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ISSUE 18

FROM THE DIRECTOR	1
OPINION	1
Dr John Williams	2
CONFERENCES, SEMINARS & WORKSHOPS	2
INSTITUTE EVENTS	3
ADJUNCTS	4
Dr Justin Watson	
ADVISORY BOARD	5
Dr Wendy Craik	
IN THE NEWS	5
PROFILES	
Yalmambirra	6
Jon' Neill	7
Helen Masterman-Smith	8
POST GRADUATES	
Michael Mitchell	9
Harry Sakulas	10
Gina Lennox	10
Sue Blyth	11
PhD news	11
GRANTS	11
VISITORS & VISITS	12
AWARDS & APPOINT- MENTS	13
PUBLICATIONS	14
PROJECTS	16

FROM THE DIRECTOR OPINION

By Institute director Prof Max Finlayson

Whilst news of the global economic crisis, climate change and the drought have occupied the airwaves and "tea-room" discussions our tertiary education sector has been considering the consequences of a potentially radically different future.

Issues of amalgamations and efficiencies and delivery of society-driven needs are not new, nor are the responses about the value of traditional institutions and their aspirations for excellence. In amongst this our own university has grasped the initiative and is looking at future opportunities for delivering enhanced education and research for regional Australia. So has ILWS.

We recently held our first all-member meeting where we were privileged to listen to excellent talks covering diverse issues that affect regional Australia. This meeting was held for several reasons – to enable cross discipline interaction, and to raise ideas for further research, or revamp existing research. And whilst doing this ensure we are well placed to meet increased expectations for research excellence and achievement.

Outwardly this makes sense to me – we should engage in dialogue about such issues, even if we witness opposition from established paradigms. But several weeks later I am again talking about the relevance of much of the research conducted by researchers from developed countries and its relevance to their own people, let alone those elsewhere. We value our freedom to explore and enquire as we choose, but I am left wondering if something is missing.

The question I have is not so much whether we should measure the relevance of what we do, but how do we do it? I do not see this as an academic question. To me it is about engagement with society and how we determine what is relevant?

For ILWS it is also about integration, alongside excellence.

By John Williams, Adjunct Professor of Agriculture and Natural Resources, Charles Sturt University, Founding Member, Wentworth Group of Concerned Scientists, former Chief CSIRO Land and Water and currently Commissioner for Natural Resources in NSW.

Regional Communities Can Build Resilient Futures with Less Water: But They Will Need Help.

The current crisis in the Murray-Darling Basin provides the best opportunity since Federation for Australians to work together to rebuild our Murray-Darling heartland resulting in more resilient communities and healthier rivers. We must accept that we have a future with less water and a system which is currently over allocated.

To deal with this we will need a well balanced three legged stool approach to water reform. Currently we have only two legs, buy-back and infrastructure improvement to lift efficiency. Without the third leg of support to help regional communities plan for a future with less water and structurally adjust, the stool will fall over. From what I observe this third leg is currently missing, our communities are being expected to make these huge adjustments with little support from government.

Australian society as a whole has played a role in the development of this catastrophe through our government's over-allocation of water extraction from our rivers and groundwater. It seems only fair that we all take responsible action to assist our communities to make the required adjustment so that water extraction is in line with capacity of the rivers and groundwater. Ultimately this will give us all an assurance of a more sustainable future.

For communities to begin to shape futures it is so important that there is honesty and transparency in the magnitude of the reduction in water extraction that is compatible with a healthy Murray-Darling. I am not sure that this has been done.

(cont page 2)



FEATURE STORY: YALMAMBIRRA

Yal's foray into academia began as a "dare". Read more on Page 6

OPINION (cont.)

Sure \$3.7Billion has been set aside for water buy-back. At current prices this amounts to roughly 2,500GL. The work of the Wentworth group in its recent submission to the Senate enquiry showed that if we are to maintain healthy rivers and provide high quality water to produce food, we need to return over 4,000 GL of water to the rivers in periods of average flow. This will result in the consumptive use of water across the Murray Darling Basin having to be cut by between 42 and 53 percent. The magnitude of the adjustment is massive – beyond anything that has been contemplated before in the Australian community.

Most regional cities, towns and communities within the Murray Darling Basin face massive social and economic impacts of a water reform agenda designed to improve the health of over-allocated rivers and groundwater. This upheaval comes at a time of severe drought and against a backdrop of climate change. Communities are faced with making tough and painful decisions. There is evidence that regional communities and industry are actively taking responsibility for planning to live with less water and accept the need to return water to the river. But I see much evidence that they need help. Certainly the government buy back of water allocations and entitlements is a critical part of the solution as is the government investment in water and irrigation infrastructure. But from what I see there is an urgent need to bring together these two elements in the water reform agenda with third element involving a strong focus and commitment to community and industry planning as part of a package for regional development.

From what I can determine the governments have put some \$13billion on the table to address water reform in the Murray Darling basin. When has there been a better opportunity to see this investment as a key plank in the regional development and rebuilding, revitalisation of the communities of the Murray Darling. It is a magnificent opportunity. Can we not give a focus to supporting, facilitating and resourcing our communities and industries with the means to think, imagine, plan and implement better futures with something like 60% of the current water extraction entitlement? Community development seeks to empower individuals and groups of people by providing the skills they need to effect change in their own communities. These skills are often concentrated around building social cohesion through the formation of large social groups working for a common agenda. I see instead evidence of social fracture and in some instance actions which precipitate communities to resort to tribe against tribe.

We must support regional communities in a number of different ways to help them plan for a future with less water and provide the structural adjustment support that will be required. The impact of this prolonged drought makes it inevitable that there will be structural adjustment in the Murray-Darling Basin, whether or not inflows return to what has been regarded as a “normal” pattern. Many small businesses in irrigation districts are reconsidering their future, some are taking the plunge, but many will move slowly out of fear of change.

History suggests that most attempts to impede autonomous adjustment backfire. Often the most significant adverse impacts are on the capacity of the most talented in a district or an industry to innovate. Structural adjustment can be done very well or very badly. Small dollops of taxpayers funds skilfully applied to target areas where needed can greatly speed up adjustment processes, especially if there are substantial public benefits at stake.

The whole water reform packaged could be seen as an opportunity for major regional development based around community assistance for planning, building new futures and making the necessary structural adjustment. With this focus the most effective use can then be made of water buy-back coupled with investment in infrastructure and on farm innovation to drive water use efficiency. Putting focus on community development and the assistance required by communities who are faced with major change and adjustment could turn the current crisis into a way in which Australians worked

together to rebuild our Murray Darling heartland resulting in more resilient communities and healthier rivers.

CONFERENCES, SEMINARS & WORKSHOPS

ENVIRONMENTAL WATER ALLOCATIONS

A/Prof Robyn Watts was an invited speaker at the Environmental Water Allocation Forum held in Canberra on May 28-29 where she gave a presentation on ‘Environmental outcomes of pulsed flows in unregulated rivers’. The Forum was jointly sponsored by Land & Water Australia, National Water Commission, Murray–Darling Basin Authority and the Department of the Environment, Water, Heritage and the Arts. Its purpose was to bring together scientists, policy makers and water managers to (1) review the current state of knowledge about environmental water management and allocation; (2) share their knowledge and discuss future needs and directions; and (3) identify information and knowledge gaps, and future research priorities.

NATURAL RESOURCE MANAGEMENT

Prof Max Finlayson was one of a team of scientists who attended a two day workshop in Canberra, June 3-5 for a Murray Darling Basin Authority Science Review on Palaeoclimate Studies relevant to Natural Resource Management in the Murray Darling Basin. Then, as part of a Sydney Olympic Park Authority wetlands training course, he gave a presentation on wetlands and climate change, and ecology and wetland management in Sydney on June 5.

ENVIRONMENTAL JUSTICE

Dr Helen Masterman-Smith was an invited speaker at the Sydney University Political Economy department’s seminar series on June 1 where she spoke on “Climate Change and the Political Economy of Everyday Life.” She was also an invited speaker at the 2009 Social Inclusion Forum hosted by the University of Melbourne on June 25-26. Her paper was on “Labour Force Participation: when employment doesn’t lead to inclusion. Is the Labor Government’s Social Inclusion Agenda likely to improve the current situation or simply perpetuate it?” Helen was also on the organising committee of a political economy conference (Capital in Crisis: the Implications for Labour and Society) held at the University of Wollongong, July 9-10 where she convened an environmental political economy session.

ADAPTIVE MANAGEMENT OF WATER RESOURCES

Dr Catherine Allan attended the American Water Resources Association specialty conference on adaptive management held in late June in Snowbird, Utah. The conference was a meeting of around 200 people, mostly from US federal and state water agencies, but also delegates from Israel, Canada, Germany, the UK, Jordan, India and South America. Catherine’s recently published book (Allan, C., & Stankey, G. H. (Eds.). (2009). *Adaptive environmental management: a practitioner’s guide*) was launched at the conference. Her presentation was based around the final synthesis chapter of



the book. Thanks to the generosity of the publisher, Springer, she also had the opportunity to display her book and offer each delegate a special conference price for the book. On her way home Catherine attended the International Symposium on Society and Resource Management in Vienna, Austria

where she presented a paper as part of a panel discussion on Integrated Water Resource Management, which focused on the constraints inherent in delivering natural resource management policy via “projects”.

INSTITUTE EVENTS

ILWS RESEARCH FORUM

The inaugural ILWS Research Forum held in Wagga Wagga on June 16 and 17 proved to be a valuable opportunity to get people from across the Institute together and work towards one goal - setting a research agenda to tackle the big issues facing regional areas.

Around 70 ILWS researchers from Orange, Wagga, Albury, Thurgoona and Bathurst campuses attended the forum held at the National Wine and Grape Industry Centre. Both environmental issues (including restoring and sustaining our wetlands and valuing ecosystem services) were discussed as well as economic and social areas (such as the future for regional natural resource management, human wellbeing and healthy communities, and developing regional business enterprise). Guest speakers were: Prof Jan McDonald, Griffith University; Dr Wendy Craik, Productivity Commission; Ms Roslyn Dundas, ACTCOSS (ACT Council of Social Service); Dr Denis Foley, University of Newcastle; Dr David Godden, Department of Environment and Climate Change; Dr Sue McIntyre, CSIRO; and Dr Neil Ward, Murray Darling Basin Authority.

