

Good land means good health

How animals and humans are affected by land management

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Old experiments, new insights

The 'inactive' research that is proving its worth many years on

Report by Forest Research

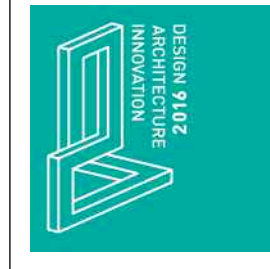
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Scottish Consortium
for Rural Research

formerly the Edinburgh Consortium for Rural Research

www.scrr.ac.uk

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PICTURE: ANDREW GAINER



The Scottish Parliament in Edinburgh

Do we need a chief scientific advisor?

Prof Stuart Monro, scientific director of SCRR, discusses whether Scotland would benefit from a senior figure to help government make informed choices

SCOTLAND HAS A REPUTATION as a science nation, where evidence is at the heart of policy-making and science underpins economic growth. Science is undertaken in a range of institutions: our universities, our research institutes and also within industry. It is therefore important that there is someone who can take an overview of Scottish science and promote these activities within government.

For this reason, the Scottish Government is seeking a new Chief Scientific Advisor (CSA) following a period when the post has been vacant. A new Scottish Science Advisory Council has been recruited with Prof Paul Boyle, Vice-Chancellor of Leicester University, as its Chair. With these appointments in place Scotland will have ambassadors for the excellent science done here, and a mechanism for promoting collaboration within the UK and overseas.

This year, Prof Dame Anne Glover, former Chief Scientific Advisor for

Scotland and former Scientific Advisor to the President of the European Commission, delivered the Peter Wilson lecture sponsored by the Royal Society of Edinburgh and SCRR. She drew on her experience as a scientific advisor in Scotland and Europe to engage with important questions. How are we to ensure that politicians and policy-makers have access to the best possible advice when we know that the advice may not be taken? How do we deal with uncertainty in translating that advice to policymakers, and should science advisers be in the business of providing policy options based on the available evidence?

The 'debate' on genetically modified crops was a good example of how the interaction between science and policy-making must be improved. There will be other issues for politicians, but the scientific evidence must be heard strongly and effectively. Yes, Scotland does need a Chief Scientific Advisor!

This issue in places

Waterlogged fields are a good home for mud snails, which pass on liver fluke – **page 2**

Dumfries and Galloway is using 'mixed methods' research to understand poverty – **page 2**

Scotland is preparing for climate change through a new adaptation website – **page 3**

The Botanics in Edinburgh is now home to a newly rebuilt 18th-century cottage moved here from several miles away – **page 4**

Small woodlands are the focus of a new initiative to improve their management – **page 5**

Our coast is to be recorded by one of the largest 'citizen science' ventures ever undertaken – **page 6**

About SCRR

THE SCOTTISH CONSORTIUM FOR RURAL RESEARCH exists to promote sharing of ideas and techniques among a group of organisations active in research into land, freshwater, coastal and marine resources, and their uses.

Our member organisations have bases throughout Scotland and are at work all over the world: details on the back page.

Members' reports

Moredun Research, Crichton Institute

Land management and its potential impact on livestock productivity and human and animal health

Beth Wells and Philip Skuce of Moredun explain why health factors should influence management decisions

EFFICIENT, SUSTAINABLE AND PROFITABLE livestock production is an important part of the Scottish economy. Approximately 80% of Scotland's land is classified as 'less favoured area' for agriculture and is ideally suited to grazing livestock. Grass-fed cattle and sheep have a lower carbon footprint than grain-fed livestock and contribute to the high quality reputation of the Scottish red meat sector.

Researchers at Moredun are interested in the interactions between land management and animal or public health, with examples drawn from a range of livestock and wildlife pathogens to help understand key issues, risks and potential solutions and to raise awareness of the importance of animal health as a consideration in land management choices.

Cryptosporidium parasites are ubiquitous in the environment and pose a serious risk to public health through contamination of water supplies. Livestock and wildlife faeces and water supplies were tested in a water catchment on the Glenlivet Estate with a history of cryptosporidium contamination and associated public



health issues. Zoonotic species of cryptosporidium were found in livestock and wildlife, and genotyping confirmed that the same strains were found in water supplies. Working with

Above: cattle in a flooded field, where mud snails might lead to liver fluke

stakeholders, solutions to mitigate against contamination of water supplies were implemented using payment for ecosystems services.

