, Reproduction, GIS, Nutrition, Environment/Ecotoxicology, Genetics, Welfare and Development.

FEEDING THE WORLD

Staff of the Institute have contributed to a major study on the future of food and farming. The results have just been published as a theme issue of the Proceedings of the Royal Society under the title "Food security: feeding the world in 2050" (<http://rstb.royalsocietypublishing.org/site/2010/food-security.xhtml>)

There were three prizes provided by our sponsors, judged for quality of the presentation and the all important ability to describe and "transfer" this knowledge simply and meaningfully.

- First prize was presented to Mohammed Khan (from Bangladesh) for an exceptionally good talk on the genetics and production of all male tilapia to overcome environmental and fish growth performance. Entitled "Application of DNA markers in genetically male tilapia (GMT) production".
- Second prize went to Jan Heumann (From Germany) for his talk entitled "ABC transporters as a factor affecting drug susceptibility in sea lice".
- Third prize went to Louise Colliar (From UK) for her talk entitled "A persistent

environmental pollutant as an endocrine disruptor via the peroxisome proliferate-activated receptor PPAR?"

Judges assessed completeness of the "story" and effectiveness and impact of the research in the ability to present their information to a wide audience.

The conference was a great success with many compliments received from conference delegates. It provided an excellent opportunity to detail the high quality research being carried out in the Institute. 167 people attended the conference, staff and students from the Institute of Aquaculture and a third of the delegates were external; personnel coming from farm companies, feed companies, veterinary product manufacturers and trade bodies across the aquaculture sector.

Professor Brian Austin presenting first prize to Mohammed Khan at the Institute of Aquaculture's PhD Research Conference



(Photo: Denny Conway)

Scotland & N. Ireland Forum for Environmental Research



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A9 PROJECT

The Scottish Climate Change Partnership (SCCIP) is coordinating the 'A9 Project' which takes a collaborative, area-based approach to identifying vulnerabilities and adapting to climate change. The focus area for this project extends from Perth to Inverness, encompassing a large section of the Scottish Central Highlands.

The key feature of the 'A9 Project' is that it is multi-sectoral and aims to bring together participants from a broad range of organisations. In doing so, it provides a platform that allows organisations explore cross-sectoral linkages and to see how different sectors have shared and/or differing vulnerabilities to climate change. The project has had a good response from a wide range of organisations, including many from the rural sector.

The project is based around a series of three workshops which will introduce climate change vulnerability assessment and adaptation tools in a cross-sectoral setting. In addition, project participants are identifying areas of interest that will be explored further, forming the basis of case studies for adaptation.

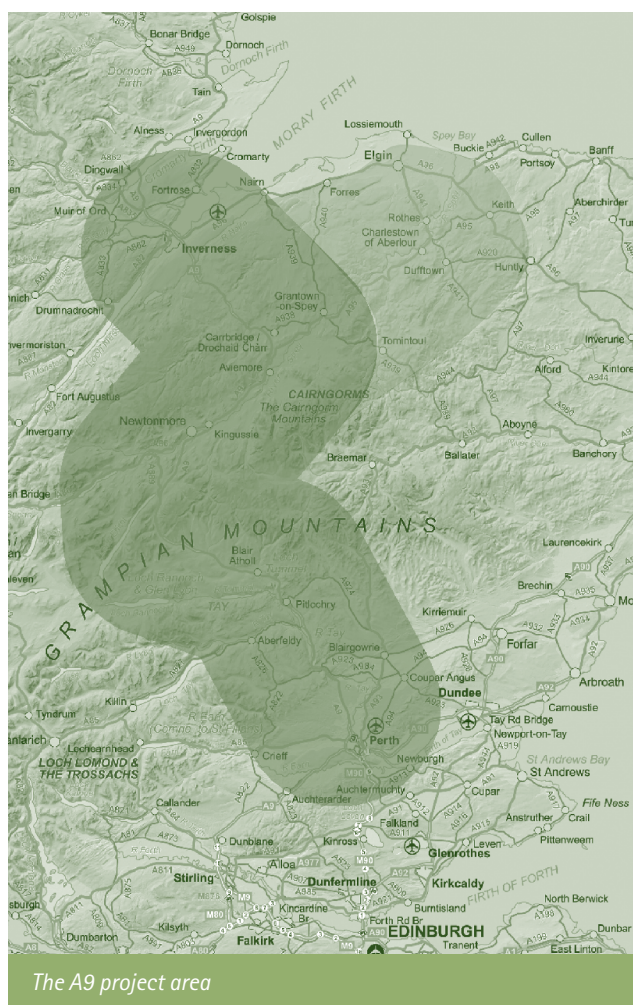
The 1st Workshop of the 'A9 Project' was held on Tuesday 20 July at the Birnam Institute, Perthshire.