The Institute's Inaugural Awards for Research Excellence were presented at the Forum (see details page 16). As well Prof Dirk Spennemann's photographic exhibition, "The Triple Bottom Line: no water, no hope. no chance" - a series of black and white photographs depicting the drought in the Murray Darling Basin, and the "Water and Gender" special edition of *Rural Society*, which is celebrating its 20th year were launched.



Left: *Bitter Harvest*, an image from the exhibition



Right: Prof Max Finlayson with inc-coming editor Dr Angela Ragusa (with copies of the first and latest edition of *Rural Society*) and guest editor Prof Kath Bowmer

MEN'S SHED CONFERENCE

Prof Mark Morrison and Jenni Greig from ERD were involved in hosting and running the first national conference for Mensheds Australia at Bathurst Campus, in conjunction with the Professional Development Unit on June 16 and 18. Mensheds Australia is responsible for organising sheds where men of all ages can come to find purposeful activity, a 'safe place' to share with other men, or just a cuppa and a chat. Seventy delegates attended from around Australia, including men from remote Indigenous communities in the Northern Territory and Far North Queensland. Presentations covered insights from a number of mensheds, as well as several presentations from CSU academics (including Prof Mark Morrison and Donald Alexander from ILWS, and A/Prof Prof Rod McCulloch from the School of Communications).

COMING UP

FISH BOOK WORKSHOP

The Institute is supporting a workshop (August 30 to 31 in Albury) organised by Dr Paul Humphries which will bring together fish researchers, with the common goal of developing a new book. An edited proposal for *The Ecology of Australian Freshwater Fishes* has been accepted by CSIRO Publishing, and together with Prof

Keith Walker, Dr Humphries hopes to include contributions by pre-eminent researchers and managers in the field, both from Australia and overseas. The book is the first of its kind in Australia, and will include chapters which will compare and contrast patterns and processes in Australia with those on other continents, discuss the local relevance of ecological models from the northern hemisphere and consider how best to manage our species and their habitats in the face of current and future threats. The book is expected to serve as a valuable resource for Australian and overseas students, researchers and managers. Institutions represented include the University of Adelaide, Griffith University, Arthur Rylah Institute (DSE Victoria), Brigham Young University (USA), SARDI, NSW Dept of Primary Industries, University of Canberra and the Secretariat of the Pacific Community (New Caledonia).

LANDHOLDER RESPONSES TO CLIMATE CHANGE WORKSHOP

Around 40 people from across Australia will be invited to attend a workshop and seminar on Rural Landholder Responses to Climate Change to be run by Dr Maureen Rogers, Prof Alan Curtis, Dr Nicki Mazur and Dr Rik Thwaites in November. The one and a half day workshop, funded by ILWS will include presentations on the current findings from researchers looking at rural landholder adaptation responses and cover different regions of Australia. The interplay between NRM, conservation and climate change policy will be up for discussion and practitioners will also delve into the current 'state of play' with research with a view to identifying future research directions. An aim of the workshop is to develop links and potential collaborative research partners. The Forum is being supported by CSIRO, Landscape Logic and Farm Futures CRC. The recent work by the ILWS social research team into rural landholder attitudes to climate change will be presented at this Forum, and at a subsequent public seminar to be held in Albury.

E-CREW

ILWS is hosting Environmental and Resource Economics Early-Career Researcher Workshop 2009 (E-CReW 2009) at Bathurst campus on 3-4 November 2009. E-CReW aims to provide a forum for early career researchers to get feedback on their research in a supportive and non-threatening environment, interact with and receive advice from more experienced academics, and to meet other researchers at a similar stage in their research careers. This is the third E-CReW event. The first E-CReW workshop was held in 2005, and the second in 2007. Both were attended by 70 people from 7 countries, with the majority of those attending from Australia or New Zealand. E-CReW 2009 will be attended by Professor Kevin Boyle, who is one of the USA's most respected environmental and resource economists and is currently head of the Department of Agriculture and Applied Economics at Virginia Tech. It will also be attended by Professor Jim Wilen (University of California – Davis), and Professor Caroline Saunders (Lincoln University) who are international experts in natural resource economics and sustainable economic development respectively. Other mentors attending include Prof David Pannell (University of Western Australia), Prof Kevin Parton (CSU) and Prof John Rolfe (CQU). Registration will be opening shortly.

WETLANDS AND WATERBIRDS

The "Wetlands and Waterbirds: Managing for Resilience" conference to be held in Leeton, NSW, 9 to 13, is shaping up to be a diverse and interesting program. Speakers so far for the conference, which the Institute is joint hosting with the Fivebough and Tuckerbil Wetlands Trust and the Waterbird Society include Max Finlayson (NSW), Iain Taylor (NSW), Maria Bellio (NSW), Mike Schultz (NSW), Ray Chatto (NT), David Paton (SA), Andrew Hamilton (VIC), Richard Loyn (VIC), Chris Murray (VIC), Will Steele, (VIC), Darren Quin (VIC), Chris Elphic (USA), S. Balachandran (India). Talks so far range from the management of Chilika Lake in India and Bundala Lagoon in Sri Lanka to management of the Coorong, SA, and the Werribee Sewage Treatment Plant in VIC, the international significance of rice fields, Australian inland wetlands, the effects of climate change, and the ecology of wading birds of the Top End wetlands. To register go to <http://fivebough.org.au/wetlands-and-waterbirds-conference/>

ADJUNCTS

DR JUSTIN WATSON



The recent ILWS research forum provided an excellent opportunity for members to meet with Institute adjuncts and vice versa.

Nine adjuncts attended the forum including Barney Foran, Rod Griffith, Amy Jansen, Neil Lipscombe, Daryl McGregor, John Mullen, Kevin Warbuton, Justin Watson and David Godden. For Dr Justin Watson, (pictured left) an ecologist from Brisbane, it

was his first opportunity to meet with fellow members. "It's good to see, under one banner I guess, all the different disciplines," says Justin. "I didn't realise that everyone in the Institute didn't know one another other...but from listening to all the talks and the different streams people are working in, it's great to realize we all working towards the one goal."

Justin, who has an intriguing accent that you discover is South African, grew up at Port Elizabeth on the south east coast of South Africa. As a 10 year old child he would take his father's binoculars and sit on the roof of his home, bird-watching. He is still a keen bird watcher. In 1987 Justin began his undergraduate studies, a Bachelor of Science in Zoology and Botany, at the then University of Port Elizabeth with an honors in zoology looking at the fruit selection in fruit eating birds. His Masters degree, which he started as a research exercise, was on the impacts of off-road vehicles on coastal breeding birds.

"It grew into quite a big project and I became involved in the Oyster Catcher Conservation Program throughout South Africa," says Justin. "At the time [early to mid 90s] there were no controls on beach access whatsoever. It was exciting times. We had bands of volunteers collecting data from various beaches for many years. For the first time we had real scientific data to show where you had birds and 4WDs and dogs, the results were not good. Effectively it led to legislation in South Africa which banned all 4WDs on beaches." Similar concerns about the impacts of 4WDs on beaches along the coast of Queensland and NSW are now being raised by conservationists and scientists in Australia. Understandably Justin is keen to get involved in that argument.

Justin did his PhD (in botany/zoology) on ecosystem functioning and then restoration. It followed on from an Environmental Impact Statement that Justin did for a mining company that were putting in an open-cut mine, mining limestone for cement. "While doing that and living in a caravan in the back of nowhere, I looked around and could see years of research ahead on how the landscape could be rehabilitated," says Justin who started his PhD by looking at how everything worked in the landscape – the plants, the animals, climatic conditions etc. While doing his PhD Justin also worked as a consultant, lecturer and environmental educator.

In 1999 after attending the International Rangeland Conference in Townsville, Queensland Justin decided to move to Australia. He arrived early 2000, his family (wife and two girls, now aged 12 and 10), a little later. Initially Justin worked as a consultant in the mining industry in NSW. However, wanting to do more "hands on ecology work" he went to a smaller company and ran the Queensland office for a couple of years. For the last six years he has been working for the same company (now called Conics) where he is director of the environmental branch. The company employs more than 600 staff and specialises in the services of infrastructure, urban growth and the environment. Justin is now a senior partner and principal ecologist

in the company which has more than 30 environmental staff. "I've been quite fortunate and been able to develop a bit of a specialist area in the ecological field and do a lot of work for local councils as the person who argues in court as an expert witness," says Justin. "I try to get a 'balanced' outcome for both project and environment."

A/Prof David Watson introduced Justin to the idea of becoming an Institute adjunct. The two are council members of Birds Australia and when they catch up at meetings often talk about research and "philosophical things." "It took me back to my days at uni where I was surrounded by people talking about those kind of things," says Justin. "That doesn't happen much where I am working these days...the talk is usually a lot more about practical things." Justin became an adjunct a year ago and hopes it will give him the opportunity to co-supervise students (which he has done in the past), become involved in a research project or two, and, as happened at the forum, "meet with like-minded people." "You build relationships with people, and you never know...one day something great happens," says Justin who has already done one research report in his capacity as an ILWS adjunct. That came about, initially, from work he was doing for his company in the Torres Strait Islands. There he met an anthropologist from Melbourne University who was asked to do a management plan for one of the small islands – Mabuyag, (pop. less than 300), so it could be recognised as an Indigenous Protected Area.

Justin, who took leave in April this year to do the necessary research, was the zoologist on the expedition that included a geologist, archaeologist, anthropologist and botanist. As well as the management plan document, the team also intend to produce a special volume for the journal *Memoirs of the Queensland Museum*, dedicated to the island and its community. Justin says the island is the first in the Torres Straits Islands to introduce a ranger program with staff dedicated to looking after environmental and cultural assets. "I'd like to see if I can get funding to do some more environmental education work with the rangers and zoological work," says Justin. "Very little has been done on these islands because it is difficult to get to them and you need to know the right people to gain access." Working as he does in the business world, Justin says more involvement in research would give him the "balance" he is looking for.

