THE MACAULAY INSTITUTE

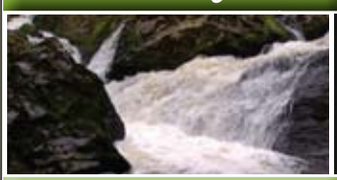
The Newsletter of the Macaulay Institute
www.macaulay.ac.uk

in-land

SUMMER 2008

DIGGING OUR SCENE

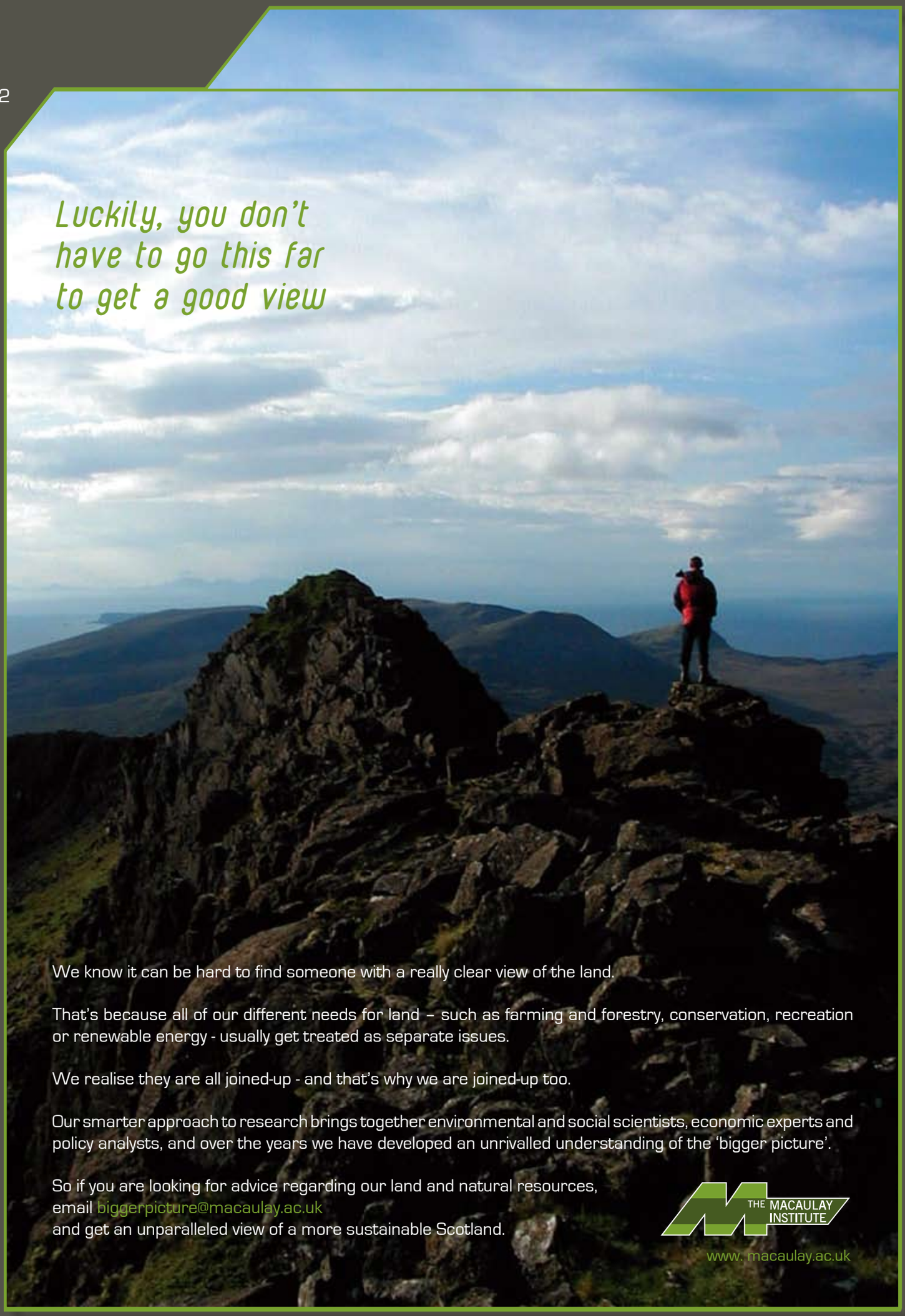
Inside this issue



Author Ian Rankin crosses the line between crime fiction and science fact

Paul Dodds

CiB Awards 2007 award of excellence



Luckily, you don't have to go this far to get a good view

We know it can be hard to find someone with a really clear view of the land.

That's because all of our different needs for land – such as farming and forestry, conservation, recreation or renewable energy - usually get treated as separate issues.

We realise they are all joined-up - and that's why we are joined-up too.

Our smarter approach to research brings together environmental and social scientists, economic experts and policy analysts, and over the years we have developed an unrivalled understanding of the 'bigger picture'.

So if you are looking for advice regarding our land and natural resources,
email biggerpicture@macaulay.ac.uk
and get an unparalleled view of a more sustainable Scotland.

THE MACAULAY INSTITUTE

www. macaulay.ac.uk

Welcome

Welcome to the Summer 2008 issue of in-land. As usual we've included a broad range of our recent projects, activities and achievements.

In search of the 'Perfect' land system

In Scotland we enjoy many distinctive systems of land use providing exceptional landscapes and environmental quality. This tapestry reflects the prevailing economic and environmental conditions, which have become intertwined with our long social and cultural history.

Recent economic and social upheaval presents some distinct challenges for understanding how our land will change, and how these changes are related to wider human concerns for well-being, health, prosperity, equity, and environmental quality. Land is needed for housing, food production, recreation, conservation, and, increasingly, for energy production. Not only do these uses compete for land, they also often appear to be incompatible with one another.

Land used to produce crops for fuel is land that is not being used to produce food; land turned to housing can no longer be used for conservation; and so on. Balancing and managing competition for the land resource, and understanding the tradeoffs that result when a particular set of land uses is chosen are central to the construction of government policy, in establishing planning guidance, and - for owners, managers, and users of land - for making decisions on practical land management. It is also a focal goal of science that supports decision making.

