

# Research Highlights

University of New England



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University of  
New England



*“UNE’s researchers continue to work both individually and collaboratively on problems and ideas of interest to them and of importance both nationally and internationally.”*

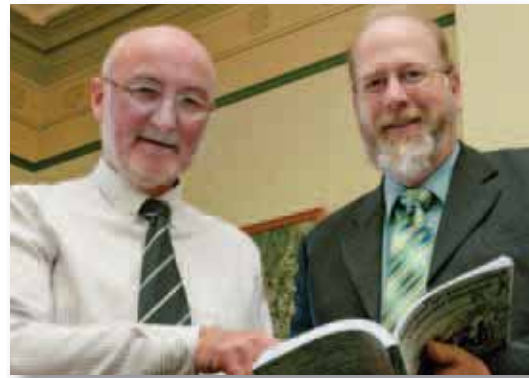
*Professor Ray Cooksey,  
Acting Pro Vice-Chancellor (Research)*

# Building Research Excellence

Welcome to *Research Highlights*. In these pages we showcase some of the outstanding research that is being conducted across a wide range of discipline areas at the University of New England (UNE) in Australia. UNE's strategic vision is to be a strong research-informed teaching and learning university delivering outcomes which have rural/regional and global impact. We have a long and acknowledged history of innovative research and are proud of the fact that we have established this record as a truly regional university.

UNE's researchers continue to work both individually and collaboratively on problems and ideas of interest to them and of importance both nationally and internationally. In 2009, we consolidated and strengthened our commitment to supporting and undertaking research that has rural/regional to global relevance and impact. We also prepared ourselves to meet the demands of the Federal Government's new Excellence in Research in Australia and Sustainable Research Excellence assessment systems.

Amongst our many excellent research achievements in 2009, there are a few gems that stand out as worthy of note. A national survey ranked UNE 4<sup>th</sup> in the nation in research income from commercialisation. This achievement was primarily attributable to the work of the Agricultural Business Research Institute (ABRI) in commercialising the research outcomes produced by our world-class Animal Genetics Breeding Unit. This year, an innovative educational program called QuickSmart captured the attention of both the Australian Research Council (which originally funded the research leading to the innovative program) and the Federal Government. This innovation resulted from work done within our National Centre of Science, Information and Communication Technology and Mathematics Education for Rural and Regional Australia and is increasingly being adopted across schools in several states. Two of the Cooperative Research Centres headquartered at UNE, the Poultry CRC and the Sheep CRC, won national innovation awards.



In 2009, we also saw an increase in the amount of state and national media exposure given to UNE researchers and their research efforts. For example, the discovery of *Homo floresiensis* (the 'hobbit'), by researchers at UNE, was hailed in the UK press as one of the 10 most exciting scientific discoveries in the last decade. Another example: climate change research done within our Primary Industries Innovation Centre and the National Centre for Rural Greenhouse Gas Research was showcased in the national press. We highlighted even more research achievement and success stories in our new *Research@UNE* newsletter which commenced in 2009 with eight issues.

UNE's researchers continue to work to capitalise on the University's history of excellence in a range of important fields. We invite you to consider the research highlights that follow and to contact our Schools, Research Institutes and Centres, or Research Services for further information.

A handwritten signature in black ink, appearing to read 'Ray Cooksey'.

Professor Ray Cooksey  
Acting Pro Vice-Chancellor (Research)

A handwritten signature in black ink, appearing to read 'Jim Barber'.

Professor Jim Barber  
Vice-Chancellor and CEO

# UNIVERSITY OF NEW ENGLAND



## IN BRIEF

The University of New England is internationally recognised as one of Australia's great teaching, training and research universities. Founded in 1954, it was the first Australian university established outside a capital city, and has a history extending back to the 1920s. More than 75,000 people now hold UNE qualifications, with many in senior positions in Australia and elsewhere in the world.

## LOCATIONS AND CAMPUSES

UNE is located on the Northern Tablelands of New South Wales (also known as 'New England') at the edge of the thriving regional city of Armidale, itself located about half way between Sydney and Brisbane and within two hours drive of the NSW north coast.

It is serviced by efficient air, rail and road links. The main campus, including academic areas, sporting facilities and residential colleges, spreads over some 260 hectares, and is well-established in an attractive rural setting. A second site, known as the Newling campus, is close to the centre of the city. UNE also has a network of access centres around the north of the state, as well as a number of rural properties devoted to teaching and research. While students from more than 50 nations study on campus, many more take advantage of UNE's reputation as Australia's preeminent distance education provider of higher education and study from their homes elsewhere in Australia and around the world.

## A TALENT FOR RESEARCH

The University undertakes fundamental and applied research in many disciplines. Its scholars and scientists have established international reputations through their contributions in areas such as rural science, agricultural economics, educational administration, linguistics and archaeology. Collaborative research with other institutions includes projects with the CSIRO and the high profile Cooperative Research Centres.

Through its research UNE assists in the economic, social and cultural advancement of Australia and in the advanced training of undergraduate and postgraduate students.

## ACHIEVING REGIONAL AND GLOBAL IMPACT

For over half a century the University has not only provided the broad range of high-quality offerings expected from any university, but has also built significant strength and expertise through attention to a range of regional issues. Placing priority on regional needs, issues and interactions allows the University to increase its leadership at local, national and international levels through effective contributions to regional areas in collaboration with communities, business and government.

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The academic research and teaching hubs of the University, UNE's two faculties cultivate pure and applied research and are responsible for the strength of the University's reputation in a wide variety of fields.

More information can be found at:  
<http://www.une.edu.au/about/faculties>

## The Faculty of Arts and Sciences

The Faculty of Arts and Sciences at UNE has a long and distinguished tradition of excellence in research, much of which is unique in Australia and the Asia-Pacific region. It also has an enviable reputation as a provider of advanced research training. The Faculty is committed to encouraging the highest standards in research, and in advanced research training, for the benefit of Faculty members (including undergraduate and postgraduate students), the University, and the wider regional, national and global communities.

Its academic Schools are the

**School of Arts**

**School of Behavioural, Cognitive and Social Sciences**

**School of Environmental and Rural Science**

**School of Humanities**

**School of Science and Technology**

*“We are committed to providing the best possible research culture which allows scholars to work in a focused way, without distraction and with the necessary resources.”*

*Jennie Shaw,  
 Pro Vice-Chancellor and Dean,  
 Faculty of Arts and Sciences*

## Major Research Themes

### Environmental and Agricultural Change

- Climate Change Adaptation and Mitigation
- Marine and Freshwater Biodiversity
- Terrestrial Biodiversity
- Natural Resource Management
- Rural Futures
- Australian Fauna
- Vegetation Research
- Sustainable Agriculture
- Agricultural Genetics
- Animal Research

### Rural Health

- Bioactive Materials
- Health and Clinical Psychology
- Gender, Health and Sexuality

### Asia Pacific Region

- Livelihoods and Development
- Governance, Conflict and Security
- Peace Studies
- Globalisation, Migration and Mobility
- Cultural Transformation
- Education, Health and Knowledge Transfer
- Environment and Climate Change

### Frontiers and Boundaries

- Australia's Regional Frontiers
- The Arts, Media, Culture and Society
- Ancient Societies
- Language and Cognition
- Believing and Thinking
- Mathematics, Nonlinear and Complex Analysis

### Security

- Crime, Criminology and Justice
- Biosecurity
- IT Security

### Water Research and Innovation Network

- Water Resources
- Water Stories
- Water Policy
- Water Education

# The Faculty of The Professions

The Faculty of The Professions spans disciplines which are vitally important to rural communities and the rural sector, with specialist research being undertaken in education, law, health and medicine, accounting, business and policy.

The Faculty's research is recognised both nationally and internationally, and it takes pride in the extent to which its cutting edge work is reflected in high-quality teaching for both undergraduate and graduate students. Its academic Schools are the

**School of Business, Economics and Public Policy**

**School of Law**

**School of Education**

**School of Rural Medicine**

**School of Health**

## Major Research Themes

### Rural Health

#### Improving healthcare outcomes

- Rural Medicine
- Health Services Management
- Gender, Health and Sexuality

### Rural and Regional Education

#### Addressing the gap in education outcomes in schools

- School Science and Mathematics Education
- School English and Literacy Education
- Special Education and Diversity in Schools

### Economics and Public Policy

#### Using Information Technology to improve teaching and learning outcomes

- Agricultural Economics
- Applied Economics and Policy
- Local Government
- Business and Management
- Higher Education Management and Policy

### Asia Pacific Region

- Migration

### Law

- Law and Institutional Arrangements for Rural Communities
- Natural Resources Law and Policy

*“The focus of the research is applied in nature and working in collaboration with governments, professional bodies and the communities to address issues of national and international significance.”*

*Victor Minichiello,  
Pro Vice-Chancellor and Dean,  
Faculty of The Professions*



# Research Centres

The University headquarters, and is involved in, specialised research centres of nationally-recognised significance. A number have been created under the Australian Government's Cooperative Research Centres Program; others have developed from government or industry partnerships, University initiatives and from the expertise and activity of UNE's researchers. More information can be found at: <http://www.une.edu.au/about/research/researchcentres.php>

## Cooperative Research Centres (CRCs)

### CRC for the Australian Poultry Industry



The Poultry CRC uses the results of its research to improve the competitiveness of the Australian egg and chicken meat industries. It aims to ensure the cost effective and socially responsible production of safe, quality poultry products for domestic consumption and export markets.

Headquartered at UNE, the Poultry CRC has an extensive collaborative network of researchers, educators and support staff from 23 participating organisations.

The Beef CRC's mission is to capture the benefits of the human and bovine genome projects and the 'livestock revolution' by improving the profitability, productivity, animal welfare and responsible resource use of Australian and global beef businesses through world class gene discovery and gene expression research and accelerated adoption of beef industry technologies. UNE headquarters the Beef CRC.

### CRC for Beef Genetic Technologies



### CRC for Sheep Industry Innovation



The CRC for Sheep Industry Innovation is a collaboration between Australia's leading sheep industry organisations.

The Sheep CRC supports industry to transform wool, meat and the sheep that produce them in an exciting seven-year program of research, development, extension and education running from 2007 through to 2014. It is headquartered at UNE.

*In 2009, two of the Cooperative Research Centres headquartered at UNE, the Poultry CRC and the Sheep CRC, won national innovation awards.*

**Cotton Catchment Communities CRC**

The Cotton Catchment Communities CRC is an industry partnership leading research, education and commercialisation in the Australian cotton industry. The CRC aims to provide innovative knowledge to stimulate economic, social and environmental outcomes at farm, regional and national levels. UNE is a core partner of the CRC, which has its headquarters in Narrabri.



**CRC for Irrigation Futures**



The CRC for Irrigation Futures was formed in 2003 to deliver research, education and training which gives confidence to growers, industry, governments and communities to invest in better irrigation, a better environment and a better future. UNE is a core partner in the CRC.

**CRC for Spatial Information**

Spatial information (SI) describes the physical location of objects and the metric relationships between objects.

The SI industry is a specialised component of the broader information technology sector and has scientific and technical links to a variety of disciplines. The CRC for Spatial Information provides leadership in R&D and innovation to create new opportunities for Australian business and users. UNE is a core participant of the CRC, which is headquartered in Victoria.



# Major Research Centres

## Institute for Rural Futures

The Institute for Rural Futures provides socio-economic survey research and statistical analysis services tailored to the specific needs of public and private sector clients.

Its focus is on understanding pressures of change, both positive and negative, on social, economic and ecological systems as a whole to help rural and regional communities, along with government, plan for the future. The Institute incorporates the UNESCO Centre for Bioregional Resource Management and the Centre for Rural Crime.

## National Centre for Science, Information and Communication Technology and Mathematics Education for Rural and Regional Australia (SiMERR)

SiMERR works with rural and regional communities to achieve improved educational outcomes for all students in the areas of Science, ICT and Mathematics. It does this so parents can send their children to rural and regional schools and know they will experience equal opportunities for a quality education; so students can attend rural or regional schools and realise their academic potential in Science, ICT and Mathematics; and to help ensure teachers can work in rural and regional schools and be professionally connected and supported.



*Centre for Agriculture and Law: Central Asian Pamir Alai Land Management (PALM) project*

## Centre for Agriculture and Law (AgLaw)

The Australian Centre for Agriculture and Law at the University of New England is a law and policy research and consulting centre which focuses on law and institutional reforms that will improve sustainable use of natural resources, and the quality of rural life. The AgLaw Centre is supported by the substantial intellectual resources of the Faculties of the Professions and Arts and Sciences. These Faculties provide access to economists, lawyers, management experts, soil scientists, production sciences, mathematicians, biologists and many other specialists. The Centre also has an extensive network of local and international academic and commercial collaborators. The AgLaw Centre also works closely with a number of Cooperative Research Centres hosted at the University, in sectors including irrigation, genetics, viticulture, livestock and poultry.

## Centre for Higher Education Management and Policy (CHEMP)

The Centre for Higher Education Management and Policy (CHEMP) pursues, through a multi-disciplinary approach, studies of national and international significance. The work of the Centre concentrates on analysis of the objectives and detailed specification of particular government and institutional policies; consideration of alternative policy options and their social and economic costs; evaluation of the effects, impact and consequences of the application of particular policies; assessment of the way that policies are developed, specified, authorised, implemented and evaluated; and exploration of appropriate management structures and practices to support higher education objectives.