"If I could get enough funding to do a small research project each year, that would be great," says Justin. "That would be my holiday every year. But I enjoy the consulting and being in a position to help with decisions on environmental management. "There's a lot of good scientists and ideas but to bridge the gap between the scientists, and the government, and the land managers, to take the academic knowledge to what we can use everyday is always a bit tricky..... but I enjoy that challenge."



Dr Justin Watson talks to school students on Mabuyag

ADVISORY BOARD

DR WENDY CRAIK AM



The words that the former Chief Executive Officer of the Murray Darling Basin Commission say as we begin to talk about her career provide a good insight into the personality of a woman who has held, what would have had to have been, one of the most important roles in natural resource management in Australia.

Dr Wendy Craik's stint with the MDBC was at a time when the Murray Darling Basin experienced its most severe drought on record and tough decisions have had to be made. Of her career, Wendy who has been on the Institute's Advisory Board since its inception, says: "It's really been more about ruling things out, than ruling things in."

Wendy, who grew up in Canberra, started doing arts at ANU before switching to science (zoology) doing her Honours year on invertebrates in a local stream which is now in the middle of Canberra's suburbs. "I decided I wanted to work on fish which were a bit more interesting and larger than invertebrates but as there weren't many places which specialises in fish and fisheries in those days I went to North America to the University of British Columbia, in 1973, to do a PhD on fish biology," says Wendy. In 1978 Wendy returned to Australia and the opportunity to work for the newly formed Great Barrier Reef Marine Park Authority for three months "but I ended up staying 17 years and really enjoyed it."

Wendy, who was based in Townsville but did a lot of travelling up and down the reef, began in research on the reef's fisheries which included monitoring recreational fishing, boat ramp surveys, diving surveys of the fish around the coral etc. She had learnt to scuba dive in Canada but says she is just as happy to snorkel. "It was really interesting and in some ways I'd like to go back and have a look at those areas now, 25 years later," says Wendy who, after a few years of research, got into running research projects and then the management side of things. Towards the end of her time with the authority, Wendy was co-ordinating the development of the Great Barrier Reef World Heritage Strategic Plan- a 25 year plan. "By that time I was running the Townsville office with 150 people," says Wendy. "When I started there were 10."

Wendy met her husband, Grant Hawley, a geographer, when she first started working at the Authority. He left the Authority in 1980 to start a milk run which he did for a few years before setting up an import and export nursery specialising in palms and cycads. Looking for a step-up in her career path, Wendy took on the position of Executive Director of the National Farmers Federation from 1995 to 2000 which meant moving back to the cooler climes of Canberra. "It was a really interesting and challenging job," says Wendy who then spent a year as CEO of Earth Sanctuaries Ltd. based in Adelaide. At the same time Wendy was chairing the Australian Fisheries Management Authority and on the National Competition Council. In 2002 she returned to Canberra where she worked as a consultant in natural resources with Acil Tasman Ltd and chaired the National Rural Advisory Council. In 2003 she became president of the National Competition Council. When she took on the role of CEO of the MDBC in 2004 she gave up most of her board appointments. Wendy continued in that role until the end of last year when the Commission became the Murray Darling Basin Authority and went from "working for six State governments to the Federal government."

"I really enjoyed the job, it was very stimulating," says Wendy of her four years with the MDBC. "I worked with a great bunch of people and we managed to achieve a few things but it was obviously a very difficult time for the people along the Murray and in the Lower Darling because of record low water availability." When the MDBC was restructured to become the current Murray Darling Basin Authority, a new CEO was appointed. While she says she was disappointed as she had enjoyed the job and would have liked to continue in the modified organisation, she is very matter-of-fact about it all. "It's just the way it is," says Wendy adding that any new job has to be interesting, something in the general area that she has worked in before "or else something completely different and fascinating."

Meanwhile her life is very different now compared to how it has been for the last 15 years or so. She's been "having a bit of a holiday" with more time to spend on her and her husband's 20ha property half an hour out of Canberra near Hall where they have planted grape vines, berries, and fig trees and provide a home to "more than a few rabbits." She says her husband is the gardener. "I'm just the assistant," she laughs. There's also more time to take holidays to the coast, to Europe, take their boat up the Hawkesbury River near Sydney, and to walk.

Wendy still has a number of commitments. She is on the board of the Foundation for Rural and Regional Renewal; the World Fish Centre (a United Nations research and development organisation based in Penang); Dairy Australia as well as being on the Institute's Advisory Board. "Given that we only meet a couple of times a year, it's a bit difficult to gauge the Board's influence on the Institute," says Wendy. "But one of the things the Board has really focussed on is integrated research which certainly seems to be a feature of what is happening. I get the feeling that, in a University, it's a bit of challenge to find and engineer the precise focus or strategic research areas. In a way these have to partly reflect the research interests of the people who are there but at the same time you have to lead with areas which are topical, relevant and strategic. The danger is that the research could be spread too thin. The other challenge is lining up the incentives with what you want to achieve for researchers."

Wendy says she has no desire to go back to research. "I decided a long time ago that there were a lot of people much better at it than me," says Wendy. "I like running organisations. I like doing things and managing things." "You suspect, given that Wendy didn't even touch on the word 'retire' it won't be long before that will be the case."

Editor's note: In June this year Wendy took on a new full-time position as a Commissioner with the Productivity Commission, the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians.

IN THE NEWS

It's been another couple of busy months media wise. Included in the Institute's 'media hits' were:

SAVING CATCHMENT AREAS

A/Prof Gary Luck spoke about where to spend money to save catchment areas around the world on:

- ABC Riverina Morning Show and ABC Rural News on June 25
- ABC Radio National 'Bush Telegraph on June 30
Radio 2BS on July 2

And was featured in on-line news services [Science Alerts](#) on June 23, and on Life Science Weekly online on June 30.

For full details go to the ILWS website at <http://www.csu.edu.au/research/ilws/news/inthenews/may09-july09.htm>

PROFILES

YALAMAMBIIRRA



On most sunny week-day mornings, it is usual to find Yalmambirra beside the granite boulders and grass trees at the front of the environmental science's building at the Thurgoona campus, drinking a cup of tea, maybe having a smoke, and reading an academic paper.

Yal (as he's commonly known) has an intriguing presence. There is a quiet, unhurried energy about this Wiradjuri elder that invites you to slow down, put aside the knowledge of a busy day ahead, and reflect on the natural beauty

of the world around you. The story of how Yal, 59, came to be an academic is one he's happy to share – especially if it will encourage other Indigenous people to give university a go and understand it is possible to do so without a formal education. "I would like to see more Indigenous students at CSU but there are a number of issues that fall under the headings- social, political and cultural- for why that doesn't happen," says Yal.

Yal grew up in Sydney's western suburbs, leaving school when he was just 10 years old. "I was a 'bad bugger' and got sent to a boy's home for 11 months," says Yal who started work when he was 12, sweeping floors in the clay pipe factory which his uncle managed and where his father worked. "I had no educational background so to speak. The education I got came from my workmates who were much older than me."

For the next 30 odd years Yal went from one job to another in Sydney—concreting, bricklaying, labouring.... He once calculated he had 30 different jobs and 65 different starts at jobs that didn't work out. In 1995, Yal's life took a new direction when he took up the offer of his younger brother, Robert, a member of the local Aboriginal Lands Council in Liverpool at the time, to join his and another's Indigenous cultural resource management consultancy. This involved giving cultural awareness lessons in schools, colleges and TAFEs and doing archaeological survey work. The business disbanded when Robert, who went through the Koori Admissions Program, began studying for his Degree in Parks, Recreation and Heritage by distance education with CSU. "In 1995 Robert dared me to go into the Koori Admissions Program and made me promise that if I passed I would go on to university and see it all the way through, from degree to a PhD," says Yal who took up the dare and is now close to completing his PhD.

Yal was 44 when he began the same degree with CSU his brother did. In 1997 he left Sydney and moved to Albury where as a student, he got a contract position as lecturer in Indigenous studies with the University's Murray School of Education –Early Childhood. In 2000 he applied for and got (to his surprise as he hadn't yet graduated) the Koori academic position at Thurgoona. Yal, who now lectures in principles of Indigenous Land Management, Indigenous Studies, History and Philosophy of Education and Social Contexts: Education and Society has, in line with University requirements, continued with his academic qualifications. In 2002, he completed his Honors project on "Heritage Management in Wiradjuri Country: Indigenous Perceptions of Consultation." In 2003 he began his PhD on "The Validity of Indigenous Cultures in Contemporary Australia: A Wiradjuri Case Study" which he hopes to submit by the end of this year. His supervisors are Dr Rik Thwaites and Dr Jim Birkhead.

"In order to understand where people are today you need to be able to understand where they were in the past," says Yal who researched historical documents to look at how Indigenous people have been identified by non-Indigenous people. He conducted 41 interviews with Indigenous people throughout Wiradjuri country (which covers two thirds of NSW and parts of Victoria) asking about their cultural background and knowledge, and the importance of identification before invasion. The interviews also covered the different aspects of the impact of invasion, including the stolen generations, dispossession, relocation to missions and reserves; the impacts of Government policies and Acts as applied to Indigenous people in the past; and how contemporary policies and Acts define Indigenous people today.

"I found a lot of Wiradjuri peoples did not have a lot of knowledge about their cultural background simply because the old people who had the knowledge on specific things, especially gender issues, had passed away and that knowledge had not been handed down," says Yal. However, during his research in what he describes as a "very harrowing experience" he discovered his mother (who had 12 children) had a secret that she had never told any member of the family, that two children of her children were part of the stolen generations.

Yal's mother was born in Forbes and is a direct descendant Wiradjuri woman whose mother and grandmother were born on the banks of the Bogong River near Peak Hill. However Yal knows nothing of his father's background other than he was Indigenous and stolen as a baby by a man who had 80 children that he was selling, trading or giving away. "When it became not so 'good' for want of a better word to do this kind of thing he let all the children go except my father which he kept," says Yal. It was a secret that Yal's parents had kept for 40 odd years. Only after Yal's father died, did his mother reveal the truth.