In his book 'The Perfect Storm' (1997), Sebastian Junger describes the rare and highly improbable convergence in space and time of three individual weather systems to produce a singular meterological event. Although the perfect storm produced was spectacularly destructive, the phrase the 'perfect storm' has acquired value as a metaphor for the simultaneous occurrence of different events that together produce an unusual outcome.

In the context of processes influencing land use, we might ask whether there are equivalent patterns of convergence of phenomena that would create 'perfect' land systems.

To answer this question we need first to have some criteria that let us distinguish 'perfection'. Sustainable development, with its emphasis on economic, social and environmental characteristics, provides one set of measures that allow us to compare different land systems, and much of our science is directed towards this. Additionally, because the underlying drivers of change in land themselves change through time, we need some measures that describe the ability of a land system to respond to change; the science of this is found within research on vulnerability and resilience.

To identify the ways in which land systems respond to social, economic and environmental forces, we also need improved understanding of the processes that shape land use. This understanding arises from three areas.

First, understanding of environmental processes is required for insight into the ways in which environments work. This knowledge is gained through a variety of environmental sciences. Second, it is necessary to understand social and economic processes, and especially decision making by individuals, groups and institutions, as well as by changes in human behaviours and values. This knowledge and insight is found in the social sciences. Third, interdisciplinary skills are needed to couple understanding of socio-economic and environmental processes and systems.

For this understanding to be applied to specific land systems at particular places and times we also need insights and expertise from Geography and other disciplines that cross the interface of social and environmental science. This interdisciplinary combination of social and environmental science helps us to recognise the goods and services that functioning and healthy environments provide, as well as allowing us to understand the impacts of policies and other processes shaping land use.

So, is it possible to find a combination of social, economic, and environmental processes and events that produce a perfect land system? With sustainability as a guiding principle, and societal needs placing ever increasing demands on Scotland's land base for food, energy, recreation and other uses, the importance of an interdisciplinary science of land systems is of great relevance in relation to developing policy and establishing best practice.

If there are 'perfect land systems' that science can help to find, then the hope must be that they are much more common in the landscape than the singular, destructive, meteorological perfect storm.

As always, I hope you enjoy this latest issue of in-land.

Best wishes,

Professor Richard Aspinall
Chief Executive

Digging for clues

THE ROLE of soil in solving global crime was discussed by international forensic experts in Edinburgh late last year.

The Soil Forensics International Conference, organised by the Institute, brought together over 120 key individuals from across the globe in the fields of science, policing, forensic services and private industries to discuss the benefits arising from the latest, groundbreaking forensic soil-science research.

Examples of where soil evidence has been used in real criminal investigations, including prominent cases such as the Soham and Sarah Payne murders, were also presented by the experts who worked on these cases.

The conference was opened by Tom Nelson, Director of Forensic Services for the Scottish Police Services Authority (SPSA).

The three day meeting which took place at The Edinburgh Conference Centre, focused on the role of the relatively new field of soil forensics in high priority areas as diverse as environmental health and international terrorism.

Recent developments in soil science have led to its application in high-profile criminal cases such as the Soham murders, and soil forensics are being increasingly used in environmental cases such as tracing exactly where our food and water have come from.

Dr Lorna Dawson, Head of Soil Forensic Research at the Institute said: "In recent years, the disciplines of soil forensics have proved to be invaluable tools for the criminal and environmental investigator. It has been possible to provide compelling evidence in linking offenders with crime scenes, in finding the graves of murder victims, and tracing sources of environmental pollution or food contamination.

"This conference brings together those responsible for these ground breaking scientific developments with those at the forefront of solving criminal and environmental cases."

SOIL FORENSICS INTERNATIONAL

Talks at the three day conference covered

* The analysis of soil, rock and pollen evidence and its use in the Soham murder trial
* Using soil recovered from shoes to place a suspect at a scene of crime
* Detecting buried corpses using ground based radar
* 'Fingerprinting' pollution incidents in soil and water to trace their sources
* Applying soil evidence in the investigation of insurance fraud, theft and 'treasure trove' cases which involve possible buried antiquities.

Keynote speakers at the event included Ms Patricia Wiltshire, who has worked on a number of high profile cases, including the Sarah Payne and Soham murders, Ms Jo Ashworth, Head of Physical Evidence, National Policing Improvement Agency, Dr Rob Fitzpatrick, Director, Centre of Australian Forensic Soil Science, and Mark Harrison MBE, National Search Adviser for the UK Police.

There was also a public lecture on the final day of the conference by Scot and Head of Australian Police's forensic services, Professor James Robertson.

Publisher Springer will soon be producing a book based on the keynote presentations and a selection of other conference papers.

For more information contact
Lorna Dawson
l.dawson@macaulay.ac.uk

or visit
soilforensicsinternational.org

Death du jour

MYSTERY was very much on the menu as the conference dinner served up a bit of a twist.

As well as over 100 delegates, the evening was also attended by a host of top crime authors – including best-seller Ian Rankin.

The idea for the event was to give authors a chance to meet with a range of forensic experts in the hope it might spawn some blockbusting storylines.

The authors – including Lin Anderson, Margaret Murphy, Alex Gray, Barbara Nadel, Alanna Knight, Sheila Quigley, Ken McCoy and Ann Cleves – joined with conference attendees at the meal and ceilidh held at Edinburgh's Our Dynamic Earth.

The evening also raised over £400 for the BBC's Children in Need appeal after prizes – including signed books from the authors – were raffled.


Paula Harthill


Paula Harthill

Partners in crime: conference organisers Professor David Miller and Dr Lorna Dawson with top crime-author Ian Rankin

> Soil forensics have proved invaluable in linking offenders with crime scenes, finding the graves of murder victims, and tracing sources of pollution

Paul Dodds

Paula Harthill

Paula Harthill

Paula Harthill

Paula Harthill

Paula Harthill

Paula Harthill

Paula Harthill

Murder, Mystery and Microscopes

CRIME fiction will come face to face with crime fact at this year's BA Festival of Science.