### Centre for Local Government (CLG)

The UNE Centre for Local Government is a cross-faculty centre and the leading Australian institution undertaking research into the economic, financial and public administration aspects of Australian and New Zealand local government. Researchers operating under the auspices of the Centre are made up of accountants, economics and finance specialists, political scientists and experts in policy analysis and public administration, drawn from both academia as well as local government. Over the years, this combination of academic expertise and practitioner knowledge has proved to be an invaluable method of diagnosing the ills afflicting local government in Australia and New Zealand, as well as developing policy recommendations aimed at alleviating these ills.

### Centre for Applied Research in Social Science (CARSS)

The Centre for Applied Research in Social Science conducts high quality research funded by national competitive granting bodies and community and government organisations. The strategic mission of CARSS is to promote links between The University of New England and the local, regional and global community and to provide excellence in research and research training.

CARSS brings together an innovative cross disciplinary team of experienced researchers across a range of areas of expertise including: social policy, counselling, sociology, demography, geography, planning, development, economics, criminology, political science, social statistics, and professional ethics.

Members of the Centre span several Schools and Faculties, but most are concentrated in the School of Behavioural, Cognitive and Social Sciences.

### Heritage Futures Research Centre (HFRC)

The Heritage Futures Research Centre was founded in 2001 as a cross-disciplinary research centre within the University of New England. It aims to consolidate the University's range of expertise and research relating to the natural and cultural heritage of the local New England region and to revitalise links with local community organisations, local government and interested individuals.

The founding researchers were drawn from the disciplines of Archaeology, History, Education, English, Geography/ Planning, Rural Science, Natural Resources, Indigenous Studies and Environmental Studies. This composition is flexible and inclusive and has allowed group members to bring their different perspectives and expertise to a number of research projects in the New England and other regions. Many of the projects assist communities to develop tourism ventures based on local history and culture.

### Language and Cognition Research Centre (LCRC)

The relationship between language and cognition - understood broadly to include thinking, feeling, memory, attention, and other mental phenomena - is the focus of intense research interest around the world. It is one of the main topics on the cognitive science agenda.

The Language and Cognition Research Centre at UNE brings together researchers from four disciplines: linguistics, psychology, archaeology and philosophy. Their fields range across linguistic and conceptual semantics, language acquisition and literacy development, cognitive linguistics, psycholinguistics, language description and typology, the evolution of language, formal semantics, and the philosophy of language.



Heritage Futures Research Centre: Saumarez Homestead, Armidale NSW

## UNE-based CRCs win national awards for excellence in innovation

*Two Cooperative Research Centres that have their headquarters at the University of New England received Awards for Excellence in Innovation during the Cooperative Research Centres Association's annual conference in Canberra in May 2009.*



The Poultry CRC won its award - for education, training and outreach - for Poultry Hub (poultryhub.org), an interactive online educational resource designed to stimulate the interest of Generation Y in poultry production and thus help to stem the "brain drain" from agricultural studies at Australian schools and universities.

The Poultry CRC's Chief Executive Officer, Professor Mingan Choct (pictured left), who received the award on behalf of the CRC, said the agricultural sector needed to "skill up". "Demand for graduates in agricultural science is projected to grow explosively as Australia defends its lead in the field," he said.

The Sheep CRC's Precision Sheep Management (PSM) initiative, a revolutionary approach to sheep management, received an award for innovation in science and technology. Accepting the award on behalf of the CRC, its Chief Executive Officer, Professor James Rowe (pictured right), acknowledged the team effort required for such an ambitious industry initiative, and the value of the CRC model.

"Essentially, Precision Sheep Management is a package of tools for graziers to move the management of their sheep from a mob to an individual basis," Professor Rowe said. "Now, with affordable and robust technology, we can monitor and manage each and every animal in the mob according to its needs and merits, as well as the farmer's and the market's needs."



## UNE joins leading eResearch network

The University of New England has taken a step that will greatly enhance its researchers' capacity to access the latest IT, communication and data management technology in collaborative research projects.

UNE has joined Intersect, the peak eResearch body for NSW. In July 2009, Professor Alan Pettigrew, Vice-Chancellor at the time, and the Chief Executive Officer of Intersect, Dr Ian Gibson, signed documents confirming the University's membership of Intersect for the next three years. UNE joins six other NSW universities that are already members of the network.

Dr Gibson said that Intersect had been established to facilitate collaborative research within an Information Technology framework. He said that universities such as UNE could contribute a vital regional perspective to the network.

Professor Pettigrew said that membership of Intersect was an important component of UNE's strategy of extending its research capacity and influence through collaborative links with educational and research institutions both nationally and internationally. "UNE's membership of Intersect will help to ensure that collaborative research programs take account of the needs of researchers in rural and regional areas," he said.

Intersect is a participant in the Federally-funded Australian Research Collaboration Service, which provides a collaborative Information Technology infrastructure for data storage, management and security, platforms for collaboration, and capacity for high-performance computing.

An Intersect staff member - an eResearch Analyst - is based on the UNE campus to facilitate a close working relationship between Intersect researchers and IT, Library, and Research Services staff at UNE. UNE's Acting Pro Vice-Chancellor (Research), Professor Ray Cooksey, said the eResearch Analyst will "work with UNE staff to develop eResearch projects and capabilities that make sense for UNE strategically, and that draw upon the power of the collaborative network that Intersect brings together". He added that "this can include gaining access to Federal money set aside for specific types of eResearch capability development within the Government's "Superscience" infrastructure Budget allocation."

## UNE maintains its key role in Cooperative Research Centres (CRCs)

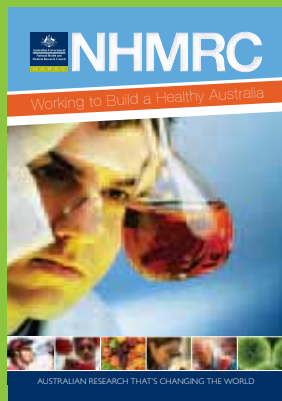
The UNE-based Poultry Cooperative Research Centre, which is Australia’s leading researcher into sustainable poultry production, has secured an additional \$28 million to conduct new research over a further 7.5 years.

The Poultry CRC has been performing research and driving education since 2003 aimed at improving the sustainability of the Australian poultry industries. The CRC will address the major challenge of meeting increasing demand for ‘clean and green’ poultry products and maintaining food security in the face of climate change and population growth.

The CRC for Spatial Information, based at the CSIRO, has secured a total of \$32.2 million and UNE will be involved in two major projects. An “Agriculture, Natural Resources and Climate Change: Biomass project” aims to empower Australia’s response to climate change by transforming the way public and private land managers balance agricultural productivity and sustainability.

A “Health Research through the CRC for Spatial Information project” is predicated on the expectation that linking spatial technology with other technology and management methods can assist to deliver healthcare improvement in rural areas.

## Pierre Moens’ groundbreaking work features in NHMRC 2009 magazine



Dr Pierre Moens, of UNE’s Centre for Bioactive Discovery in Health & Aging, School of Science & Technology and chief investigator for a National Health and Medical Research Council (NH&MRC) funded research project that was featured in the 2009 issue of the NH&MRC magazine.

The story, “Unlocking the Mysteries of Cancer,” highlighted significant current research projects aimed at detecting, preventing and treating cancer. Dr Moens’ project, entitled ‘Profilin: a novel target for cancer therapy’ and a collaborative effort with scientists based in the United States and Denmark, as well as in Australia, is investigating profilin, a protein that suppresses the growth of cancer. In the magazine article he describes his team’s ground-breaking work and notes that “profilin has been linked to several other diseases such as Huntington’s disease, Wiskott–Aldrich syndrome, Alzheimer’s disease and mesangial proliferative glomerulonephritis. So exploring the molecular mechanisms of profilin can potentially help our understanding and the development of treatments, not only for cancer but also for many other diseases.”

Dr Pierre Moens - pmoens@une.edu.au

## UNE ranks 4th in national research organisation survey

A recent article on research commercialisation in The Australian Higher Education supplement (5 August 2009) ranked the University of New England fourth (\$6.796mil) amongst nationally surveyed research organisations in Australia (behind Monash (\$100.572M), University of Queensland (\$44.746M) and CSIRO (\$30.578M)).

“While this outcome might seem surprising to many because UNE is just a small regional university, there is a deeper reality here,” said Professor Ray Cooksey, UNE’s Acting Pro Vice-Chancellor Research. He added that UNE achieved this outcome predominantly because of the work of the Agricultural Business Research Institute (ABRI), which commercialises and markets, worldwide, genetics research outcomes produced by the Animal Genetics & Breeding Unit (AGBU). ABRI is a UNE controlled business entity whereas AGBU is a joint venture between UNE and the NSW Department of Primary Industry. “UNE has enjoyed the benefits from this synergy between research production and commercialisation for a number of years now. It demonstrates how world-class research within a specific area (in this case, animal genetics) can be effectively translated into commercialisable products (eg, BREEDPLAN) that enjoy worldwide market penetration under license in 21 countries,” he said.

## UNE leads collaborative distance learning project

The University of New England is leading a \$3.5 million project that will engage the Australian tertiary education sector in discussion and collaborative research on the practice of distance education.



Funded by the Commonwealth Government and directed by UNE's Professor Belinda Tynan, the project - named "DEHub: Innovation in Distance Learning" - aims to establish a central "hub" of research-based expertise at UNE and beyond to draw on information from around the world. The government funding for the project will continue through 2010 and 2011.

While UNE is the physical "hub" of the project, it also involves four other universities - Charles Sturt University, Central Queensland University, the University of Southern Queensland and New Zealand's Massey University.

The Acting Project Manager of DEHub, UNE's Dr Nathan Wise, said that the project, based within the Faculty of The Professions, would ensure best practice and facilitate improved delivery of distance education across the higher education sector. "It will engage in national and global collaborations on evidence-based approaches to new teaching technologies," he said, "and will promote innovative modes of learning and teaching that will strengthen the capacity of regional universities to meet the varied demands of their distance education students."

DEHub will focus on three key themes with an emphasis on tertiary and higher education contexts: Distance Education Learning and Teaching; Distance Education Community and Open Learning; Distance Education Research and Evaluation.

## Award helps to improve education assessment in Bhutan

An internationally competitive award from the Australian Government allowed a senior Bhutanese education official to conduct research at the University of New England that contributed to the development of Bhutan's national education assessment program.

Dr Phub Rinchen, Secretary of the Bhutan Board of Examinations, spent four months in UNE's School of Education in early 2009, undertaking research that prepared him for the task of coordinating for the National Education Assessment in literacy and numeracy for Grade 6 conducted throughout Bhutan in November.

Dr Rinchen's visit to UNE, funded by an Australian Government Endeavour Award, is the most recent development in a long-standing relationship between the University and Bhutan's Ministry of Education. This relationship began in 1992 with the Bhutanese Multigrade Attachment Program which, over a period of about 15 years, enabled teachers at small, remote schools in Bhutan to receive specialised training at UNE. Dr Rinchen studied at UNE as a part-time student from 1992, graduating with a Doctor of Education degree in 2001.

In 2003 he coordinated Bhutan's first National Education Assessment for Grade 6 literacy and numeracy, and the assessment in November 2009 was the second. While at UNE he worked closely with academics in the School of Education, and also spent time in Sydney working with the Educational Measurement and School Assessment Directorate of the NSW Department of Education and Training.

"Over the years, we've learnt a lot from each other," Dr Rinchen said. "When we were setting up the Royal University of Bhutan a few years ago, UNE was one of our models. Our ties continue to strengthen, and there are many avenues for future collaboration between UNE and the Bhutan Ministry of Education and the Royal University of Bhutan."

The Endeavour Awards program provides opportunities for citizens of the Asia-Pacific, Middle East, Europe and the Americas to undertake study, research and professional development in Australia. Awards are also available for Australians to do the same abroad.



Associate Professor Tom Maxwell with Bhutanese students

# Research Achievers 2009

As a way of recognising and celebrating individual achievement in the research field, the Vice-Chancellor's Awards for Excellence in Research were established. The criteria for the awards are based on the research and evidence of its impact, including outstanding publications as evidenced by peer review, research grant success, commercial success (in the form of patents, technology transfer, products or other activities), artistic success (in exhibitions, performances or other activity) and professional awards or recognition for research activity. A maximum of four awards can be made if nominees are of a sufficiently high standard.

## Individual Awards

### Dr Anne Pender



Anne Pender joined the staff of UNE in 2003, and is Senior Lecturer in English and Theatre Studies. Before this she held a Lectureship in Australian Literature at King's College London. Dr Pender's specific research interests include modern and contemporary Australian literature, theatre and performance. She has built up considerable expertise in the study of comedy and satire.

In July 2010 her biography of Barry Humphries will be published by Harper Collins Australia. This work was commissioned by the ABC and offers the first comprehensive study of this actor and his career. The research for this study was funded by an Australian Research Council Discovery grant.