The liver fluke, *Fasciola hepatica*, is a major pathogen of livestock and is also commonly found in red deer in the Highlands. Its life-cycle involves an intermediate mud snail host, *Galba truncatula*, which explains the impact of climate and weather on liver fluke occurrence. Land management practices also impact on liver fluke disease. Land (re)wetting to attract wetland birds contributes to improved habitat for mud snails. As anthelmintic resistance becomes increasingly common in liver fluke, land management practices to reduce the risk of liver fluke will become increasingly important.

In summary, while many factors contribute to land management decisions, animal health should be an important consideration but is hitherto too often unrecognised.

For more information please contact beth.wells@moredun.ac.uk or philip.skuce@moredun.ac.uk

Measuring and understanding rural poverty

Anne Wild from the Crichton Institute describes how research informs social policy

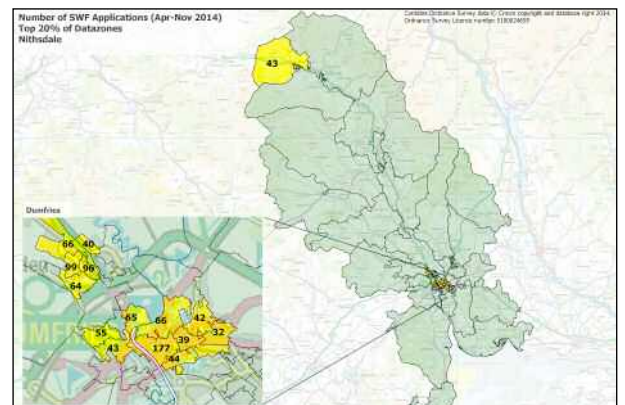
THE CRICHTON INSTITUTE recently conducted a piece of mixed-methods research for Dumfries and Galloway Council to help them understand the nature and causes of poverty, and to ensure that services were being properly targeted.

This started by mapping income deprivation as a common, if imperfect, proxy for poverty. It found that although the highest concentration of income deprived people was in the largest towns, different types of poverty were found across the region. Economic measures alone cannot reveal the whole picture of people's experiences of poverty so these were complemented with a wide range of other economic and social indicators.

Another way of overcoming the limitations of the data was to conduct

focus groups. One of the main themes was the barriers faced by unemployed or under-employed people when looking for work. For some it was not possible due to illness or difficulty competing in the labour market e.g. through being close to retirement age. Others raised the issue of declining employment options as formerly major employers closed or moved elsewhere. Transport was also raised as an issue, especially for areas with poor bus services, and this was a barrier to accessing all types of services as well as job opportunities.

As this picture continues to change, with the roll-out of Universal Credit and economic uncertainties, research on rural poverty which builds a picture using multiple sources of data will continue to be necessary for



understanding how Local Authorities can address poverty.

Above: map of Scottish Welfare Fund applications around Dumfries

Read more at crichtoninstitute.co.uk/index.php/publications

What would a climate ready Scotland look like?

Anne Marte Bergsens of Sniffer on a new web tool that offers ideas and suggestions on adaptation

SNIFFER'S CLIMATE READY PLACES project takes six 'typical Scottish places' and looks at the threats and opportunities Scotland's changing climate poses, and the actions that can be taken by home owners, communities, businesses and organisations to be climate ready.

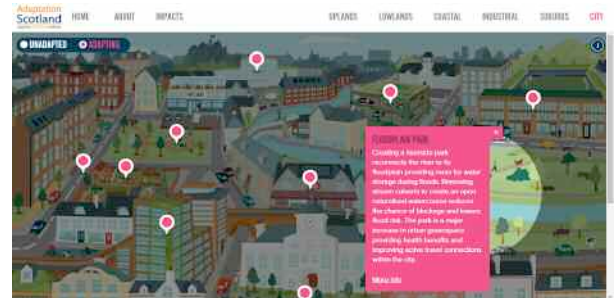
Designing Scotland's places, our buildings and our infrastructure is an important part of being climate ready. Changes in climate including increases in temperature, changing rainfall patterns, more frequent severe weather events, and sea level rise are having significant impact on many aspects of society, including health, agriculture, water resources and energy demands.