Top crime authors Val McDermid, Peter James and Margaret Murphy will join with leading forensic experts, including the Institute's Lorna Dawson, in revealing the science behind the stories - and the stories behind the science.

Murder, Mystery and Microscopes will be an un-missable evening for fans of crime fiction as the experts will be explaining the forensics involved in excerpts read by the authors from their latest novels.

The event - which will be run twice during the day - will be hosted by BBC Radio 4's Quentin Cooper, and the organisers also hope to include some clips from TV and film crime drama during the 90 minutes.

The Institute is organising the free-to-attend event, which is kindly being sponsored by the Wellcome Trust, as part of the science festival - which is also Europe's largest.

Hosted by the University of Liverpool, the event on the 9th September also ties in with the city's status as this year's European City of Culture.

For more information email
in-land@macaulay.ac.uk

Meet the authors...


Mimsy Moller

Award winning Scots author Val McDermid attended Oxford and worked as a journalist before getting her first novel published in 1987. She has since gone on to write over 20 books. The ITV series *Wire in the Blood* is based on her series of books featuring criminal psychologist Dr Tony Hill.

Peter James was educated at Charterhouse and then at film school. He lived in North America for a number of years before returning to England. His novels have been translated into twenty-six languages and reflect his interest in medicine, science, and the paranormal. He lives in London and Sussex.


Alan Mills

Liverpool-born Margaret Murphy is a graduate in environmental biology, and has been a countryside ranger, biology teacher and dyslexia tutor. She has published nine novels, and is an active member of the Crime Writers' Association. She reviews crime fiction and is an occasional contributor to Radio 4's *The Message*.

...and meet the host

Quentin Cooper has been described by The Times as the world's most enthusiastic man and as an expert on everything from pop music to astrophysics. Quentin regularly presents on radio and TV and is currently presenting *The Material World* for Radio 4, and is film critic for BBC One's *Breakfast* programme.

SCOTS SCIENTISTS COMBATING CLIMATE CHANGE

THE FRONT-LINE:

Scientists – including Institute Chief Executive Prof Richard Aspinall (back, centre) and Dr Iain Brown (back, third from left) – briefed ministers Stewart Stephenson (front. third from left) and Michael Russell (front, third from right) at the meeting.

Photo: Chris Watt Photography

CLIMATE change researchers from the Institute and other top Scottish experts in the field updated Scottish ministers on the progress of their work recently.

The briefing was organised to update the Climate Change and Environment Ministers on some of the work being carried out at Scotland's environmental, agricultural and biological research institutes.

Chief Executive Richard Aspinall and Dr Iain Brown told how the Institute is developing measures to slow down the release of carbon from soils – an important source of greenhouse gases.

They also outlined work underway in the three key areas - monitoring climate change, mitigating its impacts and helping to inform adaptation and responses to its impacts.

Minister for Climate Change Stewart Stevenson said:

"Climate change is having a major impact on the world we live in and the work of the science institutes is invaluable in helping to inform our future policy on climate change.

"This briefing is timely as we are currently consulting on proposals for a Scottish Climate Change Bill to ensure we have the right framework to build a sustainable future for all of us to enjoy. We are proposing to reduce emissions by 80 per cent by 2050 - this is the scale of the challenge that confronts us and strong scientific support is key to helping us deliver these reductions."

Representatives were also present from the other five main research institutes in Scotland –Moredun Research Institute, Rowett Research Institute, Royal Botanic Garden Edinburgh, Scottish Agricultural College and the Scottish Crop Research Institute.

The meeting was chaired by Minister for Environment Michael Russell.

He said: "The quality of Scottish science is held in the highest regard around the world. Our strengths in agricultural and biological research may not be as well known to the public as our achievements in other fields, but they are of equal value.

"It is encouraging to know that Scottish scientists are working together in playing a leading role in responding to the threat of climate change – one of the most serious issues facing the future of our planet. I would like to praise them for the high-calibre research they provide for Scotland and the rest of the world."

Much of the Scottish-based work is supported by Scottish Government funding of around £60 million per year.

Responding to climate change has been selected as one of the main research areas of the Government's five year scientific programme 2005 to 2010. The other areas are: protecting bio-diversity and the environmental, social and economic sustainability of rural Scotland.

For more information visit macaulay.ac.uk/climatechange

"THE WORK OF THE SCIENCE INSTITUTES IS INVALUABLE IN HELPING TO INFORM OUR FUTURE POLICY ON CLIMATE CHANGE"

Institute develops 'while-u-wait' contaminated-food detector

INSTITUTE scientists have received funding to mass-produce a revolutionary food testing kit that will detect the presence of a host of potentially fatal contaminants within hours - making it the fastest such technology in the world.

By 2010 the project will roll out technology that will cut detection times for food poisoning bugs such as Compylobacter, Listeria and Salmonella from six days to just five hours.

According to the Institute's Dr Brajesh Singh, who leads the project, the new technology could prevent thousands of deaths every year from food poisoning outbreaks.

"The conventional methods for detecting food contamination used by industries and regulatory agencies are labour intensive, time consuming and costly. Our proposed technology offers for the first time, at low cost, the simultaneous detection of multiple contaminants within five to eight hours, and has the potential to revolutionise the food safety industry and save lives through prevention of food poisoning epidemics.

"We believe that this technology provides a real opportunity to make Scotland a world leader in microbial diagnostics and industrial microbiology. With a combination of an excellent skill base, innovative science, leading regulatory agencies and industrial track-record, Scotland is firmly at the forefront of this technological arena.

"The project will allow Scotland to compete with North America and Continental Europe in this growing market, which estimates suggest will be worth US$2.4 billion by 2010 for the food sector alone."

While the technology will initially focus on contaminant detection in food and the environment, it has wider applications and will be attractive to healthcare, forensic and remediation industries.

There is also the potential for this technology to be used in the future to quickly detect hospital super bugs such as MRSA, said Dr Singh.