Doing the research and writing required for a PhD is demanding anytime and has been especially so in Yal's case. He has continued to work full-time, gone through a second separation in a personal relationship (from which he has a fifth son), built a house on his 8 ha property at Bethanga, and begun a new, long distance personal relationship. But despite the time it takes, Yal says he "absolutely loves research. It is one of the best things that has ever come my way, especially research about Indigenous peoples, and specifically Wiradjuri peoples. I am a Wiradjuri elder and I need to do research for the benefit of all Wiradjuri people both now and into the future."

Yal's name, which the late Wiradjuri elder Pastor Cec Grant gave him when he moved to Albury, means "speak, teach" and has turned out very appropriate. Yal enjoys teaching and it's not unusual to see him sitting with a group of students outside at Thurgoona, nor to see students sitting cross-legged outside his office.

Since 2000, Yal has been involved in the Mungabareena Reserve Reconciliation Project. (Mungabareena Reserve, on the banks of the Murray east of Albury, is an important Indigenous meeting place where the annual Ngan Girra Festival is held). As part of that project, Yal manages a scaled down version of a traditional Wiradjuri campsite at Wonga Wetlands. I think it is extremely important to have an Indigenous understanding of place in the whole scheme of things including environmental issues," says Yal. "In the past the land has been raped and degraded. We are only now seeing the repercussions of that and are trying to address the impacts of what people have done to the land. I think that Indigenous understandings seem to be missing in many of our Honours and PhD projects. One day I would like to see a list of projects have an Indigenous content that students can choose from."

Yal says he never had any ambition to go to university and become an academic. However he finds the fact that not only did he follow in his brother's footsteps, so have two of his four adult sons – one graduated from CSU a few years ago with the same degree as his father, and another has graduated from Southern Cross in Indigenous studies, "really good."

JON O'NEILL



Jon O'Neill's new job as team leader-project development for the University's Indigenous Student Services unit (ISS) brings together the skills and knowledge he has gained over the years.

"It sits in perfectly with my PhD studies but also my previous work with the uni and even with Qantas," says Jon, a former ILWS PhD student who has recently become an ILWS adjunct.

Jon is looking forward to his new full-time role "with a great deal of excitement and trepidation". Although based at Thurgoona he will work across all of the University's Indigenous Student Services units. Currently these consist of Winan-Gidyal (which means learning/knowledge) at Thurgoona; Ngungilanna (to exchange/give to one another) at Wagga; Wammarra (to build one's education) at Bathurst, and Barraamielinga (to provide) at Dubbo.

Before taking up this new position, Jon had worked part-time as CSU's Indigenous Learning Skills Advisor at the Albury-Wodonga campus for two years. He has also been lecturing, on a casual basis, in cultural heritage for the past eight years, and tutoring Indigenous students for six years. Now Jon will be responsible for expanding the Koori Admissions Program (KAP), - an alternative pathways program for Indigenous people to enter University. Currently it runs exclusively out of Dubbo, but he will expand the program so it may better satisfy expectations of local communities and the University, and be run in areas other than NSW. The plan is to deliver suitable KAPs on site to targeted groups, depending on their size and location. Most successful KAP participants become Distance Education students and only a few study on campus because of their very close connections to country and community.

"We are looking at approximately 50 to 70 people going through one of these alternative pathways programs within the next 12 months," says Jon. He will travel to Indigenous communities throughout Australia with other ISS staff (who are responsible for recruiting Indigenous students and have connections to those communities). "My role is one of organisation and facilitation so that CSU can implement programs of learning that will provide the communities with what the communities themselves want from these programs."

Also associated with Jon's role is the development of a structured program of learning to take account, particularly in traditional areas, of Indigenous ways of learning which are quite different to western ways of pedagogy. "This involves establishing a structure for Indigenous students to progress through almost any degree that CSU offers," says Jon. "We will take our standard degrees and present those subjects in a restructured program, perhaps even renaming subjects. We want to put in place words and expressions that are appropriate to Indigenous people, in a program that offers flexibility, but does not reduce the value of a CSU degree. An excellent example (known as the Djirruwang Program) is already running successfully in CSU."

Because of his new role Jon has had to put his other work, as a heritage consultant, on hold. "This work is still related, it's living heritage," says Jon. "Culture is dynamic; a culture that isn't dynamic is one that is dead and the cultures of the first nations of this land are vibrantly alive."

Jon, who with his wife Joan runs a small cattle stud at Bethanga in NSW, spent 30 years with Qantas where he started in finance and moved into Information Technology. By the time he took a voluntary retrenchment in 1991 he was managing Qantas' financial and administration systems around the world. "I retired for three months, played golf three days a week, brought my handicap down to 7, and got bored to tears," says Jon. "So I decided to do something I was never able to do as a young fella and that was to go to university." He applied to do CSU's Applied Science (Parks, Recreation and Heritage) course by distance education but his application was knocked back until he (very) successfully completed his HSC and Certificates 1 & 2 in Bush Regeneration at TAFE in Sydney the following year.

Jon completed his degree while running his own computer support and training business and helping to raise a family of four teenagers. "During the course Dirk [Spennemann] infected me with his love of heritage so I chose to major in cultural heritage rather than natural heritage," says Jon, who moved with his wife to Albury to do his Honours year on German colonial heritage in the Pacific. From there he went on to complete a PhD on Micronesian heritage, graduating in 2006. "The Micronesians have a different concept of the sorts of things they want to preserve as their heritage compared to the western concept which is mainly based on things you can touch and feel," says Jon. "Micronesians are more interested in preserving their traditional knowledge and oral history." He recounted the example given to him by an old man in Micronesia - "You [as a westerner] want to preserve the old canoe that you find, on the other hand, we want to preserve the knowledge of how to build that canoe." "This comment just dropped everything into place for my Honours year and became the theme for my PhD," says Jon who was supervised by A/Prof Dirk Spennemann and Prof Dirk Ballendorf from the University of Guam.

Jon says there are many similarities between the Indigenous communities he studied in Micronesia and those in Australia. "While there are obviously differences, the similarities are amazing," says Jon. "The main thing, in both cases, is the dependence on oral transmission of knowledge, history and tradition. A great tragedy associated with this is that when languages are lost, much traditional knowledge and culture is also lost. These cannot truly be separated from their base in a language, and translation almost inevitably results in fundamental change." Over the years, Jon has worked with the First Nations of Australia in communities from Townsville to Victoria to western NSW.

"With my new job and my association with ILWS there are opportunities here to do some significant research, not so much into Indigenous cultures though I could work in with someone on that, but looking at something like why University retention rates are so low among Indigenous students," says Jon who is currently supervising a new Indigenous PhD student. "Much of my research in Micronesia involved inter-generational change and how culture and the ways culture is learned are changing."

At an age, 63, when many may be thinking of slowing down, Jon remembers his grandmother telling him "the day you stop learning is the day you start dying" and is as enthusiastic as ever about his current challenges in life.



A "temple" in the incredible city of Nan Madol is in the state of Pohnpei (in the Federated States of Micronesia). It was built in the lagoon itself and consists of basalt 'logs' collected and then transported many miles on rafts of bamboo

towed by canoes and sunk in the lagoon.

HELEN MASTERMAN-SMITH



Listening to an account of her research it quickly becomes clear that Dr Helen Masterman-Smith, a sociologist with a post-graduate leaning towards feminist political economy, is a voice for the disadvantaged in Australia.

In 2008 she published her first book, *Living Low Paid: The Dark Side of Prosperous Australia*, a testament to her focus on doing research that gives a voice to and understanding of groups

that are socially disadvantaged. "This is the first book to give a voice to the low paid in the work force in Australia," says Helen, who joined CSU in February 2008. "It's about their lives on the job and the flow-on effects for their personal well-being, household members and relationships, and their community involvement or social inclusion."

The book, published by Allen & Unwin, is the result of a three year ARC Discovery Linkage project with co-author Professor Barbara Pocock from the University of South Australia. The book is based on the experiences of 140 participants, 90 of them working in the childcare, cleaning and luxury hotel sectors, in Sydney, Melbourne and Adelaide and a new analysis of the HILDA (Household, Income and Labor Dynamics in Australia) survey for 2001 to 2004 looking at the incidence, prevalence, characteristics and dimensions of low pay. The survey also included data on poverty and social exclusion.

"It's a pretty sad tale," says Helen who found conducting the interviews and focus groups "disturbing but also a privilege." She found low pay in Australia was more widespread than many Australians realised with one in four workers low paid. (For a measure of low pay the project used the OECD definition which is two thirds of full time median earnings. In 2004 that was about \$14 an hour or \$500 a week before tax.) She also unearthed a lot of myths about low paid workers. "One myth is that it is often assumed that low paid workers live in a household where they are just earning 'pocket money', or that they live with their parents or a husband who earns more than they do," says Helen. "But the reality is that many, the majority perhaps, are responsible as heads of households and are having to struggle on very low wages."

Another is that low paid workers received "top ups" from the Government. "The reality is far more complex," says Helen. "One reason is there is so much stigma around people, particularly if they are employed, in applying for unemployment benefits. Then there is the issue of dealing with, as one member of the public who read my book said, 'the bastardry of Centrelink.'"

A third myth is that low paid workers are young, the jobs were just temporary or part-time, and that low paid workers 'step up' to better paid jobs. "The reality, among the people we interviewed, is that they experience what we call 'churning', they are in and out of the labor market with periods of low paying jobs, no job, another low paid job....they are a disposable layer of the labor market, just chucked out onto the scrapheap the moment the slightest thing goes wrong or for no reason at all," says Helen. "Low paid workers are the least unionised section of the workforce and therefore have the least voice and collective identity. They are in a difficult position in terms of gaining improvements in job security, better conditions and treatment on the job." Helen also found that poor citizenship (voice and dignity) on the job translated into second class citizenship in the community. "Low pay workers don't have control over

those resources that make participation in social life possible," says Helen.