Organisations, businesses, schools, community groups or individuals can now use the Climate Ready Places web resource to start

their adaptation journey. The ideas behind it were gathered at a dynamic workshop that brought together people working on adaptation across Scotland and from many different sectors. The images used were drawn as participants described the characteristics of each place, how climate impacts them, and how our adaptation responses would change that location.

The six locations are: Uplands; Lowlands; Coastal; Industrial; Suburb; and City.

The resource is a collection of ideas – it is neither descriptive nor a plan, but each suggested adaptation action links to further resources to inspire action. The project is part of the Adaptation Scotland programme Sniffer delivers on behalf of the Scottish Government. As such the



website is one component of the Climate Ready Places resources provided by Adaptation Scotland. The tool was developed with additional funding from the Scottish Government, Scottish National Heritage and Historic Environment Scotland.

Above: screen from the Climate Ready Places website

Try the web tool at www.sniffer.org.uk/climatereadyplaces

Art and climate change

Rebecca DeVivo of Creative Carbon Scotland reports on a season of artistic events around the UN conference

ARTCOP SCOTLAND was a season of artistic performances, exhibitions and events that coincided with the COP21 UN climate change negotiations in Paris (30th November – 11th December) and the international arts initiative, ArtCOP21. Using COP21 as a catalyst, Creative Carbon Scotland worked with a number of artists and cultural organisations to explore how

culture can address climate change in Scotland and the UK.

With over 50 events, ArtCOP Scotland was a great success, helping to communicate the personal, local and global issues of climate change to the general public.

For more information, please see www.creativecarbonscotland.com



SCRR 'Life in the Extremes' event

Edinburgh International Science Festival 2016 • Sunday April 10

OUR PLANET HAS an amazing variety of extreme environments, from deserts that reach a baking 70C to deep oceans seven miles below the surface.

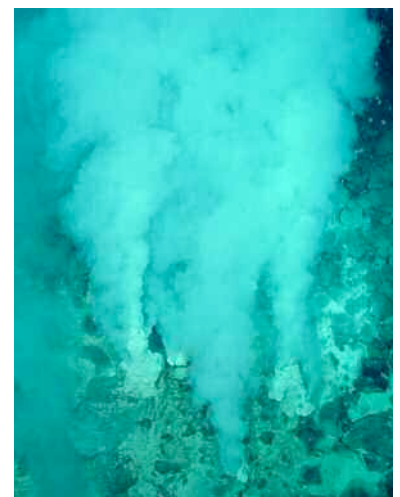
Join us for three engaging talks on different aspects of 'Life in the Extremes', looking at its importance in our soils; what it tells us about early life on the planet; and whether life might exist elsewhere in the Universe.

Prof Colin Campbell of the James Hutton Institute will talk about 'Life in extreme and rare soils'; Dr Aubrey

Zerle of the University of St Andrews discusses 'Life's Extreme Origins'; and Dr Adam Stevens, of the UK Centre for Astrobiology, University of Edinburgh looks at 'Life beyond the Earth'.

Suits ages 14+ and takes place at the Auditorium, National Museum of Scotland, from 15:00 – 16:30. Tickets: #SciPals students £4.25, concessions £6.50, standard tickets £8.50.

For more: www.sciencefestival.co.uk/event-details/life-in-the-extremes



Right: hydrothermal vent, an example of an extreme deep-ocean habitat

Members' reports

RBGE, Forest Research



IN THE LATE 18TH CENTURY the Royal Botanic Garden Edinburgh (RBGE) stood on what is now Leith Walk, and at its entrance was a house designed by two of the greatest architects of the Georgian era, John Adam and James Craig.

This building not only served as the main place of welcome for visitors and the home of the head gardener, but it also contained a classroom where every medical student was taught botany during the height of the Scottish Enlightenment.

After the Botanics moved to their present home in Inverleith, the cottage was left behind, and in recent years was threatened with demolition. Thanks to the efforts of community campaigners and staff at RBGE, a research project utilising hundreds of documents and images from a variety of archives, it was discovered that this building – the Botanic Cottage – is one of the best recorded small buildings in Scottish history.