The workshop was organised by the SCCIP team and facilitated by Simon Pepper, with 20 participants attending from 19 different organisations. The aim of the workshop was to provide an overview of climate change implications for the region, as well as to provide an opportunity to exchange information between participants and identify shared interests. It was an interactive workshop with presentations and an emphasis on activities which covered:

- What are you doing to assess vulnerability/adapt?
- Mapping vulnerability to climate change (in the project area)
- Exploring cross-sectoral impacts and consequences

The impacts and consequences of climate change on the rural sector featured heavily in the activities of the 1st Workshop, with participants from all sectors recognising their inter-dependencies with the agricultural sector and natural environment. A key feature of the activities was both the pressure and opportunities that the rural environment will face as Scotland's climate changes over the next century.

The 2nd Workshop for the project is scheduled to take place on 12 October 2010. If you would like to find out more about the 'A9 Project' or other SCCIP activities please visit our website (www.sccip.org.uk) or get in touch SCCIP@sniffer.org.uk or joseph.hagg@sepa.org.uk



The A9 project area

SCCIP was established to "increase the resilience of organisations and infrastructure in Scotland to meet the challenges and opportunities presented by the impacts of climate change". The partnership aims to support Scotland's Adaptation Policy Framework by providing information and capacity building, including:

- data on climate trends and impacts in Scotland
- relevant research and project information including sharing best practice
- tools and resources to support action in adapting to and mitigating climate change
- training and support events

SNIFFER provides the coordinating function for SCCIP.

In Brief...

ENGAGING THE PUBLIC – THE EDINBURGH BELTANE

With the rumours of a 25% cut to publicly funded research there may be a temptation to cutback on public engagement activities if they are not seen as core business. However, adopting this approach would be counter productive. If anything, the current economic climate makes it all the more pressing to be open about, and accountable for, the research we do, and to engage with the public about the potential impact of researcher findings.

The Edinburgh Beltane was established in 2008 to support a culture of public engagement in our partner institutions. We are currently at the half-way point of the four-year Beacons for Public Engagement¹ programme. The project is starting to deliver tangible results, and our recently published 2010 Interim Review provides an overview and case studies of the exciting work that has taken place. Here we share some of the highlights.

We launched our innovative community website www.edinburghbeltane.net in March 2010. It is designed to be an online space where you can find comprehensive public engagement resources, and also share your experience and ideas with the public engagement community.

We have partnered with a public-facing events listing website, www.engagingscotland.net, so all public events entered in the Edinburgh Beltane online calendar can port directly across to advertise your event across Scotland.

Our prestigious Public Engagement Fellowship part-time secondment scheme has gone from strength to strength. It has expanded to meet demand from all staff, postdoc to professor, who wish to develop an innovative public engagement project.

The Edinburgh Beltane Public Engagement Challenge has proved to be an important source of funding for innovative and untested event formats.

We have collaborated with Scotland's Futures Forum to arrange a series of Research Futures Events at the Scottish Parliament. These horizon-scanning events are designed as an opportunity for policy makers and the public to engage with research which will affect devolved issues in the next decade.

We are preparing to launch the Beltane Certificate, a structured route into public engagement training based on the skills or pathway that are relevant and interesting to you. We are also launching 'Beltane Bursaries' to help cover costs of attending training courses at other institutions.

Our partner HEIs have embedded public engagement in their strategic agendas and public engagement is becoming part of the everyday vocabulary amongst researchers, staff and students.