With her father an earth moving contractor and her mother a nurse, Helen, 39, led a "gypsy-like life" living in many different towns until she was 20 years of age. Originally from around Mildura, she grew up on the NSW South-Coast and then the Riverina. Her final year of schooling was at Billabong High School in Culcairn, where, as life has it, she now lives. After 12 months at what was Riverina Murray Institute of Higher Education at Wagga she joined the workforce. For the next six years she worked in a variety of jobs in Melbourne and Sydney from retail assistant to managing St John's Ambulance first aid training. While doing voluntary work for Amnesty International in Sydney she became intrigued by the work analysts were doing on human rights. "The day I was there the UN raconteur on human rights just happened to be in the office," says Helen. "Coincidentally a friend of mine was visiting at the time and had the book *Invitation to Sociology* by Peter Berger on his coffee table so I picked it up and read it and thought 'Right, I finally know what I want to do with my life!'"

Helen enrolled in an Arts Degree at the University of Western Sydney, majoring in sociology with a second major in politics. Her lecturer, Dr Drew Cottle, a political economist, supervised her honours and PhD and has become a lifelong educational mentor. The two have co-authored many publications. Helen's PhD was on the feminist political economy of working class women, particularly those living in public housing, in Campbelltown, in Sydney's outer western suburbs. "Essentially it was about the political culture and survival strategies of working class women in that part of the world," says Helen who began her PhD in 1998 and submitted in 2005. During that period she also lectured and worked as a research assistant. She then moved to South Australia and Adelaide University to coordinate the low pay project. Mid way through Prof Pocock and the project moved to the University of South Australia where Prof Pocock set up the Centre for Work and Life. Once the project was complete Helen decided to go back into a combined teaching/research position so she could have the academic freedom to choose her research topics. "The kinds of issues I am interested in are too new for people to put money into," says Helen who is a sociology lecturer at Albury. She lectures in health sociology and research methods but would really like to teach environmental sociology.

Helen is working on a number of projects, one of which is about the links between social and labour market inequalities and those links with climate change and environmental issues. "Sometimes the shorthand for that is the notion of environmental justice, the concern being that the most disadvantaged members of our communities and workplaces may end up bearing the burden of climate change and the transition to a low carbon economy," says Helen. Over the last 12 months she has been part of team (including A/Prof Ian Gray from ILWS and colleagues from University of South Australia, Adelaide University, and University of Western Sydney) who have developed an ARC Linkage grant application (with the Conservation Council of South Australia) called "Responses to climate change in everyday life."

She is also in preliminary discussions with the Liquor Hospitality Miscellaneous Workers Union to develop research on just (or fair) transition for low paid workers which will investigate how the transition to a low carbon economy will impact on low paid workers and how they might contribute to the transition. A third major project, which she has just started, is funded by the Federal Department of Environment, Water, Heritage and the Arts. The \$95,000 year long project with CSU colleagues Robin Harvey (gerontology), Marie Sheahan (leisure studies/disabilities), Dr Jillian Dunphy (physiology) and Ruth Townsend (nursing) is called "Education for Sustainability in Health Care Degrees." "We deliberately set up a multi-disciplinary team," says Helen. "It's a national consultation on how to 'green' health care undergraduate training with the aim of produce a teaching resource with modules on sustainability and environmental issues that can be slotted into all sorts of degrees." justice research centre or something similar. "It's a huge hole in Australia social policy and research at the moment," says Helen.

For the future Helen intends to work in the area of environmental justice, ideally in a senior research position in an environmental justice research centre or something similar. "It's a huge hole in Australia social policy and research at the moment," says Helen.

Another big part of her life is her role as vice-president academic of CSU's NTEU branch. She is also on NTEU's state and national council. "Although I do a lot at the local level, my main involvement with the Union is about trying to advance environmental concerns and strategies through the trade union movement," says Helen. "It's the activist side of me trying to put what I do into practice....activism informed by professional practice."

POST-GRADUATES



MICHAEL MITCHELL

It's full steam ahead for Michael Mitchell who's just come back from six weeks of touring around Europe ("fitting in as many countries as we could") after finishing off his PhD.

He's teaching a first year subject on Natural Resource Management, is involved in the Landscape Logic project (Prof Allan Curtis is heading the social research component of that) and has just

started on one of Allan's other projects, "Monitoring and evaluation of the Victorian Landcare program." For the first time both Landcare groups and Landcare networks will be surveyed.

For Michael, who is based at Thurgoona, it's a welcome return to teaching "which I love" and an opportunity to continue doing research work. Suggestions that he will be very busy are met with an accepting "I know". Michael, whose father is ILWS adjunct Prof David Mitchell also based at Thurgoona, has got used to the idea of working in the same place as his dad. While the two share a passion for the environment and helping others, they have taken different paths in achieving that. David is very much the aquatic ecologist. Michael, on the other hand, has had a very varied career that has led him to join the social research team within CSU's ILWS.

Michael, who was born in Zimbabwe, Africa, was 12 when the family moved to Griffith, NSW, where his father had taken up a position with CSIRO's Division of Irrigation Research. He then went to Sydney University where he did a Bachelor of Science majoring in Geography. "I was one of those perpetual students that was very active and wanting to make the world a better place and not that interested in my studies," recalls Michael who is now 44 years of age. As a student activist, he became involved in Aboriginal rights issues (it was at the time when land rights legislation was just starting in Australia); and human rights, particularly in the Asian region, and the Burmese struggle for democracy.

His interest in Aboriginal rights issues led to his Honours project which was a political analysis of the constraints faced by an Aboriginal community north of Alice Springs in getting access to their land. In 1990 Michael began his Masters by Research still with Sydney University based on field research in Thailand. "It was at the time when Cambodia was beginning to join ASEAN and so a whole lot of projects to build dams on the Mekong River which had been on hold since the Cold War in the 60s were now possibilities again because the four countries [Thailand, Laos, Cambodia and Vietnam] were now working together again," says Michael. "This provided a very interesting opportunity to study the extent to which social and environmental issues were now influencing decision making in the 1990s." For his research Michael was able to access

the library of the Mekong River Commission Secretariat and a lot of confidential reports, one of which suggested an alternative site for one of the dams which was smaller, and meant less inundation and less resettlement.

"But that hadn't been made public so the responses from the local people were only in terms of the large dam which seemed to me the wrong way to go about in making decisions," says Michael. The project, which ended up taking four years, concluded that while it was all very well to have national and international projects, without local participation in decision making, these projects were unlikely to go ahead as planned. Michael was then sponsored by a student organisation to go to the United Nations Human Rights Commission in Switzerland to receive two months training from a NGO in defending human rights and how to push human rights issues through the UN. On his return to Australia, found work with the International Union for Foodworkers (IUF), an international trade union federation based at the head office of its Asia Pacific branch in Sydney. Michael spent seven years with IUF and as he says "loved the job but it was very stressful."

He then did a certificate course with the University of NSW which qualified him as an English as a Second Language teacher and ended up teaching overseas students preparing for academic study in Australia at the Australian Centre for Languages, a private college in Sydney, for four years.

In 2004 Michael's partner Chan, who is from Thailand, bought the Real Thai Kitchen restaurant in Wodonga. While Michael hadn't planned on getting back into academic research, his father introduced him to ILWS and its team of social researchers. Prof Allan Curtis encouraged him to do a PhD and in 2005 Michael (under the supervision of Allan and Dr Penny Davidson) began his PhD funded by the CRC for Irrigation Futures on triple bottom line reporting (reporting on social, environmental and economic lines). His PhD was part of a Sustainability Challenge project led by CSIRO's Dr Evan Christen which aims to promote triple bottom line reporting in ways that could lead to continuous improvements in sustainability for irrigation communities around Australia. Michael's research focused on Murrumbidgee Irrigation Ltd, as a case study of a privatised irrigation supply company.

"The PhD didn't initially start off as an action research project but it became one," says Michael who worked on the project with Dr Christen, ILWS social researcher Dr Penny Davidson and others. "I worked very closely with Murrumbidgee Irrigation which already had a triple bottom line style to its annual report but wanted to improve on data it could track on consecutive years so it could see how it was performing against certain key indicators."

A key finding of his research was the role that ordinary staff in an organisation can make in effecting change. "The interesting aspect of MI's approach, particularly in its internal reporting processes, is that it is very keen to get staff involved," says Michael whose data was collected from interviews with staff and participant observation of the entire process. "As part of our project we organised a number of workshops and MI was very keen to make sure that a range of staff across all divisions attended."

Michael found, as an example of change, the operators who managed the channels had a much greater awareness of ensuring there was no water wastage. "The primary influence on change is increased awareness of the value of the water because of the drought but the reporting is reinforcing that," says Michael. Michael says he was sceptical of the triple bottom line approach to reporting when he first started the project.

"Now I would say that triple bottom line reporting is often ineffectual but it really depends on how you use it," he says. "To me the idea of engaging stakeholders, particularly staff, is crucial. What I do feel passionate about reporting is that it is a regular thing. A lot of sustainability related projects are one off. At least with sustainability reporting it provides a reminder every year. But the only way to effect change is for those involved to reflect on the past and what that means for future strategies."



HARRY SAKULAS

It's been a long haul but PhD student Harry Sakulas, 55, is almost over the finishing line.

Harry, who is from Papua New Guinea, was at the Thurgoona campus in May for a couple of weeks adding the final touches and corrections to his thesis prior to a final reading before it is printed and bound. It was Harry's first visit to Australia since 2001.

Harry, under supervisors Dr Jim Birckhead, an ILWS adjunct, and Dr Johannes Bauer from Bathurst, began his PhD at CSU in 1997. His thesis is an evaluation of Integrated Conservation and Development (ICD) projects in PNG using three case studies on projects independently implemented by international NGOs in partnership with local NGOs. "Many ICD projects were initiated as a consequence of the Rio Summit in 1992 and run under the Biodiversity Convention which PNG was a signatory to," says Harry, originally a biologist whose research interests have shifted to the political and administrative issues around conservation. "From 1993 onwards PNG was one of the focus areas in the Asia Pacific Region for promoting nature ecosystems and biodiversity conservation. This was a conservation drive which aimed to integrate the social and economic aspects with conservation."

