

Bush Telegraph

The House Magazine of the Edinburgh Centre for Rural Research



Professor Wilson Sibbet, Chairman of the Scottish Science Advisory Committee speaking at the ECRR Summer Reception.

Welcome

Summer is here and we look to enjoy a good growing season, a break away, maybe a walk in our hills. Time for change and the Bush Telegraph has some in mind with a change in format and content. Please let us have your views on our new look.

Professor Wilson Sibbet, Chair of the **Scottish Science Advisory Committee**, gave an address to guests at the ECRR reception at Pollock Halls, Edinburgh in May. He appealed to everyone to help the SSAC identify the strategic priorities for science in Scotland and to put the case for their discipline and organisation being involved in the creation of centres of excellence in Scotland. You'll find the SSAC remit in this issue – it might be your opportunity to influence where science goes in Scotland over the next 20 Years.

This issue also features some of the posters presented by postgraduate students at the ECRR reception.

Mike Steele
Editor

Inside ...

Major moves at Dick Vet

Big changes are afoot at **Edinburgh University's Vet School**, including proposals to move from Summerhall to a single site at Easter Bush.

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Royal (Dick) School of Veterinary Studies



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BIG MOVES AFOOT

The "Dick Vet", the second oldest veterinary School in the UK, is now one of four schools within the College of Medicine and Veterinary Medicine. This is a time of change for the "Dick". Not only is the School now adapting to the change from a Faculty to a College system, but there are substantial estate changes afoot. With the proposed closure and sale of the Summerhall site, in line with rationalisation of the University's Estate, the University's Estate Planning Advisory Group has approved the recommendation of an initial Options Appraisal Exercise to locate the vet school on one site at Easter Bush. At present an Economic Impact Assessment and Business Plan are being commissioned to provide the University with further detailed information on this proposal. The benefits of creation of a single site Vet School include expansion of undergraduate and postgraduate courses, earlier introduction of clinical case teaching, enhanced coordination of research effort, and the formation of powerful research links with the Institutes located in the vicinity of the Easter Bush site. These ambitious building plans will include refurbishment and enhancement of existing teaching and research facilities at Langhill Farm, recently acquired by the Vet School. The School's Centre for Infectious Diseases is also initiating a scoping exercise in plans to build an interdisciplinary research site at King's Buildings, linking medical and veterinary researchers with basic scientists in the College of Science and Engineering.

RESEARCH & TRAINING

The Vet School has recently received a major boost in its research programme on infectious diseases by being awarded almost £8M in the DEFRA veterinary training research initiative. This initiative was launched in response to the dearth of veterinary graduates entering careers in research. Veterinary surgeons are the only health professionals trained in multispecies comparative medicine and this background makes them essential contributors to research in comparative medicine, zoonoses, emerging diseases, public health and food safety. The funded research, in collaboration with the Moredun Institute, Roslin Institute, University



of Glasgow, the Institute for Animal Health, and the Veterinary Laboratories Agency will concentrate on involving veterinary graduates and intercalating students, in research programmes into tuberculosis in cattle, parasitic infections of sheep and E Coli 157 infection. In a separate bid, Edinburgh and Glasgow vet schools will work in partnership to train veterinary graduates in epidemiology of diseases in cattle and sheep.

The School's interdisciplinary Research Centre for Infectious Diseases (led by Mark Woolhouse) and Centre for Neuroscience Research (led by Peter Brophy) continue to thrive, and are currently recruiting new positions.

UNDERGRADUATE TEACHING

Major changes are being planned for the veterinary curriculum, which attempts to address the growing problem of curriculum overload, and its delivery, by traditional methods of didactic teaching, which are unlikely to prove to be unacceptable in the future. Already many medical schools, including the Edinburgh Medical School, are incorporating problem solving and case-based learning into their curriculum to replace formal lectures. Veterinary schools are now following the same route, and based on the experience of others in the US and continental Europe, a mixture of case-based learning along with a core of lecture material, appears to provide the most effective way of teaching the majority of students. At the R(D)SVS, we have set a target date of 2006/07 for the introduction of a new outcomes-based curriculum to encourage greater reliance on student-centred and reflective learning. We are currently compiling the experience of other schools in the US and Europe, along with the knowledge gained with the new curriculum at our medical school, to ensure that we will have the best chance of

developing a carefully considered and robust curriculum for the R(D)SVS. To this end, we have recently appointed an Educational Development Manager who is an educationalist with extensive experience of computer-based learning for veterinary students, and will work with our Undergraduate Studies Committee in development of the new curriculum. We are also aware that the incorporation of a substantial transferable skills vertical thread within the curriculum is key to adequately preparing our graduates for the workplace.