Dr Pender is a widely published expert on the life and career of Nick Enright and various other Australian writers. Her books include a monograph on the Australian author Christina Stead, *Christina Stead Satirist*, published in 2002, and an edited book of essays, *Nick Enright: An Actor's Playwright* published in 2008.

Dr Pender is currently working on a collaborative project funded by the Australian Research Council, examining the lives and work of some eighty Australian expatriate writers in Britain from 1830 until the present.

### Professor Amarjit Kaur

Migration issues in our increasingly globalised world have been the focus of Amarjit Kaur's work for many years. Professor Kaur, who joined the staff of UNE's School of Business, Economics and Law in December 1990, is considered an international authority on migration matters and has written extensively on the subject.

Her research on migration includes historical case studies of the Epidemiology of Migration and Labour and Health, studies of the Indian and Sikh diasporas and evolving diaspora cultures in Southeast Asia, and projects on forced migration, especially trafficking and refugee issues in Southeast Asia, as well



as immigration restrictions, human rights and the legal and extralegal status of migrants and migrant workers. Professor Kaur is also currently engaged in an Australian Research Council Discovery Project, *Managing the Border: Migration, Security and State Policy Responses to Global Governance in Southeast Asia*.

She has international collaborative links in Asia, Australia, Europe and the United States and her research has been supported by a variety of funding agencies, including the Australian Research Council, AusAID, the Toyota and Japan Foundations, the British Academy, the International Institute of Social History and the Wellcome Trust, UK. In 2006 Professor Kaur served on an AusAID Technical Assessment Panel for the selection of tenders for the Asia Regional Trafficking in Persons Project; and in 2008, she was a participant in the Asia-Pacific Roundtable World Bank/UNDP Regional Consultation on the Global Human Development Report 2009 (on the theme of Migration and Development). Professor Kaur is currently either convening panels or acting in an advisory capacity for a number of national and international conferences scheduled for 2010 addressing global migration issues.

### Professor Brian Byrne

Brian Byrne joined the staff of the University of New England as a Lecturer in Psychology in 1972. After promotion to the levels of Senior Lecturer and Associate Professor, he was appointed to a Personal Chair in 1997.

As a researcher, he has contributed more than most to an understanding of why some children have difficulties in learning to read and has enjoyed the opportunity to follow his deep interest in the psychology of language, attracting research funds totalling about \$5.5 million. This is the second time he has been the recipient of the UNE Vice-Chancellor's Award for Excellence in Research.



Professor Byrne is the author of an influential book, *The Foundation of Literacy: The child's acquisition of the alphabetic principle* (Psychology Press, Hove, UK, 1998). His other scientific publications include about 70 journal articles and 15-20 book chapters.

Although he retires at the beginning of 2010, his research funding will allow him - for at least the next year - to continue with the analysis and compilation of data on the 1,000 sets of twins in Australia, the United States, Norway and Sweden that he and his international colleagues have followed through the early years of schooling. With funding from the Australian Research Council and the US National Institutes of Health, the research team - led by Professor Byrne - has recorded thousands of observations on each of those 2,000 children over the past 10 years.

### Dr John R Paterson



John Paterson is a Senior Lecturer in palaeontology and Convenor of Earth Sciences in the School of Environmental and Rural Science at UNE, a position he has held since January 2007. His exceptional work as a researcher began at Macquarie University (Sydney) where he completed a Bachelor of Science majoring in geology and palaeontology in 2000, and was awarded First Class Honours in 2001 for his research on Ordovician (470 million-year-old) fossils from western New South Wales. He was also awarded the Charles Marshall Thesis Award by the Australasian Institute for Mining and Metallurgy (AusIMM) for the most outstanding Honours thesis in geology in New South Wales.

Cambrian to Ordovician (520 to 470 million-year-old) trilobites - an extinct group of marine arthropods distantly related to crustaceans and insects - from around Australia was the focus of Dr Paterson's PhD studies at Macquarie University (2002-2005). An exciting find of his research was the discovery of a trilobite specimen from South Australia that possesses the most number of segments in the thorax for any known species. In 2005-06, he conducted postdoctoral research on Cambrian trilobites and enigmatic Ediacaran (555 million-year-old) fossils from South Australia at the South Australian Museum (Adelaide) and Macquarie University.

Dr Paterson's current research focuses on Cambrian (540-510 million-year-old)

fossils, especially from the Flinders Ranges and Kangaroo Island in South Australia and his main area of expertise lies in arthropods. He is widely published and active in the Australian and international palaeontological communities.

### Team Award 2009

#### SiMERR QuickSmart Team

The QuickSmart team of Professor John Pegg, Associate Professor Lorraine Graham, Jenny Thomas, Noelene Raymond and Eve Croeser (pictured below) developed QuickSmart, an intervention program that helps school students significantly improve their basic skills in mathematics, at the National Centre of Science, Information and Communication Technology and Mathematics Education for Rural and Regional Australia (SiMERR), which is based at UNE. The QuickSmart program is currently operating in more than 200 schools around Australia - a number set to double by the end of 2010.

The QuickSmart project was supported initially by federal research funding from the Innovative Literacy and Numeracy Projects Scheme in 2001 and then by an Australian Research Council Discovery grant from 2003 to 2005. Since 2005 the QuickSmart Numeracy research program has been funded through further federal competitive grants such as the National Partnerships Pilot Projects Scheme, the NSW Department of Education and Training, and the Northern Territory Department of Education and Training.

The QuickSmart literacy program, which parallels the numeracy program, is in increasing demand from schools that have successfully implemented QuickSmart numeracy.



## Longstanding achievers

### Professor Gisela Kaplan



Gisela Kaplan is Professor in animal behaviour in UNE's Centre for Neuroscience and Animal Behaviour and is recognised worldwide as an authority in the field of animal cognition and communication.

She is the author of over 250 scientific papers and 20 books, mostly on animal behavior, including (in collaboration with Lesley Rogers) *Comparative Vertebrate Cognition: Are Primates Superior to Non-primates*, Kluwer Primatology Series (Kluwer Academic/Plenum Publishers, 2004).

Professor Kaplan's research interests are focused on primate and avian behaviour, and for more than a decade magpies were the subject of her curiosity. Her research discovered mimicry and referential signaling in these iconic Australian songsters, and that their song development was similar to the stages in vocal development observed in human babies. The latter finding has important implications for medical research on human speech impairment. *Australian Magpies: Biology and Behaviour of an Unusual Songbird* (University of New South Wales Press, 2004), a notable product of her research, made it onto the CSIRO (Australia's national science agency) bestseller list, and has been republished several times. *Tawny Frogmouth* (CSIRO, Melbourne 2007) is her most recently published book and in 2008 and 2009 several of her earlier books were reissued as e-books, including *Birds: Their Habits and Skills* (Allen & Unwin), and, written jointly with L. Rogers, *Spirit of the Wild Dog* (Allen & Unwin).

In addition to contributing to prestigious events and research publications with a focus on animal behaviour, Professor Kaplan has written for popular magazines,

such as *Nature Australia*, *GEO* and *Endangered Species*. She is a writer for *The Australian* and is frequently heard on radio discussing her research.

Professor Kaplan is the recipient of several awards and her expertise is sought around the globe in her roles as a member of various government panels for Australian research, USA and European national granting bodies, international scientific committees, the Editorial Board of the *Journal of Applied Animal Behaviour Science*, and as a regular assessor for over 25 international scholarly journals.

### Associate Professor John Ryan

John Ryan's most recent academic honour – a degree of Doctor of Letters (*honoris causa*) from the University of New England awarded in 2009 – recognises both his career-long commitment to the vision of the University's founders, and his international eminence as a scholar.

He is recognised as one of the world's leading J.R.R. Tolkien scholars; *Tolkien's View: Windows into his World*, his third book on Tolkien, was published by Walking Tree Publishers in 2009 (see page 52) following *The Shaping of Middle-Earth's Maker*, which was published by the American Tolkien Society in 1992. His deep knowledge of Tolkien's work stems from his time at Oxford University, where Professor Tolkien was his most influential teacher. During his Oxford years he also developed an interest in English vocabularies and dictionaries and is frequently cited on the subject of Australian and New Zealand English.

When John Ryan arrived at UNE, he lived in the original residential college – Wright College, his home as a resident fellow for 18 years – and played a leading role in many of the social and cultural activities of the college and the University.

In 1964 he published *The Land of Ulitarra: Early records of the Aborigines of the Mid-North Coast of New South Wales* – the book that the poet Les Murray (whom he tutored at a UNE Summer School) called 'the book that saved a Nation'. In 1964, too, he went to Cambridge to work on a PhD thesis and the resulting book, published several years later is titled *Tolkien: Cult or Culture?*

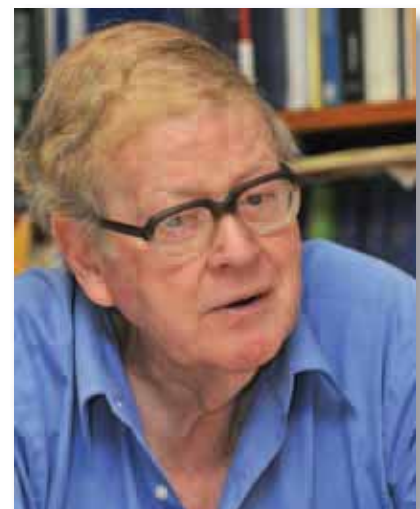
A unified perspective of literature as social history has characterised both his teaching (he pioneered the postgraduate teaching of Australian literature at UNE) and scholarly writing, and is evident in his work on Rolf Boldrewood and other Australian authors.

John Ryan has become a leading figure in the documentation and interpretation of Australian folklore. Since 1991, he has been the editor of *Australian Folklore*, the journal of the Australian Folklore Association. He is also a member of the editorial board of *Folk Life* (a journal based in Europe but concerned with British culture world-wide), and, until recently, he was a member of the editorial board of *The Greenway World Encyclopaedia of Folk Lore and Folk Life*.

His research interests are based on a concern to give people a perception of their own identity and have resulted in publications in more than 15 countries. His long list of researches illuminating the New England region's social history include *High Lean Country: Land, People and Memory in New England*, *Writing Tenterfield*, the third volume of *New England Lives* and, to be released in 2010, *Golden Words and a Golden Landscape*.

Adult education is the subject of his second PhD thesis (titled *A History of Adult Education At and Through the New England University College and the University of New England, 1948 to 1980*).

Twin ideals of service to the community and service to scholarship led John Ryan to become the longest-serving lecturer at UNE's fondly-remembered Summer Schools, and they continue to inspire his work as scholar, researcher and educator.



# Towards sustainable land management in Tajikistan and Kyrgyzstan



The University of New England's Australian Centre for Agriculture and Law (AgLaw Centre) is the lead agency working to provide an improved legal and regulatory framework to enable sustainable land management in the Pamir-Alai Mountains of Tajikistan and Kyrgyzstan. The Centre is one of the co-financing agencies in a Global Environment Fund (GEF) funded project in the area, called the Central Asian Pamir Alai Land Management (PALM) project, and is working in close collaboration with the United Nations University and the Centre of Development and Environment (CDE) at the University of Berne.

The aim of the project is to address the interlinked problems of land degradation and poverty within one of Central Asia's critical mountain 'water towers' and biodiversity hotspots. To manage the issues, a transboundary approach, which seeks to improve the requisite legal, institutional, policy and technological environments in order to enable mountain communities to take primary responsibility for the productive and sustainable

management of their local ecosystem resources, is being implemented.

"Our philosophy and our methods integrate concerns for high quality legal instruments, with a direct focus on implementation. In this area of the world, creating real capacity for action on the ground is pivotal to producing tangible outcomes in transboundary natural resource management. This is one of the significant challenges that we are working on," said Professor Paul Martin, Director of the AgLaw Centre.