He added: "By proving the concept within two years, the project will achieve a technology that can be licensed to a range of industries or service providers in microbial diagnostics. It will also be marketed through a spin-out company which will manufacture the necessary kits and create a service centre for the UK, leading to new job opportunities in Scotland. These jobs will be in food, environmental and clinical industries."

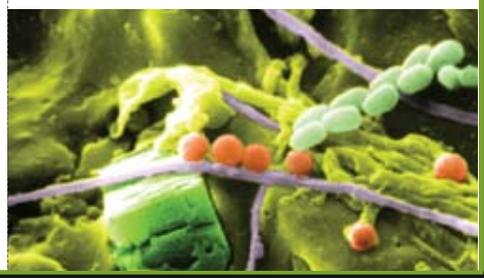
Funded by Scottish Enterprise's Proof of Concept programme, the £246K project's aim is to be selling products worldwide by 2010 via the spin-out company, which will also analyse food samples and develop more products.

The test kit works by analysing a sample for specific pathogens. It will detect multiple microbial contaminants in food, water and environmental samples. This unique method allows dual detection of pathogens and determines if they are capable of producing toxins or whether they have antibiotic resistance.

Dr Singh said: "It is also very sensitive and can be used to accurately determine the level of contamination - which is a limitation of present methodologies. Once proven, the technology will reduce running costs and allow more frequent and comprehensive surveillance of food safety, improving public health protection and food quality management systems."

The project also involves the Institute's Dr Geoff Elliott and Dr Colin Campbell.

For more information contact
Brajesh Singh
b.singh@macaulay.ac.uk



AGRICULTURE and forestry are no longer the cornerstones of the Scottish rural economy, according to a major review of the crofting counties of Scotland.

The report, prepared by the Institute for the Committee of Inquiry on Crofting, shows that on many crofts within the Highlands and Islands, the average annual income from agriculture is much less than £10,000.

For the majority this comes from agricultural support and for most farms and crofts, non-agricultural sources now make up the largest part of household incomes. In the Western Isles, for instance, they account for as much as 84%.

Lead author, Dr Richard Birnie, said: "Our review shows that agriculture and forestry are no longer the cornerstones of the rural economy in terms of employment. In most areas there is in-migration and the local economy is doing well because of wider demographics and 'lifestyle' choices with people relocating to high amenity areas.

"In these areas, employment in tourism and the public sector is now up to ten times higher than in agriculture or forestry."

The crofting counties refer to the former counties of Argyll, Caithness, Inverness, Orkney, Ross and Cromarty, Shetland and Sutherland. There are currently in excess of 17,000 crofts in Scotland.

There has been a population growth higher than the national average across the crofting counties since 2001 and an associated rapid increase in average house prices in all areas except Caithness and Sutherland, and the Outer Hebrides.

The link between housing and crofting was also a key land-use issue, said Dr Birnie.

"Housing, and the supply of land for housing, are big issues in most areas. The majority of these changes are disconnected from the agricultural economy, but they benefit farming and crofting households by providing a diversity of opportunities for off-farm incomes. This income diversification provides a buffer to change in agriculture."

Recent changes in European farm subsidy payments and poor trading conditions, particularly for store lambs, has meant that in some areas - such as Argyll - there has been very significant reductions in sheep numbers.

Dr Birnie said: "Although agriculture may be relatively unimportant from an economic perspective in many areas of the crofting counties, it is still the main means of landscape management. Much of the tourist industry is founded on the quality of the landscape: so will these rapid changes in agricultural land use have a significant knock-on effect on other sectors of the economy? What will happen if farming stops, and alternatively, what are the big new opportunities for agriculture in these areas, such as carbon farming?"

The report suggests several opportunities within the crofting counties to further enhance their rural economies through new land-use initiatives. These include the development of localised food production and quality niche food products, as well as exploiting renewable energy sources.

"It is recognised that potentially these rich renewable-energy resources can move many parts of the crofting counties away from fuel poverty, and provide a critical opportunity to create more sustainable communities for the future," said Dr Birnie.

Professor Mark Shucksmith, Chair of the Committee of Inquiry into Crofting, welcomed this report: "It is important that our Vision for the future of crofting and our recommendations are based on sound evidence. This report from the Macaulay Institute will be invaluable to our Committee, both in providing us with evidence of trends in land use, and their environmental consequences, and in highlighting where evidence is unavailable."

The report can be found at croftinginquiry.org

For more information contact
Richard Birnie
r.birnie@macaulay.ac.uk

RETPEC

Home on the range?

THE IMPACT of Chinese government attempts to enclose Tibetan grazing lands is the focus of a new EU funded project.

RETPEC (Rangeland Enclosure on the Tibetan Plateau of China) is investigating the environmental, social and economic effects of this new policy, which includes the settling of nomadic herders and the intensification of livestock production.

The area involved covers 2.5 million km^2 - equivalent to ten times the size of the UK- and the implementation of the policy could affect millions of people.

Project coordinator, Grant Davidson said: "It is probable that no single grazing system is ideal on the Tibetan plateau given the broad range of environmental conditions present."

"Our goal", he added, "is to assist Chinese scientists and policy makers to identify the forms of management best suited to specific market and environmental conditions".

As well as the Macaulay, the project involves institutes from the UK, China and Norway.

For more information contact Grant Davidson
g.davidson@macaulay.ac.uk

or visit
retpec.eu

Photo: Cara Kerven

Happy birthday

QUICK turnaround soil testing service, MacaulaySoils.com celebrated its second successful year in business with a trio of appearances on BBC Scotland's Beechgrove Garden.

For the first, Dr Jason Owen, who runs the service, welcomed presenter Jim McColl to the Institute to discuss exactly what soil is, how it is tested, and what the test results mean for gardeners.

In the following programme, Jason popped into the Beechgrove Garden to join with Jim in looking at the benefits of adding organic matter to the soil.

The Institute's stand at this year's Gardening Scotland was also featured in a programme later in the series.

"If you want to get the most from your garden it's important to know what type of soil you have and how to improve it," said Dr. Owen.

"It is essential to understand how certain improvements - such as adding fertilizer - can have knock-on effects, such as changing the soil's acidity."