Along with plans to relocate our undergraduate teaching, there is a major initiative to increase student places. We receive many applications from British graduates who already have a first degree, and we aim to make it easier for these graduates to enter directly into second year. We also have accreditation by the American Veterinary Medical Association, and plan to increase our intake of US students, many of whom would choose to enter directly into second year.

NEW EQUINE SCIENCE COURSE

The R(D)SVS is the first Vet school to host an MSc Equine Science programme. The aim of this course is to provide scientific knowledge relating to the management of health, reproduction, behaviour, nutrition and exercise in the horse. The course lasts for a full academic year and is designed to be flexible and to accommodate the needs of good students from a variety of backgrounds. Graduates from this 'research-rich' taught MSc will be prepared for employment in research establishments, education, feed companies and the pharmaceutical industry, as well as having the opportunity to continue to a PhD programme.

For further information or applications please contact Kirsty Woomble
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The veterinary school website has information on all the activities mentioned above. www.vet.ed.ac.uk

Centre for Ecology & Hydrology



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NEW STRUCTURES

As from 1 April 2004 CEH has a new management structure. The old regime was managed on a site basis; each of the 9 CEH sites had local responsibility for balancing its books and for managing the science that was delivered. Inevitably, this type of structure was seen as inhibiting scientific cooperation across the whole of CEH. Consequently, the Centre has been reorganised so that its science is now managed through 5 Science Directors, each managing an area of CEH science across the UK under the CEH Director, Professor Pat Nuttall:

- Biodiversity (Professor Mark Bailey, CEH Oxford),
- Biogeochemical Cycles (Professor David Fowler, CEH Edinburgh),
- Water (Professor Alan Jenkins, CEH Wallingford),
- Global Change (Professor Melvin Cannell, CEH Edinburgh),
- Sustainable Economies (Dr Dan Osborn, CEH Lancaster).

Each site is now run by a Site Administrator, who is responsible for the infrastructure and administrative staff, while the scientific research is conducted within Sections, with each Section Head reporting to one of the Science Directors. The former Site Directors' posts have been abolished, and local leadership is now provided by the Head of Site – at Edinburgh this is currently Dr Neil Cape. Further details of the new CEH structure can be found on our web site at www.ceh.ac.uk.

EXPANDING CAPABILITIES

Of more immediate local interest is the new building at Bush. Work started in late April 2004 on an extension to the CEH laboratories. The new wing will include 8 offices, 3 laboratories, a meeting room and a workshop, and will follow the design of the existing single-storey building. We hope that all the building work will be completed by the end of the year – allowing us to accommodate the growth in staff numbers at CEH Edinburgh that has occurred over the past few years. It will also provide purpose-built laboratory space for new equipment acquired by the Atmospheric Sciences Section recently: a second tuneable diode laser spectrometer, for the rapid analysis of ammonia and nitric acid vapour concentrations in ambient air; a single-particle aerosol mass spectrometer, which gives information in real time on the size and chemical composition of atmospheric aerosols; a steam-jet aerosol collector, for continuous sampling and chemical analysis of aerosols; and a proton-transfer mass spectrometer, for real-time measurement of trace gases using an atmospheric pressure inlet. This new instrumentation, combined with a purpose-built mobile laboratory, has greatly improved CEH's capabilities in the field measurement of trace gas and particle concentrations and fluxes.

DNA PLANT FINGERPRINTING

A new service at CEH Edinburgh is offering customers an innovative range of analytical and consultancy services to identify species and individuals from different plant tissues using advanced DNA characterisation techniques. Genetic markers are used to provide a unique genetic fingerprint of individual samples and unambiguous matching, or to identify the species/genus of a sample by matching gene sequence information against a database. Currently, two services are offered:

Case type 1. Species ID: E.g. where a single root sample needs to be identified to species, for cases where different tree species surround a site.

Case type 2. Individual matching: E.g. where a single root sample must be matched to one of a number of same-species trees, for cases where a site is surrounded by individuals of the same species or species which cannot be differentiated using microscopy.

In both scenarios, these cases have traditionally been dealt with by microscopy. However, DNA analysis offers much better reliability and discrimination at a similar cost.