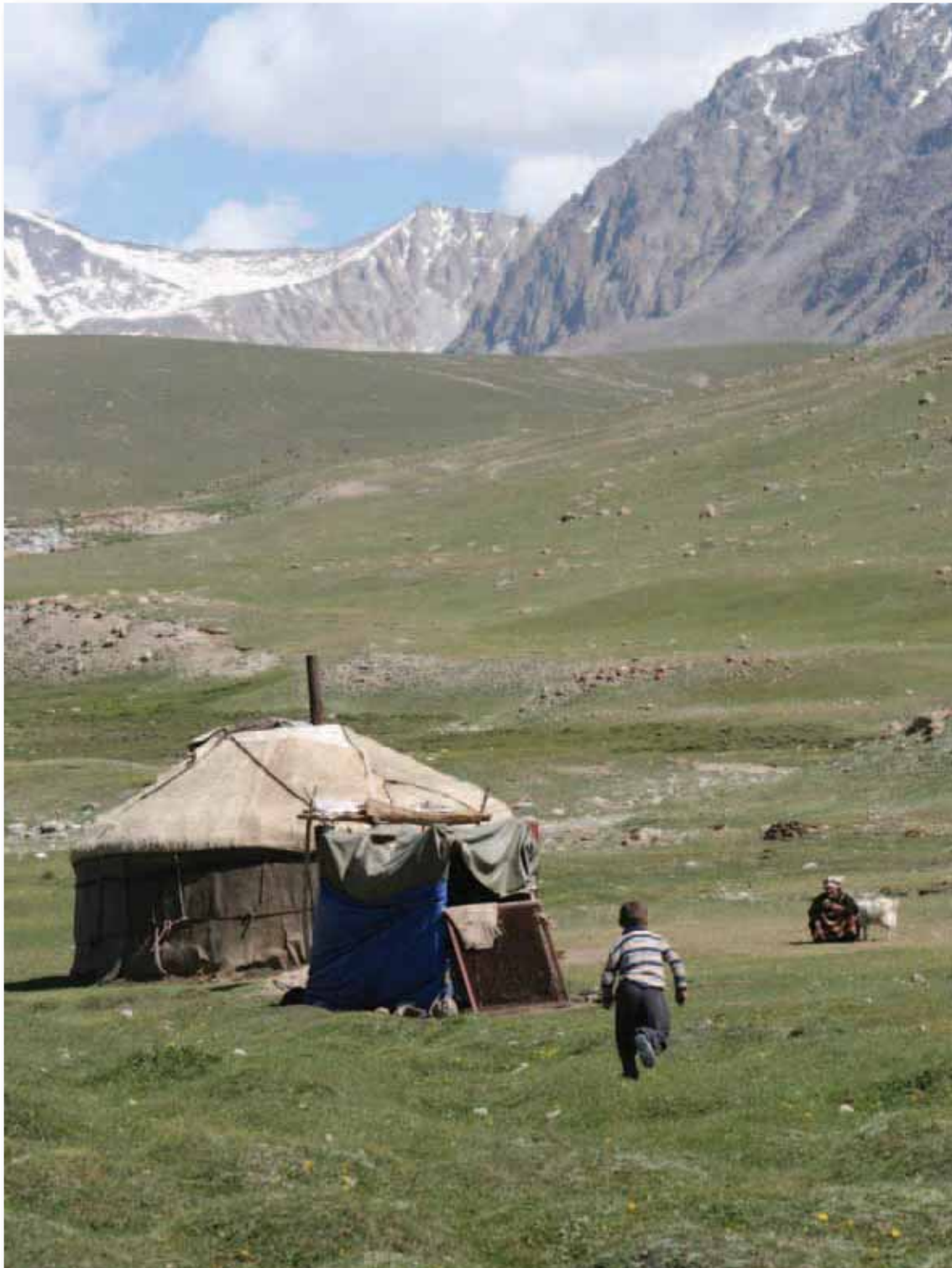
The AgLaw Centre is contributing to the critical element of building capacity for action on the ground by providing international expertise and guidance to the National Legal Task Forces in Tajikistan and Kyrgyzstan and also overseeing the inputs and activities of these two national teams. After reviewing the reports from a training workshop with the Tajik and Kyrgyz Legal Task Forces held in May 2009, Adjunct Associate Professor Ian Hannam, UNE's leader for the legal and institutional component of the PALM project commented that, "while there are gaps in the analyses that reflect the need for more support to the National Legal Task Force teams, the reports provide a good basis for shaping suitable laws and institutional arrangements."

In addition, the Centre is supervising the work of PhD candidates who are undertaking specialised studies on issues of relevance to the legal and regulatory framework for sustainable land management in the

Pamir-Alai region. "The importance of large scale conservation across political boundaries is of growing significance in a climate change impacted world. Thus, the opportunity to work in the new and emerging field of transboundary law, despite its challenges, is very exciting," said Michelle Lim, the PhD researcher involved in the project.

In recognition of the need to build the capacity of the National Legal Task Forces of the Kyrgyz Republic and Tajikistan, Dr Hannam and Ms Lim intend to conduct a workshop in natural resources governance and law in the Kyrgyz capital, Bishkek in April 2010. "The PALM project team's work should make a major contribution to sustainability and social justice in this sensitive region of the world," said Professor Martin.

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Research project



## UNE expert called to the aid of an African wetland



The Okavango Delta is one of the largest wetland systems on the international Ramsar List of Wetlands of International Importance. Dr Glenn Wilson from UNE's School of Environmental and Rural Science travelled to Botswana in southern Africa in March and again in December 2009 to assist the environmental managers of the Delta with establishing a program of research into the relationship between fish populations and flood levels. The aim of the program is to protect a unique pristine wetland environment and the livelihoods of its local fishermen.

"Small communities all along the Okavango River are directly dependent on local fisheries for their daily protein and livelihoods," Dr Wilson said, "and so getting the balance right between human and environmental water needs is critical."

After an initial visit to the wetland in November 2008, Dr Wilson returned there in March to conduct a short course on research methods for staff of the University of Botswana's Harry Oppenheimer Okavango Research Centre and the government's Fisheries Division, and to initiate fieldwork aimed at providing information on the life cycles of the fish species (more than 70 of them) in the Delta. During his December visit Dr Wilson also worked on planning for the February 2010 international conference on the flow ecology of flood plain wetlands being held at the University of Botswana, where he is co-chairing the fisheries theme.

Dr Wilson, a Senior Research Fellow at UNE, is an authority on the breeding behaviour of fish in wetland areas. His research in the Lower Gwydir region of north-western NSW has helped to provide an understanding of how fish, planktonic animals, water chemistry and wetland plants respond to environmental and other flow releases from Copeton Dam upstream.

The Okavango River flows from Angola through Namibia and then down into Botswana, where it expands into the huge wetland system of the Delta. "The river has the usual conflicts between upstream irrigation/industry use of the water and downstream needs for flooding. Namibia and Angola are still developing their water resources, and considering the use of dams and other water-diversion technologies for irrigation and mining", said Dr Wilson. This would have a severe impact on flooding in the downstream wetlands of Botswana and affect their fisheries and ecotourism industry. The Okavango Delta is after all, one of the most popular tourist destinations in Africa, with one of the continent's highest densities of animals such as elephants, lions, hippos, giraffes and zebras.

"Among other things, this is a great opportunity to test the ideas we've formed from research in the northern Murray-Darling Basin about how fish use river flows and flooding in their spawning," Dr Wilson said. "It reinforces the fact that, here at UNE, we have knowledge that's applicable to river ecosystems around the world."

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## Mobile phone use doesn't add stress

The common belief that mobile phones make life more stressful is wrong, according to new research findings by Professor Michael Bittman and Judith Brown from the University of New England in Australia and Professor Judy Wajcman from the London School of Economics in the UK; in fact, they may make us feel less rushed.

In a paper featured in the journal *Work, Employment and Society*, published by the British Sociological Association and SAGE, the researchers say that mobile phone use gave the users a greater flexibility about schedules.

For their study they asked 1,083 people living in Australia to complete a questionnaire and a log of their phone activity using the data on their SIM cards.

In their paper the researchers report that those who used the phones most frequently during both work and leisure time felt no more stress than those who used their mobile phones infrequently.

Mobile phones could allow us to organise our days better by allowing us to rearrange meetings at short notice, giving us more time, they argue. "Phoning ahead relaxes the formerly inflexible scheduling of a pre-arranged rendezvous," their paper says. "It seems plausible that this new flexibility of arrangements could contribute to a sense of being less rushed or pressed for time.

"The extra flexibility afforded by mobile communications may be more than sufficient to offset any sense of being harried arising from the increased possibility of being contacted."

The paper reports that almost none of those studied used their mobile phones for work purposes during their leisure time. This was despite the fact that, as the researchers say, "in principle, a person with a mobile phone is always available". Their new research contradicts the argument that mobile phones extend work beyond the workplace into the places and times normally reserved for families and leisure.

They found that only 21 per cent of calls on the mobile phones studied related to work and that 40 per cent were to contact family and 21 per cent for friends. The work-related calls were almost always made during working hours - 8 am to 5 pm - and only 3 per cent of work-related calls were made after 7 pm.

"This low rate of work-related use out of standard hours suggests that something other than the mobile phone is extending work hours," the researchers say. "An analysis of diary data also offers little support for the proposition that mobile phones are a work-extending device."



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# Seeking ideas for stopping the spread of harmful weed

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Researchers at the University of New England have embarked on a project aimed at preventing the further spread of serrated tussock on the Northern Tablelands.

“Serrated tussock (*Nassella trichotoma*) is a real problem for sheep producers, as it has very little nutritional value,” explained Annie Schneider, a postgraduate student at UNE who is studying this weed for her PhD degree. “One study has shown that sheep can actually die of starvation if there is too much serrated tussock in their diet.”

“With serrated tussock, prevention is definitely better than cure,” Ms Schneider said. “Once it has become established, it is costly and difficult to control.”

“We can avoid further losses to farm productivity and biodiversity by being careful not to spread the seeds of serrated tussock into new areas,” she continued. To help in achieving this aim, she and her supervisor, Professor Brian Sindel, have designed a survey that will inform them about current levels of serrated tussock infestation throughout the Northern Tablelands, and about land managers’ views on methods that can be used to prevent its spread onto unaffected land.

“We’re interested in learning what land managers think of the prevention methods that are mentioned in the survey - methods that are drawn from various serrated tussock management guides,” Ms Schneider said.

She and Professor Sindel hope that the results of the survey will reveal opportunities for tackling the problem as well as giving them a picture of its size.



# Australian mammals give lesson in winter survival

Research by UNE scientist Professor Geiser and his team, working in UNE's Centre for Behavioural and Physiological Ecology, have developed an international reputation for their studies of hibernation and torpor (a state between sleep and hibernation) in Australian mammals and birds. They have found that some Australian mammals can lower their body temperature to near 0 degrees Centigrade and reduce their metabolic rate to 1 per cent of that in active individuals.

By entering a state of torpor, animals and birds are able to conserve energy and water, significantly improving their chances of survival. About half of all terrestrial Australian mammals and an unknown number of birds use hibernation (multi-day torpor) and daily torpor in this way, Professor Geiser says.

In a recent study (Körtner G., Geiser F., 2009: "The key to winter survival: daily torpor in a small arid zone marsupial", *Naturwissenschaften*, in press) on the winter behaviour of desert-dwelling

stripe-faced dunnarts, Dr Körtner, a Postdoctoral Fellow at UNE, observed the winter behaviour of stripe-faced dunnarts in Astrebla Downs National Park in Queensland using lightweight body-temperature monitors. The researchers found that the dunnarts entered torpor almost every night, and that the length and depth of the torpor period was dependent on air temperature.

Having studied torpor use in Australian animals for many years,



Professor Geiser says it is used in a diverse range of environments. "It appears, for example, that the success of the many small carnivorous marsupials in the Australian arid zone, which even employ torpor during reproduction and development, is at least to some extent due to their extensive use of this physiological strategy," he said.

"The rare mountain pygmy possum persists in the Australian Alps largely because of its ability to hibernate.

And employment of torpor in winter allows birds to remain resident for the entire year without the need for risky migration and re-establishment of home ranges.

"Moreover, recent evidence suggests that the use of torpor, and the resulting reduction in energy requirements, can contribute to predator avoidance because less time is required for foraging. Avoidance of predators in turn increases lifespan, and results in selection of long-lived individuals and species."

To enhance knowledge about torpor use in Australian mammals and birds, Professor Geiser and his colleagues have been awarded an Australian Research Council Discovery Grant of \$250,000 for a project titled "Cool mammals: responding to thermal and energetic challenges in the Australian tropics".



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## Project to aid families of children with developmental disabilities



Researchers at the University of New England have received funding for a project that aims at improving access to services for families in rural and regional NSW that have a child with a developmental disability.

The project will involve mapping the geographical locations of service providers, surveying families' experience of - and perceptions about - the accessibility of services, and identifying areas of need.

The services involved include those related to respite and accommodation, schooling, and post-school options for further education, training and employment.

"With regard to respite, for example, it's crisis management only in many rural areas," said the project's Research Officer, Dr Annie Carn. Dr Carn, herself the mother of a child with a disability, said that while more services were needed, there was also a need to ensure that families were aware of all the existing services. "At the moment there seems to be a scattering of small agencies that only some people know about," she said.

The principal researchers in the project, funded by the Apex Foundation, are UNE's Associate Professor Rafat Hussain (Schools of Rural Medicine and Health)

and Dr Kathleen Tait (School of Education), and Dr Louise Young from the Australian College of Rural and Remote Medicine. Their success in securing the competitive grant reflects their experience in - and enthusiasm for - research aimed at helping families with disabilities. "We want to enable children with a disability to have every opportunity to participate fully in their communities," Dr Tait said.

Titled "Parental Perceptions of Quality of Life for Families of Children with Developmental Disabilities", the project's central research tool is a survey of such families. "We're targeting families that include someone under 18 years of age who has a developmental disability," Dr Hussain explained. "The survey will help us to understand the impact on their quality of life if there's a mismatch between their needs and the available services."

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## Children's Literacy: different teachers don't make big differences

The results of an international test of "teacher effects" on children's literacy learning indicate that they aren't as great as claimed by some administrators of education.

An international team of researchers has found that quality of teaching accounts for a maximum of only 8 per cent of the variation in children's learning in their first three years at school, whereas some have claimed that it accounts for up to 40 per cent of the difference.

Over the past 10 years the research team, led by Professor Brian Byrne from the University of New England and funded by the Australian Research Council, has followed about 500 pairs of identical twins - some of them in Australia and some in the United States - through their first three years of schooling.

