

in-land



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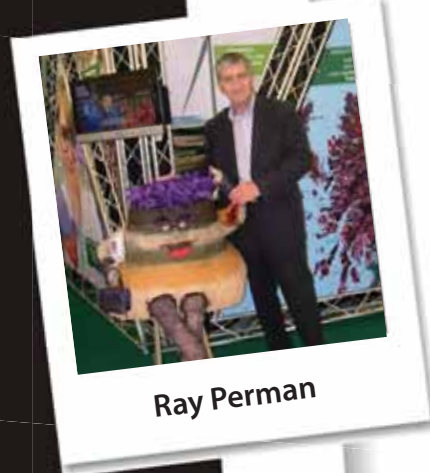
Science into Action Week

*Three decades of change
for the machair*

**Macaulay Land Use Research Institute
'most influential in Britain'**



Jim McColl



Ray Perman



Donald Barrie



A photo opportunity for visitors

Heather, the latest 3D model of our soil characters, made her premier at the Royal Highland Show to the delight of attendees including BBC Beechgrove Garden's Jim McColl, new institute Chairman Ray Perman and Glensaugh Farm Manager Donald Barrie.

For more on our exhibition at the Royal Highland Show, see page 20.



By visiting places you can really see the impacts of climate change. It's changing lifestyles, it's changing people.



Monika Fischer
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There has long been a requirement for a better understanding of the inherent capabilities of land in Scotland for a range of different uses, especially agriculture.



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As plans continue apace for the creation of Scotland's new research institute, it is perhaps an opportune time to reflect on the origins of the Macaulay Land Use Research Institute, our vision and our ethos.

It was back in 1930 that Dr T.B. Macaulay, a prominent Canadian businessman of Scottish descent, donated the money to establish an institute for soil research,

with a view to improving the agricultural conditions across his ancestral homeland. Macaulay's benefaction resonated both with his sense of social responsibility and his deep interest in agricultural innovation.

In the intervening years, and through various organisational guises, the Macaulay Land Use Research Institute has grown into a world-renowned centre of scientific excellence – probably far exceeding what its founder originally envisaged. As an independent measure of this, I am delighted to report that a Times Higher Education survey (macaulay.ac.uk/mediareleases/TERanking) ranked the Institute as being the second most influential Scottish institution in the category of environmental and ecological sciences, and ranked in the top 20 UK institutions in these fields. This excellent ranking clearly demonstrates the scientific influence that the Macaulay Land Use Research Institute has and the importance of our work in the international environment and ecology research arenas. The results of this independent survey, highlighting as it does the quality of our work, gives us confidence that we're continuing to fulfil our objectives.

Dr Macaulay's original vision to develop sound scientific research that underpins policy and management of rural land resources continues to this day, even if many of the issues we face today did not exist when the Institute was founded 80 years ago. The combined challenges of food, energy and environmental security, for example, are now central to our thinking about research and action both in the UK and internationally. These are global issues and they require scientific endeavours that have both global reach but also locally relevant applications.

Our goal to develop a strong scientific understanding as the evidence base to inform policy and management has also been productive. Both the science, and our understanding of the role of science in evidence-based policy, has been enhanced by increasing our interaction with policymakers and land managers during the course of our research. Examples include our considerable involvement in the recent Pack Inquiry in Scotland, the UK National Ecosystem Assessment, and leadership of international research projects such as the Global Land Project.

Not only has the Institute established its reputation as a centre of research excellence but we are also endeavouring to ensure that the results of our research reach the people who most would gain most benefit, be they policy makers or land managers. This latest edition of in-land describes some examples of our recent work in these areas not only in Scotland but internationally, for example the LandscapePartners project (page 11) which focuses on Germany, Austria, the UK and the Netherlands. We are also developing new ways of engaging the wider public, and the examples illustrated here include Science into Action (page 8), a Fungal Identification Workshop (page 12) and Moth Night (page 15).

More than three quarters of a century after it was established, the Macaulay Land Use Research Institute continues to develop its research activities building on our founder's vision for improving social wellbeing, communities and environment in rural Scotland and the skills and experiences we have developed will be critical in contributing to Scotland's rural-environmental research as Scotland's new institute is launched in April.

Until we meet,

Richard Aspinall
Chief Executive

For more information:

Pack Inquiry in Scotland

scotland.gov.uk/Topics/farmingrural/Agriculture/inquiry

UK National Ecosystem Assessment

defra.gov.uk/environment/policy/natural-environ/research/international-research.htm

Global Land Project

globallandproject.org





Image: Sebastian Selge and Istockphoto

Macaulay Land Use Research Institute Ranked a Top British Institute in Environment and Ecology

Research into environment and ecology undertaken by the Macaulay Land Use Research Institute is among the most influential in Britain, according to new data.

A survey published by Times Higher Education ranked the Institute in the top 20 UK institutions which have produced the most influential papers of the last ten years within the category of environmental and ecological sciences. A total of 529 institutions were included in the survey designed to reveal papers published that had the most impact in this field which includes biodiversity, climate change, soil and plant sciences, environmental toxicology, fishery studies, hydrology and water resources, forestry studies and zoology.

The survey analysed the average number of times research papers were cited by other scientists, revealing an impact factor for British institutions that published 300 or more papers in environmental sciences and ecology during the period January 2000 to February 2010.

During this decade, scientists at the Macaulay Land Use Research Institute published 350 journal articles in publications indexed by Thomson Reuters and these papers were cited in other research papers on 5,000 occasions; achieving an average of 15.09 citations per paper. MLURI was placed number 17 in the UK and number 111 worldwide on the database, which seeks to reveal paper influence, not mere output. macaulay.ac.uk/mediareleases/TEsranking

Richard Aspinall said,
"This excellent ranking clearly demonstrates the influence that the Macaulay Land Use Research has and the importance of its work in the international environment and ecology research arenas. We are a small institute with only 300 employees and as such we were up against much larger institutions and a range of leading universities.

We're very proud of the high-impact work performed by our scientists and this survey, which highlights the quality of our work by independent evaluation, gives us confidence that we're continuing to fulfill our objectives. This result is a real tribute to the skills, enthusiasm and commitment of the whole team." ■

Appointments

Congratulations to Plant Ecologist Robin Pakeman who has been appointed as Honorary Professor at the School of Biological Science, University of Aberdeen.

Congratulations to Simulation Modeller Nick Gotts who has been elected to the board of the European Social Simulation Association (ESSA). ESSA is a scientific society founded in 2003 in order to promote the development of social simulation research, education and application in Europe.

2010 Science for Life Student Award

Congratulations to catchment management PhD student Christian Birkel who won the Science for Life 2010 student award. Christian won the award in the annual competition between post-graduate students at the Scottish Research Institutes with a presentation on his work, 'Tracing hydrological processes at catchment scales'. For details of all the Macaulay based PhD students presentations visit: macaulay.ac.uk/studentships/presentations2010.php



Image David Riley



Macaulay 2nd in Aberdeen Cycle Commuter Challenge

During National Bike Week in June, staff at the Institute took part in the Aberdeen Cycle Forum/Get-About Corporate Commuter Challenge in which employers were awarded points when staff members cycled to work. The Macaulay Land Use Research Institute came in second place out of all participating companies. ■

Full details can be found at: www.aberdeencycleforum.org.uk

Congratulations to everyone who took part.

Spanish University honours Macaulay Researcher

A researcher at the Macaulay Land Use Research Institute has collected an award from The University of Navarra, Spain for his practices in supervising visiting students from the University.

Javier Pérez-Barbería, a Population Ecologist Researcher at the Institute, was invited by the Business-University of Navarra Foundation to collect the Excellence Award for the 'Best Leonardo Da Vinci Work-Placement during 2008-2009' during a ceremony which took place in Pamplona, Northern Spain, in June.

Under a new initiative from the University, Javier was nominated for the high quality of the training offered, his close and meticulous supervision as well as his efforts to ensure the interns' progress and socially integrate within their work environment.

Two of Javier's former students, Esther Salas and Maria Irigoyen, who joined the Institute as part of the Leonardo da Vinci Mobility Program, shared joint first place for the most complete and interesting placement programme, judged on their ability to make the most of the professional, cultural and personal challenges experienced during their time at the Macaulay Land Use Research Institute.

Maria joined the Institute's Ecology Group in April 2009 following the completion of her Biology degree at the University of Navarra with Ester joining in July 2009. Both worked with Javier at the Institute's Glensaugh Research Station studying the effects of thermal stress on habitat use by deer and sheep, as well as monitoring red deer populations across Scotland.

The Leonardo da Vinci program, funded by the European Union, offers placements to graduates wanting to gain working experience abroad. The program aims to help young people acquire professional experience and training as well as enabling the development of their personal, linguistic, and social skills.



Javier (3rd from left) with Richard Aspinall and (left to right) former students Ana Etxebarria and Andrea Azpiroz and current students Elena Martínez and Javier Díaz.