The Botanic Cottage returns home

Saved for the nation by a community campaign, this historic building will be a thriving hub for community learning in one of the world's great gardens

A plan was put in place to save it from destruction. Dismantled with care, the stones numbered and moved across the city, it has recently been rebuilt in the Botanics as a centre for community and education programmes – returning not only to its spiritual

home, but also to its original use. Its doors will open in May 2016, exactly 250 years after the first students were taught there during the Enlightenment.

Please contact Sutherland Forsyth, s.forsyth@rbge.ac.uk

Past research as a guide for future forestry

Dr Victoria Stokes and colleagues at Forest Research are finding that old experiments can offer new insights

FOREST RESEARCH conducted field research throughout Britain in the past century with experiments covering a wide range of topics – species mixtures, nutrition, ground preparation, stability and exposure, timber quality, spacing, thinning, native woodlands and natural regeneration. There is renewed interest in how lessons from these – in particular from the large number of species and provenance trials – may guide future forest practice in Britain, especially the continued provision of a range of ecosystem services.

Over the decades a considerable resource of 'long-term experiments' has developed, often as a result of experiments being kept in an inactive state for demonstration purposes after the active period of research. There is enormous potential for re-using these long term experiments to address future forest management questions –

such as those around the effects of climate change on the growth rates of different tree species, on the timber properties of 'alternative species', and how we can manage woodlands to store carbon.

Almost 400 experiments across the UK are being retained for potential future use. Selected to provide a wide geographical coverage of species and research topics, these experiments have a robust statistical design and detailed records on past management and early growth responses.

Forest Research hopes that this unique resource will enable and promote collaboration with other research teams and organisations to realise the value of old experiments in addressing new challenges.

Further information on long-term experiments: bit.ly/ltextperiments



Right: an experimental site featuring spruce stems

Big impact of small-scale woodland management

Technical help for the owners of small woods could bring widespread benefits, Forest Research believes

SMALL WOODLANDS throughout Great Britain with difficult access and terrain are frequently undermanaged. Bringing these small but numerous woodlands into management would provide a host of economic, environmental and social benefits. Forest Research has been providing targeted technical support to help achieve this aim and ran an event at Falkland Estate, Fife, in late February.

The event was aimed at those wishing to know more about selecting appropriate machinery for small scale harvesting. Purchasing appropriate machinery and equipment may be the first step in developing a successful harvesting business but it then often takes time, sometimes years, to work out how to get the most from that investment.

Through demonstration, Technical Development staff shared their work study experience on optimising



machinery outputs so that contractors could learn where to save time and effort and how to plan a harvesting site

Above: machinery in a small wood

for least cost and environmental impact. Increased demand for timber products (including wood for fuel) over recent years has raised prices, making harvesting small woodlands more economic. This seems set to continue, even allowing for exchange related fluctuations. However, increasing the amount of small scale woodland under management will only be possible by expanding the capacity of small and medium scale harvesting resources.

The Harvesting and Processing option of the Forestry Grant Scheme under the new SRDP can offer financial support for investment in small purpose built forestry machinery. The aim is to help bring woodlands into management and to promote the economic and sustainable production of timber and timber products.

For further information, please see bit.ly/1ozexD6

Risks from phytophthora in the UK

Project seeks to establish best practice for disease control in UK nurseries

FOREST RESEARCH scientists will lead a forthcoming project to be funded under the LWEC Tree Health and Plant Biosecurity Initiative to address the risks to UK forest and woodland ecosystems from phytophthora. The PHYTO-THREATS project will examine the distribution and diversity of Phytophthoras in UK plant nursery systems. It also aims to provide the evidence base for the

development of a set of enhanced nursery 'best practice' accreditation criteria to mitigate risk of further Phytophthora introduction and spread.

Forest Research is leading on this project, which runs for three years from April 1st 2016, working with research partners from James Hutton Institute, Centre for Ecology and Hydrology, University of Edinburgh, University of Worcester, Animal and Plant Health

Right: trees affected by phytophthora



Agency (APHA) and Science and Advice for Scottish Agriculture.