MRC Human Reproductive Sciences Unit



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CLOCKS & CALENDARS

Endogenous circadian clocks allow organisms to anticipate the cycle of day and night, while internal calendars monitor the passage of the seasons. Researching the molecular basis of intrinsic timing has been a hot topic for several years. The notable success has been the characterisation of the mammalian clock genes, and the recognition that clock genes are not only expressed in the central pacemaker of the brain, but function in different ways in most tissues. About a dozen clock genes interact through transcriptional and translational feedback loops to generate the cell-based circadian clock that underpins our daily biology. Human clock genes have homologues in insects, and even plants, indicating the early evolution of the basic timing mechanism. Clock genes in the major body organs provide a degree of peripheral autonomy in circadian timing. We now know that jet-lag is the consequence of de-synchrony of internal rhythms. Various environmental and physiological cues can act to achieve readjustment. Interestingly, the brain responds to light cues, the lungs to exercise signals and the liver sluggishly to metabolic cues. An important lesson to those adjusting to travel!

NEW RESEARCH

In collaboration with David Hazlerigg and Jon Johnston of the School of Biological Sciences, University of Aberdeen, we have been investigating whether the core circadian clock genes also contribute to long-term timekeeping, over intervals of weeks and months. For these studies we use sheep maintained in light-controlled rooms at the Large Animal Facility at

the Marshall Building, Roslin. This has resulted in the discovery that the rhythmic expression of two clock genes, Period 1 and Cryptochrome 1, is regulated by the nightly rhythm in melatonin secretion in the *pars tuberalis* of the pituitary gland – a tissue that expresses a high density of melatonin receptors. Because the activation of Period is locked to melatonin offset (dawn) and Cryptochrome locked to melatonin onset (dusk), the changing phase of these two genes provides a potential mechanism for decoding the annual cycle in daylength, thus driving seasonal physiology. The *pars tuberalis* regulates prolactin secretion from the pituitary gland, and as a consequence controls many aspects of seasonal biology e.g. implantation and embryo survival, lactation, maternal and summer behaviours and moulting of hair and wool. Based on these observations, we propose that there are different types of cells (called calendar cells), strategically located in the brain and pituitary gland that decode the melatonin signal, to govern the specific components of seasonality. Recently we adopted the big-bang approach to address the question: how fast can the molecular machinery change in response to a switch in photoperiod? The answer is immediately – the Cryptochrome gene is activated within 3 hours and prolactin changes after the first day (Curr Biol 14: 334-339, 2004) – although it takes many weeks for the full biological response to emerge.

NETWORK WITH MANCHESTER

A new collaboration has been established with the University of Manchester. This results from a BBSRC 4-year grant awarded in April 2004 to Professors Andrew Loudon and Julian Davis of the School of Biological Sciences, Manchester. The purpose is to bring together expertise from Manchester (AL, molecular clocks; JD, pituitary cell reporter constructs), University College London (Steve Hart, phage panning), ARK-Genomics, Roslin Institute (Alan Archibald, characterised bovine brain cDNA arrays),

with our own technology. The aim is to identify novel timing genes using state-of-the-art methods and to demonstrate a physiological role for candidate molecules using the seasonal sheep model.

We would be pleased to hear from any group within the ECRR with common interests.

Postgrads 'Sell' Science



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Making science exciting and relevant is crucial in encouraging children and young adults to study science. The use of suitable role models and providing opportunities to engage with science can help with this. The problem is finding these role models and offering the right experiences to enough young people. The University of Edinburgh has therefore used Roberts funding to address these issues and at the same time provide postgraduates with practical and intensive training in science communication. The new course, called 'Science Communication in Action', has been designed to complement existing training provided by transkills, the University's postgraduate skills training programme. 'Science Communication in Action', facilitated by the Scottish Institute for Biotechnology Education (SIBE), was piloted using funding from the BBSRC in Sept 03 within the School of Biology. In 2004/2005, the course will be run in both the Schools of Biology and Engineering & Electronics with the hope of expanding it to other schools in future years.

'Science Communication in Action' is based on a 'training through participation' model with three distinct phases of training, participation and evaluation.

In Phase 1, postgraduates attend a training course which covers topics including:

- Communication skills;
- Working effectively with children and young adults;
- Considerations when running activities in schools
- Designing your own activity;

Participants are also trained to run a specific workshop or activity.



Postgraduate student running DNA fingerprinting workshop with school pupils

Phase 2 is the action phase, where trainees run interactive and fun workshops in schools or as part of other science communication initiatives. During this phase postgraduates will also be encouraged to give short 'sound bites' on their research and why they made their particular career choices. Phase 2 is vital, as evidence from the pilot has shown that linking training with participation leads to increased skill development and confidence.

For Phase 3, trainees are invited back for a short follow-up session. This provides an opportunity for participants to reflect on the skills they have learned and used. They will have the opportunity to receive constructive feedback from course organisers and will discuss their needs and options for future training or further participation in public engagement with science activities.