The Institute's world famous laboratories now test soil for gardeners all over the country. By simply requesting a test kit from the Institute, gardeners receive a container to return their soil by freepost.

The soil sample is then taken through a number of comprehensive tests. These include analysis for pH levels, nutrients, organic matter and nitrate.

The high quality soil data is then sent back to the customer by post or email within 3-10 working days.

For more information contact
Jason Owen
j.owen@macaulay.ac.uk

or visit
macaulaysoils.com

MacaulaySoils.com SoilTest

Global Land Project meeting

THE UK office of the international science community's prestigious Global Land Project held its first meeting recently.

Over 30 scientists - many of them world renowned - from 10 different countries gathered in Aberdeen for the four day meeting to discuss new ways of understanding the land we live on.

The Global Land Project is an international network of scientists who are taking a new approach to understanding the land.

Their aim is to look at how human decisions - such as deforestation or building new towns and cities - affects the land, whilst at the same time considering their interactions with environmental impacts - which include climate change, pollution and soil erosion.

This relatively new approach is being termed 'land system science'.

Executive Officer and conference organiser, Dr Eleanor Milne said: "The meeting was very exciting as it brought together a range of experts who are taking just this approach, designing and using integrated human-environmental models to consider a range of 'land system' issues."

The workshop was held at the Global Land Project's Nodal Office which is based at the Institute. The office is one of only four in the world, the others being in China and Japan with the coordinating office in Denmark.

The Global Land Project started in 2001. The project is jointly run by the International Geosphere-Biosphere Programme and the International Human Dimensions Programme.

The nodal office in Aberdeen is a collaboration between the Institute and the University of Aberdeen. It opened just last year and focuses on integrating and modelling information from the human and environmental processes that take place on land.

For more information contact:
Eleanor Milne
e.milne@macaulay.ac.uk

or visit
glp.macaulay.ac.uk

New film makes a splash

A SHORT film about the Institute's catchment management research is now available on-line.

Dr Bob Ferrier, Head of Catchment Management Research, explained the background to the film: "Water is not the inexhaustible and untainted resource that many people assume it to be. Despite literally falling out of the sky, our water resources face myriad threats – most pressingly climate change, diffuse pollution and urbanisation.

"Here at the Macaulay, we believe that from mountain top to sea, and hydrology to human behaviour, an understanding of the bigger picture is vital if we are to stop putting our 'Water Under Pressure'.

"This short film is about some of the major issues facing our waters, and how the catchment management approach – as pioneered here at the Institute – can tackle both the environmental and social challenges required to improve our waters so everyone can enjoy them."

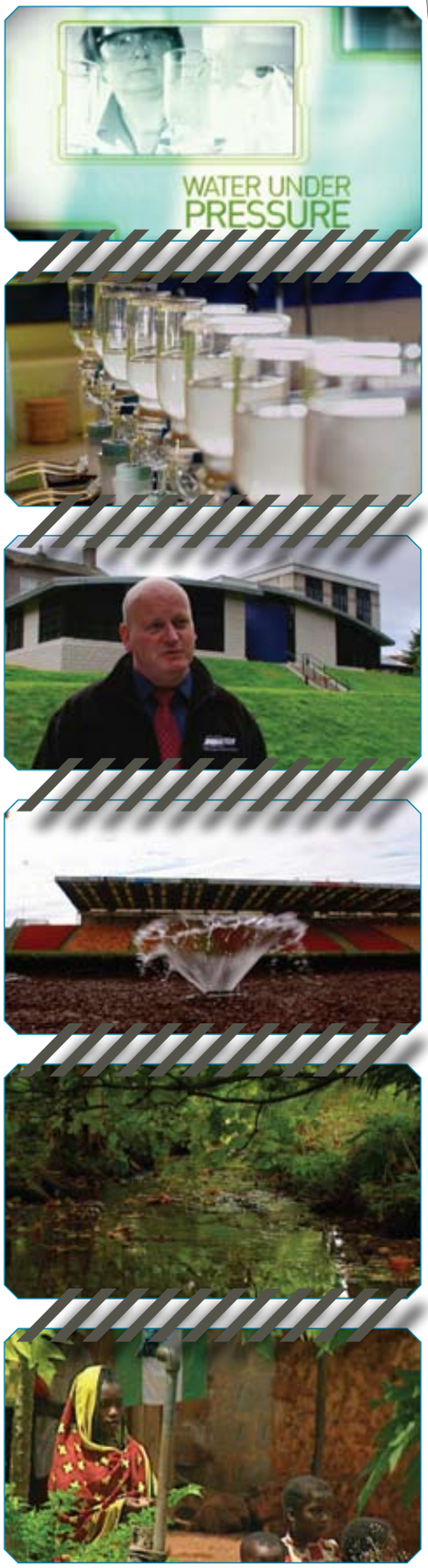
Narrated by Kate Humble (from the BBC's Springwatch), 'Water Under Pressure' was produced by filmmakers Callisto Productions – who also worked with the Institute on the 'Putting People in the Planning Picture' film.

Callisto boss, Tom McInnes said: "The film shows how an understanding of water, the land it runs through, and the humans who interact with it, is the only route to successful water management."

The film received its first public airing at the one day conference 'Turning the Tide – The Future of Scotland's Water' which was held in Edinburgh in March.

The film can be viewed at
macaulay.ac.uk/waters

Photos: Callista Productions



Communications recognised

in-land made the final shortlist for the Best External Newsletter in the Communicators in Business (CiB) Awards Scotland 2007 final.

Judged by a panel of respected and leading industry figures, *in-land* received a certificate of excellence for its success. The prestigious awards took place at a sell-out black tie event in Glasgow, where category award winners were announced.

The Institute was competing alongside some of the UK's top names in business communication. Other prominent organisations shortlisted for awards across the 16 categories included the Royal Bank of Scotland, Scottish Water, NHS, Scottish Widows, TOTAL, Scottish & Newcastle Brewers, Standard Life, Scottish Enterprise and HBOS.

