

From the President's desk

Dear Members,

In this, my first editorial as President, I would like to farewell outgoing ASP Council members and welcome the new ASP Council. Special thanks are extended to Nick Sangster (Treasurer) and David Jenkins (Executive Secretary), as well as Simon Cobbold (ACT Councillor), Deborah Holt (NT Councillor), Tamsin Barnes (QLD Councillor), Amanda Ash (WA Councillor), Katharine Trenholme (Incorporations Secretary) and Andrew Thompson (BMM Convenor) for their outstanding efforts during their terms on Council. The new Council members are: Robert Adlard (Executive Secretary), Kathy Andrews (Treasurer), Richard Allen (ACT Councillor), Jutta Marfut (NT Councillor), Terry Miller (QLD Councillor), Alan Lymbery (WA Councillor), Chris Peatey (Incorporations Secretary), Emanuela Handman (BMM Convenor), Kevin Saliba (IJP-DDR Editor: unicellular parasites), and Andrew Kotze (IJP-DDR Editor: multicellular parasites). Maureen Engler has accepted the position of Secretariat, replacing Lyn Wynn. We thank Lyn for her dedication and years of service to ASP.

Council has agreed to reappoint Alex Loukas as Editor-in-Chief for IJP for a 3-year term when his current contract expires in April 2012. Maria Meuleman will be reappointed as the IJP Editorial Assistant. On behalf of ASP and the field of parasitology, I would like to thank Alex and Maria, the deputy editors Brian Cooke and Ian Beveridge, and the IJP Editorial Board members, for their outstanding work. IJP remains the highest ranking journal that publishes research articles devoted to parasitology, as measured by impact factor. The 2010 impact factor of the journal was 3.822.

In related news, the International Journal for Parasitology: Drugs and Drug Resistance (IJP-DDR) was launched by Elsevier on 22 June 2011. IJP-DDR is an electronic open access journal. Its mandate is to publish original research and review articles in the areas of anti-parasitic drugs, drug development and mechanisms of drug resistance, for the control of unicellular or multicellular parasites of human or veterinary importance. The first paper was accepted 23 August 2011, and there have been 22 submissions to date. Members are encouraged to submit relevant papers to IJP-DDR. For additional details, please see http://www.elsevier.com/wps/find/journaldescription.cws_home/726218/description

A second sister journal, IJP-Parasites and



Wildlife (IJP-PAW) dedicated to diseases of wildlife (ecology, conservation, biodiversity, and surveillance) has been proposed to Elsevier by Andy Thompson, with Council backing. Andy has noted that unless the aetiological agent(s) of disease are of zoonotic significance, impact on livestock or in zoo animals, they are not covered by Veterinary Parasitology. Feasibility studies by Elsevier have supported the idea of such a journal.

The 2011 ASP Conference held in Cairns from 10th-13th July was attended by 212 delegates. Presentations by high calibre international and national speakers integrated tropical parasitology for both animal and human health within themes of One Health, Tropical Marine Parasitology, Malaria, and Tropical Veterinary Parasitology. The public lecture on the opening night was very entertaining and extremely well received by the large number of attending public as well as conference attendees. The pre-conference workshops on Aquatic Parasitology (organised by Kate Hudson) and Bioinformatics (organised by Jason Mulvenna) were very successful, as was the 2-minute "speed-dating" session in the main conference. Photos from the 2011 ASP Conference are at the end of this newsletter.

The 2012 ASP Conference will be held in Launceston from 2nd-5th July 2012. The venue is the Launceston Country Club and all accommodation will be on site with many opportunities to catch up with colleagues around fireplaces. The Annual Conference Banquet will be held at The Boat House in Launceston with a "Christmas in July" theme. It should be a great conference so please save the date! Since the conference is during school holidays, we are investigating the option of a

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conference Kids Club for those members considering bringing their children to Launceston. Local attractions of interest include trail rides or pony rides, Seahorse World, Platypus House, Tasmania Zoo (with Tassie Devils and Fairy Penguins), caves, Cataract Gorge, and Cradle Mountain. Please let Lisa know if you are interested in bringing your children to the Kid's club.

Congratulations to Prof Alan Cowman, Dr Julie Healer, Mr Sash Lopaticki, Dr Wai-Hong Tham, Ms Jennifer Thompson and Mr Tony Triglia from WEHI for winning the highly competitive 2011 Australian Museum's Eureka Prize for Infectious Diseases Research, one of the most prestigious awards in Australian science. The award recognized the team's long-term research on how the malaria parasite invades and remodels the human red blood cell and how the malaria parasite evades the human immune system and beats anti-malarial drugs.

Alan Cowman is also to be congratulated for being named as a Fellow of ASP in recognition of his contribution to the field of parasitology. Alan was elected as a Fellow of the Royal Society of London for Improving Natural Knowledge in May 2011, and President of the World Federation of Parasitologists in 2010. We are proud to acknowledge Alan as a long-standing member of ASP. Alan has been profiled on page 3 of this newsletter.

Also profiled in this newsletter (page 4) are Jacqui and Peter Upcroft who have retired from QIMR. They have been very prominent in the parasitology field (particularly in studies of *Giardia* and anaerobic protozoans), and on behalf of all members, I thank Jacqui and Peter for their contributions and wish them well in their retirement.

Unfortunately, I have some sad news to pass along. Professor John Pearson, fellow of the Australian Society for Parasitology, passed away in October 2011. John was born in Canada and studied in Ontario Canada before moving to Brisbane as a Post-doctoral Fellow in Helminthology at the then Department of Parasitology, University of Queensland. John received a Personal Chair in Helminthology at the University, retiring in 1992 after 36 years service at the University. During this period, he supervised the PhD

studies of a number of prominent parasitologists, including Malcolm Jones and Tom Cribb. John was an international authority on trematode taxonomy and life cycles and wrote leading papers on the phylogeny of the Digenea. John is survived by his wife Margaret, his three children Owen, Madeline and Jonathan and their families. Malcolm Jones attended and spoke at John's funeral, on behalf of ASP.

At the 2011 ETM ASP Council agreed to set a budget for outreach of \$2000 per calendar year to support State activities, please contact your State Representative for more details.

Finally, I want to remind members of the ASP Network for Parasitology Researcher Exchange, Training and Travel Awards Scheme which provides funding assistance to ASP members for researcher exchanges, training courses, visiting international lectureships, workshops and grant writing retreats. There will be three funding rounds in 2012 of the ASP Network for Parasitology Travel Award scheme. I also want to promote OzEMaLaR (the Australia Europe Malaria Research Cooperative Travel Award Funding Assistance) which supports exchange between Australian malariologists and members of EVIMaLaR (European Virtual Institute of Malaria Research). Funding assistance is available primarily for Postdoctoral fellows and PhD students who are ASP members to undertake malaria research for short periods in European labs or attend workshops of grant writing retreats. For OzEMaLaR, there will be six funding rounds in 2012.

A reminder that under Article III Sect 2 of the ASP Constitution ASP Members who are retirees can pay 3x annual fees and then be lifelong members. ASP currently has 573 members, as of Jul 2011, and I look forward to serving as President, furthering the goals outlined in the Strategic Plan, and fostering closer ties and stronger interactions among the rich diversity that makes up Australian parasitology.

With best wishes for the festive season, and Happy New Year

Denise Doolan



The 2012 ASP conference will take place 2-5 July at Country Club Tasmania. See page 9 for more details.

ASP Fellow Alan Cowman



Professor Alan Cowman from Walter and Eliza Hall Institute was made a Fellow of the Australian Society for Parasitology Inc. at the 2011 ASP Annual Conference, Cairns, Australia on 13 July 2011.

Shortly afterwards, Alan was made a Fellow of the Royal Society (he's pictured above and right accepting his Royal Society Award from Paul Nurse, President of the Royal Society), so he could not be present at the ASP award ceremony in Cairns. Alan said, "I'm very pleased to be made a Fellow of the ASP. I've been an ASP member for a long time and have tried to contribute and I'm really pleased to be recognised. I was sad not to be able to accept the award in person".

Alan spoke further with Lisa Jones about his research career and the things that have affected his path as a parasitologist.

Tell us how you become involved in parasitology research?

"I grew up in Brisbane and studied at Griffith University. After my Bachelor degree, I decided I wanted to go somewhere else to do a PhD, so I wrote to Dave Kemp and Susan Cory at WEHI and also to people in the Molecular Biology Department at The University of Adelaide". Ultimately, Alan could have gone to either place but chose WEHI and started his PhD in 1980.

"My PhD research involved studying immunoglobulin genes with Dave Kemp," recalls

Alan, "And my path to parasitology was a bit convoluted as I switched projects in my PhD to work on the parasite *Babesia bovis*". Once he completed his PhD he did a 12 month Postdoctoral period working with the malaria group at WEHI. This was followed by a 2-year post-doctoral period with Gerald Rubin at the University of California, Berkeley working on *Drosophila melanogaster*. "Malaria had always been on my mind as something really interesting and significant to study and I was keen to get back to it".

Alan got his opportunity after his postdoctoral stint in Berkeley, with the offer of a position at WEHI. "I wanted to return to Australia after my time in Berkeley. I found malaria fascinating and, at first, I worked on drug resistance. But I soon realised that we wanted, and needed, to develop a way to manipulate the malaria parasite; to find selectable markers for transfection of *Plasmodium falciparum*", Alan said.

What interests you about working in malaria?

"Malaria is a huge disease that affects humans, and I wanted to work on something that has such great public health importance", Alan said. "Also, the combination of molecular biology and malaria creates some very particular challenges and leads to very interesting experiments."

Alan has made a career studying the factors in the malaria parasite that are important for its invasion of red blood cells. "I'm fascinated how this parasite binds receptors on red blood cells as the first step in invasion and then, once bound, starts up a whole suite of machinery for invading".