Javier said,

"I'm delighted that the Macaulay Institute has been recognised for developing programs that improve training, teaching methods and procedures under this new award scheme. Our innovative projects are key to improving the availability and quality of training options for students and recent graduates wishing to carry out work placements abroad and I look forward to further collaboration with The University of Navarra.

Since 2006 a total of 26 students have been hosted by my team and for some of them the training provided has been instrumental in helping them find full-term employment. This award is shared by all the staff of the Institute and the Research Stations, who provided daily training and support to all our visiting students." ■



Science into Action

In June, as part of our commitment to delivering on the Scottish Government's objectives in relation to Public Engagement with Science, we were delighted to open the Institute to local Primary and Secondary school pupils over one week, showing them not only that science really can be fun but also the many different career opportunities which science can provide.

PRIMARY SCHOOLS VISIT

Our Science into Action week began with visits from primary school pupils from Aberdeen City and Aberdeenshire who investigated all aspects of the science world. Pupils met our soil characters Sandy and Heather and tested their powers of observation with invisible ink, investigated how soil breathes, became soil detectives and discovered the amazing water-retaining properties of 'squidgy peat'. The squidgy peat was certainly a favourite with the pupils as was the invertebrate tank full of fast moving mini beasts. Pupils also experienced the Institute's Virtual Landscape Theatre taking a virtual tour of north-east Scotland, interpreting landscape features, and identifying prospective changes in land use.

34TH T. B. MACAULAY LECTURE

Moving from encouraging youngsters to consider science as a career to captivating those already engaged with science, we were delighted to welcome Professor Jacqueline McGlade, Executive Director of the European Environment Agency, to give our 34th T. B. Macaulay Lecture 'Science-based policy-making: whose evidence is it really?' In addition to the lecture, guests took the opportunity to tour the Institute and learn about current our research. For more information on the T.B. Macaulay Lecture, turn to page 10.

MURDER, MYSTERY & MICROSCOPES

Our week ended with a visit from over 100 Aberdeen-based Secondary school pupils who participated in 'Murder, Mystery & Microscopes'. Crime fiction came face to face with science fact as the fictional forensics of local crime writer Stuart Macbride were put under the microscope by Lorna Dawson, Head of Forensics at the Institute, forensics expert Dave Barclay from The Robert Gordon University and James Grieve, senior lecturer at the Department of Pathology at the University of Aberdeen, and Aberdeen's Police Forensic Pathologist. ■

Thank you very much for giving up your time for us, we all had so much fun and we hope we will get to come back next year or sooner.

- Zoe (Broomhill Primary)

I really liked my visit (to the Macaulay). I would like to be a scientist when I'm older.

-Chris (Broomhill Primary)

Thank you for telling us about the Macaulay Institute. It was very exciting and my favorite part was the slimy goo and the microscopes. I hope we can visit again.

-P6 (Dunnottar School)



Dick Birnie, Head of Communication Services said,

“ These visits allowed children to find out about the Institute’s work and engage in a series of fun, educational activities. We hope that this will create an excitement and passion for the science subjects among the children, some of which will hopefully go on to become scientists later in life. ”



34th T.B. Macaulay Lecture

“Science-based policy-making: whose evidence is it really?”



Jacqueline MCGlade (fourth from left) following the planting of a tree to commemorate her visit to the Institute, attended by (L-R) Richard Aspinall, Dick Birnie (Head of Communication Services), Laura Meagher (Board Member), Michael Gibson (Chair of the Board of Governors), Franceska van Dijk (Board Member), Alan Werritty (Board Member), Carol Bisset (Director of Corporate Services and Company Secretary), Eric Baird (Board Member) and George Paterson (Board Member)

Professor Jacqueline McGlade, Executive Director of the European Environment Agency, joined staff and visitors to the Institute to deliver the 34th T.B. Macaulay Lecture.

The presentation examined the role of scientific research in support of environmental policy-making at both a European and national level.

“Science-based policy-making: whose evidence is it really?”

Europe’s populations and economies fundamentally depend on the supplies of food, water, energy, and material - from within and beyond the borders of Europe. But is this stock of natural capital being used sustainably and are the environmental resources secure enough to sustain today’s economies and people in good health? Are we using resources efficiently and can we really decouple further economic development from the use of resources and their environmental impacts?

To address these depends critically on the availability of, and access to, reliable environmental information, but there are sometimes vested interests entangled in much of the evidence brought forward to support various policies and actions. The lecture examined the differing roles of academics, research institutions and independent bodies in creating the sufficiently robust evidence for policy-makers.

Professor McGlade became Executive Director of the European Environment Agency in June, 2003. The role of the European Environment Agency is to help the European Community and member countries make informed decisions about improving the environment, integrating environmental considerations into economic policies and moving towards sustainability. To achieve this robust scientific research from a range of disciplines is required. ■

“Scientists and policy makers don’t generally cross the road to meet each other.”

“When it comes to vested interests, it’s amazing how people can re-interpret data.”

“We have a financial crisis, we have an energy crisis, what we don’t hear about is the crisis of our resources – the ecosystems being over-exploited, natural capital being over used, and also a crisis around trust and governance.”

“It’s about evaluation of the evidence, making sure there is transparency to deal with complexities, urgency and ethics.”

To hear the presentation and view the slides, visit:

macaulay.ac.uk/MacaulayLecture/2010

www.eea.europa.eu/

LandscapePartners

– how do multi-stakeholder partnerships contribute to sustainable landscape management?



Image Gunter Prager

People make up an important element of cultural landscapes, which qualifies these landscapes as social-ecological systems. Our present landscapes are a result of human activity in the past, and such activities continue to impact on landscapes today, resulting in ongoing political and scientific debate about how to achieve sustainable management of natural resources that will benefit the economic development within rural communities whilst at the same time protecting and enhancing natural assets.

Multi-stakeholder groups are an important link between policies and on the ground management. However, there is often limited knowledge on the groups' contribution to sustainable development and only scattered information on how efficiently the activities of these groups can be influenced by means of government funding programmes.

To help address this is a new two-year project, LandscapePartners, which aims to investigate what kind of contribution multi-stakeholder partnerships make to sustainable landscape management.

Multi-stakeholder partnerships can be any local or regional

group that involves people with various backgrounds. These can include farmers, hunters, conservationists, crofters, tourism enterprises and other land owners/managers that have an interest in managing their landscape. The members of these groups typically get together to discuss issues that are of importance to them, negotiate what could be done about the problems, and implement activities on the ground. They may make use of funding available through the Rural Development Programme (e.g. agri-environmental schemes), trusts or other schemes.

The LandscapePartners research will focus on four countries: Germany, Austria, the UK and the Netherlands. The expected outcome of the project is a better understanding of the types of contributions of multi-stakeholder partnerships, relating to the economic, environmental, and social dimensions of sustainability. There are likely to be differences between groups but, more importantly, differences between how groups assess their contribution and how the EU or national governments assess groups' contribution. This is relevant for the justification of funding that groups receive. What has become clear from the research so far is that these kinds of groups are an important link between policy and on the ground action, as well as an important communication and coordination mechanism. ■



Images Carlos Galan-Diaz

For more information contact: [Katrin Prager](mailto:k.prager@macaulay.ac.uk) k.prager@macaulay.ac.uk in particular if you know of, or are part of, a group in Scotland.

macaulay.ac.uk/LandscapePartners/

This research is funded through a Marie-Curie Intra-European Fellowship. The Marie Curie Actions are part of the Community Framework Programmes for Research and Technological Development (FP7) and offer numerous opportunities to individual researchers to participate in a research team in another country. Funding is available for researchers to move both within Europe and internationally, and to carry out their own research project.





Fungal Identification Workshop

Walking in Scottish woodlands and forests in late summer and autumn can be a very memorable experience - not least because of the vast array of fungal forms that appear to spring from the ground at this time of year. *But how many people can actually identify more than one or two possibly edible species out of this huge display of biodiversity?*

The lack of taxonomic expertise in the UK has been highlighted repeatedly at various levels, including the House of Commons¹, but there are very few initiatives to reverse or even halt this general decline. Considered on a taxon / expert ratio, fungi - more than any other organism group - are woefully and inadequately covered in the UK.

To help address this, a three day fungal identification workshop offering expert guidance on the identification of fungi was held at the Institute over a weekend in August. The course was open to all and led by Molecular Fungal Ecologist Andy Taylor supported by Liz Holden, Scotland's leading self employed mycologist, and Roxane Andersen a researcher at the Institute.

The workshop covered identification in the field and the laboratory, and included two informal seminar sessions which covered the ecology, systematics, conservation and the identification tools needed to obtain positive identifications of fungi.