As identical twins share the same genetically-determined native ability, live in the same household and attend the same school, they should - if teachers have the large effect sometimes claimed for them - progress, on average, at rather different rates when one twin is in a different classroom from the other.

For around half of the pairs of twins observed in the study, both children had the same teacher, and for the other half, each of the two children had a different teacher.

The researchers found that the difference in literacy levels between twins who had different teachers was only 8 per cent greater than for twins who had the same teacher.

"This result is certainly in the direction you would expect if teachers do make a difference," Professor Byrne said, "but it is not very large. It is not the kind of difference you would expect if 40 per cent of the variance in children's reading and spelling could be attributed to teachers."



"While this 'teacher effect' might be seen as the major component of an all-inclusive 'classroom effect,'" he explained, "other classroom factors (such as the overall attitude of the students in a class to the value of

learning) can also influence learning performance. Our study shows, therefore, that the 'teacher effect' on differences in children's acquisition of literacy skills in the early years of schooling is no more - and sometimes less - than 8 per cent."

"This result indicates that teachers are more similar than different in the quality of literacy instruction they deliver," Professor Byrne concluded. "And, because Australia does pretty well in international comparisons of literacy, that quality appears to be of a good standard overall."

"Results from another aspect of the same study (which includes fraternal twins as well as identical twins) have found, too, that different schools have negligible effects on children's literacy levels," he added. "This finding is at odds with the current emphasis on ranking schools in terms of 'quality.'"

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## UNE research helps improve



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It has long been recognised that livestock are an important route out of poverty for resource-poor farmers of the developing world. Improving livestock survival and productivity for a poor farmer provides increased security and extra income that pays for their children's education and health - a first step on the ladder out of poverty. With finite resources available, agencies involved in international development need to determine where their investments in development will give the best returns in terms of improving livelihoods and well-being.

In 2009, Professor John Gibson, Director of UNE's Institute for Genetics and Bioinformatics, working closely with Dr Ed Rege, a partner in the international consultancy group, PICOTEAM, based in Nairobi, developed an investment strategy for

a major international development foundation. The Foundation sought an evidence-based strategy that would give them high returns (in terms of improved farmer livelihoods and well-being) for their investments in livestock genetic improvement. While the focus was on sub-Saharan Africa, the strategy is expected to inform decisions in other regions.

The study identified that, while improvement in livestock systems for poor farmers usually involves genetic improvement, genetic improvement on its own was rarely sufficient to deliver major improvement in livelihood. Rather, an integrated systems approach is required, where improvements are made in genotype, production system and access to reliable markets, and these improvements interact to generate large benefits to farming



## lives in developing nations

families. Armed with this and other insights, the team went on to identify four livestock systems in sub-Saharan Africa where an integrated livestock-system investment based on genetic improvement has the potential for transformative rather than incremental improvements in livelihoods of farmers.

The study clarified a wide range of issues in how to develop and deliver livestock genetic improvement in resource-poor farming systems of the developing world and Gibson and Rege plan to publish a book that brings these ideas together in one place for the first time. Meanwhile,

Professor Gibson and his colleagues are now working with the Foundation and other agencies to design and run projects that will put the proposed investment strategy into action.

“We see many opportunities to harness the expertise at UNE to help improve people’s lives throughout the developing world” said Professor Gibson. “It’s not just a moral imperative to share our expertise to help others where we can; it’s also an incredibly enriching experience to work with widely different environments, problems and cultures.”



Photo courtesy of ILRI

## Scientists search for Echinacea's medicinal secrets

Scientists at the University of New England are searching for the secret of Echinacea's apparent effectiveness in alleviating the symptoms of the recurring winter ailments of cold and flu.

Dr Linda Agnew, coordinator of the project, has already conducted research that has demonstrated that Echinacea can help to boost the human immune system. Dr Agnew, from UNE's Centre for Bioactive Discovery in Health and Ageing, presented those results - amid much interest in Echinacea - at the first International Evidence-based Complementary Medicine Conference, held at UNE in March 2009.

"Echinacea is one of the most widely-used herbal medicines in the world," Dr Agnew said. "There is considerable controversy, however, surrounding the extent of its effectiveness - and particularly its effectiveness in warding off colds if taken as a precaution."

"We studied the active components of Echinacea medications," she explained, "and, pursuing our evidence-based approach, we at UNE wanted to understand the mechanism behind the stimulatory effect on the immune system that we found."

In seeking this understanding, the researchers then conducted a small-scale clinical trial to test the effects of an Echinacea medication - Echinacea Premium tablets - on the immune system.

Healthy men and women aged between 18 and 65 were asked to take Echinacea Premium tablets for a period of two weeks. The participants were then required to give fasting blood samples before and after the two-week trial.

Dr Agnew said that Echinacea Premium was a high-quality, practitioner-only medication produced in Australia by



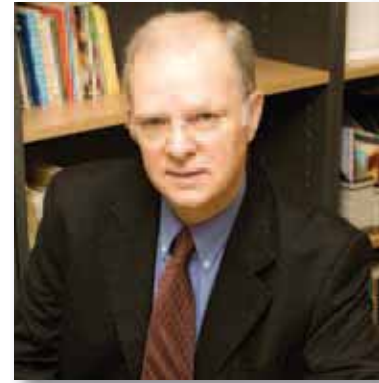
MediHerb. "There's considerable evidence that this product has a beneficial effect," she said. "We wanted to know how it works."

The trial found that after taking Echinacea for two weeks a number of different immune cells expressed more of a protein (hsp70) known for its role in stress responses and immune activities. "These differences were most evident when we exposed the cells to a stressor indicating that Echinacea may play a role in activating the immune system when the body is faced with a challenge such as a virus," said Dr Agnew. Since these results have confirmed and extended previous findings, "we are now able to shed some light on the way Echinacea works," she said.



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# Developing a multimedia writing pedagogy for middle school children



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Equipping children with the skills they need to be good multimedia communicators has become an urgent priority for educators and Len Unsworth, Professor in English and Literacy Education and Head of UNE's School of Education, is at the forefront of research investigating innovative teaching methods in this area. He is a Chief Investigator for a collaborative research project with the Australian Children's Television Foundation (ACTF), funded by a three-year ARC linkage grant (2009-2011). The project, Teaching effective 3D authoring in the middle school years: Multimedia grammatical design and multimedia authoring pedagogy, aims to develop a writing pedagogy that will prepare students to be effective authors in a world where communication is increasingly digital, multimedia and online.

The ACTF's highly motivating integrated authoring software, Kahootz 3, is central to the research. The first stage of the project involved examining work produced using ACTF's Kahootz 3 by students in participating schools. "Overall we found that they can use the software to make characters move and jump, and to set up cameras, for example, but they don't make the images and language work together to tell a meaningful story," said Professor Unsworth. "To do that requires systematic knowledge of how camera angles work and how grammatical and rhetorical language is put together – images and text need to work in a complementary manner."

In 2010, a 17-lesson plan that uses Kahootz 3 as the multimedia tool, developed by the researchers in collaboration with teachers, will be trialled in the classrooms of participating schools in Tasmania, Victoria and New South Wales. The project's research activities will also include designing web-based resources for students and teachers, and facilitating a web-based community of learners focusing on 3D multimedia authoring are other research activities.

The pedagogy will be distinguished by developing students' explicit knowledge of grammatical design – strategically integrating the meaning-making resources of language, image, sound and movement in dynamic, three-dimensional compositional contexts.

The project provides a radical rethinking of the literacy pedagogy essential in globalised knowledge-based economies mediated by digital multimedia literacy, 3D multimedia and authoring pedagogy. It is hoped that emphasising playful innovation and explicit knowledge of multimedia design will increase digital-aged student engagement in learning. "We've observed that this kind of environment is engaging for kids who might otherwise be disengaged," said Professor Unsworth.





## Taking steps to improve

The emphasis in recent decades on the theme of Migration and Development in academic and policy arenas in the Asia Pacific region and elsewhere reflects the dramatic changes in the growth of international migration. Professor Amarjit Kaur of UNE's School of Business, Economics & Public Policy is an international authority in this field.

Professor Kaur points out that while trade and investment flows are welcomed by nations these days, immigration is a contentious issue, particularly in Western democracies, but also in Asia-Pacific nations. Of the approximately 200 million migrants in the world today, around 90 per cent are migrant workers. Mixed migration movements (refugees and displaced persons) and forced migration and human trafficking are also on the rise. "For most governments, migration is increasingly seen to undermine border control systems and is related to security threats and terrorism. The increase of population diversity also raises questions about national identity and citizenship while transnational connections are viewed as unfavourable to nation-state sovereignty," she said.

"My research centres on improving the knowledge base on labour mobilities; stimulating debate on how the effects of labour mobility can be coordinated using different means to maximize the potential of transnational movements; and to alleviate less desirable outcomes for migrants," said Professor Kaur, who is currently involved in an



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## conditions for migrants

Australian Research Council (ARC) Discovery Project titled *Managing the Border: Migration, Security and State Policy Responses to Global Governance in Southeast Asia*. She is also involved in research projects focusing on forced migration, and trafficking and refugee issues in Southeast Asia in particular.

Professor Kaur says that human rights and human welfare are issues that need to be addressed as a priority because the guest worker program is increasingly seen as the optimal solution to fill labour market gaps. The contracts offered to foreign workers are typically short-term, and include a range of restrictions: the majority of workers must return to their home country when their contract is completed; they are not permitted to seek employment elsewhere; they are not allowed to have their families accompany them; and they cannot settle in the host country. Most migrant workers are also locked into exploitative labour conditions and the ever-increasing drive for higher profits has encouraged use of undocumented or irregular labour and promoted human trafficking. Meanwhile, political leaders zealously seek to control mobility through evolving border control regimes,

more border fences, and tougher legislation. Her findings suggests that effective governance of labour migration depends more on interstate cooperation, transnational networks and global governance than on international institutions such as the United Nations High Commissioner for Refugees (UNHCR) or the International Labor Organisation (ILO) alone.

At an international conference titled "Labour Migration and Trafficking: Policy Making at the Border", held in Kuala Lumpur in August 2009, Professor Kaur presented research showing how the Malaysian Government's immigration policy has resulted in the marginalisation and vulnerability of migrant workers and has also facilitated labour trafficking. "The recently implemented labour outsourcing system too has turned into a brokerage system; the labour hire firm has become the *de facto* employer, and its activities have worsened the problem of human trafficking in Malaysia," she said.

Professor Kaur is a recipient of a 2009 UNE Vice-Chancellor's Award for Research Excellence (see page 13).



Research *project*



Above and right: stills from Lorina Barker's film:  
*A Shearer's Life: Introducing the Barker Brothers*

## Oral history informs a film on the largely undocumented subject of Aboriginal shearers

A study by Lorina Barker, an associate lecturer in UNE's School of Humanities, explores family and community history using the oral history method of research. The focus of her work is Weilmoringle, the Aboriginal community and pastoral property where she grew up. "Through the oral histories I collect, my research seeks to understand the significance of place, especially individuals' connections, disconnection and memories of place," explained Barker, who also uses phenomenology methods of inquiry, including music, painting and drawing, to complement the oral histories. "These artistic mediums are used to elicit people's stories and to capture a visual interpretation of their lived experiences," she said.

In 2008 Barker was awarded the Lester Bostock Mentor Scheme Scholarship (a Metro Screen, Sydney, program that gives Indigenous filmmakers an opportunity to make a film in any genre) to script and direct a short film. The film she made, *A Shearer's Life: Introducing the Barker Brothers*, became part of her study and was inspired by her family's long association with the New South Wales shearing industry.

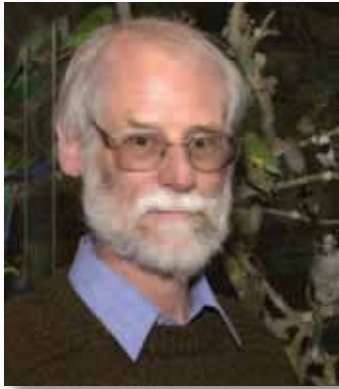
The processes and challenges involved in capturing the oral histories of various individuals on film for that project, as well as Barker's findings, were the subject of her keynote

address at the 2<sup>nd</sup> Australasian Narrative Inquiry Conference held in early-July 2009 at the University of New England. "The discussion focused on the interrelationships between the researcher, film crew and actors and identified some of the methodological strengths and weaknesses of converting history into film. It also considered some of the ethical and cultural issues that can impact on the researcher/filmmaker roles and responsibilities to the academy and family/community," she said.

Barker says iconic shearing imagery, such as Tom Roberts' paintings, *Shearing the Rams* and *The Golden Fleece*, stirred her curiosity and provoked many questions. "Where are the images of the Aboriginal shearer and rouseabout? How are they being portrayed and where are they displayed? They are barely mentioned in the history books?". The film, which premiered in Sydney in February 2009, addresses this issue and pays tribute to the largely undocumented contribution of Aboriginal men to the New South Wales shearing industry. It is the story of a shearing family, of the experiences of Barker's father and uncles, that offers a glimpse into the world of shearing around Bourke and Weilmoringle in the state's North West.