For further information on the project, please see bit.ly/1O4JIAA

Tree and wood properties

Dr Paul McLean aims to get the best from our forests

FOREST RESEARCH, with industry and academic partners, is working on a range of research projects that investigate the relationships between tree growth, environment and genetics on wood properties.

This knowledge will support the sustainable production of a range of forest products, help users (such as architects) specify appropriate material, and encourage active management of forests. Particular objectives are to provide guidance on the suitability of

conifer and broadleaved species for a range of forest products; quantify the relationship between the growing environment and wood formation; and develop efficient ways to measure and monitor the wood properties of trees.

Forest Research and the Forestry Commission ran a joint research update event at Newbattle Abbey College, Dalkeith, in February which was attended by over 50 delegates from across the sector. A similar event is planned in England in the summer.



Above: wood ready for use

For further information, please see bit.ly/215M2t7

Members' reports

Scottish Association for Marine Science

Unique map will explore the sea's clingy creatures

The Scottish Association for Marine Science aims to identify areas of UK seas where biofouling is most prevalent

THE SCOTTISH ASSOCIATION for Marine Science (SAMS) is part of an unusual new project that could see the creation of a detailed UK map to identify the type, speed of growth and prevalence of marine biofouling.

Led by the Offshore Renewable Energy (ORE) Catapult, the UK's flagship technology and innovation centre specialising in offshore renewables, the project involves SRS� (the Oban-based commercial arm of SAMS), PML Applications Ltd and paint manufacturer AkzoNobel.

The overall aim is to map for the first time how communities of these attaching, or 'sessile', creatures vary around the UK's coast and to develop a sensor to measure their growth rates, charting in detail the potential impact they have on subsea equipment and their effect on functionality.

Leading the project is Vicky Coy, ORE Catapult project manager, who says: 'Biofouling is a huge issue both in the UK and across the world. We work closely with offshore renewable energy technology developers and biofouling is repeatedly highlighted to us as a



potential challenge for the renewables industry and related sectors.

'These organisms often attach in large numbers, creating problems for offshore renewables structures and the associated operational activities – adding weight, clogging machinery and accelerating deterioration.'

Dr Adrian MacLeod of SRS� examines marine biofouling

Many industries, including renewables, shipping and telecommunications, rely on subsea equipment for their day to day operations. Dr Raeanne Miller, a marine ecologist at SAMS, says: 'The build-up of marine organism growth, or biofouling, is well-known to result in severe operational issues and increased down-time across a range of marine industries – offshore renewable energy included.

'Mapping these habitats won't just be useful for industry, it could be a hugely important tool to help preserve indigenous species and protect our seabeds.'

Dense marine growth on structures such as marine buoys or turbines can weigh in excess of 22kg per square metre, causing large increases in structural load and accelerating damage, particularly on moving components.

For more information, contact Vicky Coy, ORE Catapult, vicky.coy@ore.catapult.org.uk; Dr Raeanne Miller, raeanne.miller@sams.ac.uk

First volunteers attend 'citizen science' training day

Hannah Grist of SAMS explains how the CoCoast project is mobilising an army of volunteers for coastal research

SCOTTISH VOLUNTEERS taking part in a major UK coastal citizen science project have attended the first training days held at SAMS in January 2016.

Capturing Our Coast (CoCoast) is appealing for an army of 'citizen scientists' to help measure the potentially disastrous effects of this winter's severe storms on the nation's coastal creatures.

CoCoast, which launched on January 12, is the world's largest ever coastal citizen marine science project and aims to train more than 3,000 citizen scientists from across the UK to help collect data around key species.

After his training day at SAMS, volunteer Phil Dickinson, a former biology teacher, says: 'I was keen to get involved with Capturing Our Coast because the more data and information we have about our environment, the greater the public awareness – and that influences the political picture. The training was great;



you don't need to have a science background to get involved.'

SAMS is the only Scottish-based partner in the £1.7m project, which is funded by the Heritage Lottery Fund and led by Newcastle University.

Professor Michael Burrows, a marine ecologist at SAMS and one of

Prof Michael Burrows of SAMS, centre, with volunteers Lynn Pickett and Phil Dickinson

the architects of the project, says: 'Over the past few winters we have seen increasingly severe and frequent storms that are likely to be associated with rapid climate change. Alongside warming temperatures and ocean acidification, documenting how these changes are affecting our coastal habitats will be key evidence for influencing policy in the near future.