Two excursions were made: one to the grounds of Crathes Castle near Banchory, where the local Ranger guiding the group became so enthralled that she came back to the Institute for the afternoon seminar, and the other around the Institute's grounds at Craigiebuckler. The most remarkable find over the weekend was *Boletus appendiculatus*, which was found at single localities at both Crathes and in the Macaulay grounds. This is a very rare species with a distinctly southern distribution².

Laboratory sessions were used to illustrate the microscopic characters of the fungi that are crucial for identification. The new light microscope with image capture and analysis software in the microbiology laboratory of the Institute's Soils group was a huge asset, superbly illustrating the minutest detail of the fungi.

Workshop attendees included local fungal recorders from three different areas in Scotland, a leading figure in a company



Images Roxanne Anderson

specialising in the supply of fresh fruit, vegetables and salads, and a participant aged 87, proving yet again that you are never too old to take an interest in the biodiversity and conservation of our natural heritage. ■

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¹ www.publications.parliament.uk/pa/ld200708/ldselect/ldscstech/162/16206.htm

² UK maps showing the distribution of plants, mammals, birds and invertebrates are available from the NBN Gateway. www.nbn.org.uk/

A map showing the distribution of *Boletus appendiculatus* can be viewed at data.nbn.org.uk/interactive/map.jsp?srchSp=NHMSYS0001475888

Climate change impacts:

evidence from ECN sites



Images Helen Watson

Long-term environmental monitoring work undertaken by the Macaulay Land Use Research Institute has played a key role in identifying emerging ecological trends.

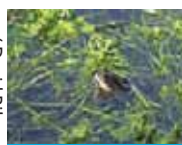
The Institute manages two terrestrial sites, Glensaugh and Sourhope, and one freshwater site, Birnie Burn (co-located with Glensaugh) on behalf of the Environmental Change Network (ECN) where fieldwork, sample collection and chemical analysis are undertaken by staff from the Institute.

Established in 1992, the Environmental Change Network seeks to identify and understand long-term changes in UK ecosystems. Detailed, regular and high quality measurements are collected from a range of sites to identify and quantify ecological responses to changes in climate and other pressures. The network currently includes 12 terrestrial sites, 44 freshwater and three combined sites which collectively give a wide spatial coverage and represent key ecosystems: upland, lowland, forest and agricultural, within the UK.

Some of the findings from ECN monitoring and research are highlighted in 'Climate change impacts:evidence from ECN sites', a publication which provide evidence of the sensitivity of natural ecosystems in the UK to variability and change in climate.

For example:

- The number of species of butterfly is increasing at northern or upland sites but declining at southern sites – a trend consistent with an effect of increasing temperatures and more specifically milder winters
- In contrast, beetle numbers at ECN sites are falling in the north west and increasing in the south east – a trend best explained by the effect of rising air temperature on beetle populations in different parts of the country
- Frogs are breeding earlier - an apparent response to milder springs



Attributing trends solely to climate change is not easy as there are likely to be multiple drivers of change. Atmospheric pollution and land use change, or drivers acting in combination, may contribute to the trends highlighted.

Further monitoring and research are required to determine the possible causes of the observed trends and to reach a greater understanding of where changes are taking place. The ECN is a valuable resource to support this work and greatly enhances our ability to detect and attribute the causes of environmental change. This is essential for the development of effective conservation policy and management. ■

'Climate change impacts:evidence from ECN sites', is available from the ECN website: www.ecn.ac.uk/

For more information contact: [Helen Watson](mailto:h.watson@macaulay.ac.uk)
h.watson@macaulay.ac.uk

The ECN has 3 key objectives:

- *To obtain uniform and comparable long term datasets by measuring variables identified as being of major environmental importance*
- *To identify environmental changes and to improve understanding of the causes of such changes*
- *To distinguish short-term fluctuations from long-term trends and to predict future changes*

To meet the objectives a range of variables are measured using standardised, published protocols to ensure the comparability of the data across all sites.

Measured variables include:

- atmospheric chemistry
- changes in land use or management
- freshwater macro-invertebrates
- invertebrates
- meteorology
- soil properties
- soil solution, precipitation and surface water chemistry
- stream discharge
- vegetation
- vertebrates



Technology, Gadgets & Energy Feedback

The Institute is leading a large, ongoing study of energy consumption which aims to understand the effectiveness of energy monitors in raising awareness of household energy consumption, and in facilitating energy-reduction activities by householders.

The study, 'North East Scotland Energy Monitoring Project', run in partnership with Aberdeenshire Council and Aberdeen City Council has recruited council employees who will be able to monitor their household energy consumption via an in-home display. Levels of energy use, awareness and any reductions in energy use from the adoption of this system will be compared to reduction levels measured from the adoption of other technological innovations, including online feedback and individual appliance plugs.

The project, which aims to recruit over 1,200 people in total, will be one of the biggest studies of its type and will allow participants to see how much electricity is being consumed by a particular electrical item over a defined time period.

"It is one thing to know how much energy a fridge uses at any given moment, but it is another thing to know how much is used within a week or month," explains project co-ordinator Tony Craig.

By using a combination of electricity consumption data and questionnaire data, researchers will be able to study not only how energy is used over time within households, but also how different household types use energy in particular ways.

"We hope that this project will give people a genuine opportunity to learn more about how they use energy in their houses, and that this will result in lasting behavioural change." ■

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macaulay.ac.uk/energy



moth night at Forvie

Image Jim Ahey/Butterfly Conservation

It is not just moths that are attracted to lights.

Recent years have seen something of an explosion of interest in moths. What was, in the Victorian era, the preserve of bearded gentlemen of high social standing is now becoming a popular activity among naturalists, gardeners, scientists and indeed many people with an interest in the natural environment.

As part of this wave of enthusiasm, Ecologist Nick Littlewood, led an 'Introduction to Moths' evening in conjunction with Scottish Natural Heritage at Forvie Natural Nature Reserve in August.

Participants were given a presentation on such fundamentals as 'what is a moth?' and 'five great things about moths' and then, as darkness fell, the real fun began...

Many moths are attracted to light. Entomologists disagree on why this happens but are happy to exploit the fact by attracting moths to specially designed traps. Moths are also attracted by scent, especially sweet smells that mimic nectar sources.

At Forvie, a beer, black treacle and sugar concoction was painted onto fence posts (a technique known simply as 'sugaring') and lengths of rope soaked in red wine with extra sugar dissolved into it (wine roping) were draped across fences and low branches. The result was a total of 41 species recorded over the evening. These included local specialities such as the Archer's Dart, glorious spectacular moths such as Garden Tiger and improbably named species such as the diminutive Timothy Tortrix.

Records from the moth night will help form a fuller picture of the state of Britain's moths by being integrated into the National Moth Recording Scheme. Already over nine million records have been collated from across the UK and distribution maps are now available online. To find out more visit www.mothscount.org ■

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Three Decades of Change
FOR THE MACHAIR





The machair is a habitat that is unique to western Scotland and Ireland; with more than two thirds found in Scotland. It is very much a cultural landscape where the interaction of an Atlantic climate, an infertile and free-draining soil made up of shell fragments and, in many areas, low intensity land management based around crofting, has resulted in a habitat particularly valued for its biodiversity.

Machair is world renowned for its high wading bird populations and its flower rich grasslands. It is also home to many rare species including the great yellow bumblebee and the corn bunting.

Like all landscapes, there are threats from changes in agricultural use and from climate change. Identifying if these changes are impacting biodiversity and what are the main drivers of change is difficult for a rare habitat that is poorly covered by national monitoring schemes. However, a full survey of machair plant diversity was carried out by the Institute in the mid 1970s for the Nature Conservancy Council. Revisiting the same sites has formed the basis of two recent projects.

In 2009, in association with the British Trust for Ornithology, five sites on North Uist and Benbecula were resurveyed by the Macaulay Land Use Research Institute. These sites were chosen as data on wading bird densities were available going back over a similar timescale.

Initial analysis revealed a substantial (60%) drop in the amount of arable land on the machair across the five sites. The analysis also shows an increase in dominant species, though no loss of overall diversity; a decrease in species preferred by bumblebees and an increase in species associated with more saline conditions. Analysis is ongoing to understand how the vegetation and land use changes relate to the increase or decrease seen in the different wading birds.

The success of the limited resurvey in 2009 suggested that extending the approach to cover all the major machair sites was feasible. With the aid of funding from the Esmée Fairbairn Foundation, a team of six botanists have been working their way around the islands and coasts of Scotland - from Islay in the south to Shetland in the north. Fifty sites were visited and resurveyed during the summer of 2010, and to aid interpretation of changes, interviews were undertaken with crofters and farmers to record how land management has changed over the intervening third of a century.

Results from this work will be shared with the current LIFE+ project on the machair and with many conservation and crofting organisations interesting in conserving the biodiversity and cultural aspects of the machair. ■

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Images Richard Hewison



COMBATING climate change

— our role for UK forests

A comprehensive new report aims to provide an expert 'state of the nation' assessment of the current and potential contribution of UK forests to address climate change.