Everyone involved in this approach benefits. First, postgraduates receive thorough training in science communication. Second, the University schools involved are able to extend their schools outreach programme through the provision of trained workshop facilitators.

Finally, school pupils have the advantage of taking part in fun, interactive and informative workshops run for them by young dynamic researchers from the University of Edinburgh. Professor Mary Bownes, Vice Principal for Community Affairs, Widening Participation and Recruitment and Director of SIBE commented "This is an exciting way of encouraging our postgraduates to interact effectively with the community and helping young people to think of science as a real possibility".

We would very much like to interact with the ECRR partners, other outreach programmes and postgraduates. Please email us at sibe@ed.ac.uk if you would like to discuss this course or share ideas.

UHI Millennium Institute

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INTRODUCTION

The UHI Millennium Institute is a partnership of 12 colleges and 2 research institutions across northern Scotland, from Shetland to Elgin to Perth to Stornoway. As well as offering a range of undergraduate and postgraduate degrees, research on rural themes is undertaken at many of the partners. Further details on UHI research can be found at <http://www.uhi.ac.uk/research/index.shtm>.

MOUNTAIN AREAS IN THE EU

The Director of the Centre for Mountain Studies (CMS) at Perth College, Martin Price, recently completed the scientific coordination of this major study for the European Commission's Directorate-General for Regional Policy. The study had three main parts:

- delimitation of mountain areas, using a harmonised European definition;
- analysis of the socio-economic situation in these areas, through the construction of a Europe-wide database and the definition of adequate indicators;
- review of mountain-related policies, with a view to formulating policy recommendations. The study covered 29 countries: the expanded European Union, the candidate countries (Bulgaria and Romania), Switzerland, and Norway. 41% of the area of these countries was defined as mountainous, with 21% of the population (UK: 25.5%, 4.3% respectively). The results of the study were integrated into the Third Report on Economic and Social Cohesion, and are

informing the post-2006 reform of the Structural Funds.

The final report is at:
http://europe.eu.int/comm/regional_policy/sources/sources/docgener/studies/study_en.htm.

MAPPING SOCIO-ECONOMICS

Other CMS activities in Scotland include Rhys Evans' project, 'Mapping socio-economic research on rural development in Scotland', for the Social Research Division of the Scottish Executive's Environment and Rural Development Department (SEERAD). The results will provide a central database for the Scottish Executive, to be used to identify gaps or redundancy in government research linked to the development of policy to support sustainable rural communities. Other work by Rhys Evans, 'Virtuous forests', focuses on community woodlands. This has delivered one report for the Community Land Unit of Highlands and Islands Enterprise (HIE), proposing a general model of community woodlands in Scotland. Current work, 'Running about like they own the place', focuses on the way in which the integration of a community's children into the planning and running of community woodlands can add vital social and economic benefits, helping assure project sustainability. Other work at the CMS, for the Deer Commission for Scotland, addresses methodologies for monitoring deer damage, and close seasons for deer hunting.

ERI THURSO

The Environmental Research Institute (ERI), based at North Highland College Thurso, has a portfolio of environmental research addressing the needs of the region's key economic sectors, e.g., distilling and aquaculture. This is underpinned by partnerships with academic, stakeholder, commercial and policy-making organisations. Research on climate change is being undertaken

by Stuart Gibb (ERI Director), John Allen, John Coll, and Gwenna Corbel. This recognises the particular vulnerability of the Highlands and Islands (H&I) to climate change and that high-resolution Regional Climate Models (RCMs), let alone Global Climate Models (GCMs), do not adequately capture temporal or spatial variability to understand or manage the impacts of climate change at localised scales. The research is therefore addressing these problems in the H&I and analogous regions, in partnership with organisations including the Tyndall Centre for Climate Change, University of East Anglia, and the Southampton Oceanographic Centre.

Shuguang Lu, Ian Rae, and Emma Cochrane are focusing on novel approaches to treatment of contaminated waters, particularly the detoxification of metal bearing waters. This work has shown that, when processed, waste products from local (Highland) industries (e.g., carapace, waste wood) and other natural materials (e.g., seaweed) are capable of efficient (>90%) removal of metals such as copper from aqueous media, even at low concentrations. They therefore have potential as sustainable, cost-effective biosorbents for water treatment and remediation.

LEWS CASTLE COLLEGE STORNOWAY

Research at Lews Castle College, Stornoway is led by Frank Rennie and includes work on the utilisation of ICT in rural areas, in particular the applications of broadband Internet access for rural education and development; the experiences and opportunities of eLearning in and for rural communities; and the involvement of rural people in development decision-making. Work is also taking place on rural services, including critical factors in the success of one-stop-shops; voluntary sector development rural inclusion; and culture and heritage as a tool of rural development. Work is also being done on key factors in distributed blended learning to enhance sustainable



rural development (in the UK, South America, and Asia).