"But I'm also interested in using all the

knowledge we've gained over the years to develop a vaccine against malaria. There is a big push to enable malaria to be controlled and eventually eradicated and if we can contribute to that overall aim it would be immensely important and satisfying", said Alan.

"We're looking at two different types of malaria vaccine. We've got a genetically-attenuated malaria vaccine, which we've been working on with Stefan Kappe in Seattle, currently in clinical trials in the US, and another combination, protein-based vaccine that's under development,"

You've won a lot of awards this year, Alan – the ASP Fellowship, elected to the Royal Society and, most recently, the 2011 Research Fellowship Achievement Award from the National Health and Medical Research Council – that must be amazing?

"It is nice to receive awards. I think I am lucky I had some great mentors, especially Dave Kemp and Susan Cory. But, in my experience it is best to share awards with the people in my lab so, actually, our Eureka Prize in 2011 for our malaria vaccine research, which was shared amongst six members of my lab, recognising a great collaboration, was a bit special and wonderful to celebrate", said Alan.

What motivates you in science?

"I think the two things I have learnt over the years are; you don't get results often, so enjoy them when you do, and share the results with the people you're working with. Science is a shared experience of groups of people working together", said Alan.

"One year into my post doctoral position at

ASP Fellow Alan Cowman cont...

WEHI, after 12 months of pouring and running sequencing gels, I sequenced the same genes from two different strains and compared them when I had them assembled. It was 10 pm on Sunday night and I got to the point where the computer diagonal plot gave an identical straight line. I thought that it had to be a mistake, that the genes had to be different, so I pressed the button again but the straight line came up again. I stopped and checked everything twice because I thought that maybe I'd made a mistake – it had been a long day – and that I was comparing the same thing to itself. But it turned out that the two genes were absolutely identical at each end but different in the middle – this explained the diversity of the S-antigen. The thing was, there was no one around to tell! I called Dave Kemp but got no answer – he was out, I think. So, I called Lyn Corcoran (who had also been working on immunoglobulin genes and switched to malaria) and she came in and shared the moment with me! It was one of my defining moments in science", said Alan.

It was a great pleasure to interview Alan and we look forward to hearing about the outcomes of the current vaccine trials.

Researcher News



Peter and Jacqui Upcroft

Peter and Jacqui Upcroft

In early September 2011, two of the ASP's greatest stalwarts and staunch supporters, Peter and Jacqui Upcroft, retired from QIMR.

Jacqui and Peter met in the early 70s during their undergraduate studies at the Department of Biochemistry, University of Sydney — two of their contemporaries were John Mattick and Dave Kemp. Subsequently they went on to complete their PhDs at Sydney University with Peter completing a thesis entitled: "Isolation of a DNA initiation mutant of *B. subtilis* W23 and its use in studies on DNA replication" and Jacqui's study was "Nitrate Reduction in Seedlings of *Triticum aestivum*." These theses were far removed from their later research in parasitology where they have made invaluable contributions.

They managed to find the time during their postgrad studies to get married and to seek post-doctoral positions, first at Harvard Medical School and then at the University of California, Los Angeles. The latter led to them developing their skills in genetic engineering.

In the late 70s, Peter was recruited to QIMR as a Senior Scientist and Head of the fledgling Recombinant DNA Unit; subsequently, he was promoted to Research Scientist, Senior Research Fellow and, ultimately, Principal Research Fellow. One of Peter's most significant bodies of work was developing the first mammalian cell assay for recombination functions using SV40 DNA segments and then followed by SV40-based plasmids. Modifications of this approach continue to be used. He also developed novel DNA transformation and cloning methods.

Meanwhile Jacqui was ensuring the Upcroft genetic progeny were given the best environmental conditions in which to thrive, but she did continue teaching

Researcher News cont...

in a part-time capacity. In 1980, Chev Kidson — the then Director of QIMR — recruited Jacqui to the Malaria laboratory. Working as a NHMRC Senior Research Officer, Jacqui was involved in the cloning and expression of malaria-parasite antigens in *E. coli* to facilitate their assessment as vaccine candidates. Several of her cloned libraries of malaria-parasite genes were produced and used for many years at QIMR.

In the late 80s, Peter and Jacqui teamed up with the late Peter Boreham, and commenced their internationally-recognised studies investigating the genome organisation, drug resistance, biology, and epidemiology of *Giardia*. Subsequently, they extended their research to studies of *Trichomonas* and *Entamoeba*. They published a prolific number of papers on these three protozoan parasites, including joint authorship of the break-through draft genome sequence of *T. vaginalis*, which was published in *Science* in 2007. In their distinguished careers, their work has attracted substantial funding from: the National Health and Medical Research Council, the Australian Research Council, the NSW Milk Board, the U.S. National Institutes of Health, Harvard University, University of California at Los Angeles and the University of Queensland.

In their laboratory, Jacqui and Peter were renowned for their training and mentoring of technical staff, exceptionally gifted PhD students and post-docs. They are equally well known for their research networks: establishing major collaborations with scientists in the USA, Mexico, France, Thailand, Switzerland, PNG, Canada, Sri Lanka and the former Czech Republic.

Jacqui and Peter have been generous in sharing their work with the national and international parasitology community. They have presented their research at many ASP meetings and they have received many funded invitations to speak at conferences in Australia and overseas. Jacqui and Peter organised a series of well-received *Giardia/Entamoeba/Trichomonas* meetings at QIMR, and in Prague and Sardinia. Jacqui was awarded a Winston Churchill Memorial Trust Fellowship 2002 for travel in 2003 to establish collection of *Trichomonas* isolates for molecular analysis.

As well as their contribution to parasitology they have travelled extensively and seen much of the world. Jacqui and Peter are the best travellers: embracing new places, new cultures, new food — the spicier the better — and, in Peter's case, new beers! They will now have time for more travel and their other passions including more time to spend with their sons' families. We acknowledge their huge contribution, we wish them health and happiness and we will miss their generosity and humour.

Written by Don McManus; edited by Hawys McManus



Peter Upcroft



Jacqui Upcroft

News from the ASP Network for Parasitology

The 2011 ASP Annual Conference 10-13 July in Cairns was a great success as were the post-graduate workshops in Bioinformatics (run on the 9th and 10th July **Jason Mulvenna**, James Cook University) and in Marine Parasitology (run 10th July by **Kate Hutson**, James Cook University). We would like to thank both Jason and Kate who put a lot of time and energy into organising these workshops and preparing course work material, well done to both of you.

Our public lecture "Parasitic and Venomous Encounters in the Tropics", Sunday 10th July opened the 2011 ASP Conference and featured a fabulous set of speakers. This event was attended by over 400 parasitologists and general public, was very entertaining and informative. Thanks to our wonderful speakers **Jamie Seymour (JCU)**, **Alex Loukas (JCU)**, **Charlene Willis (QIMR)**, **Malcolm Jones (UQ)** (Mal stood in at the last minute for **Tom Cribb** who was unwell so special thanks again Mal) and **Peter O'Donoghue (UQ)**.

November 2011 saw the First International *Chromera* workshop take place, organised by **Prof Geoff McFadden** (University of Melbourne) and **A/Prof Dee Carter** (University of Sydney). The 2008 discovery of a new group of coral symbionts known as chromerids was hailed as one of the most significant microbiological finds of the decade. Related to malaria parasites, chromerids are photosynthetic organisms believed to live in corals. Malaria parasites were originally photosynthetic and likely evolved from a photosynthetic symbiont like chromerids so these fascinating algae fill in a missing link in the evolution of malaria parasites.

From 21-25 November, 2011 twenty chromerid biologists from all corners of the world gathered at Heron Island Research Station on Australia's Great Barrier Reef to share their findings, collect chromerids and immerse themselves in the wonderful ecosystem of a coral quay with nesting seabirds and turtles.

Images of this highly enjoyable and successful meeting are online at http://www.geoffmcfadden.com/McFadden_Lab/Chromera_workshop.html

At the end of this issue of the ASP Newsletter we feature some photographs taken at the 2011 ASP Annual Conference and the 2011 *Chromera* workshop.

Congratulations to JD Smyth Travel Award and ASP Network Travel Award winners in the last round of the Award scheme for 2011.

JD Smyth Travel Award winner

Sarah Catalano (University of Adelaide) won the prestigious **JD Smyth Travel Award** in October 2011 for a Researcher Exchange to visit the laboratory of A/Prof Hidetaka Furuya, Osaka University, Japan March 2012

ASP Network Travel Award winners

Hamish McWilliam, PhD Student, Monash University for a Researcher Exchange to visit Prof Yuesheng's lab at the Hunan Institute of Parasitic Diseases, China.

Alexandra Umbers, Postdoctoral Scientist, University of Melbourne based in Madang, Papua New Guinea for a Researcher Exchange to visit the laboratories of Dr Jocelyn Glazier and Professor John Aplin, Fetal and Maternal Health Research Centre, University of Manchester.

Angelika Sturm, Postdoctoral Scientist, School of Botany, University of Melbourne, for the Monash Micro Imaging Training course, Imaging facility of Monash University, Melbourne.

Barbara Nowak, Professor, University of Tasmania, Researcher Exchange to support visit from Prof Chris Secombes, University of Aberdeen, Feb-March 2012.

Charlene Willis, NHMRC Australian Biomedical Fellow, Queensland Institute of Medical Research, Researcher Exchange to Visiting the laboratory of Conor Caffery UCSF, University of California to learn RNA interference in schistosomes.

Michaela Petter, Postdoc, Department of Medicine, RMH/WH, University of Melbourne, for a Training Course Life Cell Imaging Workshop at Monash University.

The deadline for applications for the ASP Network Travel Awards in 2012 will be:

Friday 27 January 2012

Friday 25 May 2012

Friday 5 October 2012

Ian Beveridge from has been elected 'Honorary Member of the World Association for the Advancement of Veterinary Parasitology (WAAVP)

This honour is conferred on persons who have contributed in a distinguished manner to the advancement of Veterinary Parasitology internationally.