You can explore our Interim Review further at www.edinburghbeltane.net/content/2010review where you will find links with more information about all of the opportunities mentioned in this article.

¹ The Beacons for Public Engagement are funded by the Higher Education Funding Councils, Research Councils UK, and the Wellcome Trust.

The Edinburgh Beltane – Beacon for Public Engagement Partners

The University of Edinburgh, Heriot-Watt University, Edinburgh Napier University, UHI Millennium Institute, Edinburgh College of Art, Queen Margaret University, Edinburgh Consortium for Rural Research, Edinburgh International Science Festival, Global Science, National Museums Scotland, Our Dynamic Earth, Roslin Institute, Royal Botanic Garden Edinburgh, Royal Observatory Edinburgh Visitor Centre, The Royal Society of Edinburgh, Vitae



Dr Heather Rae, Edinburgh Beltane Project Manager

Please get in touch with us (at info@edinburghbeltane.net) if:

- We can help you with your public engagement strategy or activities;
- You would like to become a Public Engagement Fellow, run an event/project as part of our Public Engagement Challenge or take up our Beltane Certificate programme.

In Brief...

UNLOCKING INNOVATION

In line with the UK Government's 'Unlocking Innovation' project, which seeks to give access to a wealth of government data, **Forest Research** is creating an online system to record all the details of our varied data sets. Once completed, this system will be made available for anyone who wishes to view it.

Forest Research scientists work across a broad range of disciplines and consequently hold a wide variety of data sets, some of which are generated as part of normal work undertaken and some of which are externally purchased to help in analysis. The new online system will hold all of Forest Research's metadata – that is, data about their data, such as what they are and where they are held. This system will be searchable and easy to use and will comply with quality assurance processes.

Once the most important data sets have been fully catalogued, the metadata database will be made available from the Forest Research website, enabling free access to anyone who wants to use it. Users will simply need to sign up/register to access the system.

If you want more information, contact Paul Taylor paul.taylor@forestry.gsi.gov.uk

CAIRNGORMS NETWORK

Cairngorms National Park is Britain's largest and is a unique place with diverse habitats, wildlife, cultural landscapes and land uses. It provides important ecosystem services such as water, carbon storage, presence of rare species, and recreational resources while being home for around 17,000 people. The Cairngorms National Park Authority (CNPA) is committed to safeguard the area's special qualities for future generations, and is currently working on a new National Park Plan in order to provide a framework to guide management and decision-making in an integrated way.

The **Centre for Mountain Studies at Perth College UHI** and the CNPA have joined in



Professor Iain Gordon, CEO-designate of the new MLURI/SCRI merged institute

Canberra. CSIRO is the national government body for scientific research in Australia. Professor Gordon, who is 50, is a University of Aberdeen zoology honours graduate and was awarded his PhD by the University of Cambridge. He worked at the Macaulay Land Use Research Institute in Aberdeen leading the ecology group before moving to Australia in 2003.

a 'shorter Knowledge Transfer Partnership' (sKTP) to create a sustainable network for knowledge exchange within the Park, which will also support the CNPA in preparing their new National Park Plan and, in the future, implementing it.

This is a great opportunity to involve researchers and practitioners more effectively in managing the Park. Knowledge about current research about key topics like biodiversity, landscape conservation, tourism or sustainable land management remains patchy, and there is a high demand to actively and effectively engage research and practice in the sustainable development of the Cairngorms.

The project is setting up a dedicated website with extensive information on "who-is-who" and "who-does-what" in the Cairngorms: To join this network and/or input information about research please see: <http://www.surveymonkey.com/s/cairngorms>. This will increase the accessibility of research results for anyone interested in sustainable development in the Cairngorms. Persons or organisations working in the Cairngorms will be able to access information, and link and exchange experience

NEW CEO

A leading Scots scientist – currently working in Australia – has been named as the Chief Executive designate to lead Scotland's new crop, food and land use research organisation.

The new institute will be formed from the merger of the Macaulay Land Use Research Institute (MLURI) in Aberdeen and SCRI, Scotland's leading crop research centre based at Invergowrie in Perth and Kinross.