Other projects are also addressing issues related to access to learning opportunities in rural areas. The recently complete project 'Community Learning Networks in the Northern Periphery', funded by the EU (INTERREG IIIB), led by Jill de Fresnes at Lochaber College, studied how educational institutions and other regional bodies are working together to tackle the problems of lack of access to learning opportunities for people living in peripheral, sparsely populated areas. Other partners are from Finland, Norway and Sweden. Research is also being done on the sustainability of Learning Centres by Tomas Nilsson at Perth College, within the Scottish Workforce Empowerment for Lifelong Learners (SWELL) project funded by the EU EQUAL programme.

The UHI's most recent initiative is PolicyWeb, being launched with funding from Highlands and Islands Enterprise. Its aim is to give the region a stronger voice in setting Scottish and UK Government policy. Through meetings, the preparation of briefing papers, and other means, the PolicyWeb – based at Inverness College – will bring together a network of researchers, academics, and those in local councils and public bodies involved in social and public policy in the region with the intention of helping to shape government policy in issues of regional importance. The Director of the PolicyWeb will be John Bryden, currently chair of Human Geography and Co-director of the Arkleton Institute for Rural Development Research at the University of Aberdeen.

Scottish Agricultural College



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SAC/HGCA Open Days

The first of a series of FREE SAC/HGCA afternoon and evening field-based events will take place on 29 June 2004 at Craighall, Forgandenny, Perth, 2.00 pm – 6.00 pm.

The events provide an opportunity for farmers to examine the field trials and speak to researchers and advisers from SAC, and staff from HGCA. Topics will include new varieties on the HGCA Recommended Lists, diseases and fungicide use, seed rates and optimum plant populations.

Further SAC/HGCA Open Days are planned for:

- 1 July 2004 – Whitesomehill, Duns, Berwickshire, 6.00 pm – 10.30 pm
- 6 July 2004 – Roberthill, Lockerbie, 7.30 pm – 9.30 pm

For further information contact Steve Hoad,
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Organic Farm Network

SAC's network of commercial organic demonstration farms will be the focus of a series of farm walks and mini-conferences planned for the summer months.

- 1 June: Dunsyre (Lanarkshire): Visions for Upland Scotland: A future for Organic farming?
- 15 June: Newton Stewart (Wigtownshire): Profitability and Potential in Organic Dairy Farming
- 29 June: Blair Atholl (Perthshire) Parasite and Disease Control in Organic Sheep.

- 28 July: Tibbermore (Perthshire), Growing organic Profits in Wheat, Potatoes and Eggs
- Tuesday 3 August Abbey St Bathans, (Berwickshire): Growing Organic profits in Cereals, Beef and Easy Care Sheep

For further information see: www.sac.ac.uk/events

Piglet Survival

SAC is to take part in a £550,000 study in a bid to reduce pre-weaning piglet mortality rates across the UK. Records show that 12 per cent of piglets born alive in UK farrowing systems currently die before weaning. Evidence from pig producers in other EU countries suggests that piglet survival is hereditary and that selection for particular survival traits may be useful in reducing piglet mortality. The four-year study, which will investigate the potential for selective breeding to improve pig survival, will be carried out by scientists at SAC, the University of Newcastle, the University of Edinburgh in collaboration with PIC, JSR genetics, Grampian Country Food Group and the Scottish Society for the Prevention of Cruelty to Animals.

The level of mortality is an important piglet welfare problem and also constitutes a significant economic loss for producers.

Talking Science

The SAC exhibition at the Royal Show (Stoneleigh, Warwickshire, 4–7 July 2004) aims to get visitors talking about science, farming and food. Visitors can take part in a 'taste test' to see whether they can tell the difference between a range of different types of produce. And, on Monday 5 and Tuesday 6 July, a programme of seminars will run throughout the day. SAC specialists will give three seminars on current farming and rural business issues.

Details of events are on the SAC Website www.sac.ac.uk/events

Postgraduate Students - More Important Than Ever!

Chris Jowett

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The University of Edinburgh is prioritising postgraduate recruitment as these students are crucial in a research led University and is pushing forward a number of new initiatives.

During the 2001/02 academic year the University set itself the target of increasing its total postgraduate student numbers by at least 5% by the year 2004/05. Although this target has been met with time to spare (we have managed to increase postgraduate numbers by 8% to almost 5, 500) there is no letting up.