The award was announced at the 23rd International Conference of the World Association for the Advancement of Veterinary Parasitology (WAAVP) in Buenos Aires (<http://www.waavp2011-argentina.com.ar/>).

Congratulations to Australia's parasitologists who have done exceptionally well in recently announced NHMRC Research Fellowships and Project Grants, and ARC Grants, scooping over \$30 million worth of funding.

Congratulations to Professor Alan Cowman who was awarded one of the National Health and Medical Research Council's (NHMRC) top honours receiving the **2011 Research Fellowship Achievement Award**.

The award recognises the top ranked researcher in the NHMRC Research Fellowship applications for 2011. Professor Cowman received the award at the NHMRC's 75th Anniversary Symposium gala dinner held in Canberra in December 2011.

The NHMRC Fellowship will support Professor Cowman's research exploring how the *Plasmodium* parasite identifies, invades and remodels the host cells in which it lives, scavenging nutrients and hiding from the immune system.

With best wishes for a very Happy New Year!

Nick Smith and Lisa Jones
ASP Network for Parasitology

Congratulations NHMRC Research Fellowships and Project Grants

2011 Research Fellowship Achievement Award

Professor Alan Cowman

Walter and Eliza Hall Institute

Career Development and Early Career Fellowships

Dr Erinna Lee

Cell death in parasites

Walter and Eliza Hall Institute

Dr Ashraful Haque

Understanding the host immune response to blood-stage malaria

Queensland Institute of Medical Research

Dr Jonathan Richards

Antibodies to the invasion ligand EBA175 and protection from *Plasmodium falciparum* malaria. Macfarlane Burnet Institute for Medical Research and Public Health

Miss Brioni Moore

Evaluation of azithromycin plus piperaquine as intermittent presumptive treatment in pregnant Papua New Guinean women. University of Western Australia

Dr Danny Wilson

Unravelling the sequence of signals required for invasion of the malaria parasite *Plasmodium falciparum*: identifying new targets to stop an old foe in its tracks.

Walter and Eliza Hall Institute

Dr Neta Regev-Rudzki

Export of effector proteins by *P. falciparum* to the infected erythrocyte.

Walter and Eliza Hall Institute

Senior Research Fellowships

Prof. Alan Cowman

Walter and Eliza Hall Institute

Prof. Denise Doolan

Queensland Institute of Medical Research

Prof. Alex Loukas

James Cook University

Project Grants

Dr Gabriela Minigo

Age- and species-related regulation of host inflammatory responses in *falciparum* and vivax malaria

Menzies School of Health Research

Dr Tonia Woodberry

Understanding dendritic cell dysfunction and apoptosis in malaria in endemic populations

Menzies School of Health Research

A/Prof. Qin Cheng

The control and regulatory mechanisms of artemisinin induced dormancy in *P. falciparum*

Queensland Institute of Medical Research

Prof. Ivo Mueller

Dynamics of malaria transmission stages in host and vector: bottlenecks and their impact transmission and parasite population diversity

Walter and Eliza Hall Institute

Dr Tania De Koning-Ward

Functional characterisation of the malaria protein export machinery

Deakin University

Prof. Nicholas Hunt

The astrocyte: a crossroads in cerebral malaria pathogenesis

University of Sydney

Prof. Raymond Norton

Inhibitors of Inducible Nitric Oxide Synthase (iNOS) Regulation as a Basis for Novel Anti-Infective Agents

Monash University

Prof. Stephen Rogerson

Malaria in pregnancy: exposure, immunity and complications

University of Melbourne

Dr Jacob Baum

Dissecting the molecular basis of actin filament disassembly in the malaria parasite

Walter and Eliza Hall Institute

Prof. Raymond Norton

A New Class of Anti-Malarial Agents Targeting Apical Membrane Antigen

Monash University

Dr Julie Simpson

Optimising severe malaria treatment using pharmacokinetic/pharmacodynamic modeling

University of Melbourne

A/Prof. Jonathan Baell

Discovery of New and Better Treatments for Human African Trypanosomiasis

Walter and Eliza Hall Institute

Dr Christopher Tonkin

Functional Dissection of Invasion Motor Regulation in *Toxoplasma gondii*

Walter and Eliza Hall Institute

Dr Wai-Hong Tham

The role of parasite adhesins in *Plasmodium falciparum* invasion of human erythrocytes

Walter and Eliza Hall Institute

Dr Alyssa Barry

Mapping *Plasmodium falciparum* population structure and the source of outbreaks in Papua New Guinea

Walter and Eliza Hall Institute

Prof. Allen Ross

Towards sustainable control and elimination of schistosomiasis in the Philippines

Griffith University

Dr Kate Mounsey

Inside the skin: understanding different host responses in scabies

Queensland Institute of Medical Research

Dr Valery Combes

Microparticles are pathogenic elements in the pathophysiology of cerebral malaria

University of Sydney

Dr Diana Hansen

The role of chemokine networks in severe malaria and the control of parasite density

Walter and Eliza Hall Institute

Program Grants

Professor Michael Good; Professor Don McManus. Professor Istvan Toth, Professor Nicholas Anstey, Professor Denise Doolan, Doctor Christian Engwerda, Professor Alexander Loukas, Professor James McCarthy, Professor Richard Price

Tropical Disease - Immunity, pathogenesis and vaccine development: global translation
Griffith University, QIMR, University of QLD, James Cook University, Menzies School of Health Research

Congratulations ARC Grant winners for 2011

Total value of ARC grants for Australia's parasitologists was over \$6 million

Discovery Projects

Prof Miles Davenport, Dr Ashraful Haque, Dr Michelle Wykes, Dr Deborah Cromer, A/Prof Ann Moormann

Understanding the dynamics of malaria infection

The University of New South Wales

News from the ASP Network cont...

Prof Els Meeusen, Prof Robyn O'Hehir

Designing new generation adjuvants for allergy and parasite vaccines
Monash University

Dr Stuart Ralph, Dr Eric Hanssen, Dr Jacob Baum, Dr Friedrich Frischknecht

Unlocking malaria invasion by ultraresolution microscopy
The University of Melbourne

Dr Ross Waller, Dr Giel van Dooren

Composition, assembly and functions of the pellicle of apicomplexan parasites: a structure pivotal to disease transmission and progression
The University of Melbourne

Dr Alexandra Grutter, Dr Redouan Bshary, Dr Elizabeth Madin, Dr Mark Meekan, Prof Robert Warner

What happens to coral reefs without cleaner fish?
The University of Queensland

Dr Renfu Shao, Dr Wenyi Gu, A/Prof Stephen Barker

Evolution and function of fragmented animal mitochondrial genomes
The University of Queensland

Dr Brendan McMorran, Prof Simon Foote

Analysing the protective role of platelets during malaria infection
University of Tasmania

Linkage Projects

Open source drug discovery for malaria
Dr Matthew Todd, Dr Timothy Wells
The University of Sydney

Prof Els Meeusen

Exploiting the lymphatic system for next generation vaccine development
Monash University

Prof Ronald Quinn, A/Prof Andreas Hofmann, Dr Omar Vandal, Dr Takushi Kaneko

Fragment based screening to deliver drugs targeting tuberculosis and the gametocyte and liver stages of *Plasmodium*
Griffith University

LIEF Grants

Prof Alister Ward, Prof Johnson Mak, Dr Linfa Wang, Dr John Stambas, Dr John Lowenthal, Prof Ralph Tripp, Dr Tania de Koning-Ward, Prof William Buttemer

Collaborative high bio-containment immunological research facility
Deakin University

Dr Marc Kvansakul, Prof Michael Ryan, Dr Begoña Heras, Dr Megan Maher, Dr Christine Hawkins, A/Prof Matthew Perugini, Prof Michael Parker, Prof Roberto Cappai, Dr Stuart Ralph, Dr Michael Griffin

Melbourne and La Trobe rapid integrated X-ray diffraction facility
La Trobe University

Prof Leann Tilley, A/Prof Ian Harper, Prof Michael Ryan, Prof Paul Gleeson, Prof John Furness, Prof Tony Tiganis, Prof Keith Nugent, Prof Elizabeth Hartland, Prof David Jans, A/Prof Martin Lackmann, Dr Alexander Maier, Dr Jacob Baum, Dr Kelly Rogers, Prof Alan Cowman

A cellular nano-imaging facility: Probing cellular complexity.
The University of Melbourne

Prof Ronald Quinn, A/Prof Sally-Ann Poulsen, Prof Johnson Mak, Prof Ian Charles, Prof Adam McCluskey, Prof Elizabeth Harry

Bioaffinity mass spectrometry infrastructure to identify small molecules binding to therapeutic targets.
Griffith University

Dr Norelle Daly, Prof Alex Loukas, Dr Jason Mulvenna, A/Prof Jamie Seymour, Prof David Craik, Prof Glenn King, Prof David Fairlie, Dr Karl Rosengren, Dr Horst Schirra

High-resolution and high-throughput Nuclear Magnetic Resonance (NMR) facility
James Cook University

Prof Simon Foote, Prof James Reid, Prof Emily Hilder, Dr David Gell, Dr David McGuinness

Purchase of a high resolution Nuclear Magnetic Resonance spectrometer with liquid chromatography module
University of Tasmania

Network Mentorship Scheme

Early career researchers are encouraged to apply to the Network Convenor (nicholas.smith@jcu.edu.au), in strict confidence, for funding to participate in the Network Mentorship Scheme. The scheme allows young investigators to be paired with experienced, successful researchers to discuss, plan, prioritise and set targets for their career. Typically, the early career researcher will fly to the institute of a senior parasitologist and spend a day there. Arrangements for professional development and progress to be reviewed by the pair annually can also be arranged. Importantly, mentors need not be from an individual's home institution but can be drawn from across the Network. The scheme has proved very valuable for several young researchers and their mentors already.