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## Woodland birds: new insights into local extinctions

Australia's woodland birds are continuing to "pay the debt" imposed on them through large-scale land clearing since the nineteenth century.

That "debt" is labelled "the extinction debt" in the literature of ornithology because its "payment" involves the local extinction - over a period of many decades - of some animal and bird species in any isolated patches of vegetation that remain after clearing.

UNE's Professor Hugh Ford has conducted - and supervised - fieldwork on woodland birds in the Armidale area over the past 30 years. He is the principal author of a paper published in December 2009 in the international journal *Biological Conservation* (Vol 142, pp 3182-3190) that focuses on the progressive loss in the Armidale region of two ground-foraging woodland birds: the brown treecreeper (*Climacteris picumnus*, pictured above right, left) and the hooded robin (*Melanodryas cucullata*, pictured above right, right). The other researchers who contributed to the paper are Stephen Debus from UNE, Jeff Walters from Virginia State University (USA), Caren Cooper from Cornell University (USA), and Veronica Doerr from CSIRO in Canberra.

Titled "Extinction debt or habitat change? - Ongoing losses of woodland birds in north-eastern New South Wales, Australia", their research reveals that the population decline in each of the two species is caused by a different mechanism. In brown treecreeper populations, females seem to be unable (or unwilling) to disperse among pockets of remnant vegetation. The resulting isolated groups of males then die out.

In contrast, hooded robins suffer high levels of nest predation in fragmented landscapes, leaving too few developing chicks to replace losses caused by adult mortality.

The researchers found that brown treecreepers have disappeared from 14 out of 21 study sites (all of them within a radius of 40 km of Armidale) that had populations of the species 30 years ago, and that hooded robins remain in only three of their study sites - compared to 11 sites in 1992.



Photo courtesy Julian Robinson

"There's a reasonable chance that both of these species will continue to contract westwards, out of the Northern Tablelands," Professor Ford said. They would thus follow the crested bellbird and the grey-crowned babbler into regional extinction.

While an obvious measure in attempting to prevent these losses would be extensive tree planting, a less-obvious measure, Professor Ford said, would be changes in patterns of stock grazing. Both the brown treecreeper and hooded robin are ground-foraging birds, and the reintroduction of periodic grazing in areas such as disused travelling stock routes could make it easier for birds to feed there.

Professor Ford's work also reveals the likelihood of many other eucalypt woodland birds following similar trajectories towards regional extinction, and that this pattern is being repeated in woodlands and forests around the world.

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A report by researchers from the University of New England and other leading research organisations has revealed that invasive animal pests cost Australia more than \$740 million a year.

The report, *The economic impacts of vertebrate pests in Australia*, provides estimates of the direct economic impact of invasive animals on agriculture in Australia (\$620.8 million), and the nationwide expenditure by governments and landholders on pest management, administration and research (\$122.7 million).

Associate Professor Jack Sinden, one of the two UNE-based researchers who collaborated on the project, said that the research had involved compiling estimates of the impact of foxes, rabbits, wild dogs and feral pigs on the beef, wool, sheep meat and grains industries. The figures also included estimates of the impact of introduced species of birds on horticulture, and mice on grains, he said.

Dr Sinden is an agricultural economist at UNE who specialises in the application of cost/benefit analyses to environmental issues. He was joined in the research by Dr Wendy Gong (also, at the time of the project, from UNE) and Dr Mike Braysher from the University of Canberra's Institute for Applied Ecology. Dr Randall Jones from the NSW Department of Primary Industries was the team leader.

The report is published by the Invasive Animals Cooperative Research Centre (IA CRC). It was launched in early 2009 at Parliament House, Canberra, by the Minister for Agriculture, Fisheries and Forestry, the Hon. Tony Burke, MP. View the report, summary brochure and frequently asked questions at [www.feral.org.au](http://www.feral.org.au).

Dr Sinden pointed out that the information in the report could be used to raise general awareness of the problem, draw attention to specific issues, demonstrate the size of the problem, define broad problem areas, and formulate broad policies.



"The report underlines the cost of losses to specific agricultural industries and expenditures on invasive animal control, and provides a vital baseline to illustrate the damage caused by invasive animals," said Professor Tony Peacock, Chief of the IA CRC. Professor Peacock added that the estimates presented in the report were conservative, as they did not consider the environmental or social costs of invasive animals.



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# Research leads to an unexpected discovery: hobbits and modern humans used similar stone tool-making techniques

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Following his leading role in the epoch-making discovery and interpretation of the remains of a previously unknown species *Homo floresiensis* ('hobbits') on the Indonesian island of Flores in 2004, UNE archaeologist Dr Mark Moore embarked on a three-year Australia Research Council funded study in 2006 to investigate trends in stone tool making across hominin species. With a team of Indonesian and Australian researchers, he closely examined remains and artefacts excavated at two sites on Flores: Liang Bua, a limestone cave and Mata Menge, a lakeshore campsite.

The researchers analysed more than ten thousand hobbit and modern human stone artefacts from Liang Bua, "by far the largest collection of well-dated Pleistocene stone tools from Southeast Asia, a region that is not as well understood as Europe and Africa," said Dr Moore. A series of hands-on tool-making experiments were also conducted "to tease out the cognitive abilities of the hominin stoneworkers," he said.

The study suggests that the basic hobbit toolkit was made by knocking large flakes off river cobbles and then carrying those to the cave where further blows removed smaller flakes, creating small disc-shaped cores. The researchers discovered that the Liang Bua core and flake tools were made in an identical way to those made 820,000 years ago by hobbit ancestors at the nearby Mata Menge site. This finding indicates that there was a remarkable period of technological uniformity of more than 800,000 years on Flores and, when compared to remains from archaeological sites in Africa, of more than 2.5 million years back to the primeval African stone toolkit.

Dr Moore then examined stone tool assemblages at Liang Bua made by the *Homo sapiens* (the modern humans who replaced hobbits on Flores) from around 11,000 years ago to the recent past and found that "although their tools were made from different sorts of stone and were perhaps used in different ways, fundamentally they were making their tools using a flaking strategy similar to their hobbit predecessors" he said, noting also that "it's compelling to think about the possibility of humans observing hobbits making tools in this way and copying them, even though at this stage we have no certain evidence of them interacting."

In 2010 Dr Moore embarks on five years of ARC-funded research on Flores and elsewhere in Australasia to continue his exploration of the interplay between hominin species, cognition, and the intricacies of stone flaking. "This is a profound story that goes to the heart of our species' evolution and the technological niche we occupy."



Photos courtesy Djuna Ivereigh/ARKENAS



Photos courtesy Djuna Ivereigh/ARKENAS

## The Nordwel Centre and Project, Helsinki University



Similarities between Australasia and the Nordic Region lead to an international collaboration exploring the social democratic welfare model.

A professor of Economic History in UNE's School of Business, Economics and Public Policy, Christopher Lloyd, has been a member of an international consortium of scholars working with the Nordwel research centre based at Helsinki University since its inception in 2007. Nordwel (officially known as Nordic Centre of Excellence: The Nordic Welfare State: Historical Foundations and Future Challenges <http://blogs.helsinki.fi/nord-wel/>) consists of a headquarters in the Department of Social Science History at Helsinki University as well as groups of scholars located in seven universities across the Nordic region, and was established with a large five-year grant from Norforsk funding agency in Oslo. The aim of the centre is to study the way in which the Nordic model of welfare emerged and evolved, how it compares with other parts of the world, and how it might be sustained and/or reformed into the future.

"The Nordic Region (Finland, Sweden, Norway, Denmark, and Iceland), with a combined population of about 24 million, has certain fundamental features of its economic, demographic, and institutional history in common with Australasia," explained Professor Lloyd. Both regions have sparse populations, significant indigenous cultures, a commonality of language and culture, and a history of economic development on the basis of natural resource extraction and exports in the 19<sup>th</sup> and early 20<sup>th</sup> centuries. "The Nordic Region isn't a political federation,

unlike Australia, but a high degree of political, institutional and social co-operation, it's been argued, make it a quasi-federation," he said, "somewhat like the growing co-operation between Australia and New Zealand".

The two regions also have in common a parallel history of political economy, economic regulation and welfare state development during the 20<sup>th</sup> Century. However, he explains, from the 1950s and especially from the 1980s a significant divergence opened between their welfare systems. The Nordic social democratic egalitarian model became the most developed welfare system in the world with high taxes, high and universal provision of welfare services to the whole population, and consensual ideology about social inclusion. Australasia took a different route towards comparatively low taxes, targeted welfare, de-regulated markets, growing inequality, and individualistic Neo-Liberal ideology. In the 21<sup>st</sup> century, due to globalisation and now the economic crisis, the Nordic model has come under increasing question for its high revenue and regulatory costs. The Australasian model has also been criticised for its inadequacies and inequalities. But both regions have survived the global financial crisis comparatively successfully.

"Because of my long-term interests in the historical political economy of Australia and the use of evolutionary theory in explaining institutional change, I was invited to be a member of the Nordwel International Reference Group, and a visiting professor, with the idea of providing globally comparative perspectives," said Professor Lloyd. To fulfil this role he has embarked on a long-term

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*Helsinki University*

project investigating the past, present and future of Social Democratic Welfare Capitalism (SDWC) from comparative perspectives, both globally and in the two regions. "SDWC is that model of the economic/political/state nexus in which there's a democratic socialist ideology and structure of regulation, distribution and welfare provision within an essentially capitalist economic system," he said. "The two chief regions of the world that have historically embraced this model from the early 20th Century have been Australasia and Norden, pioneers in their own particular ways." In post-war decades the SDWC model has spread to many more countries and the question of the inevitable or necessary development of a social democratic model within capitalism due to class conflict and popular demand is one of the central issues of the project. "Will the whole world someday become social democratic as countries reach political maturity and economic affluence? Some political economists would reject this notion but there is evidence for the spread of social democratic responses by governments to pressures from electorates and the global financial crisis has given a new impetus to such developments, as reforms in many countries indicate," said Professor Lloyd.

So far, his project has generated several papers and chapters (two with UNE colleague Tony Ramsay and others with colleagues from several countries). He is currently compiling a book of studies on the subject and aims to produce an extensive monograph on the global history and variability of SDWC capitalism.

## Husky trial shows that dogs can thrive as vegetarians

Scientists monitoring the health and performance of Siberian huskies over a 10-week sled-racing season have shown that hard-working dogs can perform just as well on a meat-free diet as they do on a meat-rich diet.

Their results, published earlier this year in the *British Journal of Nutrition* (Vol 102, pp 1318-1323) add to the evidence that dogs fed an exclusively vegetarian diet can be just as healthy and happy as their meat-eating relatives.

Dr Wendy Brown, the canine nutritionist from the University of New England who led the husky trial, is confident that dogs can thrive on a meat-free diet. She warns dog owners, however, that preparing an adequate vegetarian diet for a dog is more difficult and time-consuming than they might think.

Dr Brown has concerns, too, about some of the vegetarian dog foods that are becoming commercially available in growing numbers. Many of these, she said, are untested. "People manufacturing and buying vegetarian and vegan pet foods are often totally against testing, believing that even feeding trials are cruel. But feeding trials can be done in a friendly way. For my own trials, I borrow people's pet dogs - some of them show dogs - and they are always well cared for. People visiting my kennels comment on how happy the dogs look. And they are."

"When I feed my own dogs," she said, "I want to know that what they're eating is nutritionally adequate."

"As dogs belong to the order *Carnivora*, it's often assumed that they are exclusively carnivorous," Dr Brown said, "but in fact they are omnivores, belonging to the same superfamily within the *Carnivora* as the bamboo-eating giant panda and the omnivorous bear."

In a paper presented at the University of New England during the international conference "Recent Advances in Animal Nutrition 2009" and published in the conference Proceedings, Dr Brown addresses the common argument that vegetarians should not impose their own values on their pets. "A similar argument is often raised when human parents impose their religious or moral beliefs on their children, particularly when the belief system differs from that of the ethnic majority or predominant culture," the paper says. "In either case, it would be wise to assess the situation without prejudice."

In the case of dogs, she says, vegetarianism should be assessed purely from a nutritional perspective - ie, whether the diet meets the dog's nutritional needs, maintains the dog's health, and is sufficiently enjoyable for the dog to eat enough of it.

Research has shown that vegetarian diets can meet these requirements, but that the preparation of a home-made vegetarian diet for a dog can be an exacting and time-consuming process. For example, Dr Brown says, such diets are more likely to be successful when animal products such as eggs and dairy products are included; but, as many dogs are lactose intolerant, milk products should be introduced gradually to gauge their acceptability. It is also advisable to cook eggs, as too many raw eggs in the diet may result in biotin deficiency.

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# Complementary medicine: investigating the therapeutic properties of native Australian Indigenous medicinal plants

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Associate Professor Graham Lloyd Jones and his team of researchers from UNE's Centre for Bioactive Discovery in Health and Ageing in the School of Science and Technology have been examining the chemistry and pharmacological activity of native Australian traditional Indigenous medicinal plant extracts for several years.