The report, 'Combating climate change – a role for UK forests' offers an assessment of the potential of the UK's trees and woodlands to mitigate and adapt to our changing climate.

Forests are a multiple-purpose resource which make up almost a third of the Earth's land surface. Through their photosynthetic and respiratory activities they play a critical role in the global carbon cycle. While there have been numerous global and continental scale determinations of the contributions of forests to the planetary carbon cycle, few have considered these issues in depth at the national scale.

This report presents an analysis of the potential of UK forests and trees to play a role in the nation's response to the challenges of the changing climate. It illustrates the threat of climate change on Britain's forests, the current impact on our trees and woodland, and the adjustments Britain can make to deal with our changing environment. Substantial responses from the UK forestry sector will contribute both to mitigation by abatement of greenhouse gas (GHG) emissions and to adaptation, so ensuring that the multiple benefits of sustainable forestry continue to be provided in the UK.

Chapter 12 of the book 'Forestry and climate change: a socio-economic perspective' was co-authored by Maria Nijnik, Bill Slee and Guillaume Pajot from the Institute along with Jan Bebbington from the University of St. Andrews.

Socio-Economic Research Group members at the Institute are also involved in the management of the UK's actions under European Union COST Action FP0703: 'Expected Climate Change and Options for European Silviculture' (ECHOES) which aims to integrate existing scientific knowledge for European forest policymakers and managers who have to make decisions on adaptation to and mitigation of climate change.

These projects illustrate just two examples of science based policy activities involving researchers at the Institute who are involved in ensuring UK woodlands matter to everyone, especially for their potential role in combating climate change. ■

For more information contact: Maria Nijnik
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The 'Combating climate change – a role for UK forests' report is available from The Stationery Office:
www.tsoshop.co.uk



www.gip-ecofor.org/echoes

Plant Now
and Use Sustainably

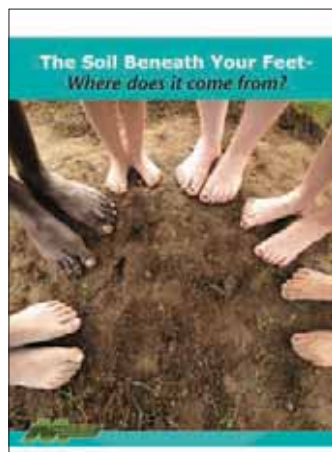
The soil beneath your feet

Have you ever wondered how soil was made, how old it is or how long it would last? A new booklet, 'The Soil Beneath Your Feet' launched at Gardening Scotland, held in Edinburgh in June, gives an introduction into soil and how soil was formed.

Our soil today is a result of our past. Past climate, management, industrial pollution and human settlement have all influenced the soil of today. Soil can be seen as a record of our cultural history and often harbours records of the past and protects archaeological artefacts. In some senses, soil is history beneath your feet! ■

The booklet is available online at: macaulay.ac.uk/publications

For more information, or to request a hard copy, contact: Jason Owen j.owen@macaulay.ac.uk



Open Day at Glensaugh

A 900 hectare outdoor laboratory offered local residents the opportunity to visit the facility as part of Doors Open Day in September.

Glensaugh Research Station, an upland estate, hill farm and environmental research station managed by the Macaulay Land Use Research Institute has been providing facilities for agricultural and land research since 1943 and includes areas of particular geographic, social, landscape and historical interest.

Visitors were welcomed by Farm Manager, Donald Barrie, who gave a tour of the steading and research facilities, followed by a short walk through the inner core of the farm. During the walk he explained how the site is managed and the concept of the 'sustainable estate'. ■

AberdeenTechFest



AberdeenTechFest 'lunchbytes' brought a diverse and topical selection of researchers to showcase how the latest research from institutions in the North-East is being used to benefit society. The Macaulay Land Use Research Institute joined the lunch fun during September with Senior Scientist Glenn Iason explaining 'the importance of body odour and Scots Pine' at Satrosphere Science Centre, Work Package Co-ordinator Simon Langan outlining 'river management and urban flooding' at Brander Library in Huntly and Glensaugh Farm Manager, Donald Barrie giving a talk entitled 'agriculture and the great leap forward' at Alford Library. ■



Image David Riley

A Dating Game for Scottish Soils

A new 'dating game' formed the focus of the joint exhibit, created by the Institute and SCRI, at the Royal Highland Show held at Ingleston, Edinburgh in June.

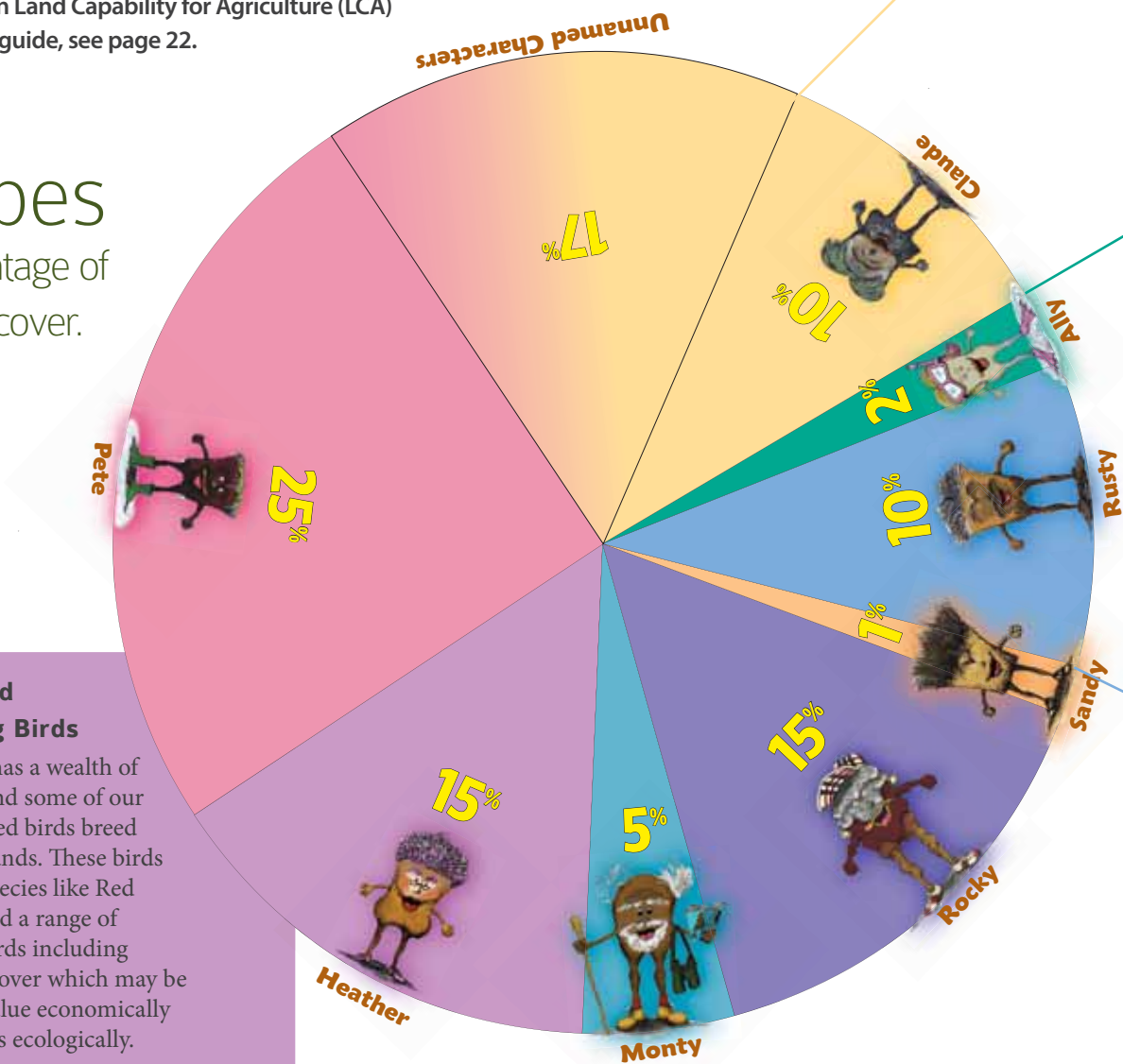
For a small country, Scotland has a wide variety of soil types. Soils fulfil a number of functions directly related to human activity including food and timber production, carbon storage, provision of raw materials such as sand and gravel deposits and land for housing and infrastructure.

Most soils support more than one function at a time, however Scotland's land is a finite resource and the game aimed to educate visitors on the relatively low percentage of land in Scotland that is suitable for growing food crops, and raise awareness that this land also faces pressures to provide resources such as housing, bio-fuels, wind energy as well as support wildlife and recreation.