The three projects Harry analysed were:

- the Crater Mountain Reserve and Conservation Centre in the Chimbu, Eastern Highlands and Gulf provinces, which was implemented by the World for Wildlife Fund (New York) in partnership with a local NGO, the Research and Conservation Foundation;
- the Lakekanu project, across the Morobe, Central and Gulf provinces, which was implemented by Conservation International and a local NGO, Foundation for People and Development; and
- the Kamiali project in the Morobe province which was implemented by a local NGO, the Village Development Trust.

Harry says his analysis of the three projects was similar to those done on ICD projects in other developing countries. "What has become obvious is that the conservation fraternity, globally, has moved into promoting conservation and research ahead of looking at the social and economic issues that people living in the forests of developing countries are grappling with," says Harry. "In these countries infrastructure such as schools, roads and bridges are not yet in place. The local people are anxious to see this infrastructure take place and look for opportunities for this to happen. Quite often it comes with the extractive form of development such as mining, logging and large-scale agricultural projects. But the people want these services and accept these developers as a way of getting those services. Conservation agencies have come in and promised economic and social benefits that has proven difficult to be sustainable."

Harry explains one of the difficulties when working with local communities in PNG is that the country has 850 ethnic groups which are different socially and culturally and have different attitudes on the management of natural resources. Two of the case studies (the Crater Mountain and Lakekanu projects) had heterogenic societies i.e. they were made up of more than one ethnic group. "NGOs went in as quickly as possible and tried to get a large number of people from different ethnic groups to accept their ideas and make a single decision on what should happen," says Harry. "But it didn't work."

The two projects involved promoting scientific tourism, as places where universities could do ecological research and contribute to

local economies. "That hasn't really worked out because of the difficulties of isolation and the fact there is no local eco-tourism market," says Harry. He says the Kamiali project was more successful because a local institution was making the decisions. "The crux of my thesis looked at the participation of local people who expected benefit packages," says Harry. "When a community were empowered to make their own decisions the project was more successful as the community's aspirations were included in the project funding. The Kamiali community had already encountered development conflicts with a logging company and had decided to seek help. Where people decide for themselves they will persist; if told they will get a benefit they just wait for it to happen."

Harry says he would have liked to complete his PhD earlier than he has but was challenged by the difficulty of trying to do so while living in PNG and cultural issues. These days Harry is the director of the PNG University of Technology's new Environmental Research and Management Centre. In this mostly administrative role, he coordinates research across the university's various departments. "One of the areas we are concerned about is research and development and how to link the research back to the community and help them realise how it can benefit them," says Harry. "So we have been working with various small communities to set up and help develop research projects that are relevant to the communities. As a Centre, we coordinate with the various university departments to undertake their respective components of the project i.e. get the surveyors to go out and do their part of the project; for water supply, get the engineers to do that part etc."

Two research projects Harry is currently coordinating are for two new potential cash crops for PNG — noni, a fruit that grows with a big market in Tahiti and Hawaii; and jatropha, an oil seed crop suitable for biofuel production for the aviation industry. Other work the Centre does is help the university's students develop "imitation technology" such as making existing models of rice hulling machines more suitable for local conditions.

GINA LENNOX

Gina Lennox, who commenced her PhD in February, will use the Lachlan catchment as her case study region to investigate trends in absentee ownership of rural land and its implications for agricultural production and sustainability, the environment and community.



"There has been little research done into the different ways individuals and corporations can be absentee owners, or their impacts, especially in Australia," said Gina at a presentation to the Faculty of Science Research Higher Degree Symposium, held in Wagga in July. Gina talked about lifestyle property owners, and individuals who use their property for commercial agriculture, as well as corporations and Aboriginal land councils, as just some of the ways land can be owned by people who do not live on the land. She observed that lifestyle property ownership is associated with land fragmentation and increased land prices, as well as the under use of sometimes prime arable land. On the other hand, the trend towards corporations entering agriculture in increasing numbers could be cyclical, and dependent on commodity prices. But absentee land ownership is not peculiar to Australia.

"Historically and currently it is significant. In the US, 42 % of all rural landowners are absentee. In Germany, 68 % of all cultivatable land is rented out. In the Pacific, absentee ownership can be even higher, but there has been very little Australian research published in this field – statistical or qualitative," said Gina. Gina's principal supervisor is Prof Allan Curtis and her co-supervisors are Dr Angela Ragusa and Dr Bob Farquharson (Melb Uni). Funding comes from the CRC for Future Farm Industries. Gina lives near Bermagui on the far south coast of NSW and is doing her PhD by distance. -Kate Roberts

SUE BLYTH



Once upon a time people knew how to make their own clothes, cook a meal from scratch and could clean a house without the help of a vacuum cleaner.

These days, more and more so, we are substituting skills with products (consumption). But, according to new ILWS PhD student Sue Blyth, going back to our grandparents days may not be a choice for many in the future.

"The need for research in this area is strengthening with climate change," says Sue, a Distance Edu-

cation student based at Medlow Bath, near Katoomba in the Blue Mountains. "We will be forced to retreat from our consumption simply because, as well as not being environmentally sustainable, we won't be able to afford it. And when true carbon pricing comes into the market place, consumption is going to be a much more expensive option. There will be a rebalancing with the need to do a lot more things ourselves. The question is what is our position around the skills base we need to be able to do that."

Sue, who began her PhD in April this year with supervisors Dr Helen Masterman-Smith and A/Prof Ian Gray, is looking at "Increased Consumption and Decreased Domestic Skills: Clues to more sustainable lifestyles?" It is an interesting topic that stems from her previous role as Manager, Research, Policy and Evaluation for TAFE NSW's Western Sydney Institute. In that capacity, she led the Professional Development Strategy and Unit.

"The TAFE employs many trade teachers," says Sue. "In the context of their professions, professional development was usually run by product manufacturers. It was all about how to use those new products and not about developing new skills. Broadly, socially, we do a process called substitution, whereby we use products or consumption to replace skills we previously had. For example, at a household level we use so-called labor saving devices, pre-packaged products and manufactured clothing rather than produce what we might have done previously. This has led to a whole lot of deskilling of people." Sue, whose background as an undergraduate is in history and English, is taking a social history approach to her research. She will use 'snap shots' for every 50 years since the 1800s looking at the development of substitution in Australian life "...of how we have traded products for skills progressively over that time."

After an extensive career in the TAFE system, Sue, 59, who has four grown up children, retired last year. Her retirement has provided her with the opportunity to do a PhD, something she has always wanted to do. "When you talk about PhD students, you talk about Early Career Researchers...I suppose I'm early in my next career," says Sue. "As my background is in management, writing and analysis, after I finish my PhD I would like to work in research teams."

PHD NEWS

Penny Cook presented a paper on "Education for sustainable development – informal adult education in community-based natural resource management" at the 15th International Symposium on Society and Resource Management: Meet Old and New Worlds in Research, Planning and Development, held in Vienna, Austria, July 5 to 8.

Anna Lukasiewicz presented a seminar on her PhD "Social justice in Australian water governance institutions: The case of the Lowbidgee" at CSIRO Sustainable Ecosystems in Canberra on May 11. The well-received seminar, part of a regular seminar series, was attended by local CSIRO staff as well as NSW and Federal government officials.

PhD graduate **Patty Please** is currently employed in the federal Department of Environment, Water, Heritage and the Arts in their Water Group assisting in the roll-out of funds as part of their 'Water for the Future' policy program. While she did spend a short time working in the Environmental Flow area on the issue of 'shepherding water flows' through the Murray-Darling River system, she is currently working in the area that is looking to contribute funds towards the expansion of irrigated agriculture in Tasmania.

Congratulations to **Wendy Minato** who won a student paper commendation for her presentation at the Modelling and Simulation Society of Australia and New Zealand Inc. Congress in Cairns, July 13 to 17.

GRANTS

RESEARCH GRANTS

Lunt, I.D., Bradstock, R., Ross, K & Cohn, J. (2009-2010) **Managing tree densities in western New South Wales: development of a process-based model to predict woodland dynamics.** Additional funding from NSW DECC to supplement existing DECC-CSU Linkage Grant. \$9,478.

Curtis, A. (2009) **Monitoring and evaluation of the Victorian Landcare program.** DSE. \$83,600

Curtis, A., Griffith, R. & Mitchell, M. (2009-2011) **Transformation for resilient landscapes and communities—Murray case study.** Natural Resources Commission & Murray Catchment Management Authority. \$80,000

Curtis, A. & Race, D. (2009-2010) **The Loddon River social research project.** North Central CMA. \$99,000

Ragusa, A. (2009) **Domestic violence victims' experiences accessing NSW justice system's services.** NSW attorney general's department. \$5000

Spooner, P. (2009) **Collation of environmental data for climate modelling in Alpine areas.** DECC. \$5000

Finlayson, M. (2009) **Tillegra Dam assessment of potential impacts to Hunter estuary Ramsar wetlands.** Hunter Water. \$41,400.

Masterman-Smith, H., Harvey, H., Sheahan, M., Dunphy, J., & Townesend, R. (2009-2010) **Education for sustainable models in Australian health care degrees.** DEWHA, \$55,000

Morrison, M., Alexander, D., Greig, J., Waller, D. & Lockwood, M. (2009-2010) **Benchmarking values and attitudes to conservation in the Great Eastern Ranges.** DECC. \$90,000

INTERNAL GRANTS

CSU SUSTAINABILITY GRANTS

Howard, J., Wilson, B. (2009-2011) **Educating campus users and visitors about the nature and appropriate use of Thurgoona Campus.** \$14,300.

Black, R., Davidson, P., Kelly, J., Bell, B. & Willsher, J. (2010-2011) **Implementing a social marketing energy saving program across student residences.** \$12,000.

Black, R., Davidson, P., & Neville, K. (2009-2011) **Facilitating energy saving behaviour among students living in halls of residences.** \$11,450.