"Australia has rich stores of plant biodiversity and great potential exists for the discovery of new and economically valuable compounds of plant origin," said Dr Lloyd Jones. "The aim of our group's research is to provide knowledge that might benefit the development of new drugs and also offer rural and remote Indigenous communities a sustainable horticultural industry," he said. "So far, we've collected a large number of species from New South Wales and the Northern Territory which have been tested for several pharmacological activities and several lead compounds with anti-microbial and anti-cancer potential have been isolated and identified."

Most recently, the group's research has focused on the characterisation of novel essential oil chemotypes, in particular for the species *Eremophila longifolia* – a plant which is highly prized and used prolifically by Indigenous Australians for medicinal purposes. Although traditionally considered by many Indigenous people as one of the most important and potent medicinal plants, widespread use has historically been discouraged by some authorities due to the identification of the suspected carcinogen methyl eugenol in the essential oil of one specimen from Western Australia examined in the 1960's. Joshua Smith, a research student in Dr Lloyd Jones's group has identified and subsequently characterised several previously unknown chemotypes in this species. These novel chemotypes produce extremely high yields of aromatically pleasant essential oil and also contain a number of interesting compounds in high quantities – several of which are of value to the flavouring and fragrance industry. "The most exciting finding, however, has been the discovery that members of this species growing in NSW do not contain the suspected carcinogen methyl eugenol, but instead, have extractable essential oils which are completely unique and different to any previously described," said Dr Lloyd Jones. The group is currently engaged in research aimed at expanding the understanding of variant chemotypes in this species and their precise geographic distribution.





This project will also investigate *E. longifolia*'s putative medicinal value by extensively examining the antifungal, antibacterial, antioxidant and antiinflammatory activities of essential oils and other extracts. Dr Lloyd Jones anticipates that the chemical, biological and horticultural outcomes from this project will be jointly used to introduce these chemotypes to Australia's burgeoning biomedical and/or flavour/fragrance and/or complementary medicine/

cosmeceutical industries, "eventually providing small business opportunities for people in rural and remote Australia, in the form of cultivating the plants and marketing the oil and other useful products." With this in mind, links have already been established with Indigenous groups in Western New South Wales area who might wild harvest and cultivate Kalthika (the name of the plant in the local Indigenous language) for commercial purposes.



## Implementing and evaluating a Life Needs Model approach for young adults with a disability



Dr Stephen Winn of the University of New England's Department of Education is a chief investigator for an Australian Research Council Industry Linkage (ARC Linkage) with The Spastic Centre of New South Wales.

This collaborative research project explores life needs and quality of life issues for young adults with cerebral palsy (CP) and has four aims. The first is to adapt, operationalise and evaluate, for the Australian context, the Life Needs Model of Service Delivery developed in Canada for individuals with a disability. "This model shifts service delivery from a therapy and dependence model to a community and engagement model," said Dr Winn. The second is to investigate how interactive technology can be better utilized to improve the lives of individuals with CP isolated by distance in regional and rural communities. "Interactive technology can be used as an engagement and enabling tool, providing opportunities for disabled people to be productive and also facilitating social inclusion," Dr Winn explained. The third aim is to integrate recently developed procedures that facilitate client/provider communication, including assistive technology, such as voice to text software, video links and voice-operated switching systems, and adaptive devices, such as large keys, track balls and modified keyboards. "These procedures enable therapists and other professionals to engage in a more effective and meaningful dialogue with their service recipients, improving service delivery and enhancing outcomes for those individuals, and their significant others," he said. The final aim is to define the quality of life dimension that needs to be considered and programmed for when implementing a Life Needs Model approach. The study will also measure changes in quality of life when service providers adopt a Life Needs Model.

Dr Winn's research project commenced in 2009 and will continue until December 2011. So far, the project has collected and analysed data from nearly 200 employees of The Spastic Centre of New South Wales. In 2010 the project will collect data from participants who receive services from 10 regional centres of The Spastic Centre of New South Wales.

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## UNE mathematician explores Poincaré duality complexes

Dr Bea Bleile, a lecturer in mathematics at UNE's School of Science and Technology is not one to shy away from difficult problems. As a mathematician, the focus of her work is building theory and analysing difficult problems, breaking them down into solvable parts in such a way that the solvable parts inform the solution to the whole problem. For many years, her problem-solving skills have been applied to algebraic topology, in particular to the investigation of Poincaré duality complexes.

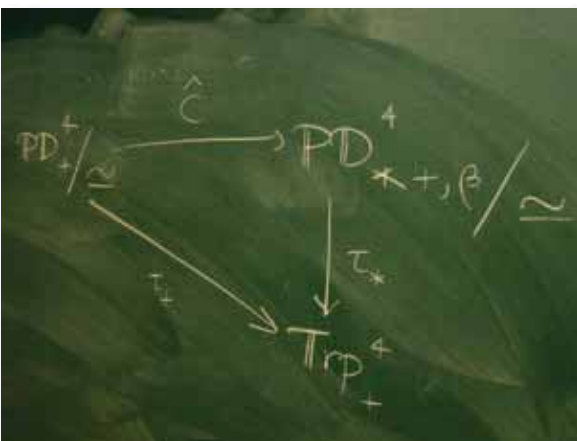
French mathematician and physicist Henri Poincaré (1854-1912) noticed that the homology and cohomology groups of a manifold exhibit a duality, known today as Poincaré duality. So, to classify manifolds up to homotopy, the focus is on studying more general spaces exhibiting this duality, namely Poincaré duality complexes. "Surfaces locally that look like a plane are called two-dimensional manifolds. Spaces locally that look like the three-dimensional space in which we live and breathe are called three-dimensional manifolds," said Dr Bleile, who wrote her doctoral thesis on Poincaré duality in dimension three. "To describe a particle moving in three-dimensional space we need a four-dimensional manifold with the fourth dimension given as time," she added.

During her postdoctoral fellowship at the Institute for Theoretical Physics at the Federal Institute of Technology in Zurich (2006-2007), Dr Bleile contacted Professor Baues of the Max Planck Institute for Mathematics in Bonn to discuss applying his results on the homotopy classification of four-dimensional complexes to Poincaré duality complexes. She was invited to visit the Institute and an ongoing collaboration between the two mathematicians ensued.

In 2007-2008 Dr Bleile spent several months in Bonn while on study leave from UNE. "During this period we proved a general result on the classification of Poincaré duality complexes and provided algebraic invariants classifying Poincaré duality complexes of dimension four up to homotopy equivalence," she said, noting also that these results were published in the journal, *Algebraic and Geometric Topology*, v.8, p. 2355-2389 (2008) and received international attention. "The general classification result yields algebraic

invariants for highly connected Poincaré duality complexes, raising the question of the realisation of given invariants by a Poincaré duality complex," said Dr Bleile. She then, in 2009, went on to provide a condition for realisation in collaboration with Dr Imre Bokor, a UNE mathematics department colleague, and a paper containing the result is in preparation.

In 2010, Dr Bleile will return to Germany for a semester, to continue her work in this area with Professor Baues.



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## International team tests the measurement of stress in trees.

During 2009 an international team of scientists working at the University of New England experimented with technologies that can help to monitor the health of the environment by measuring the level of "stress" in trees.

Professor Kathy Steppe and Dr Dirk De Pauw travelled from Belgium to spend a month in Armidale working with UNE plant ecophysiologicalist Dr Nigel Warwick and Alec Downey from ICT International, an Armidale-based company making - and distributing worldwide - equipment for plant, soil, and environmental monitoring. Professor Steppe is from the Laboratory of Plant Ecology at Ghent University, and Dr De Pauw is Chief Executive Officer of Phyto-IT, Belgium - a company that specialises in the analysis of data from - and the mathematical modelling of - plant systems.

The team conducted experiments to compare the performance of three technologies that all use a pulse of heat injected into a tree trunk to measure how fast the sap is travelling up the trunk. As the heat pulse travels with the sap, sensors in the trunk measure its progress. The rate of flow is a sensitive indicator of the degree of environmental stress.

"Our original sap flow measurements were done on European trees in the Northern Hemisphere," said Professor Steppe, "and in coming to Armidale we've had a chance to measure sap flow in eucalypts and acacias." The visit of Professor Steppe was funded by a grant from the National Fund for Scientific Research, Belgium (FWO).

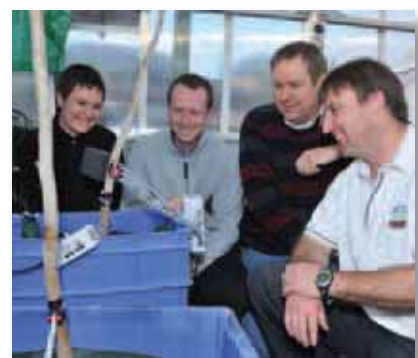
"Our job here was to compare three different ways of measuring the movement of the heat pulse, and to assess the accuracy of the sensors and the effectiveness of these systems in measuring stress in trees," said Dr De Pauw, who designs software for analysing the data recorded by the heat-pulse instruments.

In the experiments at UNE the scientists were able to control and vary the rate at which water flowed through sections of tree trunk, and see how accurately the three different measurement systems recorded these varying rates of flow. Dr Warwick pointed out that, after the development of semiconductor technology in the 1990s, accurate measurements were now possible. "But we still don't know the biology," he said, " - for example, how wood behaves when it's heated. Now that we have accurate instruments we can start asking some really interesting questions."

Mr Downey, who is the Manager of Plant Science Applications and Research at ICT International, said that his Armidale-based company exported monitoring equipment to countries on all continents. "The company is owned and operated by scientists for scientists," he said.

He explained the role of equipment such as heat-pulse sensors in the large-scale modelling of environmental phenomena such as carbon sequestration. "The more water that flows through a tree, the more carbon it can store," he said.

Dr Warwick said that UNE's collaboration with Northern Hemisphere scientists and an Armidale-based company that supplied monitoring equipment to the world gave these experiments a uniquely global perspective.



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# Place-shaping: an innovative approach to rural & regional development

UNE's Centre for Local Government, headed by Director Brian Dollery and Deputy Director Bligh Grant (pictured below), has recently undertaken extensive research into the devolution of political and economic authority, in particular the 'place-shaping' approach developed in England by the Lyons Inquiry into local government reform.

There is a strong global trend toward the devolution of both political and fiscal authority across developed and developing economies. Indeed, the World Bank has endorsed and labelled this trend as Local Economic Development (LED). However, unlike the 1980s and 1990s, where devolution was initiated and sponsored by parastatals (quasi-governmental organisations, corporations and NGOs), current trends see devolution to municipal, elected authorities.

This global trend to devolution, which places a strong emphasis on local leadership, is exemplified by the idea of 'place-shaping', which gives centre-stage to the significance of 'place', especially under conditions of economic and social marginality. Place-shaping is supported at both

the theoretical and normative levels by a number of ideas in contemporary thinking in social science, not least the theory of fiscal federalism and recent work on transformational leadership.

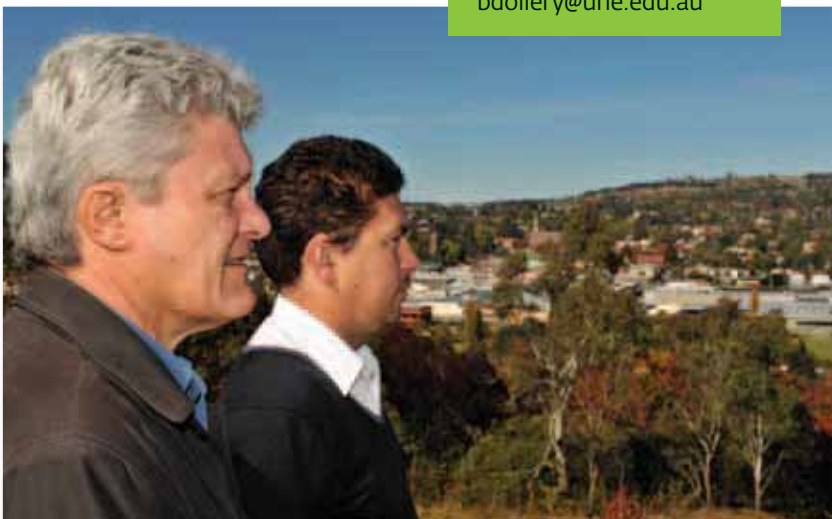
In essence, place-shaping involves increased powers for generating local income at the local level; articulating a strong idea of local identity and local 'sense of place', especially local economic identity and the local community future, involving economic sustainability, environmental sustainability and social sustainability; the encouragement of local partnerships (with both private enterprise and community-based groups) for local service delivery, such as local aged care; and an emphasis on the idea of local leadership, both political and administrative.

The place-shaping paradigm is immediately relevant and offers the possibility of exploring council-led local economic development and regional resurgence, rather than seeing the regions as recipients of largesse on the part of state and federal government agencies.

More importantly, it also offers the possibility of re-defining what is meant by prosperity, aligned with the ethical and moral imperatives of our times – economic sustainability, environmental sustainability, community sustainability and democratic sustainability – often neglected in contemporary discussions of local and regional development.