Dr Dave Stevens, Editor of *in-land,* said: "It's an honour to have made it onto the shortlist of the CiB Awards Scotland 2007. To receive recognition for all the hard work that goes in to each newsletter we produce is extremely pleasing, and the news has certainly given the production team a boost to continue the good work."

Roy Carter, CiB Scotland Chairman said: "The awards evening was a great success. This year's awards were particularly hard fought, with the judges deliberating at length over many categories."

To make sure you receive your copy of in-land, email
in-land@macaulay.ac.uk

Something old, something new

KNOWING that soils are a potential climate change time-bomb is nothing new — but now, for the first time, a group of international scientists have found a way to distinguish just how much of these ancient carbon stores are being lost to the atmosphere as carbon dioxide.

This means that in the future they may be able to accurately forecast how loss of soil carbon will impact on climate change.

Project leader Professor Pete Millard from the Institute explains: "Globally, soils contain over 300 times the amount of carbon released each year due to the burning of fossil fuels, and this carbon has, until now, been safely locked up below ground.

"As the planet is warming up, this carbon is being released from the soil into the atmosphere as carbon dioxide, but there are in fact two types of carbon —'new' carbon, which has recently entered the soil through vegetation, and 'old' carbon, which has been locked up in the soil for years.

"It is the amount of this old carbon being lost as carbon dioxide that has the biggest climate change effect," he added, "as it signifies the soil changing from being a carbon-store to a source of carbon - a carbon-emitter."

Measuring the loss of carbon from soils is relatively straightforward, but determining how much is from this old carbon has up to now proved very difficult. Now this joint project between the Institute and Landcare Research, New Zealand, has developed a method to measure the release of old carbon from soils.

Their approach is based upon the measurement of very small differences in the amount of an isotope, carbon-13, which is naturally present in all carbon dioxide, including that released by soils into the atmosphere.

"We are excited because it's very relevant at the moment. We need to predict how the climate is going to change and of course that's related to the atmosphere, the vegetation and the soil," said Professor Millard.

Funded by the Scottish Government and the Royal Society of New Zealand Marsden Fund, the researchers have been working on this for three years, and now for the first time, they have been able to differentiate how much old, historical carbon is being released from soils.

"The implications of knowing this are very important and it will enable us to determine for the first time what the consequences of changes in land use might be for climate change," said Professor Millard.

"As more carbon dioxide is released from the soil, the temperature is going to increase further - it could almost be a runway reaction."

For more information contact
Pete Millard
p.millard@macaulay.ac.uk

The 'Holy Grail' of analysis

Mineralogist Dr Stephen Hillier proudly shows off the Reynolds Cup - his first win despite finishing in the top three at all previous competitions. This much coveted international award from the Clay Minerals Society is won by correctly analysing the mineral composition of three specially prepared samples.

Think global

A PUBLIC survey suggests Europeans are more worried about species loss globally than similar local impacts.

The study, carried out across eight European countries, found that well over three quarters of those surveyed were concerned about world-wide biodiversity changes, whereas less than half were troubled by local changes.

Lead author of the Scottish part of the study, Dr Anke Fischer, said: "This means that whilst changes occurring in Scotland and locally tend to be seen as problematic, changes on a global level seem to be much more urgent."

The survey involved over 300 residents of Aberdeen and Aberdeenshire, and was part of the EU-funded ALTERNET project, which included similar studies in seven other European countries.

The results from all countries were broadly in agreement – with the exception of Romania, where respondents were equally worried about local and global changes.

Dr Fischer said: "The notion of biodiversity loss seems to be widespread among many environmental policymakers and scientists. However, it is often contested by other stakeholders in the context of land use issues.

"The aim of our survey was thus to find out how members of the general public see changes in species and habitats both locally and globally, and what they think about the ways biodiversity is currently managed."

A random sample of Scottish residents was also asked to fill in a questionnaire that captured their views on changes in species and habitats, perceptions of species such as the red deer, attitudes towards biodiversity management measures, and trust in institutions.

The respondents' view on the desirability of increasing deer numbers was strongly related to their perception of previous increases. Respondents who felt that deer had been increasing lately tended not to favour a further increase.

Over half of the respondents perceived red deer numbers to have increased over the last 20 years and, while 35% saw a further moderate increase as desirable, one in five perceived an increase as undesirable," said Dr Fischer.

"Those who felt that red deer were an attractive, harmless, or valuable species tended to see higher deer numbers as desirable, whereas those who had a generally positive stance towards hunting tended to see an increase as undesirable."