Wilson, B., Raggatt, E., Jones, P. & Neville, K. (2009-2012) **Development of a sustainability garden on the student residences site through a participatory learning model.** \$14,000

VISITORS & VISITS

HOHAI VISITORS

The Institute's alliance with Hohai University in Nanjing, China, continues to strengthen. In May this year the Faculty of Science at CSU, in collaboration with the Institute and the International Centre of Water for Food Security, hosted three senior scientists from Hohai; a reciprocal visit following a CSU delegation to China last year. The three researchers from China – Prof Guoqing Shi, A/Prof Renzong Ruan, and Dr Qihui Chen, were in Australia for approximately two weeks during which time they participated in intensive meetings with CSU researchers; visited the University's campuses at Albury-Wodonga, Wagga Wagga and Bathurst; and made field visits to the Hume and Dartmouth Dams, Colleambally Irrigation Area and the Snowy Mountains Hydro Scheme.

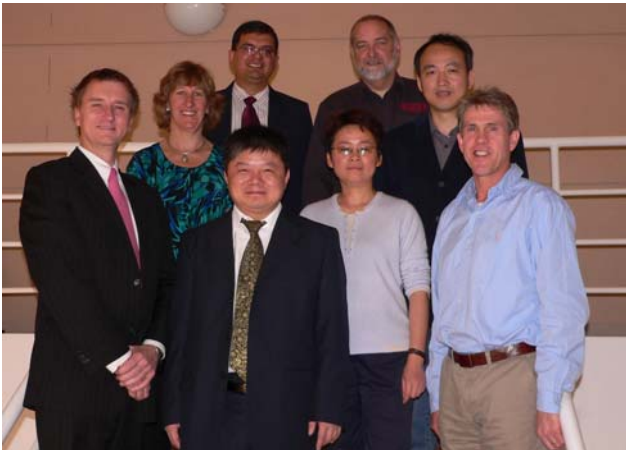
"The CSU and Hohai researchers have very similar research interests, such as wetland management, dam operations, and socio-economic impacts of water management," says A/Prof Robyn Watts. "The visit gave us the time to talk about a number of potential project areas; discuss what research we have each already done or are doing in those areas; ask what the research questions may be and where the field work would take place; identify funding opportunities; and determine immediate next steps."

A total of 14 potential collaborative projects with two co-ordinators (one from China and one from CSU) were identified. They include:

- Rural landholder adaptation to climate change in Australia and China, co-ordinated by Prof Curtis and Prof Shi
- Policy and practices for wetland restoration in China, Prof Finlayson and Prof Shi
- Understanding the impacts of water transfer projects: lessons from China and Australia, Prof Curtis and Prof Shi
- Developing new dam operating guidelines to achieve integrated environmental and socio-economic outcomes downstream of dams, A/Prof Watts and Dr Chen
- Integrated Catchment Water Resource Modelling, A/Prof Hafeez and A/Prof Ruan

"All of the projects have a multi-disciplinary focus," says Robyn. "For a number of the projects we will establish two parallel case studies, one in China and one in Australia, engaging PhD students or Post-Doctoral researchers who would have the opportunity to spend time researching in both countries."

The visit generated media interest among both print and electronic media (ABC Country Hour) in regional newspapers



(L to R) Back Row A/Prof Robyn Watts, A/Prof Moshim Hafeez, Prof Max Finlayson, A/Prof Renzong Ruan, Front Row, Prof Nick Klomp, Prof Guoqing Shi, Dr Qihui Chen and Prof Allan Curtis

ACIAR VISITOR

Dr Caroline Lemerle, Research Program Manager from ACIAR visited the Institute on Monday 1st June to meet with Dr Joanne Millar and Anne Stelling to discuss Dr Millar's ACIAR funded project in Laos. Dr Lemerle also met Prof Max Finlayson and Prof Allan Curtis

to explore research opportunities between ACIAR and ILWS. Whilst on the Thurgoona campus, Caroline caught up with two of our post-graduate students, Alison Matthews and Janet Cohn who she had worked with in NSW National Parks and Wildlife Service in Sydney.



L to R): Alison Matthews, Anne Stelling, Jo Millar, Caroline Lemerle and Janet Cohn.

DIRECTOR'S VISITS

Prof Max Finlayson :

- attended a meeting with representatives from the Lachlan CMA, CSIRO and Department of Environment and Climate Change in Sydney to discuss a wetlands and water assessment project on June 12
- went to Benalla to meet with the Winton Wetland Restoration Committee to discuss the establishment of a world class wetland (Lake Mokoan) on July 10 to 11
- Went to Pretoria in South Africa to work on a paper on sustainable subtropical agriculture and wetland management in South Africa

DOCKERS PLAINS EXPERIENCE

Rik James, from Riparian Management Services, presented a seminar on "Translating the science of ecosystem rehabilitation into practical on-ground actions—the Dockers Plains Pastoral Company experience, at Thurgoona on June 24. The company owns about 3000 ha on the lower Ovens River and surrounding Riverina Plains north of Wangaratta which includes 58 km of river/creek bank frontage, 60 wetlands and more than 600 ha of remnant and re-growth native vegetation. In recent years it has developed a Property Environmental Plan and undertaken a raft of on-ground environmental rehabilitation projects. Also present was John Paul, owner of the company. The presentation at Thurgoona was a follow-up to an earlier visit to the company's holdings by Prof Finlayson, Dr Ben Wilson, Prof Allan Curtis and Dr Rik Thwaites on May 4.



Left: Ben Wilson, Rik James and Max Finlayson

RANGERS VISIT

ILWS members had the opportunity to learn more about the various threatened species programs being run by staff from the Department of Environment and Climate Change's (DECC) Biodiversity Conservation Section –South Branch at an interesting presentation/discussion held at Thurgoona on July 23.

The discussion was led by DECC's Damon Oliver, who is based at Queenbeyan, with Matt Cameron, from Albury, and Peter Ewin, from Buronga, also in attendance. Damon explained how DECC is currently re-assessing its research priorities within the Environment Protection and Regulation group. "Five years ago we focused primarily on single species recovery plans and research projects," says Damon. "Now the emphasis is on a broader and more encompassing biodiversity conservation approach, including multi-species biodiversity management plans. In the last few years we have conducted monitoring and surveys for threatened species in southern NSW that will inform the various landscape management tools that have been developed by DECC. We are also aligning our research priorities to fit within the current state and national priorities of climate change and water."

NSW DECC is a major funding partner in a number of current ILWS ecology projects, and a key stakeholder in the ARC "Designing Landscapes to deliver Ecosystem Services to Agriculture: the case for the Regent Parrot" project. To support this project, DECC have provided \$150,000 for post-doctoral research on "The ecology and conservation management of the endangered Regent Parrot along the Murray River in NSW and Victoria. The discussion was followed by a meeting between those involved in that project—ILWS researchers, DECC, Roger Hancock and Chris Hogg from industry partners Select Harvest, and Ian Temby from Victoria's Department of Primary Industries.

"One of the main aims was for PhD students Shannon Triplett and John McLaughlin, who is based in Mildura, to have a discourse on the research they will be doing as part of the Regent Parrot project," says project leader Dr Peter Spooner. Shannon and John will begin their research experiments and field surveys in the Robinvale region in the next 6 months.



(L to R) Peter Ewin, Damon Oliver, Matt Cameron and Peter Spooner

VISITING SOCIAL SCIENTIST



Visiting Indian academic Dr C. Karthikeyan, 39, is keen to promote professional development between India and Australia.

One of 64 recipients world wide of the Australian Government's highly competitive 2009 Endeavour Executive Awards, Karthi (as he is

being known while in Australia) is in Australia for four months until October 9. While in Australia Karthi is based at Thurgoona and is working with Prof Allan Curtis and his team of ILWS researchers.

Karthi is an associate professor of Agricultural Extension with the Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore City, India where he is involved in research on social dimensions of catchment management, technology transfer and evaluation research in agriculture. "Catchment management is practised in both India and Australia so as a social scientist I am collaborating with Allan Curtis who has done a vast body of commendable work in this area in Australia," says Karthi. "We are working on developing proposals for ACIAR funded projects and for that we are identifying NRM issues common to India and Australia."

So far they have identified two potential projects. One is looking at the role of institutions (such as farmer associations, Catchment Management Authorities etc) in catchment management and how to best strengthen these institutions and sustainably manage water resources. The second is looking at the social dimensions of climate change which includes the role of farmers and their perceptions of climate change. "We are hoping to be able develop social and management decisions to combat climate change," says Karthi. Dr Rik Thwaites also had initiated discussions with Karthi to work on responses to climate change by rural people.

Karthi, keen to share his research findings over the last decade, will be presenting a seminar on "Social Context of Natural Resource Management and Agriculture in India" at Thurgoona on August 12. He will talk about two of his current projects, "Sustainable management of catchment water in India: Social Perspectives" and "e-agriculture: An ICT enabled farming in India."

While here Karthi has met with ILWS PhD students supervised by Prof Curtis, Dr Digby Race and Dr Jo Millar to learn more about their work and to share his knowledge and experiences. "I'm able to give another perspective relevant to their studies," says Karthi who also attended the ILWS research forum and intends to write a paper with Prof Curtis on natural resource management. He welcomes discussions from any interested faculty and students of CSU who are involved in social research connected with NRM.

While he is in Australia, Karthi's family, wife Viji, and two sons, Aravind, aged three and Arun, aged nine, are back home in India. But as he says, his wife, who is an Assistant Professor in Biotechnology, is also applying for an Endeavour Research Award - 2010 with CSU to work with Prof Len Wade from the EH Graham Centre, Wagga campus. If she is successful, it will then be his turn to stay home and look after the children.

AWARDS & APPOINTMENTS



The winners of the Institute's inaugural Awards for Research Excellence were social researcher **Dr Joanne Millar** (pictured left with Max Finlayson) who won the Individual Award for Research Excellence; with the ILWS Team Award for Research Excellence going to six person research team led by **A/Prof Robyn Watts** working in the research field "Adaptive Management of River Operations."