To apply, simply write to Nick Smith (nicholas.smith@jcu.edu.au) with a brief outline of your research interests and aspirations. You can also indicate a preferred mentor or ask Nick for advice on whom amongst the Network participants may be most suitable.

Closing Dates for ASP Awards

ASP Network Travel Award (includes JD Smyth Award)

Friday 27 January 2012
Friday 25 May 2012
Friday 5 October 2012

Bancroft-Mackerras Award

30 September 2012 (for award in 2013)

ASP Fellowships

9 January 2013

Visit the ASP website for more information
www.parasite.org.au

2012 Conference

2012 ASP Annual Conference Monday 2nd - Thursday 5th
July at Country Club Tasmania, Launceston



The 2012 ASP Annual Conference program includes an outstanding mix of quality international and Australian scientists and features events for early career researchers and the general public with the following themes and invited speakers:

Elsevier Lectures

- *IJP Lecture – David Sacks (NIH, Bethesda)*
- *IJP DDR Lecture – Ian Fairweather (Queens University Belfast)*

Fascioliasis

- *Carlos Carmona (Instituto de Higiene, Uruguay)*
- *Terry Spithill (LaTrobe)*
- *Grace Mulcahy (University College Dublin)*

Marine Parasitology and Aquaculture

- *Stewart Johnson (Department of Fisheries and Oceans Canada)*
- *Brian Jones (WA Fisheries)*
- *Barbara Nowak (UTas)*
- *Terry Miller (QLD Museum)*

Malaria Immunology

- *James Beeson (Burnet)*
- *Brendan McMorran (UTas)*
- *Jennifer Reiman (Griffith)*

State-of-the-Art Technologies

- *Simon Foote (UTas)*
- *Iñaki Iturbe-Ormaetxe (Monash)*

Public event "Parasites and Marsupial Conservation"

- *Greg Woods (Menzies, UTas)*
- *Ian Beveridge (UMelb)*
- *Andrew Thompson (Murdoch)*

Conference website www.parasite.org.au/arcnet

Registrations will open shortly - check the website late January 2012

Free public event "Parasites and Marsupial Conservation" in the Country Club Tasmania Theatre, Mt Pleasant Room, Monday 2 July 2012 from 6 – 7pm. Pre-event drinks in the Country Club Tasmania foyer from 545pm and the Conference Welcome Reception will be held in the adjacent Tonic Bar afterwards. Rowena Martin (ANU) will run an Early Career Event and Postgraduate students can participate in a Marine Parasitology workshop, run by Terry Miller (Queensland Museum).

News about Australia/Europe Malaria Research Cooperation

OzEMalaR continues to strengthen links and promote collaboration between Australian malaria research laboratories and European, African & Indian malaria researchers through researcher exchanges and communication. Email Lisa with any news, jobs or events you have for the website (lisa.jones1@jcu.edu.au) or with your comments and suggestions.

The 4th Molecular Approaches to Malaria Meeting 19 - 23 February 2012 at the Mantra Erskine Beach Resort, Lorne, Australia. MAM2012 will focus on the very latest developments in malaria research, covering the spectrum in molecular advances from protein structure and single molecule imaging, cell biology and pathogenesis, right through to host immunity, systems biology and the latest developments in drug discovery/resistance and vaccines – all with an emphasis on cutting edge molecular approaches. As well as confirmed talks from leaders in the field, there will be focused workshops on systems approaches to malaria research, drug discovery, and strategies towards the development of a complete in vitro parasite lifecycle. Check the website: www.mamconferences.org

Visit our website www.ozemalar.org to find out how you can apply for **OzEMalaR Travel Awards** to support early career malaria researchers (PhD and postdocs) from Australia to work and be trained in top European laboratories within EviMalaR (= BioMalPar) for malaria research. To check which laboratories are eligible as hosts visit www.evimalar.org. Download funding guidelines from the ozemalar website and start planning your researcher exchanges to utilise this great opportunity. **Congratulations to our latest OzEMalaR Travel Award winners:**

Phuong Ngoc Tran, PhD student, La Trobe University, Dr. Alex Maier's lab for a Researcher Exchange to visit Professor Kai Matuschewski's lab, Parasitology Unit, Max Planck Institute for Infection Biology, Berlin, Germany.

Jutta Marfurt, Senior Research Officer, Menzies School of Health Research to attend the advanced course on "Genomic Epidemiology of Malaria" with the Mahidol-Oxford Research Unit (MORU), Faculty of Tropical Medicine, Mahidol University, Bangkok and for Researcher Exchanges to London School of Hygiene & Tropical Medicine (LSHTM) and Wellcome Trust Sanger Institute (WTSI), Hinxton, UK.

Michaela Petter, PhD student, University of Melbourne for a Researcher Exchange to visit A/Prof Till Voss from the Swiss Tropical and Public Health Institute, currently visiting at Nanyang Technological University, Singapore.

Dr. Ashrafal Haque, NH&MRC Career Development Fellow (CDA1) & Senior Research Officer, QIMR for a Researcher Exchange to Dr. Oliver Billker, Malaria Programme, & Prof. Gordon Dougan, Wellcome Trust Sanger Institute, Hinxton, UK.

Dr. Jake Baum, Laboratory Head, Walter & Eliza Hall Institute for a Researcher Exchange to visit Pasteur Institute, Paris.

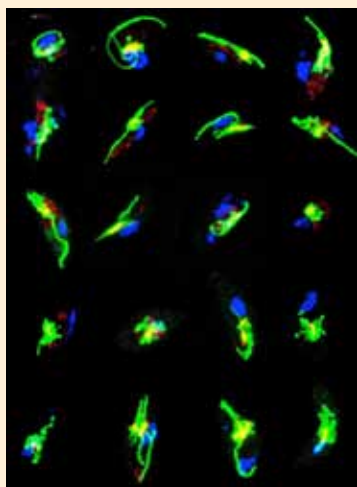
Michael Duffy, Senior Research Fellow, University of Melbourne for a Researcher Exchange to visit the laboratory of Prof. Thor Theander at the Centre for Medical Parasitology, University of Copenhagen, Denmark.

The closing dates in 2012 for OzEMalaR Travel Awards are

Friday 9 March 2012
Friday 11 May 2012
Friday 13 July 2012
Friday 7 September 2012
Friday 9 November 2012

we hope to see lots of applications.

Geoff McFadden
 Convenor, OzEMalaR



Plasmodium falciparum gametocytes
 courtesy Noriko Okamoto, UBC,
 Canada



A healthy red blood cell & a malaria-infected red blood cell courtesy Geoff
 McFadden, University of Melbourne

Researcher News

Menzies Research Institute student attends 61st Nobel Laureates meeting in medicine/physiology

Every year in Lindau, young researchers and Nobel Laureates descend on this small German town on Lake Constance to meet and exchange ideas, discuss projects and build international networks. This year was the 61st Nobel Laureates meeting in medicine/physiology including over 500 students from 60 different countries and 25 Nobel Laureates. From over 20,000 applications worldwide, 6 Australian students were selected to attend this event, including PhD student Clare Smith from the Menzies Research Institute Tasmania. It was a meeting unlike any other with seminars from the Laureates in the morning sessions and discussion panels and parallel small session in the afternoon with opportunity for students to ask questions of the Laureates.

Highlights from the seminars include:

Roger Tsien telling the intriguing green fluorescent protein (GFP)-story and creating your own niche in science. The aussie group got to have lunch with him and it was fascinating to hear how guilty he feels accepting awards for the "discovery" of GFP when Douglas Prasher originally discovered the gene and freely gave it out to Tsien and Martin Chalfie. He also talked about his failures as a researcher and supervisor,

which was really refreshing and reassuring to hear a Laureate talk about this!

Oliver Smithies – 87 years old and still in the lab and quite obviously still loving science! He gave a brilliant and hilarious talk about his science experiences. This included inventing gel electrophoresis "out of sheer laziness", the NBGBOKFO stamped on lab equipment (No bloody good but OK for Oliver), claims of inventing the modern day pipette and wishing he had patented it before Gilson, never having to weigh anything on a Saturday (because it just always works) and great photos of his actual lab book from the 1950s. He just had wonderful philosophy towards science and he still calls himself a "child of science". In the discussion session he talked about how he always wants to work at the bench and not take any positions of responsibility, as it would interfere with his ideas and research.

The final talk given by Christian de Duve was the most captivating and breathtaking talk, where he spoke not of his research, but instead on the future of life. He talked about the cost of evolutionary success of our species and the expansion of the world's population and scenarios for the future. It was confronting and inspiring. He described how his generation has made a mess of the world and implored all of us in the room to be part of the movement to fix it. There wasn't a dry eye in the room afterward and he got a roaring standing ovation.

Clare was also selected to interview Elizabeth Blackburn (Originally also from Hobart!) as part of the nature.com lindau film series. Elizabeth had some great words of advice and you could see her genuine excitement about not only her work but also promoting young women in science and pursuing something you are passionate about. The filmed interview will appear on nature.com in Sept

Other highlights include the Australian group lunching with Roger Tsien, Harry Kroto and Peter Agre; a fantastic opening ceremony speech from Bill Gates; Bavarian dancing and having beers with the managing editor of Nature, Nick Campbell.

Clare was funded to attend this meeting by the Australian Academy of Science, the Lindau Council and Merck KGaA whilst on an OzEMalaR Researcher Exchange to visit Professor Odile Pujalon, Pasteur Institute, Paris, France.



Australian group lunching with Roger Tsien (Clare Smith is second from right).

Events

The **National *Strongyloides* Working Group** Workshop Organising Committee will hold a workshop on 20th March 2012 and the morning of 21st March, at or near Fremantle. The venue is at present being negotiated. The workshop will finish in time for the start of the Australasian Society for Infectious Diseases Conference at 2pm on 21st March (http://www.asid.net.au/Default2.aspx?active_page_id=337).