New taught postgraduate degrees are being created all the time and 2004/05 will see the introduction of degrees in Environment and Development, Equine Studies, Sustainable Energy Systems and Underwater Archaeology. Plans are already in place for new degrees for 2005/06, including an expansion of our existing GIS degree and a new degree in Petroleum Geoscience.

This does not mean that the need to recruit more PhD students is being ignored. Far from it! One of the main barriers to postgraduate study has always been the limited availability of financial support. In the last twelve months alone the University has agreed to provide more than £440,000 of new funding to provide partial scholarships for new research degree students. This funding will go towards new ORS Linked Scholarships, which will pay the UK tuition fee for outstanding international students in receipt of an ORS award. The University has also established the new Principal's Studentships Scheme, which will make some £300,000 available over the next few years to help to attract the most able PhD students to the University.

To support the increasing need for scholarships 2003 saw the creation of a new University Scholarships and Financial Aid Office⁽¹⁾. This new Office is geared towards providing information and advice to prospective postgraduate students on a wide range of possible funding. Great progress has already been made in identifying the myriad sources of funding and ad hoc scholarships that are

available both externally and internally, at school and department level.

As well as taking on more postgraduates we are also trying to do more for students whilst they are here. Since 2002/03 we have been running an annual questionnaire⁽²⁾ for research degree students to get their views on facilities and services. This activity has now been expanded so that from this year onwards we will have a new and separate questionnaire for taught MSc students.

The results from the questionnaire are compiled and discussed at a wide variety of University level Committees, for example the Computing and Library Committees and the Academic Policy Committee. The results are also passed to academic schools for discussion in staff/student liaison committees. Positive changes (such as increases in University library opening hours) are already taking place as a result of comments received by students and we will continue to use the results to push for improved services and facilities for our postgraduates. University of Edinburgh students who are based in Associated Institutions (such as SAC, Roslin, BGS etc) should also be completing the questionnaire so please do encourage them to do so.

On a final note one of the most significant recent developments within the University has been the creation of a co-ordinated support structure for training for research degree students and research staff. We

now have a web-based information hub⁽³⁾ which details the training support available through the different departments and schools within the University. During 2004/05 it is intended to build on these pages through the implementation of a database driven service to enable different types of students and research staff to search for specified training courses.

We have been able to take forward this initiative, in the large part, because of the additional funding released as a result of the Roberts' report. This funding is also being used to fund new training courses that are often proposed by staff and students on an ad hoc basis.

As with the questionnaire these courses are also open to University of Edinburgh registered students who are based in Associated Institutions. It can sometimes be possible to offer training places to other students as well so do get in touch if you think we might be able to help.

For further information on any of the initiatives outlined above please feel free to contact Chris Jowett in the University of Edinburgh Postgraduate Office (Email: chris.jowett@ed.ac.uk).

- 1) <http://www.scholarship.ed.ac.uk/>
- 2) <http://www.malts.ed.ac.uk/Misc/pg/>
- 3) <http://www.postgrad.ed.ac.uk/pgskills/default.htm>



Edinburgh University postgraduate students learn active communication skills!



PLANTS AS FOODS – A CASE OF CATCH 22?

On 19 April 2004, the Scottish Section of the Nutrition Society, with support from the British Society of Animal Science, held a one-day meeting on the role of plant secondary metabolites (PSM) in animal nutrition. The meeting was held in the Royal Botanic Gardens Edinburgh, and was thus surrounded by a wide range of PSM! Whether the latter contributed to the success of the day by providing the right atmosphere remains unknown, but based on their responses, the 46 participants very much appreciated the six main speakers and poster presentations, participated lively in the discussions and had the opportunity to meet old and new friends. In addition, the meeting attracted the attention of various industrial companies who generously supported the meeting through sponsorship. Therefore, we thank Alltech Biotechnology, Bard Limited, Cotswold Seeds Limited, Crina SA, Kellogg's and Rumenco Limited.

Glenn Iason opened the morning series of keynote lectures with an overview paper on the ecological perspectives of PSM, which set the scene for the day to come. This was followed by a joint presentation of Tom Acamovic and John Brooker on the biochemistry of PSM. The morning session was closed with a paper on plant breeding perspectives for PSM, delivered by Phillip Morris.

After lunch, which was very well prepared and presented by the staff of the Royal Botanic Gardens, four poster presenters had the opportunity to present and discuss each of their main findings. Gwendolyn Jones presented her work on essential oil blends and oregano whole herb on the growth performance of weaner pigs, whilst Sian Ilsley discussed her work on Quillaja saponin supplementation to pregnant sows and its effects on litter characteristics. Michael Lee presented covered duodenal flow of chlorophyll metabolites in beef steers and Shanmugavelu Sithambaram showed fermentation patterns of wheat samples that differ in their chemical

characteristics, using ileal microflora from chicks. Sian Ilsley won the student award for best poster presentation, and took home some valuable book vouchers.