For more information on Land Capability for Agriculture (LCA) and the Institute's new guide, see page 22.

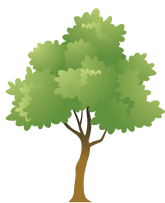
Soil Types

including percentage of Scotland's land cover.



Moorland Breeding Birds

Scotland has a wealth of bird life and some of our most valued birds breed on moorlands. These birds include species like Red Grouse and a range of wading birds including Golden Plover which may be of great value economically and well as ecologically.



Trees

There are a great many species and varieties of trees in Scotland ranging from native species, to exotic species which have been brought into Scotland because they either grow very well in Scottish conditions or are very pretty.

Because of this great range, there is probably a tree species suited to just about every soil type in Scotland. The exceptions are the high mountains and the very exposed northern isles where trees will grow but only in well sheltered places.



Grass

Grass does not mind how steep the ground is but it prefers it to be stable. It prefers fairly deep and fertile soils with relatively few stones and although it does not mind if these get quite wet at times, it does not like to be flooded.



Livestock - cattle and sheep

There are numerous breeds of cattle and sheep. These range from very hardy native breeds which can live in all but the most hostile of Scottish environments (like St Kilda sheep) to the more productive breeds (in terms of meat or milk production) which need better ground that will provide good grass production. Because of this range, livestock can tolerate a wide range of soil types but they prefer deeper soils which are generally quite stable.

Crops



BRENDA BRAMBLE



PETER PEPPER



BARRY BROCCOLI



PERCY POTATO



BOBBY BLACKCURRANT



CHARLES BARLEY



SALLY STRAWBERRY



RONNIE RASPBERRY

Rusty and Ally are popular with farmers as they can grow berries, potatoes, turnips, barley, and many other crops. Rusty is probably the most useful soil in Scotland but a lot of him has been used up for buildings!

Houses



Houses are generally built in warm, dry and fairly flat places, and preferably where the soil is deep, fertile and stable in locations that suit us although not necessarily the environment. Some of our best quality agricultural land is found in and around our major cities and much of it has been built on. Houses are best not built on areas that are prone to flooding though this sometimes happens because of a limited supply of building land and/or this type of land is cheaper to buy.

Recreation



There are lots of opportunities for recreation in the Scottish countryside. These range from the traditional rural pursuits of hunting, shooting and fishing, to activities like paint balling, mountain biking and hill-walking. Because of the range of possible pursuits and their different requirements, there are few general limitations on recreation in the Scottish countryside. Indeed, recent changes in our legislation now promote responsible access.

Land capability for agriculture in Scotland – the Macaulay system explained

There has long been a requirement for a better understanding of the inherent capabilities of land in Scotland for a range of different uses, especially agriculture.

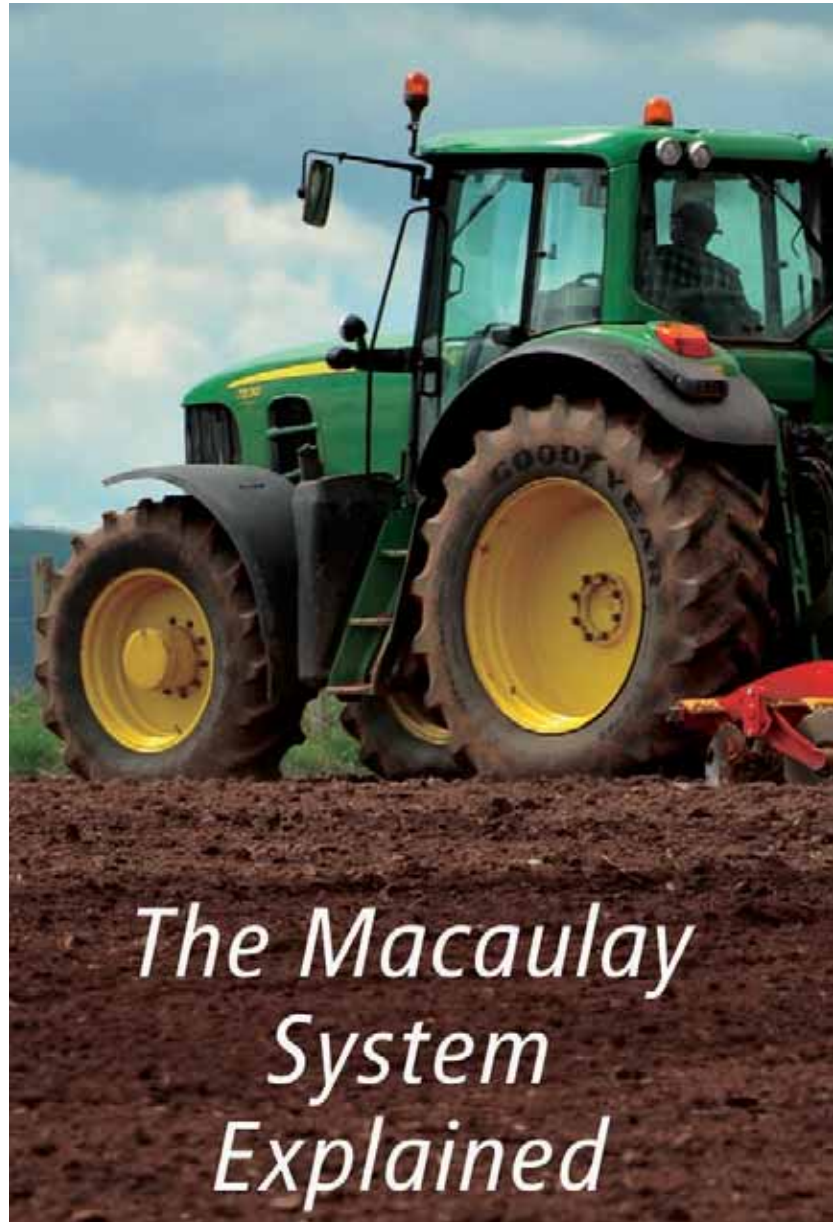
In the mid-1960s, the then Macaulay Institute developed a Land Use Capability (LUC) system which was based upon a series of guidelines that allowed soil maps and other landscape and climatic information to be interpreted into land classification maps. In the early 1980s, the LUC system was further developed and became the Macaulay Land Capability for Agriculture (LCA) classification. This is now the official agricultural classification system widely used in Scotland by agriculturalists, planners, estate agents and others as a basis of land valuation.

Relaunched at the Royal Highland Show, a new leaflet explains the Macaulay LCA classification and provides maps showing the distribution of land supporting four categories which are broadly indicative of the land's agricultural capability simplified from the thirteen classes and divisions of the Macaulay LCA system:

- Arable Agriculture (LCA classes 1 – 3.1)
- Mixed Agriculture (LCA classes 3.2 – 4.2)
- Improved Grassland (LCA classes 5.1 – 5.3)
- Rough Grazing (LCA classes 6.1 – 7)

The 2010 Land capability for agriculture in Scotland – the Macaulay system explained leaflet is available online at: macaulay.ac.uk/publications