For more information contact Anke Fischer a.fischer@macaulay.ac.uk

Three Dee planners unite under umbrella organisation

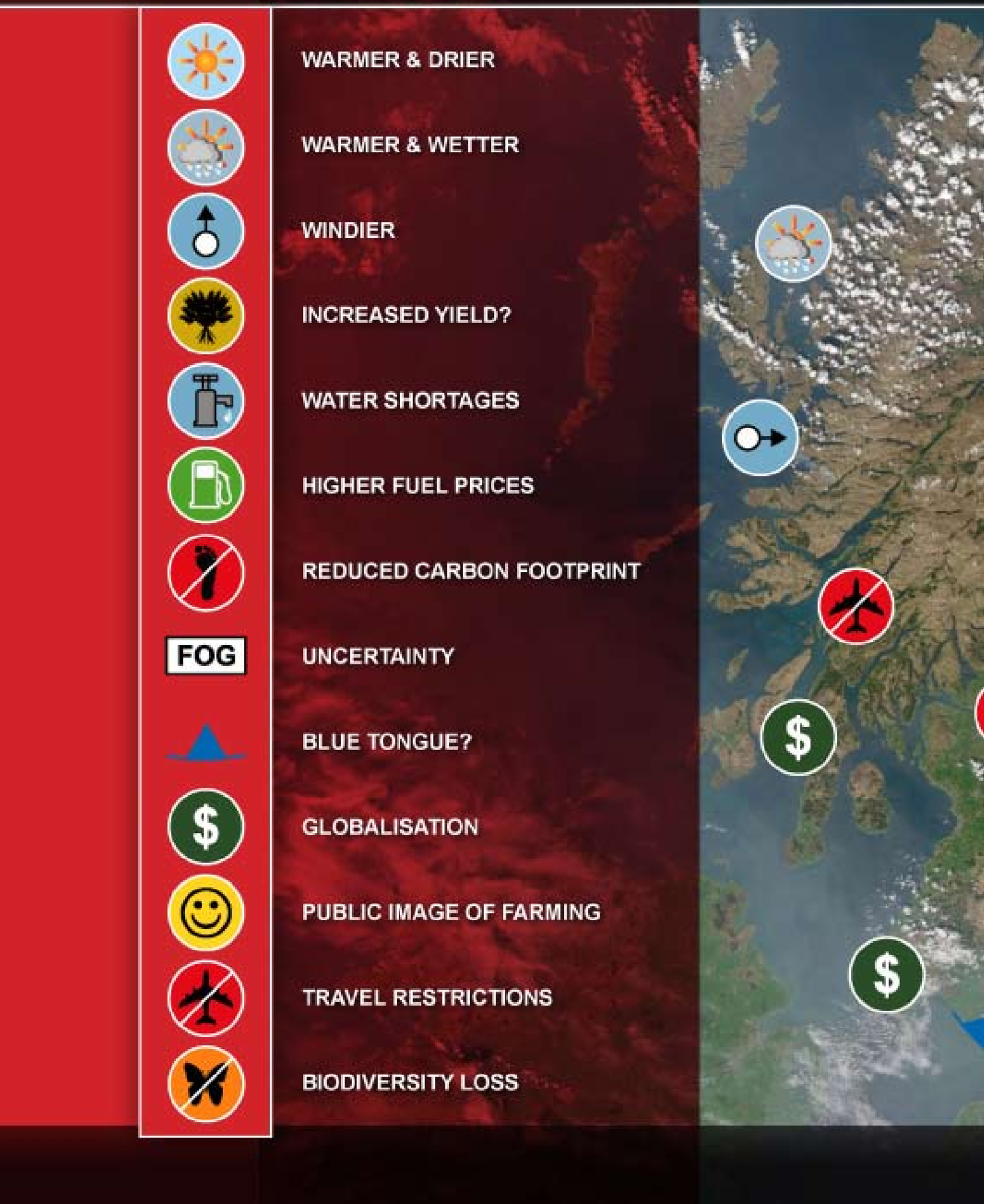
PROJECT coordinator Dr Susan Cooksley takes cover during the launch of the River Dee Catchment Management Plan, along with the Institute's Dr Simon Langan (left) and Chairman of the Dee Catchment Partnership, Major General John Barr.

The Partnership of 15 Steering Group members developed the Plan which focuses on 37 key issues and actions, including helping to reduce the risk of flooding, improving water quality and protecting wildlife within the Dee river basin.

theriverdee.org

Donald Stewart Photography

CLIMATE CHANGE... ALL CHANG



GE

It's not just the weather that'll be different

Find out more at
macaulay.ac.uk/allchange

ACES high

ENVIRONMENT Minister Michael Russell recently launched ACES - a new initiative between the University of Aberdeen and the Institute.

A key aim of ACES (The Aberdeen Centre for Environmental Sustainability) is to address environmental conflict science, by linking natural and social sciences to analyse and reconcile the conflicts that threaten sustainability - such as opposing views on how to manage natural predators in the environment.

One of the first topics to be tackled by the centre is the controversial and emotive topic of hunting and its impact on biodiversity (see sidebar).

The centre will take its lead from the Institute's approach, by the bringing together of experts from different disciplines in environmental, social and economic science.

Michael Russell said: "I am delighted to launch ACES which will position North East Scotland at the frontier of research helping protect our planet for future generations to come.

"Scotland is renowned for its world-class science, and I hope ACES will help to tackle a variety of issues, from sustainable management of biodiversity to the impact of climate change, the single biggest environmental threat to our planet."

The launch event featured contributions from Professor Richard Aspinall, Chief Executive of the Institute, and Professor C Duncan Rice, Principal and Vice Chancellor of the University of Aberdeen. The event was chaired by Professor Maggie Gill, Chief Scientific Adviser for Rural Affairs and the Environment (RERAD).

The Scottish Funding Council has given £1.2m to help set up ACES, which is headed by ecologist Professor Steve Redpath, and involves staff from a variety of disciplines from across the University and the Institute.

Professor Redpath stressed the importance of the ACES approach, saying: "One of the greatest challenges facing society is to understand how we can sustainably manage our planet.

"It is increasingly recognised that we need new approaches to solve our environmental problems. We have to cut across scientific disciplines and link closely with our policy makers and other stakeholders.

"ACES represents a wonderful opportunity to develop such an approach, by building on our existing strengths in the Aberdeen area and working together to strive for solutions."

For more information email aces@abdn.ac.uk or visit aces.ac.uk

Environment Minister Michael Russel

in-land

Printed on 100% recycled paper

Editor :: Dave Stevens

Photography :: David Riley (unless otherwise stated)

Graphic Design :: Barrie Milne

Any comments, or to receive your regular copy, email in-land@macaulay.ac.uk

Hunting for sustainability

The 'HUNT' project is part of a €4 million package which will be implemented through the ACES partnership.

'HUNT' will assess the social, cultural, economic and ecological aspects of a variety of hunting traditions in both Europe and Africa.

Working with partners in eight European and African countries, the project seeks to understand what influences attitudes to hunting, how these attitudes determine individual and societal behaviour, and finally, how hunting behaviour influences biodiversity.