We consider that the Workshop will be of considerable interest to parasitologists, as *Strongyloides* is endemic in Aboriginal communities throughout the northern half of the Australian continent, even though the disease can be reasonably diagnosed by serology and effectively treated with ivermectin.

In addition, refugees and other immigrants from Africa, Asia and other areas of endemicity frequently have strongyloidiasis as well as returned staff of the Armed Services and travelers returning from areas of endemicity both overseas and in Australia sometimes have this disease.

Details and updates will be available at http://www.jcu.edu.au/phtmrs/abc/JCUPRD_051368.html

25-29 August 2013

Perth Convention Exhibition Centre
Western Australia



24th International Conference of the World Association
for the Advancement of Veterinary Parasitology

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2 Chancellor Ave, Bundoora Vic, 3083

Telephone: 0488139155
Email: Maureenengler@gmail.com

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Science meets Parliament 2011

On the 20/21 June, Natalie Spillman and Richard Allen (The Australian National University) represented the ASP at the annual 'Science meets Parliament' (SmP) event, held in Canberra. SmP is organised by the Federation of Australian Scientific and Technological Societies (FASTS) and it aims to provide scientists with skills to imagine their science in a broader context, out of the lab and within the realm of politics and policy development.

The first day was spent at Old Parliament House where participants had various workshops and talks mainly focussed on communication skills to convey our message to the media and politicians. Scientists learnt about the typical busy schedule of a politician and how to give them a clear message in a short time. There was also a session by the Department of Treasury on the budget process. The SmP Gala dinner was held on the first evening in The Great Hall at Parliament house, with Annabel Crabb (ABC) as the entertaining MC, and The Hon John Brumby, former Premier of Victoria as keynote speaker.

At the dinner there were two exciting announcements. First, that FASTS was changing its name to Science & Technology Australia (see new logo below). Second, we had the launch of the Respect the Science Campaign. This campaign aims to educate the public about the credible scientific process and how our hypothesis driven research and peer reviewed publication system works. As Professor Suzanne Cory, President of the Australian Academy of Science says, "When it comes to controversial areas of science, such as climate change, evolution, gene technology, stem cells or nuclear power, it is even more important that any researcher should feel free to argue a case based on sound scientific evidence without fear of reprisal, because only public discourse and experimental challenge can advance understanding."

Day two began early with a breakfast briefing by Professor Margaret Sheil, CEO of the ARC on the ERA process and how to engage in public policy development. Senator, the Hon Kim Carr, Minister for Innovation, Industry, Science and Research spoke of his support for the Respect the Science Campaign and answered questions. Focus then shifted to the National Press Club for the ANSTO address by the Chief Scientist for Australia, Professor Ian Chubb AC. The rest of the day was devoted to meetings with parliamentarians, though due to the busy sitting schedule both Natalie and Richard met with advisors to their Senators.

Richard was scheduled to meet with NT Labour Senator Trish Crossin, together with a biologist from ANSTO (Dr Alexander Szabo), and a representative from the Council of Australian Postgraduate Associations (Carol Croker). In

Senator Crossin's absence he met with one of her advisors, Lesley Cameron, herself a science graduate. Discussions included the potential implications of climate change on disease patterns, particularly in the tropics, where Senator Crossin's constituency lies, and the importance of Australia maintaining a level of scientific intellectual capital that will enable it to confront these and other scientific issues of importance to the country and its regional neighbours.

Natalie met with Nathan Clarke, advisor to Victorian Senator Scott Ryan, Shadow Parliamentary Secretary for Small Business and Fair Competition. Natalie shared the meeting with two other computer scientists (Dr Daniel Frampton and Dr Paul Thomas) and a representative from the Society for Reproductive Biology (Dr Natalie Hannan). In the meeting three key points were discussed: i) the importance of a bipartisan approach to science funding, reflective that the political cycle may be shorter than the science funding cycle/outcomes; ii) government support for the Respect the Science campaign; and iii) funding for science outreach in schools such that outreach programs can continue for multiple years, and not just be 'one-off' experiences. Natalie left Nathan Clarke with some information about the importance of the ASP with regards to climate change increasing the risk of parasitic disease/need for surveillance strategies/challenge of disease control and need for highly trained experts. His office is very interested in import restrictions and how they affect business, and 'whether we are doing enough to protect Australia from new parasites entering the country through trade and human flows'. Excitingly, Senator Ryan's office would like to schedule another meeting in the near future to discuss surveillance strategies and import of parasites, and how this could affect business/trade. This is a very positive outcome from our SmP experience, so it will be good to put together some facts and a clear response.

Overall, SmP was an impressive networking experience and we both met scientists from many disciplines. Our skills in concise and clear science communication were certainly put to the test. SmP gave us a memorable insight into how the scientific community interacts with the political process.



Natalie and Richard at the Gala dinner reception (Image credit: Lorna Sim / Science & Technology Australia)



Natalie (second from right) in discussion about 'who influences who' in the public and political spheres. (Image credit: Lorna Sim / Science & Technology Australia)



Natalie networking with other delegates in Parliament House. (Image credit: Lorna Sim / Science & Technology Australia)

State News

New South Wales

The University of Sydney

Laboratory of Veterinary Parasitology @ McMaster Building

Another exciting year over at the Faculty of Veterinary Sciences. We have successfully used Virtual Microscopy to blend electronic slides with hands on practicals. The good news is that students loved it and were very keen to access the slides with quizzes 24/7, moreover the majority of students' comments were very positive, for example "Virtual microscopy is the best!" or "Digital slides pretty good. Thank you for that." In an attempt to deliver some inquiry into teaching we developed a module where students were trying to adopt a new method for rapid detection of *Haemonchus contortus*. This was a clear success, because the students used and implemented Dieter Palmer's PNA lectin method themselves to specifically label eggs of *H. contortus* without culturing the egg (Figure 1). It was great to see students coming and wanting to learn!

We had three Honours students who successfully completed their projects with flying colours.

Victoria Morin-Adeline has developed a FISH protocol for *Chromera velia*, therefore delivering a tool to finally identify where this ancestor of the Apicomplexa lives within the coral host.

Leon Sun has been able to demonstrate genetic differences between *Trichostrongylus axei* from cats and cattle using cysteine protease, confirming differences using a protein relevant to virulence. Last but not least, **John Debenham** has data supporting the pathogenicity of *Eimeria tachyglyssii* in echidnas based on his 18 month long study. We wish all three best of luck in their new careers! **John** all the best in Norway, enjoy the snow! **Vicki** well done for the University Medal.

Both PhD students **Ashlie Hartigan** and **Christie Foster** are progressing well. **Jan, Christie and Vicki** have travelled to Heron Island to a very

successful workshop on *Chromera*. **Ashlie** has had her paper on the resurrection of a long forgotten myxozoan genus *Cystodiscus* accepted in *Parasitology* while describing two new species affecting our endangered frog species. It is worth mentioning that her paper in *PloS ONE* has been the foundation of an excellent blog at Scientific American by Jennifer Frazer called "The Jellyfish that Conquered Land — and Australia". This is worth reading for anyone even remotely interested in evolution and parasitism. Just read it! NB: Jennifer is now **Jan's** favorite blogger.

Jan is happy with the year with work published on *Neospora*, *Trichostrongylus*, *Eimeria*, *Cryptosporidium*, *Chromera*, Ctenocephalides and Myxozoa. He is now getting his thoughts ready to present at the 4th International Conference in Wellington. His *Giardia* and *Cryptosporidium* presentation attempts to convince the delegates that the introduction of names, such as *Cryptosporidium pestis*, is not just an interesting academic exercise but reflects an urgent need for globally integrated research on the apicomplexan parasites and their role in epidemiology and public health. This has been summarised recently in Jan's paper "Naming of *Cryptosporidium pestis* is in accordance with the ICZN Code and the name is available for this taxon previously recognized as *C. parvum* 'bovine genotype'" in *Veterinary Parasitology*.

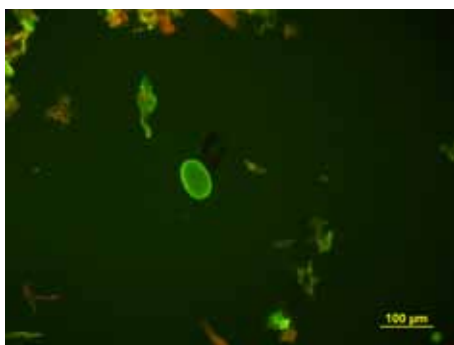


Figure 1. *Haemonchus contortus* egg labeled with peanut lectin (with FITC) in a faecal sample.

Jennifer's blog:

<http://blogs.scientificamerican.com/artful-amoeba/2011/07/15/the-jellyfish-that-conquered-land-and-australia/>

Western Australia

Murdoch University

We were delighted to host post ASP visits from **Peter Deplazes** and **Mike Grigg**, which allowed us to strengthen ongoing research collaboration. **Peter** spent a year's post-doc at Murdoch in the early 90's so his visit this year allowed us to organise an excellent reunion with all the colleagues **Peter** worked with at Murdoch nearly 20 years ago! Some great memories, particularly of travels in the Kimberley chasing *Giardia*. Other visitors in recent times have included **Sutarno** from Sebelas Maret University in Indonesia, **Marina Hassan** from Terengganu in Malaysia, and **Ian Beveridge** and **Abdul Jabbar** from Melbourne, who spent a very productive week removing anisakid nematodes from fishes.

The award of a DECRA to **Stephanie Godfrey** from Flinders was the highpoint of recent grant announcements. **Stephanie** will join the group early in 2012 to commence her project on using social network models to understand the factors driving parasite transmission in bettong communities.