For further information, visit: macaulay.ac.uk/explorescotland

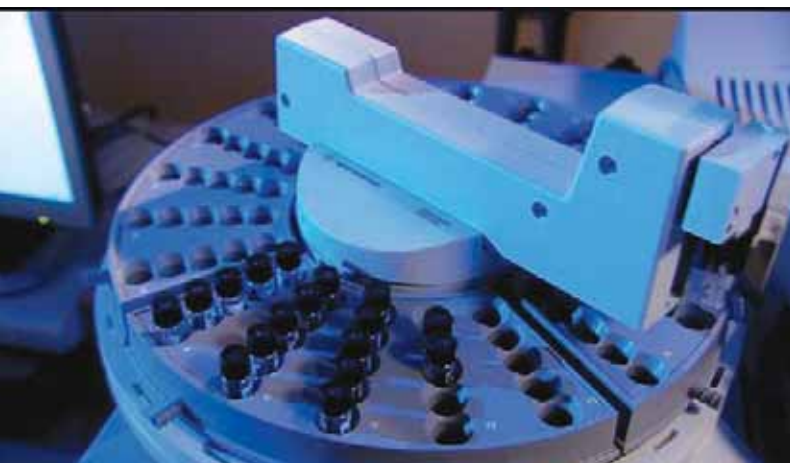
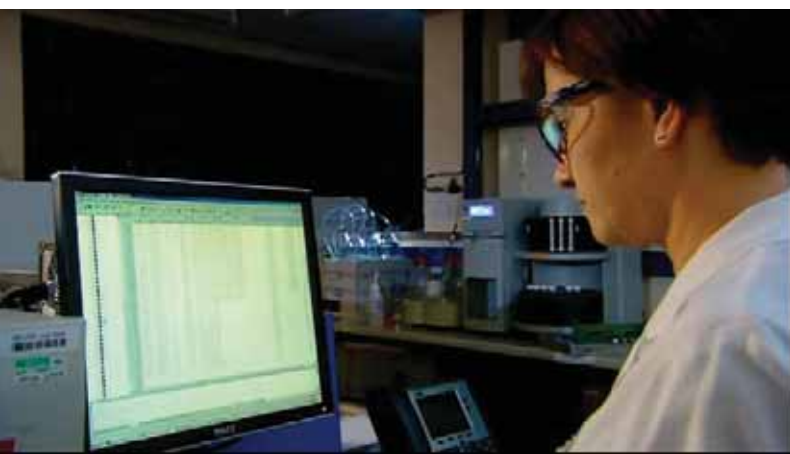
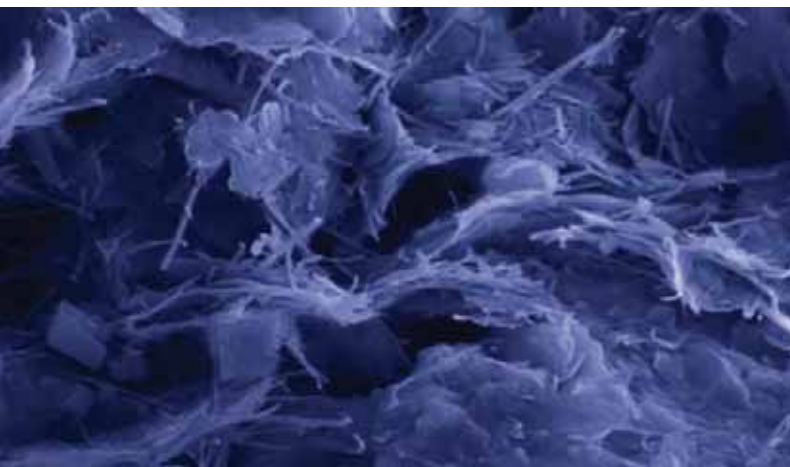


Buying your LCA Map

Maps of Land Capability for Agriculture (LCA) in Scotland are published at the scale of 1:50,000 and are available for the areas shown on the index map (left).

Another series of LCA maps is also available at the smaller scale of 1:250,000 and covers the whole of Scotland in seven map sheets.

Further details about these maps can be found at: macaulay.ac.uk/maps



Also premiering at the Royal Highland Show was a new Macaulay film, 'Assured Analytical Excellence'.

Filmed at the Institute and featuring Institute staff as well as representatives from external organisations, the resource outlines the comprehensive range of advanced analytical services offered for the oil and gas, environmental and food sectors by Macaulay Scientific Consulting Ltd (MSC), the commercial arm of the Macaulay Land Use Research Institute, and reveals the facilities available to undertake a wide range of analyses related to soils, water and sediments.

Three case studies are also included which highlight the Institute's capabilities in Isotope Analysis, Mass Spectrometry and Electron Microscopy. *"There are few commercial laboratories which have the range of advanced instrumentation that we have here, all in one location,"* explains Bill Donald, Head of Commercial Analysis. *"Many of the techniques are complimentary to one another so we are able to harness several techniques to solve very complicated process and analytical problems."*

Andy Midwood, the Analytical Group Manager said, *"One key asset of the service we provide is our staff. Being intimately linked with the research institute, and delivering analysis for an international programme of research, many of our staff members are world renowned analytical scientists and much of the equipment we utilise is state of the art. Having excellent equipment and very experienced staff is a very powerful combination which is also available to our commercial clients and is the key thing that sets us apart from many other commercial laboratories."*

Macaulay Scientific Consulting Ltd has over 70 years of accumulated knowledge dedicated to the study of soils, land use and the environment. With a team of experienced analytical scientists and modern instrumentation, exceptional multi-disciplinary analysis capabilities are offered along with the flexibility to tackle a wide range of environmental samples. From multiple experiments to analysis of a single substance, from the simple to the complex, you can be certain of 'assured analytical excellence'. ■

To view the film visit: macaulay.ac.uk/videos/analytical

For more information, or a DVD copy of the film contact:
Bill Donald w.donald@macaulay.ac.uk

Chief Executive named for Scotland's new research institute



A leading Scots scientist – recruited from Australia – has been appointed as the Chief Executive designate to lead Scotland's new, crop, food and land use research organisation. The new institute will be formed when the Macaulay Land Use Research Institute and SCRI unite in Spring 2011.

Iain Gordon, who holds both British and Australian nationality, started in post in late October.

Professor Gordon is a University of Aberdeen zoology honours graduate and was awarded his PhD by the University of Cambridge. He worked previously at the Macaulay Land Use Research

Institute in Aberdeen leading the ecology group before moving to Australia in 2003 to lead biodiversity research teams across various centres for CSIRO – the Commonwealth Scientific and Industrial Research Organisation – the national government body for scientific research in Australia.

Professor Gordon said: *"I am very honoured to have been asked to become the CEO of Scotland's new research institute. Scotland has a long tradition of outstanding scientific innovation and I'm looking forward to working with the new institute's staff and Board to catalyse world class science that will help tackle future challenges in agriculture and the environment, not only in Scotland but across the globe"*.

The plan to bring MLURI and SCRI together was announced to the Scottish Parliament by the First Minister, Alex Salmond MSP, in January 2008. The intention is to strengthen Scotland's rural-environmental research capacity and further enhance international competitiveness.

The new institute will be one of the largest of its kind in Europe and will underpin Scotland's long-standing reputation on the world stage as a centre of scientific and research expertise. Forming a powerful hub for research into food, land use and climate change, the new organisation will make a major contribution to key global issues, such as food security, biodiversity, and how climate change will affect the way we use land and grow crops.

The new institute will start operations on 1 April 2011 and will operate from the two sites in Aberdeen and Invergowrie. ■



I am very honoured to have been asked to become the CEO of Scotland's new research institute. Scotland has a long tradition of outstanding scientific innovation and I'm looking forward to working with the new institute's staff and Board to catalyse world class science that will help tackle future challenges in agriculture and the environment, not only in Scotland but across the globe.



macaulay.ac.uk/newinstitute

Return of a Scottish Science Hero

The new research institute to be formed from the Macaulay Land Use Research Institute and SCRI is to be named in honour of the Scottish Enlightenment science pioneer, James Hutton.

James Hutton (1726 – 1797) was a leading figure of the Scottish Enlightenment, an eighteenth century golden age of intellectual and scientific achievements centred on Edinburgh. His counterparts included the economist Adam Smith and the philosopher and historian David Hume.

James Hutton is widely recognised as the father of modern geology. Less well known is the fact that his work spanned chemistry, meteorology, geology, botany, zoology and he also experimented in plant and animal breeding. James Hutton's thinking on natural selection influenced Charles Darwin in developing his theory of evolution and he is credited with being amongst the first to envision the Earth as a living ecosystem. His idea of a 'living Earth' was forgotten for a time... but resurfaced in the Gaia hypothesis, proposed in the 1960s by the renowned scientist James Lovelock. This explores the idea that life on Earth functions as a single organism which defines and maintains environmental conditions necessary for the planet's survival.



Sir Henry Raeburn: James Hutton Scottish National Portrait Gallery, Purchased with the aid of the Art Fund and the National Heritage Memorial Fund 1986.

James Hutton's name was put forward during a joint competition for staff at the Macaulay Land Use Research Institute and SCRI with the suggestion coming from SCRI's Head of Plant Pathology, Dr Lesley Torrance.

"As a distinguished and influential Scottish polymath with an international reputation, it is wholly appropriate that an interdisciplinary scientific research institute based in Scotland and seeking to operate and have impact internationally should bear James Hutton's name. I believe this decision will have strong political resonance in Scotland today where the ambition is to once again have Scotland punching well above its weight."

—Professor Iain Gordon ■



The James
Hutton
Institute

The new branding for the James Hutton Institute was born out of some thinking about the pioneering geological work of James Hutton and his observations about rock formation and strata.

It is the work of the joint MLURI and SCRI graphics teams who were praised by board members for the speed and quality of the work. Chairman Ray Perman said: *"I think it is excellent. I've worked with a lot of design agencies in my time and to be able to develop something as professional as this in-house is very satisfying and gives us much more sense of ownership of the brand."*

Here is how the graphics members explain the concept: *"The equally spaced vertical segments in the logo show structure and foundation. This together with the horizontal segments hint at 'unconformity in land' one of the many discoveries made by James Hutton."*

"Landscape and water are illustrated in the waved lines of the logo and give the logo movement. The purple (heather) is to symbolise the Scottish roots of The James Hutton Institute. The different sections are then grouped together within a curved square. "The design can be interpreted as geological strata...as field plots...or as runrig in traditional Scottish farming and crofting. The white space might be drill holes." ■



A view from the floor of the Chamber during a debate.