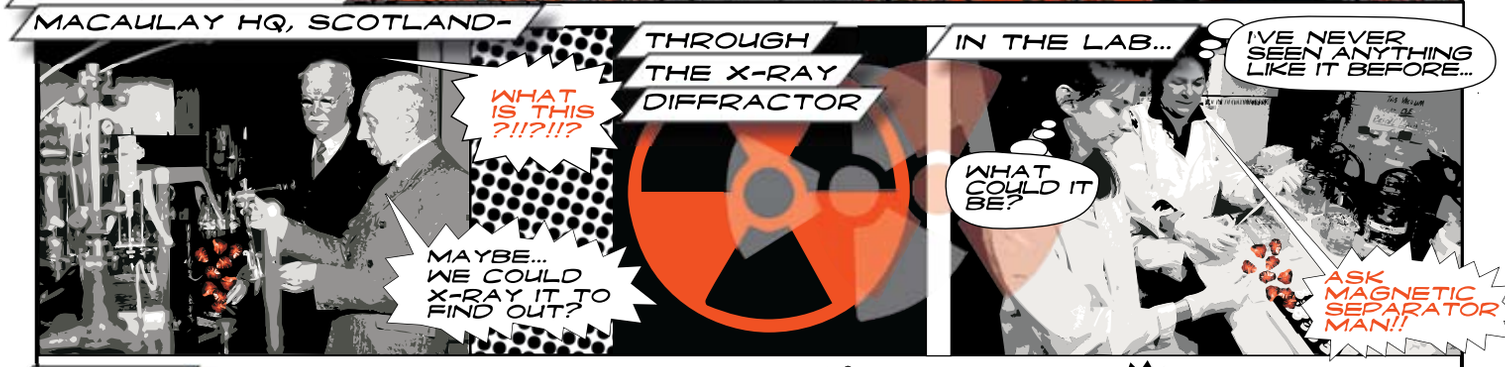
Project leader and conservation biologist Dr Simon Thirgood explained: "Throughout the project we will use hunting as a 'lens' through which we will examine the wider issue of how people interact with biodiversity. The project results will be interpreted in respect to current and future EU policy on hunting and biodiversity conservation, and they will contribute to the global debate about the sustainable use of biodiversity. "

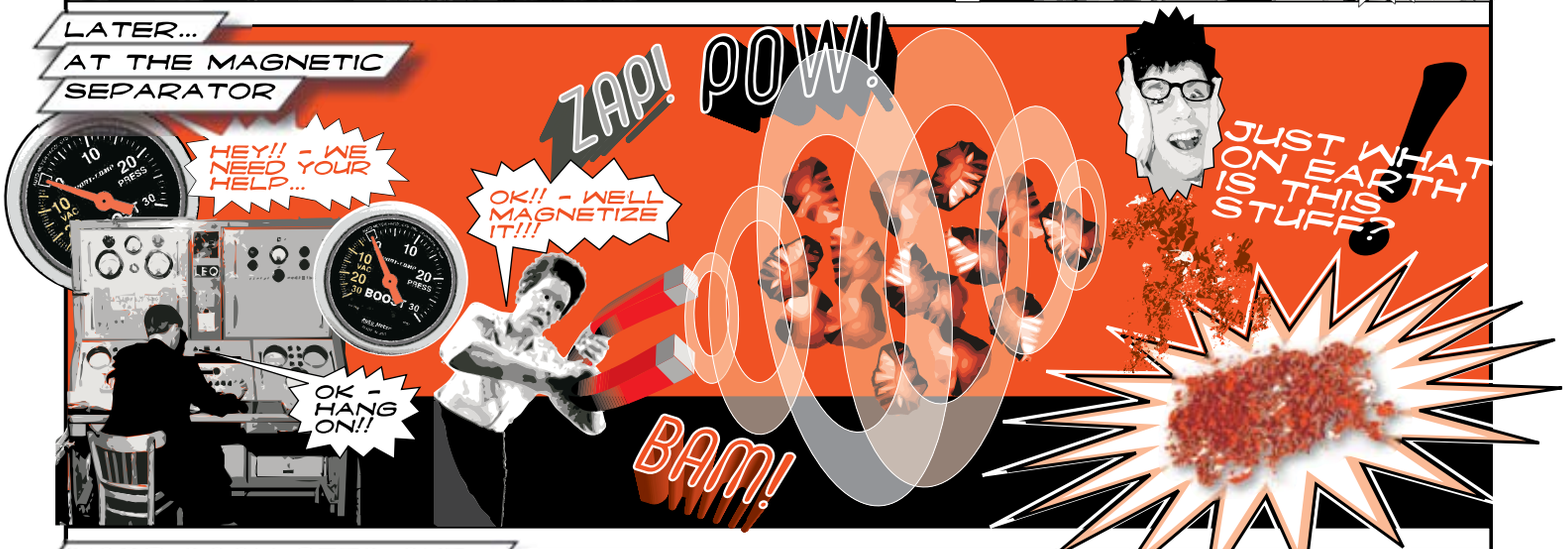
The project is financed by €2.9 million from the European Commission 7th Framework Programme and will involve experts from the institute and the Universities of Aberdeen, Stirling, and London, with international partners in Norway, Sweden, Spain, Croatia, Slovenia, Ethiopia and Tanzania.

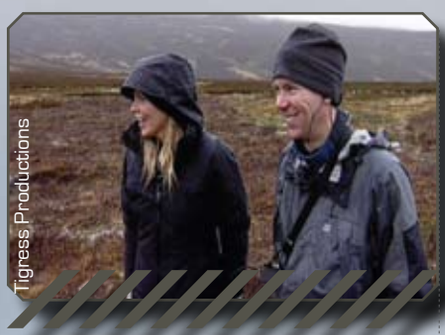
For more information email Simon Thirgood s.thirgood@macaulay.ac.uk

THE MACAULAY INSTITUTE

THE DISCOVERY OF... MACAULAYITE!






Tigress Productions

ONE to watch

PRIME-TIME BBC programme 'The One show' recently featured some of the Institute's mountain hare research.

Presenter Ellie Harrison braved the elements to join researcher Dr Scott Newey (above), as he radio-tracked hares in the Cairngorms as part of a research programme investigating population numbers.

The feature – part of the show's series on Wildlife Spectacles – was produced by Tigress Productions, makers of celebrity wildlife series, *In the Wild*.

To see the clip go to
macaulay.ac.uk/news/broadcastmedia


Tigress Productions


Tigress Productions

Scott Newey