Three PhD's were awarded in the last 3 months – congratulations to **Amanda Ash, Annika Estcourt and Hanna Edwards**. The parasitology group also had two Honours students complete projects this year; **Steffie Basile** on anchor worm in native freshwater fishes and **Mikayla Morine** on *Cryptosporidium* infections in aquarium fish.

We welcome **Christian Gardner and Scott Cornwall** who have recently joined the ARC/DNDi supported drug discovery group investigating new leads for Chagas disease, African trypanosomiasis and leishmaniasis.

Andy Thompson was invited in early December to a Gates/NIH workshop in Philadelphia on new approaches for the diagnosis and control of *Cryptosporidium* and came home via Calgary and Saskatoon to catch up with **Merle Olson, Brenda Ralston, Andre Buret and Lydden Polley**.

State News cont...

Curtin University

Brioni Moore has completed her PhD, which resulted in 4 peer-reviewed publications. **Brioni's** achievement was followed by her being awarded an NHMRC Early Career (CJ Martin) Fellowship commencing in 2012, thus capping off an excellent year! As **Brioni** departs, **Kevin Batty** welcomes a new PhD student – Mrs **Ganga Senarathna**, an academic pharmacist from Sri Lanka, who will investigate PK-PD relationships and allometric scaling of antimalarial drugs. Ganga has an MPhil degree from the University of Colombo (2009) and is a recipient of a Curtin International Research Scholarship.

on gnathiid isopods with **Buz Wilson**, of the Australian Museum, and **Lexa Grutter**, and another on clownfish genetics from an all expenses paid workshop in Switzerland. **Buz** was based in Brisbane part-time for the last two years and the lab benefitted greatly from his adjunct position at UQ, during which he discovered the wonders of working with gnathiids. **Richard Smith** was awarded his PhD this year for “The biology and conservation of gorgonian-associated pygmy seahorses”, principally supervised by **Ian Tibbetts**. OK, it had nothing to do with parasites, but the seahorses do live on sea fans! For the next two months, **Richard** will be working as resident marine biologist on a dive liveaboard in Indonesia, which no doubt will allow him to pursue his passion for underwater photography.

raising her two children. **Dra Gaby Muñoz** is running her own “Laboratorio de Parasitologia” in Chile and recently helped organize the 8th International Fish Parasitology Symposium held there.

While some of the lab members will be trading home-made presents on Lizard Island for Christmas, **Lexa** will be wondering how she can ever get a better present than the one **Nico Smit, Angela Davies-Russell and Maryke Ferreira** gave to her last Christmas. One they said “No one can ever take away from you!” See Fig. 2. Gracias and Feliz Navidad! **Lexa Grutter**

Queensland The University of Queensland

Coral Reef Ecology Lab

Things have been quiet in the Coral Reef Ecology Lab at the University of Queensland. With **Lexa Grutter** in Alaska most of 2011, due to personal and family health reasons, **Karen Cheney** has been running the lab. Although most of her research is now on mimicry in marine organisms, she is involved with **Tom Cribb** and **Justin Marshall** on an ARC Discovery grant “How coral trout got their spots”, which looks at fish patterns and colours, and piscivore parasites.

Derek Sun has been busy on his PhD on the “The role of parasites and cleaning behaviour in coral reef fish recruitment”, principally supervised by **Tom Cribb**. After getting his permits, ethics, confirmation, scientific dive course, lab work, and grant applications done, he seemed very happy to head off for a summer of fieldwork on Lizard Island. **Carrie Sims** has been following up on her honours research “Biogeography of the cleaner wrasse *Labroides dimidiatus* (Teleostei, Labridae) using phylogenetics and morphometrics”, principally supervised by **Cynthia Riginos**. We can now look at a cleaner fish tail pattern and tell you where it likely came from! We are all very proud of **Carrie** as she had two papers published from undergraduate projects, one

2012 will come with a financial boost, in the form of an ARC Discovery grant “What happens to reefs without cleaner fish?” (**Grutter, Bshary, Madin, Meekan, Warner**) which will extend the ongoing 10 year cleaner fish removal experiment on Lizard Island. Recent papers based on honours projects (**Gillian Clague and Peter Waldie**) show that *L. dimidiatus* absence for 8 years results in reduced growth (measured with otoliths) and increased parasitic copepod load of a damselfish. Also, not only were client diversity and abundance of visitors and residents, and juvenile abundance lower, but the size distributions of two damselfishes were skewed towards smaller ones in the absence of cleaners. Why this is so, whether stress hormones are related, and what the indirect effects of cleaning are on the rest of the reef community will be a focus of the lab in the near future. Many thanks to all the volunteers who helped check the experimental reefs dozens of times over the years.

People have been asking what the other past PhD students have been doing: Drs **Conor Jones** and **Lynda Curtis** are both working as marine consultants in Brisbane and Perth, respectively. Check out Youtube for evidence of **Conor** escaping to surf in exotic locales. Dr **Maxi Eckes** is back in Germany; after a stint as a postdoc in a molecular lab, she has made a career change, and is running a new business offering high-end dog kennels, an associated cafe, and other canine related endeavours. It all happened after she got a puppy! Dr **Justine Becker** is teaching high school science in NSW, running a macadamia nut farm with her husband, and has developed a passion for breeding rare chickens, along with

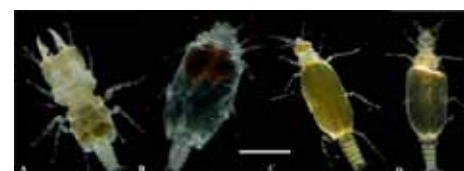


Fig 2. Light micrographs of *Gnathia grutterae* sp. nov. A, Dorsal view of male. B, Dorsal view of female. C, Dorsal view of male praniza 3. D, Dorsal view of female praniza 3. Scale-bar: 1mm (Ferreira et al. 2010).

School of Chemistry and Molecular Biosciences

Parasitology teaching and research continues unabated at UQ. **Tom Cribb** is somewhere in the Pacific catching trematode-laden fish (aren't they all!), **Steve Barker** is walking the world chasing ticks and lice (just back from China and off to Brazil); and **Peter O'Donoghue** is stuck at home holding the fort (can you hear his violin?). **POD** did get to travel down to Melbourne for **Ian Beveridge's** formal dinner where everyone told fantastic stories about Ian's legendary exploits in the wilds of Australia. **Ian** will probably be busier than ever in Parasitology now he has handed over the teaching baton and stepped down from corporate committees.

POD is currently editing the text for another 60 parasite taxa to eventually be added to the ASP PARA-SITE website. Draft entries were prepared by two ‘cooperative’ classes of biomedical science students (they were set an assignment) and the result was of such high quality that he is reworking them for the website. **POD** is saying farewell to three honours students:

State News cont...

Michelle Chan who found ~25 new coccidia in native mammals; **Odette Pletzer** who screened hundreds of bird bloods for haemosporidia (with 10% success); and **Ishani Sahama** who examined novel therapeutics for malaria. His PhD students are still going strong despite trying circumstances: **Linda Ly** chasing down termite flagellates (finicky organisms to fix and describe); **Michelle Plant** examining the impact of supplementary feeding on wild bird health (despite some health scares of her own); **Rebecca Dunne** finalizing her bioinformatics analyses on *Trichomonas* (while very remote from academia); and **Veronica Zhang** still trying to kill *Plasmodium* at AMI (while teething new machines). Everyone is looking forward to the coming silly season (hoping droughts and floods are behind us).

School of Biological Sciences

In October/November **Tom Cribb** spent four weeks in French Polynesia participating in an expedition to the Marquesas Archipelago. The Marquesas are a remote group of islands (north-east of Tahiti), close to the equator but strangely with very little coral reef. Parasites of wildlife have never been examined there before. Together with **Pierre Sasal** he examined a wide variety of fishes for parasitic worms working from a small vessel, the Braveheart. The results are not yet fully analysed, but it appears that the helminth fauna is in part depauperate (presumably because of isolation) but that it also has significant endemic components (again presumably because of isolation). Most of the scientists were French and the crew was from New Zealand, so the Rugby World Cup did get mentioned once or twice...

The ASP has agreed to sponsor three Australian participants, **Tom Cribb**, **Ian Beveridge** and **Rob Adlard**, for a week-long workshop organized by **Bob Lester** on Fish Parasites of Lake Victoria, Kenya, in Feb 2012. This workshop is part of a joint venture in aquatic animal health between the Kenya Marine and Fisheries Research Institute, Moi University and Australian scientists. Contact **Bob Lester** for details.

QIMR

Parasite Cell Biology Laboratory :

In November, **Mal Jones** headed off on a tour through China, stopping in the cities of Nanning, Guilin, Beijing, Urumqi and Wuhan over a two week period. In Nanning, **Mal** shared a happy can or two of Budweiser beer with ASP members **Terry Spithill** and **Steve Barker**, while attending the 4th International Symposium for Parasitology.

Snow fell in Urumqi, far Western China, just after he arrived there, but he pushed out into the cold to work with colleagues in the Xinjiang Veterinary Research Institute and the Xinjiang Agricultural College, on imaging different parasites on their newly acquired confocal microscopes. In Wuhan, **Mal** attended the Chinese Society for Animal Parasitology meeting, organised by Professor Min Hu. Min worked in Australia for many years with Robin Gasser and returned to China about 2 years go. It was good to see her pushing on successfully with her work and leading a growing program in parasitology.

Charlie Willis has also been abroad, visiting **Conor Caffrey** at UCSF. **Charlie** has been working with **Conor** to develop her skills in RNAi techniques for schistosomes. She managed to take her unique skills to **Conor's** lab. **Conor** speaks glowingly of the wonders of Milo and Vegemite, as well as the fine art of sucking up coffee through Tim-Tams for 'morning tea'!