The six members of the team which won the team award are **A/Prof Robyn Watts**, whose research fields are river ecology and restoration; **Dr Catherine Allan**, social sciences and adaptive management; **Prof Kathleen Bowmer**, water policy and governance; **A/Prof Ken Page**, river hydrology and geomorphology; **Dr Andrea Wilson**, river and wetland ecology; and Dr Darren Ryder, University of New England, river ecology and riverine processes.

Congratulations to our two ILWS recipients who have won the Vice-Chancellor's Award for Excellence—**A/Prof Gary Luck** from the School of Environmental Science who won the Vice-Chancellor's Award for Research Excellence; and **Dr Jennifer Sappay** from the School of Social Sciences and Liberal Studies who won one of two Vice-Chancellor's Award for Teaching Excellence.

Dr Peter O'Meara is the first non-UK paramedic to be appointed to a three year visiting Professor post in the UK in the subject of Pre-Hospital Care. Peter is currently at Coventry University working on a project with Professor Malcolm Woollard, Professor in Pre-hospital and Emergency Care at Coventry University entitled "Influence of evidence on ambulance service policy and practice: a service evaluation".

PUBLICATIONS

PEER-REVIEWED PAPERS

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Car, C. (2009). Keeled millipedes (Diplopoda: Polydesmida: Paradoxosomatidae) in New South Wales. *General and Applied Entomology* 38: 1-7

Car, C. and **Wassens, S.** (2009). Getting the most out of arthropod biodiversity surveys: a comparison of survey techniques and taxonomic groups. *General and Applied Entomology* 38: 31-35

Lockwood, M., Davidson, J., **Curtis, A.**, Stratford, E., and **Griffith, R.**(2009) Multi-level Environmental Governance: lessons from Australian natural resource management, *Australian Geographer*, 40:2,169 -186

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Mackay, H., **Finlayson, C.M.**, Fernandez-Prieto, D., Davidson, N., Pritchard, D., & Rebelo, L.-M. (2009) The role of Earth Observation (EO) technologies in supporting implementation of the Ramsar Convention on Wetlands. *Journal of Environmental Management*, 90 (7): 2234-2242

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Morrison, M. & Brown, T. (2009). Testing the Effectiveness of Certainty Scales, Cheap Talk, and Dissonance-Minimization in Reducing Hypothetical Bias in Contingent Valuation Studies. *Environmental Resource Economics*, (electronic version).

Parton, K.A (2009) A simple theory of induced genetic change. *Frontiers in Ecology and the Environment*. Vol. 7, No. 5, pp. 239-239

Race, D., **Stewart, H.**, **Sumirat, B.** et al. (2009) Partnerships for involving small-scale growers in commercial forestry: lessons from Australia and Indonesia. *International Forestry Review*, Vol.11(1): 88-97

Joseph, L., Adcock, G.J., Linde C., Omland K.E., Heinsohn R., Chesser R.T., and **Roshier, D** (2009). A tangled tale of two teal:

population history of the grey *Anas gracilis* and chestnut teal *A. castanea* of Australia. *Journal of Avian Biology* 40, 1–10

Roshier, D.A and **Asmus M.W** (2009). Use of satellite telemetry on small-bodied waterfowl in Australia. *Marine and Freshwater Research* 60, 326–332

Rawsthorne, J., **Roshier, D.A.** and Murphy, S.R. (2009). A simple parametric method for reducing sample sizes in gut passage trials. *Ecology* 90, 2328–2331.

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Boylan, C. (Ed). (2009). *Education in a digital present*. Proceedings of the 25th annual Society for the Provision of Education in Rural Australia Conference. SPERA Inc, Perth WA

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OTHER

Prof Allan Curtis's presentation on "Rural property turnover: trends and NRM implications" was one of a number presented at the Understanding Practice Change by Rural Landholders symposium held in Melbourne, November 14, 2008. The presentations are now available on line in video and audio formats.

Prof Finlayson (with Diego Fernandez-Prieto) was guest editor of a Special Issue of the Journal of Environmental Management, Volume 90 (7) from the GlobWetland Symposium: Looking at wetlands from space. Their editorial was titled "Earth observation and wetlands."

RURAL SOCIETY

The latest edition of *Rural Society* (Volume 19, Issue 2) themed 'Sea Changes, Tree Changes and Bush Lessons: Post-compulsory Education and Rural Renewal' is out. The journal features a range of articles with one from CSU researcher Susan Mlcek entitled [Providing post-compulsory education options through 'new-look' rural](#)

[partnerships](#). Find out more at <http://rsj.e-contentmanagement.com/archives/vol/19/issue/2/>

SUSTAINABILITY IN OUR EVERYDAY LIVES

Often it's good to have a reminder of what we can do in our everyday lives to be more sustainable. Institute adjunct **Barney Foran**, in a report he wrote as a member of the Indigo Shire Environmental Advisory Group -**Improving Greenhouse Accounting Protocols**-to the Indigo Shire in North-East Victoria in May this year included information on household activities that would help reduce Indigo Shire's per person greenhouse emissions.

The suggestions, no doubt, would be just as relevant to people living outside Indigo Shire in which citizens, on average, are each responsible for 20 tonnes of CO₂-e emissions per year through their lifestyle and consumption decisions... technically known as "full production chain" emissions. "This emissions level is below the 28 tonnes per person often quoted at a national aggregate level," writes Barney "and omits the emissions embodied in our exports (which are consumed elsewhere) and those due to government activity (education, health, defence, foreign affairs.)"

Suggestions for Greenhouse reducing activities

Home power

- Solar hot water or heat pump
- Wood heating with plantation produced wood
- Highest level insulation and retain maximum warmth or cooling
- Check and replace energy using machines
- Turning off all appliances at the wall when not in use

Transport

- Maximise activities for each trip and share transportation for longer trips
- Walk or cycle locally
- Replace current car with low fuel consumption option that does around 5 to 6 litres per 100 kms
- If diesel, use bio-diesel if possible
- Use train or bus for city trips

Food

- Eat less red meat and less meat generally
- Buy local where possible and mainly Australian. Supply 30% of vegetables and fruits from the home garden
- Use mainly fresh ingredients (non-factory foods) and consume three to four vegetarian main meals per week
- Reconcile life cycle analysis of food types with healthy living recommendations

Maintenance and renovation

- Do it right first time to at least 7 star standards moving to 10 star by 2015
- Use pre-loved components where possible
- Balance high greenhouse materials (concrete, aluminium etc.) with the design's ability to reduce long term energy/water use
- Choose long life and non-faddish designs and materials with a style suited to maintaining real estate values
- Seek out local experts who have already learned the lessons

Shopping (non-food)

- Shop less, save more and reduce debt levels
- Buy preloved houses, cars, white goods, furniture and clothes
- Shop locally and buy Australian-made for enduring style and resale
- Buy highest star ratings for appliances and focus on long lived items
- Use time for community, family and friends rather than for shopping and retail therapy

PROJECTS

THE WAITING GAME

Even before the analysis and testing is finalised ILWS researcher, Dr David Roshier, like many scientists, is already busily laying out his next project. David has recently returned from the wilderness areas of Cape York where he and three colleagues caught and sampled waterfowl for an Australia Research Council funded project. "This research is important both ecologically and from a genetic perspective in terms of understanding avian influenza, but on a broader scale it will contribute to knowledge about the poorly understood Australo-Papuan migration system," he said.

"Across northern Australia and New Guinea we targeted four species of duck: grey teal, magpie geese, wandering whistling-duck and Pacific black duck. These were specifically chosen because Pacific black duck are a natural reservoir for avian influenza, grey teal are very mobile and magpie geese and wandering whistling-duck have distributions that extend into New Guinea and Indonesia."

David and Robert Heinsohn from ANU spent three weeks in 2007 chasing ducks at Lake Murray, located between the Strickland and Fly Rivers in the Western Province of Papua New Guinea, which is about 300 km inland, but only 20m above sea level. In this very remote and undeveloped location, they with the help of locals, caught 22 wandering whistleducks with nets and attached satellite transmitters. "I'm pleased to say one is still transmitting two years later," David said. The team were a little surprised that none crossed the Torres Strait or travelled further afield, they all flew west into the agricultural areas and lowland forested regions of West Papua in Indonesia, a maximum of about 450 km.

"Fortuitously we put transmitters on what turned out to be a pair of birds who bred in the summer of 2007 and again in 2008. This was interesting because ducks are assumed to mate only for a single season, unlike swans and others which usually mate for life," he said. David still keeps in touch with one local who helps with samples and their communication has been made easier by email. "Two years ago we would ring his brother and he would relay a message by radio, but he now has the internet. I don't know how, because he lives in a bamboo hut, in the middle of nowhere and they don't have mains electricity. But it works."

Apart from using transmitters to study the movement of birds, the team took blood and feather samples, to investigate the genetics of birds at various locations across northern Australia and New Guinea in order to determine how connected the populations are with each. For example, are the birds they caught and sampled at Cape York more similar to birds in New Guinea or Kakadu? The team received assistance from colleagues in the Kimberley and Kakadu who provided samples for analysis. Not only is the blood tested for its genetic origins, but also stable isotopes and trace elements, which is a novel test in Australia. "We want to use multiple lines of evidence to understand how connected these populations are. We don't have a good understanding of how isotopes are distributed in the landscape, but it looks like trace elements, things like selenium and manganese, could be good markers to help us understand where the bird was when the feather was grown. But we are still working on it," David said.

David's project has also supplied data to colleagues at James Cook University in Townsville who are trying to find out more about avian influenza. "The anti-bodies from the serum samples we collected can be used to figure out which strains of avian influenza the birds carry. It's important to understand how Australian viruses are related to Asian viruses and how prevalent the various strains are in Australian bird populations." Several of the birds David and his colleagues collected were carrying avian influenza at the time they handled them, but not the bad one - H5N1.

"Genetic analysis takes a lot of time and effort and we can't finalise anything until we have all the samples. The last lot are in, so I expect we'll start to see some results in October. We'll definitely have a story to tell," said David. His next project will focus on the interplay between disease and migration in birds, using pigeons in northern Australia as a model system. – *Kate Roberts*

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