Professor Iain Gordon will take on the role. Currently he is leading biodiversity research teams across various centres for CSIRO – the Commonwealth Scientific and Industrial Research Organisation – in

with others, potentially leading to future collaboration.

On 15-16 November, a networking meeting will take place in Aviemore, bringing together researchers and practitioners to initiate discussion regarding the current status of applied research in the Cairngorms and to foster dialogue with businesses, land managers, policy makers in order to incorporate their views in future research activities. The meeting will be structured around the draft park themes for the next National Park Plan; working groups will identify potential complementarities and gaps in order to support the Park in delivering future plans.

To find out more about this project, the network and the meeting or to explore common interests please see <http://www.perth.ac.uk/specialistcentres/cms/CNP-KTP/Pages/default.aspx>

CAMERAS

CAMERAS stands for Co-ordinated Agenda for Marine, Environment and Rural Affairs Science. It was created by bringing together Scottish Government groups and closely

CAMERAS (continued) ...

related organisations whose work concerns marine, environment and rural affairs. These include:

- The Scottish Government
 - Rural and Environment Research and Analysis Directorate (RERAD)
 - Marine Scotland
 - Environmental Quality Directorate
 - Rural Directorate
 - Science Advice for Scottish Agriculture (SASA)
- Food Standards Agency Scotland
- Scottish Natural Heritage
- Quality Meat Scotland

- Scottish Environment Protection Agency
- Forestry Commission Scotland
- Scottish Water

CAMERAS is keen to ensure alignment of activities across the wide spectrum of science (including social science and economics). A number of strategies or framework documents which show where CAMERAS partners intend to focus coordination are underway across the CAMERAS partners to better align efforts and to assist identifying synergies and potential for collaboration. The aim is to develop a better understanding and a common language of how key areas of work shared across the

partners fits into one landscape and might be more productively addressed.

The four areas are –

- Rural and Environment Science
- Marine Science
- Freshwater Science
- Environmental monitoring

The website <http://www.camerasscotland.org> provides information about the initiative and upcoming events, as well as background documents. Interested persons can sign up there to receive a newsletter about progress and events.

ECRR DIARY 2010

Oct 20	Workshop: Ecotourism	Napier University Co-ordinator: Dr Kathy Velandar	14.00
Nov 25	AGM & Main Board meeting Reception	Our Dynamic Earth, Holyrood Road, Edinburgh Host: Prof Stuart Monro	16.00 17.30
Dec 6	Executive Committee Directors' lunch	BioSS, Edinburgh Host: Prof David Elston	11.00 12.30
Feb 14	ECRR Annual Peter Wilson Lecture	Royal Society of Edinburgh, George St., Edinburgh	17.00

MEETINGS 2010

Sep, Oct, Nov 2010 :

Our Changing World Lecture Series – University of Edinburgh, Tuesdays 6.30-7.30pm
(<http://www.ed.ac.uk/news/events/changing-world>)

Nov 15-16 2010 :

Cairngorms Knowledge Transfer and Network Meeting, Aviemore
(<http://www.perth.ac.uk/specialistcentres/cms/CNP-KTP/CKTN/Pages/default.aspx>)

Mar 02-03 2011 :

Annual CAMERAS Science Event, Our Dynamic Earth, Edinburgh
(<http://www.camerasscotland.org>)

ECRR Member Organisations

University of Edinburgh College of Science & Engineering College of Medicine & Veterinary Medicine College of Humanities & Social Science	www.ed.ac.uk
Scottish Agricultural College Research & Development Education & Training	www.sac.ac.uk
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/marinstation
Moredun Research Institute	www.moredun.ac.uk
Forest Research, Northern Research Station	www.forestresearch.gov.uk
The Roslin Institute, University of Edinburgh	www.roslin.ed.ac.uk
Biomathematics and Statistics Scotland	www.bioss.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
Science & Advice for Scottish Agriculture	www.sasa.gov.uk
Scottish Crop Research Institute	www.scri.ac.uk
Scottish Natural Heritage	www.snh.gov.uk
Scotland & N. Ireland Forum for Environmental Research	www.sniffer.org.uk

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FUTURE ISSUES

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

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ON THE WEB

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COPY DEADLINE

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