James Cook University

Townsville campus

Kate Hutson and **David Blair** convened the *Aquatic Parasitology Workshop: Detection and Diagnosis* prior to the ASP conference which had 36 participants and 18 presenters/demonstrators from Australian and overseas. International guest speakers **Mark Costello** (University of Auckland) and **Nico Smit** (North West University, South Africa) presented on copepods and isopods, respectively.

Seminars were given on protozoans (**Barbara Nowak**, University of Tasmania), myxozoans (**Rob Adlard**, University of Queensland), cestodes (**Scott Cutmore**, University of Queensland), digeneans (**Tom Cribb**, University of Queensland disguised as **Terry Miller**, Queensland Museum; **Kate Hutson**, James Cook University), monogeneans (**Ian Whittington**, South Australian Museum), nematodes (**Shokoofeh Shamsi**, Charles Sturt University), fungi (**Bob Lester**, University of Queensland) and molecular methods (**Nathan Bott**, South Australian Research and Development Institute, Aquatic Sciences). In the afternoon, presenters, participants and demonstrators (**Rissa Williams**, Biosecurity New Zealand; **Ben Diggles** digfish services; **Tommy Leung**, University of New England; and **David Blair** JCU) spent a few hours in the laboratory dissecting fresh reef fish using their new found detection and diagnostic skills! We thank everyone who contributed to the workshop.

There has been plenty of activity in the *Marine Parasitology Laboratory* over the past four months. **Lesley Warner** (South Australian Museum) **Ian** and **Kate** (JCU) drove to Townsville following the conference to work in the lab. **Lesley** spent a day dissecting northern bandicoots (*Isodon macrourus*) - road kill collected by **Kate** in anticipation of **Lesley's** visit. The bandicoots were host to some interesting nematode fauna, but of course the one **Lesley** was most interested in was a female and both sexes are needed for identification. **Lesley** reckons, 'At least with monogeneans you get both sexes in the one package'.



Fig 3. Ben Diggles provides advice during the laboratory session at the Aquatic Parasitology Workshop (Photo: Rissa Williams).

Ian spent two weeks in the lab working with **Kate** and Honours student **Alexander Brazenor**

State News cont...

examining various developmental stages of *Neobenedenia* sp. infecting barramundi (*Lates calcarifer*). **Ian** gave a fantastic presentation at the School of Marine and Tropical Biology seminar series during his stay; *Parasitic worms in a watery world: simple or sly?* Ian also enjoyed several excursions around Townsville including beach seining, twitching in the Townsville Common and a night at the opera! Nico had also travelled to Townsville following the conference to work with **Niel Bruce** (Museum of Tropical Queensland). This called for nights out with **Nico, Niel, Ian, Lesley, Kate and David. Rissa** also dropped in for a day out at Paluma National Park.

Kate launched into semester two teaching, marking, researching and writing. Last month she won a JCU Early Career Researcher Rising Stars Award. The award includes funds towards a new research project on blood fluke diagnostics in aquaculture fishes and professional development towards building her research leadership capacity. **Rob Adlard** kindly agreed to take on the job as Kate's mentor as part of the program - they are both looking forward to spending some quality mentoring time together on the water catching fish!

Kate recently sent some cestode specimens to **Ian Beveridge** (University of Melbourne) for identification and included a tick removed from her husband Richard's hair after walking in Paluma. Ian wrote to Kate: 'The tick is *Ixodes holocyclus* - a very nice specimen. Am a bit surprised you did not leave her attached so that you could observe any signs of paralysis as she engorged. You probably could have got a paper out of it! - and Richard would have survived!'

Alex Brazenor (supervised by **Kate and David**), completed his Honours thesis in October on the life cycles of two important ectoparasites infecting Asian sea bass (*Lates calcarifer*). Alex won an Honours project scholarship from the National Climate Change Adaptation Research Facility - Marine Biodiversity and Resources. He successfully elucidated the life cycle of *Lernanthropus latiss* (Copepoda) and determined the time taken for *Neobenedenia* sp. (Monogenea) to complete its lifecycle at various temperatures and salinities. Alex plans to commence a PhD in 2012 and further investigate these two problematic parasite species in aquaculture.

Thane Miltz (supervised by Kate) commenced his Honours research in the lab in September 2011. He is investigating the efficacy of garlic extract as a natural control against white spot disease (*Cryptocaryon irritans*) in ornamental fishes and has successfully cultivated his first batch of clown fish (*Amphiprion*). While **Thane** is looking to scale up his experiments, the remainder of the lab are looking forward to a break over Christmas!



Fig 4. Simon Weaver, Thane Miltz and Alexander Brazenor from JCU, participants in the Aquatic Parasitology Workshop, examine a reef fish in the laboratory session (Photo: Rissa Williams)

Queensland Museum Parasitology Section – Biodiversity Program

Members of the Parasitology Section at the Queensland Museum SouthBank campus have been getting plenty of forced exercise recently due to renovations currently underway at the Museum, which is closed to the public until Jan/Feb 2012. Getting to work each day now involves clambering up seemingly endless flights of stairs to the offices and labs on the 6th floor, as the main passenger lift and goods lift are out of service for the major works. Fortunately, research, access to the parasite collection and enquires remain unaffected and work continues as usual despite the constantly breathless staff. When not enjoying his new sport of extreme stair-climbing, **Mal Bryant** remains busy maintaining the parasite collection at QM and acquiring ultra-high resolution parasites images for display and future research using the state-of-the-art Visionary Digital Imaging System recently donated by the Atlas of Living Australia program.

Rob Adlard delivered an invited keynote address at the 8th International Symposium on Fish Parasites held in Viña del Mar, Chile 26th – 30th September 2011 entitled *Perspectives on the taxonomy and systematics of the Myxozoa* which captured elements of the fish parasite research conducted by him, his collaborators and his postgraduate students over the last 8 years. PhD student **Holly Heiniger** also attended and presented results of her research on the myxozoan fauna of apogonid fish off Australia's coral reefs.



Fig 5. Viña del Mar, Chile: site of the 8th International Symposium on Fish Parasites

Rob and Research Officer **Terry Miller** recently undertook fieldwork on Stradbroke Island to analyse the effect of a muscle-dwelling myxosporean parasite *Kudoa monodactyli* on the flesh of its host fish, the Butter Bream. After the death of the fish, the parasite releases proteolytic enzymes that break down muscle leading to myoliquefaction (and hence the origin of the common name for this species, butter bream!) – an obvious and major issue for a number of fish species that are grown in aquaculture or caught in wild harvest. The team found that activity occurred within the first hour post-mortem with startling effects obvious in the flesh. These preliminary data on protein activity are forming the core of applied and focussed efforts to diagnose and mitigate impacts these parasites may have on fisheries with the overall objective to enhance efficient and sustainable food production in Queensland and the Australian seafood industry.

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Fig 6. Muscle from the Butter Bream which has turned transparent one hour post-mortem due to enzyme activity from parasites living in the flesh. The numerous white flecks in the muscle are parasite cysts revealed to the eye only after the tissue breaks down.

James Cook University Cairns Campus

The last several months have been characterised by the absence of the team leaders from the QTHA Labs: **Alex Loukas**, **Jason Mulvenna** and **Nick Smith** have all been back and forward between North America, Asia and Europe, shoring up research collaborations. But, at the same time, the labs have been blessed with visitors: **Peter Deplazes** (University of Zurich), **Mike Grigg** (NIH), **Leann Tilley** (University of Melbourne), **Giel van Dooren** (ANU), **Luke Alphey** (Oxitec Ltd), **Steven Sinkins** (University of Oxford), **Cinzia Catacessi** (University of Melbourne), **David Lynn** (Teagasc Animal and Bioscience Department, Ireland), **Gordon Dougan** (Sanger Institute, UK), **Lousi Schofield** (WEHI), **Bob Hancock** (University of British Columbia), **Edie Dullaghan** (Centre for Drug Research and Development, Vancouver, Canada). And we've welcomed an abundance of new comers as the staff of the QTHA Labs continues to increase at a phenomenal rate: New postdocs include **Mark Pearson**, **Rob Walker**, **Cinzia Cantacessi**, **Javier Sotillo-Gallego**, new students are **Jarinya (Nui) Khoontawad**, **Pantapat (Nume) Yonglithipagon**, **Edwin McBride**, and a new research assistant, **Dave Wilson**.

UQ-QAAFI and DEEDI Livestock Biotechnology Group (UQ St. Lucia Campus)

Rosie Godwin and **Jess Morgan** have been busy running chicken *Eimeria* trials in new animal housing facilities at the Centre for Advanced Animal Science in Gatton. The new Cocci lab based at UQ St Lucia campus is fully operational and will be put through its paces with all the incoming poo to process from the Gatton trial.

Ala Lew-Tabor, **Manuel Rodriguez Valle**, **Sandy**, **Anthea**, **Bronwyn**, **Cathy** with help from **Emily Piper** (SVS) have been running cattle tick vaccination trials also at CAAS. This obviously includes lots of antigen preparation and purification and screening by all lab staff. **Manuel** has also been busy dissecting salivary glands from paralysis tick from infested dogs. In our spare time, **Jess**, **Bronwyn** and **Ala** have been finalising the identification of new kangaroo *Babesia spp.*. Our group is nicely now settled at the Qld Biosciences Precinct at UQ, all welcome to visit if you are on UQ St. Lucia campus.

Northern Territory Menzies School of Health Research

Work is continuing on the "Beating Scabies and Strongyloidiasis" project in the East Arnhem community of Galiwin'ku. The second round of mass ivermectin treatment has finished. However, follow up of cases and selected controls will continue into the new year. **Therese Kearns** has worked extremely hard to keep the whole project running smoothly over the past two years and will now be based in Darwin full time to concentrate on data analysis and preparing her PhD thesis. We were lucky to have **Kate**

Mounsey from QIMR in the community for a month earlier in the year to help out with analysis of the faecal specimens which morphed into more serious project management while she was there. Thanks **Kate**!