A secondment to SPICe - the Scottish Parliament's Information Centre a personal account by Wendy Kenyon

The Scottish Parliament celebrated its 10th birthday in 2010 and during these last ten years the Macaulay Land Use Research Institute has had some, but perhaps limited engagement with the processes and people in Holyrood. However, after spending two years on secondment to the Scottish Parliament Information Centre (SPICe), it is clear that a closer relationship between the Institute and the Parliament would offer benefits to both.

SPICe is a resource for MSPs and their staff which has a number of functions: the library, the enquiry service, and the research service where I was based. As part of the research service, I was involved in three core tasks. The first was to support the Committees of the Parliament. I worked for two committees: the Rural Affairs and Environment Committee and the Transport Infrastructure, and Climate Change Committee. As soon as I started I was thrown into the Parliament's scrutiny of the Flooding Bill. This meant

writings briefings, advising on witnesses, summarising evidence from stakeholders, and writing background papers for Committee members before meetings. Other Bills followed in quick succession and during my secondment I worked on the Marine Bill, the Wildlife and Natural Environment Bill and secondary legislation required under the Climate Change (Scotland) Act.

My second core task in SPICe was to respond to enquiries. MSPs and their staff can ask a question on any devolved topic, and SPICe will provide a confidential and impartial answer within 5 working days, or sooner if required – and it often is required sooner! SPICe receives in excess of 500 enquiries a month, many originating from MSP constituents, but others relate to debates, committee work, or visits and meetings. Enquiries cover a huge range of diverse topics. Some of the more memorable enquiries I dealt with related to bull hire, sporrans making, fines for environmental

crimes, fish farm parasite policy and feed-in tariffs, not forgetting my favourite on sewage sludge! Responses vary from merely providing a link to a particular web page to a highly detailed briefing document.

My third core task as a SPICe researcher was to write hot topic briefings. These may relate to parliamentary business, such as supplementary briefings for Bills. One example was a briefing on EU Dimensions of the Marine Environment, a comparison of the UK and Scottish Marine Bills to support scrutiny of the Scottish Marine Bill. Other briefings may relate to issues that MSPs are being lobbied on such as Non-Domestic Rates: Livestock Auction Marts, or may be written to coincide with external events such as the UN Biodiversity conference of the parties in Nagoya.

There is, of course, a steady stream of additional work such as to provide 'material for debates', which is a list of sources that MSPs and their staff might refer to before a debate in the chamber, internal surveys, petitions briefings, meetings with stakeholders and engaging with external groups, commissioning and managing research from external organisations, maintaining links with experts, attending visits with the committee and so on.

My role at the Parliament has now come to an end, but what is very clear after two years is that:

- *Parliamentary staff, and MSPs and their staff face a massively diverse range of subjects on a daily basis*
- *Timescales are short*
- *Much of the information already 'out there' is either not accessible, does not directly answer the question at hand, or is not impartial*

All of this means that easy access to impartial sources of expertise that can provide clear, concise and timely information is invaluable. The challenge for the Macaulay Land Use Research Institute is to be the first port of call for the provision of just such expertise and information related to environmental issues and rural affairs.

Institute staff clearly have the subject expertise to do this, but we also have a good number of people with insider knowledge of the parliament and its processes. Along with myself are Ken Thomson, who acted as a budget advisor to the Rural Affairs and Environment Committee in 2009 and Sue Morris who was joint head of research in the parliament with responsibilities in education, equalities and criminal justice. Others have experience of appearing before Parliamentary Committees. Willie Towers gave evidence to the Rural

Affairs and Environment Committee on its Inquiry into the Report on the Future of Scotland's Hills and Islands and Justin Irvine appeared before the Rural Affairs and Environment Committee in September, offering expertise on the deer provisions of the Wildlife and Natural Environment Bill.

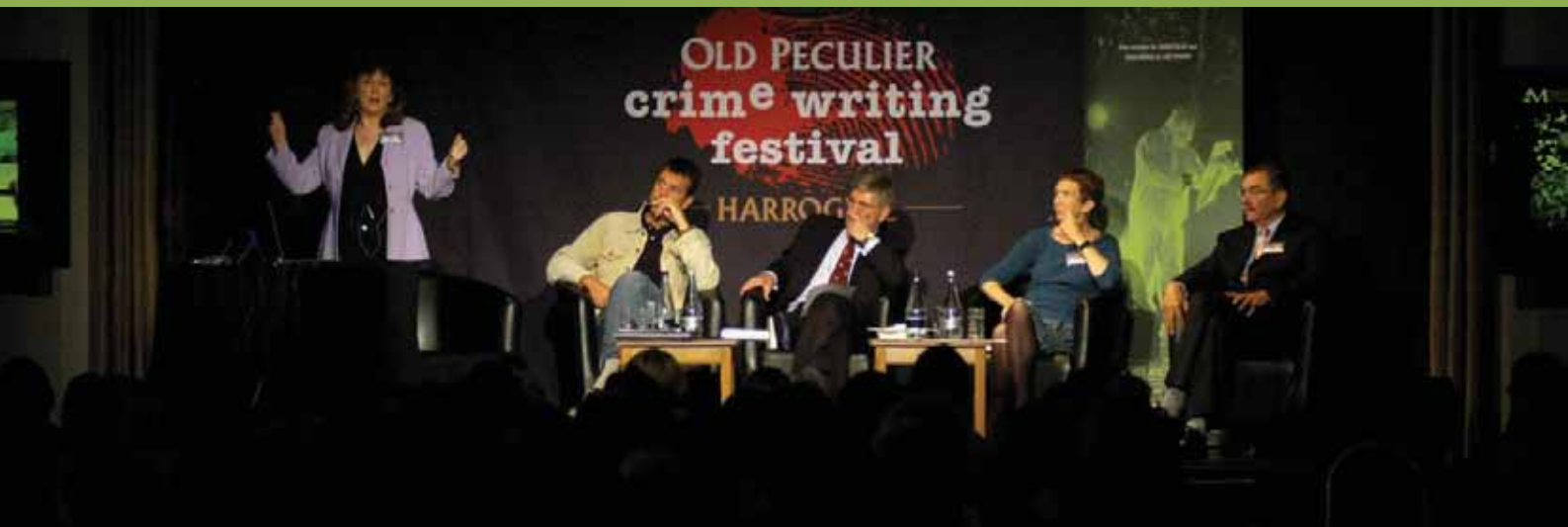
At a personal level, I would argue that it is rewarding to know that research is worthwhile, but at an Institute level it is vital that we demonstrate our research has impact and is used to develop policy and legislation. My view after experiencing research in the Parliament and within the Institute is that developing and maintaining links offer a win: win: win opportunity for the researchers themselves, the MLURI and the Scottish Parliament. ■

For more information contact: [Wendy Kenyon](mailto:w.kenyon@macaulay.ac.uk)
w.kenyon@macaulay.ac.uk

“

At a personal level, I would argue that it is rewarding to know that research is worthwhile, but at an Institute level it is vital that we demonstrate our research has impact and is used to develop policy and legislation.

”



Murder Mystery & Microscopes

(Above) Lorna Dawson (left) with (left to right) Mark Billingham, James Grieve, Ann Cleaves and Dave Barclay, discusses forensic archaeology. (Left) Lorna Dawson using a video camera to provide the audience with a close-up view of an exhibit with soil remaining in the tread of a walking boot.

Image © Sam Atkins

The overall aim of 'Murder, Mystery & Microscopes', part of a Scottish Government programme of science engagement, is to raise the public understanding of the sciences which underpin forensic investigations.

Scientific advances continue to provide new techniques for supporting intelligence or evidence for use by investigating authorities in helping to deliver a safer society. Criminal investigations into serious crimes such as homicide, drugs, arms and fraud are being tackled increasingly with advances in scientific techniques, such as the provision of contact trace physical evidence such as, for example, in soil profiling for provenancing or linking of samples from crime scenes with those found on suspects.

The award winning event between the Macaulay Land Use Research Institute, Robert Gordon University and the University of Aberdeen, has undertaken a highly successful nationwide tour last summer visiting Techfest in Aberdeen, Science Festivals in Liverpool, Guildford, Orkney and Edinburgh, Ullapool and the Theakstons Old Peculier Crime Writing Festival in Harrogate, the largest crime fiction festival in the United Kingdom.

This event provided a forum at which crime writers could learn about the real scientific basis for criminal investigations from practicing scientists and investigators. Crime writers

are an additional target audience to the core objectives of the public science engagement, with increasing demand from writers and publishers for scientifically accurate information.

Crime fiction is the most popular genre of fiction and by improving the level of technical understanding of scientific techniques amongst writers, more robust descriptions of forensic procedures are fed into the storylines of novels. Similarly, such knowledge exchange can be fed into other avenues of the mass media (e.g. film and television) leading to a progressive dissemination amongst public audiences of the role and limitations of scientific methods in forensic investigations as well as a cascade of scientific knowledge to wider public audiences. ■

macaulay.ac.uk/MMM



ACKNOWLEDGEMENTS

The project team is grateful for the support of the Macaulay Land Use Research Institute for co-funding, and the EPSRC GIMI network for organisational and funding support.