The afternoon session started with a lecture by John Wallace, who presented the latest work on the possibility for PSM to manipulate rumen fermentation, which was followed by a paper on the antiparasitic properties of PSM, presented by Spiridoula Athanasiadou. After the tea break, Andrew Chesson discussed the expected possibilities and problems of considering PSM as feed additives in the final paper of the day. All speakers then joined in the general discussion, which included the role of PSM in self-medication and how to tackle the vast amount of PSM that might be suitable for further studies.

All papers and posters presented will appear in the Proceedings of the Nutrition Society, (due November 2004).

We would like to thank everyone who has helped us to make this meeting a successful one.

Jos Houdijk and Mauvis Gore

FUNDING GENETICS PROJECTS

The Genesis Faraday Partnership has announced a new call for two Genesis Faraday BBSRC CASE Studentships and a call for ten Genesis Faraday SPARK Awards. Applications for both calls have to lie within the Genesis Faraday remit, namely Genetics and Genomics as applicable to Livestock Breeding and Livestock Health.

BBSRC CASE (Co-operative Awards in Science and Engineering) studentships involve post-graduate students studying for a PhD through research with both an academic institution and a commercial company. The student is predominantly based with the academic institution, but the research projects relevant to the needs of the industrial partner. The deadline for submission is 15th October 2004. More details can be found at <http://www.genesis-faraday.org/case2004-2005.htm>

SPARK Awards are a means to encourage new collaborations between the research community and SMEs. The collaborations supported by a SPARK Award (£5k) can comprise almost any defined piece of work by the research partner for the industrial partner, such as student projects, data analysis, technical consultancy, feasibility studies or literature reviews. The first deadline for submission is 31st July 2004. If awards remain unallocated from this first closing date, then there will be another deadline for submissions of 31 October 2004. More details can be found at <http://www.genesis-faraday.org/spark.htm>

Summary of Poster Presentations at ECRR Summer Reception

Moorland Fires

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This research examined the factors controlling moorland fire behaviour and used the information to develop models and predictive tools. Aspects investigated include:

Fuel Measurement: Predicting total biomass.

Fuel Moisture: Estimating the moisture content of heather.

Fire Intensity: Predicting a fire's rate of spread and intensity and thus its ease of control.

Fire Severity: Monitoring experimental fires, the aftermath & subsequent regeneration,

From the data collected functional relationships are being established between weather, fuel, fire characteristics and ecological impact. This will help to maximise the potential of fire as a management tool and predict the impact of environmental change on future fire regimes.

Breed Nutrition & Lamb Growth

Jenny M Macfarlane
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This study examines whether differences occur in lamb growth and carcass composition between two UK breeds (Suffolk and Scottish Blackface) in two nutritional regimes.

Eighty eight Suffolk and 85 Scottish Blackface lambs were fed from weaning.

The feed treatments were.

Better nutrition: High-quality concentrates (year 1), lucerne (years 2-4)

Poorer nutrition: Bulky concentrates (year 1), ryegrass (years 2-4)

Carcass fat, muscle and bone contents were predicted using CT scanning. Average gain in live weight was calculated between 0.30 and 0.45 of mature weight.

Conclusions: Genotype-by-nutritional environment interactions were important for both lamb growth and carcass composition.

Airborne Radar in Forestry

Edward Wallington
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Earth Observatory
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UK wide digital elevation data from an airborne X-band SAR interferometer has been used to estimate forest stand height over two sites in the UK.

Models investigated included the Digital Terrain Model (DTM), UK Ordnance Survey Digital Elevation Model (DEM), and Digital Surface Model (DSM).

In comparison with field data it was found that a procedure of subtracting DEM from DSM to estimate stand height produced results with an average error of 30%.

Relations between retrieved height and forest parameters such as stocking density and age and radar-dependent properties such as slope and edge effects were assessed and quantified by way of a simple interferometric model.

Scottish Science Advisory Committee

The SSAC advises Scottish Executive Ministers on strategic scientific issues, including science policy and priorities. Below is an extract from its mission statement which conveys the breadth of its role as well as its importance.

SSAC Remit

With reference to the strategic relevance to the Scottish economy and quality of life, to provide advice and make recommendations on the strategic priorities for the science base in Scotland, including priorities for expenditure.