'As scientists, we can't be everywhere but people can tell us what's going on in their own back yard and we can collectively gather the evidence to fit into the wider picture.'

Those interested in becoming a CoCoast citizen scientist can register via the website to attend training courses around the UK where they will learn what to look out for and how to record important data.

Contact Hannah Grist, project officer, hannah.grist@sams.ac.uk. For more see www.capturingourcoast.co.uk

SCIENTISTS STUDYING the moon's effect on marine life during the constantly dark Arctic winter believe they have uncovered the 'werewolves of the ocean', which regularly gather in their billions to undertake the largest migration on Earth.

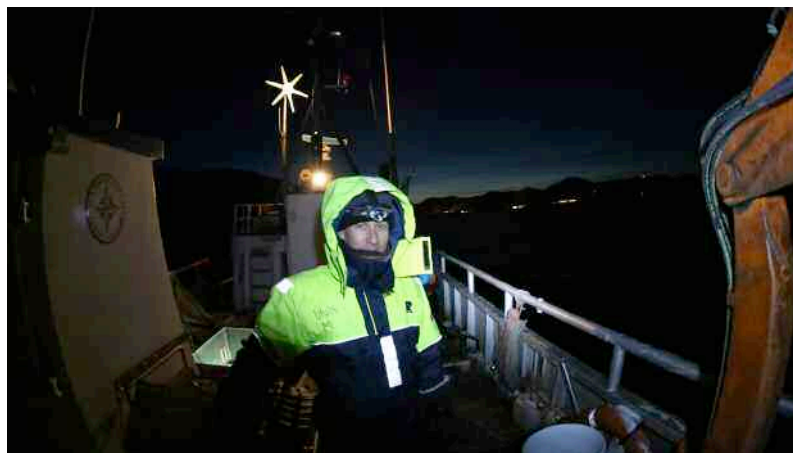
The team from the Oban-based Scottish Association for Marine Science (SAMS) have published findings in the journal *Current Biology* that the actions of zooplankton (small marine animals) respond to the moon as the main light source during the polar night.

Using echo sounders fixed to the seabed and analyses more commonly associated with studying the human biological clock, the scientists observed zooplankton moving deeper into the darkness in response to the full moon. The team believes this migration is to hide from light-dependent visual hunters, such as the voracious centimetre-long crustacean *Themisto libellula*.

Lead author on the *Current Biology* paper Dr Kim Last, SAMS principal investigator in marine chronobiology,



Right: Kim Last on fieldwork collecting zooplankton in Isfjorden, Svalbard at midday in January



Moonlight brings gathering of winter 'werewolves' for Arctic odyssey

An intriguing research project at SAMS is using echosounding to study how zooplankton hide from predators under the light of a full moon

says: 'It was previously presumed that there was little activity during the Arctic winter, as there is hardly any food and no light, but our recent work with partners from the University of Troms' showed there is a surprisingly high level of activity.

'Now we know that when the moon rises, the zooplankton drop down in the water column to around

50 metres in depth, presumably to hide from predators.' The research suggests that reducing sea-ice cover, resulting from climate change, may cause further changes in these migrations as more light penetrates the sea.

To view a short film on the research, please see <https://www.youtube.com/watch?v=eB96vUrqX1M>

Left: *Themisto libellula*, amphipod crustacean and a probable 'werewolf of the Arctic'

Ministerial praise for an inspiring woman in science

Dr Raeanne Miller of SAMS has been selected for an international venture aimed at leaders of the future

A YOUNG MARINE ECOLOGIST from the Scottish Association for Marine Science (SAMS) has been praised by the Scottish Government after being selected for a unique women-only Antarctic expedition next year.

Dr Raeanne Miller, the only Scotland-based scientist selected for the Australian-led Homeward Bound international outreach trip, met with Education Secretary Angela Constance last December to mark one year until her departure. The project aims to reach 1,000 women with a science background from across the globe over the next decade and will give them the experience and support to take up and stay in leadership roles.

Dr Miller won a place on the expedition after submitting a video application in 2014 and was chosen as one of only 78 women from across the globe to take part in the project.