Thanks to crime writers Stuart MacBride and his publisher, Harper Collins Publishers Ltd., Ann Cleaves, Macmillan Publishers Ltd. and Mark Billingham, Little, Brown Book Group.

World Press Photo @ Festival of Politics

The world's premier photojournalism exhibition, The World Press Photo Exhibition 2010, was hosted by the Scottish Parliament during this year's Festival of Politics. Featuring the winning photographs from this year's World Press Photo competition, the exhibition documents subjects from across the globe, ranging from coverage in war zones and natural disasters, to portraiture, nature and sports photography.

To link in with the World Press Exhibition, the Festival of Politics ran a programme of events examining the work of, and issues faced by, photojournalists - many of whom are now working co-operatively with scientists, campaigners and stakeholder groups to catalogue the impacts of climate change and draw attention to the relevant issue.

To tie in with the Institute's research on climate change, Richard Aspinall was invited to the Parliament to chair the discussion: 'Documenting Climate Change - Does Photography Make a Difference?'

Photographer and founder of the Hard Rain Project Mark Edwards discussed what photo journalism may add to the climate change debate. *"Our cause is to illustrate the problem that is happening. It's comfortable to forget. People need reminding of the consequences of their daily activities."*

The Hard Rain Project was established as a charity in 2009 to support educational programmes for schools, universities and colleges, and public exhibitions that campaign for realistic solutions to the interlinked problems of climate change, poverty, the wasteful use of resources, population expansion, habitat destruction and species loss. *"We need to reconnect with nature. Not just to take photographs which are a snapshot in time."*

Award winning photographers Mathias Braschler and Monika Fischer, have concentrated on documenting 'The Human Face of Climate Change', travelling to 16 countries in all continents, from Australia to the Alps to record the impact upon communities in desert, forest, mountain and glacial environments.

"The people in our photographs stand for a problem affecting a whole community" explained Monika. *"By visiting places you can really see the impacts of climate change. It's changing lifestyles, it's changing people. We are at the first stage where climate change can be felt by people. Everywhere we went it's happening. It will impact on all our lives."* ■

“

They've shown us striking images of challenging subjects and stimulated us to think about how people are dealing with the consequences of climate change.

”

-Richard Aspinall



Image: Mark Edwards

Forest destruction, Haiti'. Hard Rain Project, hardrainproject.com



festivalofpolitics.org.uk
worldpressphoto.org



Traversing the Twittersphere¹



When you hear the words “Social Media” do you immediately think of teenagers chatting to their friends on Facebook or celebrities such as Stephen Fry keeping us informed of his daily habits via Twitter? If this is the case, it is difficult to imagine what use a scientific research institute could possibly have for the medium.

The term “Social Media” refers to online media with user generated content.

Unlike traditional forms of media, social media is a two-way conversation and feedback is encouraged. Content is delivered straight to the audience. Social media is open to anyone and, in the sense that there are usually no subscription fees, is free to use.

In December 2009 there were 70 million Twitter users worldwide² posting 40 million Tweets per day, on average.³ 700 billion minutes every month are spent on Facebook which has 500 million active users, 50% of whom log in every day and the average person spends 15 minutes per day on YouTube,⁴ which in August 2008, overtook Yahoo as the second most used search engine after Google.⁵

Social media is undoubtedly a very powerful tool and one that more and more organisations are using to reach out to potential customers, create ‘brand awareness’ and spread their message to as many people as possible without the significant financial investment that traditional forms of marketing require.

The Macaulay Land Use Research Institute has a presence on Facebook, Twitter and YouTube. Facebook was used to promote our involvement in the Royal Highland Show, our recent photographic competition and the launch of Macaulay

Analytical’s new Scanning Electron Microscope; we regularly ‘Tweet’ daily news from the Institute as well as related scientific, environmental and rural affairs information and events, and Institute films can be viewed on our YouTube channel.

Of course, as with any new technology, social media has its drawbacks. A badly worded Tweet can effectively ruin your online reputation in an instant. Creating a presence in the world of social media involves commitment. Once a buzz has been created, the momentum has to continue for the audience to remain interested and time must be dedicated to regular posting.

However, carefully considered use of social media has the potential to encourage attendance at our events, increase traffic to our website and generally bring the work of the Institute to a wider audience. So, follow us on Twitter (@MLURI), become our fan on Facebook and visit our YouTube channel: www.youtube.com/macaulayinstitute. ■

For more information contact: [Clara Macindoe](mailto:Clara.Macindoe@macaulay.ac.uk)
c.macindoe@macaulay.ac.uk



¹ For the uninitiated, “Twittersphere” refers to the total universe of Twitter users and their habits.

² <http://blog.hubspot.com/blog/tabid/6307/bid/6050/The-Ultimate-List-100-Twitter-Statistics.aspx>

³ <http://social.venturebeat.com/2010/02/10/54-of-us-internet-users-on-facebook-27-on-myspace/>

⁴ <http://www.website-monitoring.com/blog/2010/05/17/youtube-facts-and-figures-history-statistics/>

⁵ <http://www.cleancutmedia.com/video/youtube-statistics-the-ultimate-time-suck>

The Macaulay Land Use Research Institute

2011 Seminar Programme

The James Hutton Institute: new institute, new science?

Seminar theme

"Science in The James Hutton Institute"

"Making interdisciplinarity work: the case of the Sustainable Uplands project"

Wednesday 12 January (IDam seminar), Dr Mark Reed, Deputy Director, ACES, Senior Lecturer, School of Geosciences, University of Aberdeen

"Water resource security: the role of farmers and consumers in the water-food-trade nexus"

Wednesday 2 February, Professor Tony Allan, Head of London Water Research Group, King's College London and SOAS

"Impact of climate change on plant diseases: focus on viruses"

Tuesday 22 February, Professor Lesley Torrance, Plant Pathology Programme Leader, SCRI

"Linking Land and Ocean - Managing Agriculture to Protect Australia's Great Barrier Reef"

Wednesday 23 February, Professor Iain Gordon, Chief Executive, The James Hutton Institute

"Social science for The James Hutton Institute: challenges and opportunities"

Wednesday 2 March, Professor Bill Slee, Head of SERG, The Macaulay Land Use Research Institute

"Prosperity without Growth"

Tuesday 8 March (Ilam seminar), Professor Tim Jackson, Director RESOLVE, University of Surrey

"The value of science for Scotland and it's role in addressing global problems"

Wednesday 16 March, Professor Anne Glover, Chief Scientific Adviser, Scottish Government

"Conservation science: informing the balance between 'public good' and the 'invisible hand'"

Wednesday 23 March, Dr Adam Smith, Director Scotland, Game & Wildlife Conservation Trust

Title tbc

Tuesday 29 March (Ilam seminar at SCRI, Dundee), Professor Douglas Kell, Chief Executive, BBSRC (Seminar to be broadcast live in the Craigeibuckler Board Room)

Title tbc

Wednesday 30 March, Professor Colin Thorne, School of Geography, The University of Nottingham

In April 2011, the MLURI and SCRI will join to create The James Hutton Institute. This new institute will be one of the largest research organisations of its type in Europe and presents an exciting opportunity for its researchers to more effectively address major global issues relating to food, energy and environmental security. This opportunity applies equally to those working within the new institute and to those collaborating with them. This seminar series forms part of our preparations for the new institute and is intended to explore possible new research challenges and the context for them. The speakers, leading researchers drawn from both within MLURI and SCRI, and from elsewhere in the UK and Europe, will explore some general and some specific scientific challenges from their particular perspectives. The seminars will be hosted variously at the Aberdeen and Dundee sites and some will be broadcast to both.



www.macaulay.ac.uk

Seminar begins at 5pm in Macaulay Style D unless marked otherwise
If you require any additional information or wish to attend please contact Jenna Bray
The Macaulay Land Use Research Institute -01824 395000 - jbray@macaulay.ac.uk

CLAY MINERALOGY & its application to the oil industry

A Practical Course

14 – 18 March 2011 Macaulay Land Use Research Institute, Aberdeen



£1,750 (+ VAT)
macaulay.ac.uk/claymineral

Learning Objectives:

- the structure and chemistry of the common clay minerals
- how they influence the properties and behaviour of shales by their interactions with water
- salt solutions and organic compounds
- the problems these minerals can cause in shales and reservoir rocks
- remediative measures to combat these problems
- how to quantitatively analyse the mineralogy of clays by X-ray diffraction with supplementary analyses by infra-red spectroscopy and scanning electron microscopy.

Contact

For further enquiries please contact: Jane Lund, Events Manager
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