Delivering The Remit

In delivering its remit, SSAC will consider:

- The distribution of public investment in the science base in Scotland; areas where expansion of investment is justified; areas where ceasing or reducing activity may need to be considered.
- New and emerging areas of science and research that could be of particular strategic relevance for Scotland.
- The implications of diversity of funding for science and research in Scotland, taking account of funding streams from the Scottish Executive, UK Government and EU and other organisations.
- Robust criteria that define both scientific excellence and world leadership (i) at the institutional/organisational level and (ii) the national level.
- Areas of science in Scotland where the creation of *Centres of Excellence* (CoE) would enhance the profile of Scotland's science and research, with the aim that by 2020, or ideally earlier, these CoE would be internationally recognised for their global leadership.

- The potential for multi-disciplinary research initiatives which offer the potential to provide significant added value to the science base in Scotland.
- The most appropriate linkages across the science and technology sectors in Scotland resulting in the establishment of CoEs.
- Consider whether existing funding structures are consistent with the new strategic priorities that emerge and how they or modified structures might best facilitate the development of pan-Scotland initiatives.

People & Events

ECRR DIARY

2004

- Sep 6** Directors' lunch SCRI, Invergowrie, Dundee 12.30
Executive Committee SCRI 14.30
- Oct 4** Directors' lunch Royal (Dick) School of Veterinary Studies, Summerhall 12.30
Host: Professor Elaine Watson
Executive Committee: Venue TBA
- Nov 3** Directors' lunch: Venue TBA
Main Board meeting
Winter reception
- Dec 6** Directors' lunch: Venue TBA
Executive Committee

2005

- Mar 5** Directors' lunch: RSPB Scotland
Host: Dr Jeremy Wilson
- Apr 4** Director's lunch: Royal Botanic Gardens Edinburgh 12.30
Host: Professor Stephen Blackmore
- May 11** Forum: SNH Battleby Centre, near Perth 19.30
- Jun 1** Summer Reception, Edinburgh 17.30



Dr Gordon Machray has been appointed Director of the **Scottish Agricultural Science Agency** on the retirement of the current director Dr Bob Hay.

Dr Machray is Coordinator of the Mechanisms and Processes Theme at the **Scottish Crop Research Institute**, where he has worked since 1989. Born and educated in Stirling, his original degree from Glasgow University was in molecular biology, and this was followed by a PhD from Edinburgh, and postdoctoral fellowships in California, France and Dundee. He was a lecturer in microbial genetics at Dundee from 1983 to 1988. Much of Dr Machray's recent research work has been on the molecular genetics of potato and barley.

Dr Machray will take up this new post on 1st September 2004.

ECRR Member Organisations

University of Edinburgh	www.ed.ac.uk
College of Science & Engineering	
College of Medicine & Veterinary Medicine	
College of Humanities & Social Science	
Scottish Agricultural College	www.sac.ac.uk
Research & Development	
Education & Training	
Heriot Watt University, School of Life Sciences	www.bio.hw.ac.uk
Napier University, School of Life Sciences	www.napier.ac.uk/fhls/lifesciences
University of Stirling, Institute of Aquaculture	www.aquaculture.stir.ac.uk
UHI Millennium Institute	www.uhi.ac.uk
University Marine Biological Station Millport	www.gla.ac.uk/centres/marinestation
Moredun Research Institute	www.mri.sari.ac.uk
Forest Research, Northern Research Station	www.forestry.gov.uk
Roslin Institute	www.roslin.ac.uk
Biomathematics and Statistics Scotland	www.bioss.sari.ac.uk
British Geological Survey	www.bgs.ac.uk
Centre for Ecology & Hydrology Edinburgh	www.ceh.ac.uk
DEFRA Lasswade Veterinary Laboratory	www.defra.gov.uk/vla
MRC Human Reproductive Sciences Unit	www.hrsu.mrc.ac.uk
National Museums of Scotland	www.nms.ac.uk
Royal Botanic Garden Edinburgh	www.rbge.org.uk
Royal Society for the Protection of Birds – Scotland	www.rspb.org.uk
Royal Zoological Society of Scotland	www.edinburghzoo.org.uk
Scottish Agricultural Science Agency	www.sasa.gov.uk
Scottish Crop Research Institute	www.scri.sari.ac.uk
Scottish Natural Heritage	www.snh.org.uk
Scotland & N. Ireland Forum for Environmental Research	www.sniffer.org.uk
Edinburgh Centre for Tropical Forests	www.nmw.ac.uk/ectf
Scottish Centre for Animal Welfare Sciences	

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FUTURE ISSUES

Contributions to the Bush Telegraph are welcomed. All contributions, comments and suggestions can be emailed to Mike Steele at m.steele@ed.sac.ac.uk

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Deadline for copy in the next issue is 31 August 2004