Dr Raeanne Miller with Angela Constance MSP

The 10-year Homeward Bound project was prompted by the lack of women in formal leadership roles and recognises that female voices are crucial to our future sustainability.

Angela Constance MSP, Cabinet Secretary for Education and Lifelong Learning, says: 'I am delighted that

there will be a female scientist from Scotland involved in this expedition. Dr Miller's achievement is fantastic and will be an inspiration to all our children and young people. If her achievement encourages just one young girl to follow in her footsteps and choose science as a career, that would be a great additional outcome.'

Dr Miller, 31, says: 'This project is a really fantastic opportunity to take what I've learned from meeting an incredible group of women and bring that back to Scotland. I live in a rural area and opportunities like this don't happen all the time, so it is a wonderful chance to bring the enthusiasm, knowledge and understanding that we will develop on the expedition to my work back at home and share it with colleagues.'

For more about Dr Miller's work, see www.sams.ac.uk/raeanne-miller

SCRR member organisations

The University of Edinburgh	www.ed.ac.uk
Moray House School of Education.	www.ed.ac.uk/schools-departments/education
Royal (Dick) School of Veterinary Studies	www.ed.ac.uk/schools-departments/vet
School of Biological Sciences	www.ed.ac.uk/schools-departments/biology
School of Engineering	www.see.ed.ac.uk
School of GeoSciences	www.ed.ac.uk/schools-departments/geosciences
School of History, Classics and Archaeology	www.shca.ed.ac.uk/Research/
School of Social and Political Studies	www.sps.ed.ac.uk
Biomathematics and Statistics Scotland.	www.bioss.ac.uk
British Geological Survey, Edinburgh	www.bgs.ac.uk
Centre for Ecology & Hydrology, Edinburgh.	www.ceh.ac.uk
Crichton Carbon Centre	www.carboncentre.org
Field Studies Council, Millport	enquiries.sco@field-studies-council.org
Forest Research, Northern Research Station.	www.forestry.gov.uk/forestresearch
Heriot Watt University, School of Life Sciences	www.sls.hw.ac.uk
James Hutton Institute	www.hutton.ac.uk
Moredun Research Institute	www.moredun.ac.uk
Napier University, School of Life, Sport & Social Sciences	www.napier.ac.uk/fhlss/SLSSS
National Museums of Scotland	www.nms.ac.uk
Roslin Institute, University of Edinburgh.	www.roslin.ed.ac.uk
Royal Botanic Garden Edinburgh	www.rbge.org.uk
Royal Society for the Protection of Birds - Scotland	www.rspb.org.uk/scotland
Royal Zoological Society of Scotland	www.rzss.org.uk
Science & Advice for Scottish Agriculture	www.sasa.gov.uk
Scotland's Rural College (formerly Scottish Agricultural College)	www.sruc.ac.uk
Scottish Association for Marine Science, Oban.	www.sams.ac.uk
Scottish Natural Heritage	www.snh.gov.uk
SNIFFER	www.sniffer.org.uk
Society, Religion and Technology Project	www.srtp.org.uk
University of Glasgow	www.gla.ac.uk
College of Medical, Veterinary and Life Sciences	www.gla.ac.uk/colleges/mvls/
College of Social Sciences	www.gla.ac.uk/colleges/socialsciences/
University of the Highlands and Islands (UHI)	www.uhi.ac.uk
Agronomy Institute, Orkney College	www.agronomy.uhi.ac.uk
Centre for Mountain Studies, Perth College	www.perth.uhi.ac.uk/specialistcentres/cms
Centre for Remote and Rural Studies, Inverness College	www.crrs.uhi.ac.uk
Environmental Research Institute, North Highland College	www.eri.ac.uk
Lews Castle College, Stornoway	www.lews.uhi.ac.uk/research
NAFC Marine Centre, Shetland	www.nafc.ac.uk
West Highland College, Fort William	www.whc.uhi.ac.uk
University of Stirling	www.stir.ac.uk
Institute of Aquaculture.	www.aquaculture.stir.ac.uk
Biological & Environmental Sciences	www.stir.ac.uk/natural-sciences/about-us/bes/

Events

www.scrr.ac.uk/events.php

Please see the website for announcements.

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