Members of the UNE Centre for Local Government have published a series of articles addressing place-shaping at both theoretical and practical levels, focusing in particular on the New England/North-West region. To some extent our communities already engage in 'place-shaping' by branding themselves on the basis of their history/identity/difference as a form of marketing, such as – Glen Innes as 'Celtic Country', Tamworth as the 'Country Music Capital', Walcha as an 'Open Air Gallery' and so on. In all of these instances, councils work in close partnership with business. Further work will continue to address this series of questions, working in partnership with these communities.

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## Understanding the grieving process associated with suicide

To date, very little research has occurred in the area of suicide bereavement, with only a handful of researchers working in this area internationally. At UNE, in the School of Health, Dr Myfanwy Maple has been leading this research agenda, with some noteworthy achievements now under her belt. Her original research examined the experiences of parents who had lost a young adult child to suicide. This research has been widely published and acknowledged as groundbreaking work in further understanding nuanced experiences of parents following the death of a child to suicide.

“Suicide bereavement has been repeatedly found to be a particularly challenging grieving process to live through, and irreversibly changes lives forever,” explained Dr Maple. For some, bereavement may require significant input from professional services, while for others, support outside the family is unnecessary. “Research is yet to determine factors which identify indicators for those who will require intervention, and those who will not,” she said. “Along with determining the actual number of people within this population, this remains the largest challenge to researchers working in this field.”

Dr Maple has now received funding to continue working in the field of bereavement following suicide. One current study examines the experience of young people who have lost a friend to suicide. This research is a collaborative venture between Dr Maple, Dr Helen Edwards (UNE School of Education) and Mr Warren Bartik (NSW Health, Hunter New England Health). This research draws on the methods of Dr Maple’s previous research in using narrative inquiry to understand the ways in which people make meaning following a suicide death. At the same time, quantitative measures are being used to add to an international pool of data measuring the psychosocial impacts of suicide.

Dr Maple has been recognised nationally and internationally for her work. In 2007, she was awarded the national Suicide Prevention Australia *Emerging Researcher* award and has been involved in the review of the National Suicide Prevention Strategy and the development of the 2009 - 2014 New South Wales Suicide Prevention Strategy. She also holds a Ministerial Appointment under the NSW Mental Health Act and has been involved in establishing an international forum for setting a suicide bereavement research agenda. In April 2010, Dr Maple will take part in an international panel to discuss the issues associated with ethical research in this area.



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More than 1000 published works were produced by UNE researchers during 2009, including book chapters, books, journal articles, reviews and editorials. A selection of books from UNE's Faculty of The Professions and the Faculty of Arts and Sciences are featured here. For a comprehensive list, please visit <https://e-publications.une.edu.au>

**Genetics and Randomness**

by Anatoly Ruvinsky. CRC Press USA 2009

Each human is unique and the reason is pure and simply due to randomness. Anatoly Ruvinsky, Professor of Genetics at UNE, has explained why this is so



in his book, *Genetics and Randomness*. The work addresses the problem of genetic uncertainty without jargon, and from various perspectives, ranging from basic quantum mechanics and molecular genetics to modern evolutionary genetics and the philosophy of mathematics. The book presents the case that randomness and uncertainty are not occasional and regretful deviations from the "true" principles upon which life is built. Rather, the ubiquitous nature of randomness is seen as an integral feature of all essential processes, and this view effectively embraces a probabilistic understanding of the phenomena of life.

**The Brain at School**

by John Geake McGraw Hill/Open University Press 2009



Within education there is a growing interest in neuroscience research and what it can teach us. This book focuses on what neuroscience means for education professionals - in key areas such as learning, memory, intelligence and motivation - and addresses questions

such as: How does the brain enable us to learn? Why do some children have learning difficulties, such as ADHD or dyslexia? How can actual scientific research be applied to pedagogy and curriculum design? Furthermore, the book explores common 'brain based' learning schemes and exposes the misunderstandings on which these are often based. The author, an experienced teacher and cognitive neuroscientist, and professor of Learning and Teaching in UNE's School of Education, offers teachers advice on how neuroscience can help them in their own teaching. Each chapter includes practical classroom examples and case studies based on real life teaching experiences. It is thought-provoking reading for practising teachers across all age ranges, trainee teachers, parents, head teachers, educational policymakers, academics and educational psychologists.

**French Seventeenth-Century Literature: Influences and Transformations Essays in Honour of Christopher J. Gossip**

edited by Jane Southwood and Bernard Bourque. Peter Lang Publishing Company 2009

*French Seventeenth-Century Literature: Influences and Transformations, Essays in Honour of Christopher J. Gossip* (Professor of French at the University



of New England from 1991 until 2007) demonstrates the respect for him as a scholar and teacher - and the affection for him as a friend and colleague - that Christopher Gossip has inspired in the course of his academic career.

In all, the book contains 13 peer-reviewed essays by scholars in the UK, Ireland and Australia. As pointed out by its editors - Jane Southwood and Bernard Bourque - the title anchors the volume in the seventeenth century "while allowing for contributions from scholars working in earlier and later periods". Among the "influences" discussed are those of

Homer, Euripides and Plutarch, and the "transformations" include the works of Jean Cocteau, Andrzej Zulawski and Marguerite Yourcenar.

**Childhood Sexual Experiences: Narratives of Resilience**

by Sally V Hunter, Radcliffe Publishing 2009



By taking a novel approach to the subject of child sexual abuse, a researcher at the University of New England has revealed some of the inner sources of resilience that can enable adults to recover from such childhood experiences.

Dr Sally Hunter, has published her findings in a book titled *Childhood Sexual Experiences: Narratives of Resilience*, and decided at the outset of her research not to label such experiences "abuse". "This approach enabled me to hear new narratives of resilience - especially from men," she said. "Most of the men (and some of the women) I interviewed refused to be labelled as a victim - or even as a survivor - of child sexual abuse, either because they chose not to see their experiences as abusive or damaging, or because they didn't want their whole identity to be linked to events in childhood.

"I have found that it is more useful to frame the discussion of this issue around 'childhood sexual experiences' rather than 'child sexual abuse' - at least to begin with."

Using this approach, Dr Hunter was able to hear stories that, she said, impressed her with people's amazing ability to overcome the effects of truly horrendous events in childhood. "After often having a difficult time in early adulthood, these people are now living good, satisfying lives," she said.

Speaking at the launch of *Childhood Sexual Experiences* at the University, Dr Hunter paid tribute to "the 22 remarkable men and women to whom I'm indebted for telling me their stories".

"I have tried in the book to describe some of the impact that listening to their stories had on me," she said. "And I have tried to do justice to their stories, and use their insights to help other people come to terms with their own experiences and recognise their own strengths and resilience."

"As a result of my research," she explained, "it is my belief that childhood sexual experiences often cause relational injuries. After all, if you feel betrayed or used by someone that you loved or admired as a child, this is going to affect your ability to trust people and to build good relationships with others. It is this relational injury that I believe is a more useful construct than the concept of 'trauma', or the idea of 'victim-hood' - or even 'survivor-hood'."

### ***The Last Biwa Singer: A Blind Musician in History, Imagination and Performance***

by Hugh de Ferranti, Cornell University (Ithaca, New York) No. 143 in the Cornell East Asia Series, 2009

In a recently-published study on the blind musicians of Japan's Kyushu province, Hugh de Ferranti, an Associate Professor in the School of Arts, has interpreted the history and documented the demise of a centuries-old tradition of oral performance in Japan.



His book - *The Last Biwa Singer* - is not only a valedictory analysis of that tradition as personified by Yamashika Yoshiyuki (1901-1996), but also a celebration of the process of composition-in-performance itself. Within the book is an implicit plea for a greater understanding of such oral performance traditions, and thus their preservation not as cultural relics but as living forms of artistic expression.

"Yamashika was the last person to have earned his living in Japan as a blind musician performing a repertoire of tales, songs, and religious rites accompanying

himself on the biwa (a four-stringed lute)," Dr de Ferranti said. "He became well known as 'the last biwa hoshi', and was the subject of books, television programs, and a feature-length documentary film. An apparent living relic of a long-vanished Japan, Yamashika also appeared in *The New York Times* in his last years."

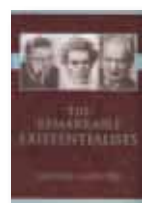
The picture of the biwa singer's art that emerges from the book is one of dynamic oral composition - traditional tales virtually recreated in the course of each telling, according (among other things) to the singer's prior knowledge of his audience and his interaction with them during the performance.

"It is through comparison of multiple performances of a tale that the question of composition-in-performance can be addressed," Dr de Ferranti explains in the book. "What are the common elements in each performance, what differences are there, how do they occur, and why? In examining this problem one is not trying to establish any 'standard' or definitive form of the piece, but to establish how different versions of the piece come about."

De Ferranti is now working on a research project, funded by the Australian Research Council, titled "Music and Modernity in Interwar Osaka". Together with Bak Co, a musician from Japan who writes and performs songs inspired by the history of Japan's Korean community, he is writing a paper about memories of singing and the role of song in maintaining the cultural identity of Japan's Korean population.

### ***The Remarkable Existentialists***

by Michael Fox, Humanity Books USA 2009, distributed in Australia by Footprint Books, Sydney



Professor Michael Fox (Adjunct Professor in UNE's School of Humanities, and Professor Emeritus of Philosophy at Queen's University in Kingston, Ontario, Canada), whose newly-published

book *The Remarkable Existentialists* reveals the human faces behind - and the human concerns of - one of the most influential philosophies of recent times, describes the subjects of his book as "educators of the spirit".

"The existentialists," he says, "uniquely in modern times, revived philosophy's original mission, which was to help people develop in self-knowledge, inner freedom, and personal and social responsibility."

*The Remarkable Existentialists* examines in detail the life and work of Soren Kierkegaard (1813-1855), Friedrich Nietzsche (1844-1900), Martin Heidegger (1889-1976), Jean-Paul Sartre (1905-1980), and Simone de Beauvoir (1908-1986). "These philosophers address - directly, honestly, and with passionate involvement - themes that are central to the experience of being human," Professor Fox says. "And although the heyday of the existentialist movement has passed, its wide-ranging influence continues. This influence is particularly obvious in literature and the arts (beginning with the literary works of Sartre and de Beauvoir themselves), theology and psychology. For example, Heidegger's writings on death have had a monumental impact on the development of the hospice movement."

In an "Afterword: Existentialism as a Way of Life", Professor Fox writes: "Existential philosophers present their thoughts with passion and in a spirit of confrontation and mutual involvement with the reader." Ideas such as theirs, he says, "are there for appropriating and applying, for making into the vehicles of change and progression from one life state to the next".

*The Remarkable Existentialists*, which presents the philosophers as real people wrestling with the central problems of existence, will enable readers to apply the ideas it discusses in developing their own lives. Its style of presentation reflects Professor Fox's own philosophy of teaching and outreach, developed in the classroom over many years. "I believe you

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can be scholarly and still convey difficult ideas in a digestible and entertaining fashion," he says. "In this book I try to get inside the heads of the thinkers a little more than other people have done - what they saw as problems, and who they wanted their readers to be."

### ***Tolkien's View: Windows into his World***

**by John Ryan, Walking Tree Publishers, Zurich and Jena, 2009**

John Ryan, Associate Professor in UNE's School of Arts, is the last of J.R.R. Tolkien's students still writing about his work. Dr Ryan's latest book, *Tolkien's View: Windows into his World*, offers its readers - in the words of his UNE colleague, Professor Peter Forrest - "a way in to something more wonderful even than Middle Earth: the world of philology".

The book - a newly revised and edited selection of John Ryan's essays relating to Tolkien - reveals in fascinating detail the way in which Tolkien's deep understanding of his culture's linguistic and mythic past informed his work as Oxford Professor of English and author of *The Hobbit* and *The Lord of the Rings*.



"Tolkien had always seen philology as the way back to mythology, history, and even the proto-religion of the European peoples," Dr Ryan explained to the guests at the book launch in September 2009. "For him, all transmitted language was a way to the past - back through surviving documents to the ancient trade routes from the East, the history of the human race, and the earliest thoughts of early men, and so a way to reach to the origin of mind, to the First Word, and to the Deity Himself."

*Tolkien's View* reveals the richness of Oxford philological scholarship in the first half of the twentieth century - an intellectual and cultural milieu in which Tolkien played a leading role, and which made a strong and lasting impression on the young John Ryan. Dr Ryan recalls, in the Introduction to *Tolkien's View*, his immersion in "holistic studies comprising language, literature, archaeology, landscape and culture, and the 'folk memory'". He says, "My last Oxford year was spent in 20 Merton Street, the home of Professor David Nichol Smith, in a sparrow-visited attic looking out over the Botanic Gardens towards Magdalen College - and so onto some of Tolkien's favourite trees." And it is a similar view of this timeless landscape from Tolkien's own window, with all its mythical, archaeological, linguistic, historical, religious and academic associations, that is referred to in the book's title and illustrated on its cover.

Dr Ryan recalls in the Introduction his "many unplanned and more social meetings with Professor Tolkien, many walks and pacings together with him around the College Garden, [and] discussions about possible areas for my researches". He also notes that Tolkien acted as a referee for his academic posting to UNE.

Dr Ryan is recognised as one of the world's leading Tolkien scholars and *Tolkien's View* is his third book about Tolkien.

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