Deborah Holt attended the WAAVP conference in Buenos Aires and was excited to see the great job that **Andy Thompson**, **Brown Besier** and their team were doing in promoting the next WAAVP which will be held in Perth in conjunction with the ASP meeting in 2013. There was a good contingent of Australians at this very interesting meeting, all with different stories of activities before and after the conference. After the conference Deb headed off to walk the Inca trail to Macchu Pichu in Peru along with fellow ASP members and conference attendees **Annette Dougall** from JCU in Cairns and **Kate Mounsey** from QIMR.

The Three Minute Thesis Competition has become an annual event with participation from universities all over Australia and New Zealand. In the Northern Territory, the Three Minute Thesis is an academic competition developed for Masters by Research and Doctoral students and organised by Charles Darwin University (CDU)'s Office of Research and Innovation. PhD candidate with the Epidemiology and Health Systems Division, **Therese Kearns**, took out top honours with her thesis investigating scabies and strongyloides infections in remote Indigenous communities. Congratulations!

In July 2011, **Jutta Marfurt** and **Ric Price** from the Global and Tropical Health (GTH) Division received the Accuri® Research Creativity Award 2011 for their proposed studies on the "Validation of a Flow Cytometry-Based Method for the Characterization of Drug Resistant *P. vivax* Phenotypes". With this award, Accuri® donated a portable, 4-colour flow cytometer to the study. This will facilitate future technology transfer to GTH's overseas malaria research units and provides an ideal platform for training and capacity building of collaborators and students at GTH's malaria field laboratories.

The 2011 NT Research and Innovation Awards were held on Friday 14 October at the Darwin Convention Centre. A big congratulations to Menzies' **Tsin Wen Yeo** from the Global and Tropical Health Division on his wonderful achievements in winning both the Tropical Knowledge Research Award and the Chief

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Minister's Award. These awards are recognition of **Tsin's** research excellence and leadership in malaria research. He is involved in clinical trials of adjunctive agents to improve the outcome of severe *falciparum* malaria at sites in Indonesia and Bangladesh, which resulted from research conducted during his PhD. He is also involved in studies examining the epidemiology and pathogenic mechanisms of *Plasmodium knowlesi* malaria, a new human malaria parasite which has been found to cause severe disease in Malaysian Borneo.

South Australia

South Australian Museum / University of Adelaide

Second year PhD student **Sarah Catalano** (University of Adelaide) continues her study on the dicyemid parasite fauna of southern Australian cephalopod species, with particular focus on the endemic and iconic giant Australian cuttlefish, *Sepia apama*. Sarah aims to use dicyemid parasite genetics as a tool to verify the population structure and examine the potential species status of *S. apama* in southern Australian waters. To achieve this, genetic diversity among dicyemids from several other cephalopod species is also being investigated. From the by-catch of South Australian Research & Development Institute (SARDI) prawn surveys, Sarah has collected and examined 9 cephalopod species. Seven of these 9 species are infected by dicyemid parasites, with smears and kidney tissue collected for morphological and molecular analyses. Dicyemid parasites are highly host specific, with the potential for each of the 7 cephalopod species to harbor their own unique dicyemid fauna. Molecular analyses so far verify this hypothesis, with the complete COI gene plus non-coding spacer region being distinct for dicyemid species from 4 of the 7 infected host cephalopods. Specifically for *S. apama*, the Spencer Gulf population has been separated from the Gulf St Vincent population (using Network – software to reconstruct phylogenetic networks and trees) via differences in dicyemid parasite genetics for each population. Examining

dicyemid genetic differences among dicyemids from the other 3 populations of *S. apama* in southern Australian waters will help quantify the significance of this difference. Recently, Sarah has been busy re-designing primers to amplify the COI gene from the remaining infected cephalopod species and collecting and examining *S. apama* material from the other 3 populations. In the near future, Sarah will also undertake new species descriptions, which will represent the first for dicyemid parasites from Australia and will add information to the literature about this fascinating group of parasites. **Sarah** was interviewed by the *Adelaide Advertiser* in December 2011 about her ASP Network Researcher Exchange, and the article appears in this newsletter following the State News.

Leslie Chisholm (South Australian Museum) has been busy with major reorganisations of shelf space for the Australian Helminthological Collection. When not collection bound (Leslie is currently overseeing the arachnids collection also), she has been trying to complete some descriptions of monogeneans from rays and sharks from Malaysian and Indonesian Borneo with **Ian Whittington** (South Australian Museum/University of Adelaide) as part of a large collaborative project funded by the National Science Foundation in the USA headed by Professor **Janine Caira** (University of Connecticut, USA) and Dr **Kirsten Jensen** (Kansas University, USA). While Leslie remained in Adelaide to do descriptions, Ian spent November working with Professor **Marcus Domingues** (Institute of Coastal Studies, Universidade Federal do Pará, Campus Universitário de Bragança) in the State of Pará, northern Brazil. Almost 3 years ago, Marcus spent 4 months in Adelaide working on hexabothriid monogeneans (primitive, blood-feeding parasites from gills of sharks and rays) collected by Leslie and Ian within Australia and from the Borneo survey. Ian, with funding from the ASP Network Travel Award scheme, flew to Brazil to extend and complete the hexabothriid project which involves a large systematic paper describing 4 new hexabothriid species in 4 genera and also a phylogenetic analysis of the family, which will form a second paper. Trading the dry heat of Adelaide for 100% humidity in Bragança, Ian's highly trained observational skills have revealed just a few subtle differences between South Australia and Pará. 1) There's a lot of freshwater! Channels termed creeks in Pará are wider than the Torrens and the Amazon River, in places, during the wet season can be >40 kilometers wide! 2) The Atlantic Ocean in this area is very silty due to the enormous amounts

of suspended material carried by the mighty Amazon and discharged into the sea at the estuary. 3) Freshwater fish diversity is immense judging from visits to local fish markets with, in particular, heaps of different catfish species, that regularly appear on local menus. 4) Fortunately though, no piranhas or candirú (so far!). The candirú, a small, parasitic freshwater catfish that feeds on blood from fish gills, may allegedly follow a stream of nitrogenous waste from humans and has been known (again, allegedly!) to enter the urethra or anus whereupon it may extend its spines! (Needless to say, Ian is keen not to verify these tribal allegations first-hand!) 5) Vultures circle the skies in this region waiting for the gringo to expire from heat exhaustion to strip flesh from the carcass. Actually all the vultures here are similar to the caricatures from Disney's *The Jungle Book* and can't be taken too seriously! A similarity to SA, however, is that the locals are keen on oysters, based on a barbecue at Marcus's farm where 360 were cooked on charcoal to celebrate Marcus's election to the Brazilian Academy of Sciences. Almost every fruit available in Pará is indigenous to the region, full of vitamins and have some 'mysterious' properties. Ah well! Back to the science ...!

Lesley Warner continues to enjoy non salaried researcher status and has been keeping busy writing a book chapter in Germany and accessing specimens in London, funded by an ASP Network Travel Award. Both activities are focused on acanthocephalans; developing an up to date checklist for Australian fish hosts and writing a book chapter, which is proceeding slowly but steadily. Clearly she can't compete with the Whittington experience, Karlsruhe and London being rather more tame than the wilds of Brazil. Her touristic highlight was to go horse riding down Rotten Row in Hyde Park

Flinders University

News from **James Harris's** group... **James Forwood** has commenced a PhD project with **James & Dr Marty Deveney** (SARDI Aquatic Sciences) examining management of White Spot disease in rainbow trout, using an Integrated Pest Management approach. **Celeste Knowles**, based in Hobart at CSIRO, is over half way through her PhD studies, looking at developing a real time qPCR diagnostic test for the parasitic amoeba *Neoparamoeba perurans*, which parasitises Atlantic salmon gills. She has developed this, and

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is in the process of applying it to bathed fish, environmental monitoring, and selective breeding programs. **Paula Lima** is also working with *N. perurans*, this time in Brisbane at CSIRO, trying to develop a way of managing this parasite through RNAi. So far she has determined that they possess RNAi machinery (which some amoebae have lost).

In **Mike Bull's** lab, **Caroline Wohlfeil** is conducting her final field trip, collecting samples for her PhD project on the transmission of genetically identifiable ticks through sleepy lizard social networks. **Stephanie Godfrey** visited the US earlier this year to attend the Ecology and Evolution of Infectious Diseases conference and workshop in Santa Barbara, where she presented her work on the alternative pathways for transmission of different parasites in sleepy lizard populations. **Stephanie** is currently in the field, conducting research on the transmission of nematodes and *Salmonella* in the endangered pygmy blue tongue lizard. However, this is her last field season working with the lizards, as she has just received a Discovery Early Career Research Award to begin work at Murdoch University on the parasites of bettongs with **Andy Thompson's** group!

And news from **Sonia Kleindorfer's** lab... **Jody O'Connor** has just submitted her PhD! Her thesis was looking at conservation issues for Darwin's finches in the Galápagos Islands. **Jody** found that an introduced fly larva parasite (*Philornis downsi*) is the primary cause of nestling mortality for Darwin's finches, with the parasite causing 40-100% of nestling mortality across years, a problem that is heightened in years with high rainfall. As a result of her research, the IUCN RedList status of Darwin's medium tree finch (*Camarhynchus pauper*) was reassessed from "vulnerable" to "critically endangered". She implemented the first in-nest video monitoring system for Darwin's finches, which gave important insights into the host parasite interaction and *P. downsi* life cycle and has contributed to the development of management programs. Awesome work **Jody**!

In **Ian Menz's** lab, **James Herbert** is in the final stages of writing up his PhD thesis. **James** has been working on a variety of molecular parasitological research, including the development of diagnostic methods for detecting and quantifying blood parasite infections in reptiles. Good luck **James**!

ACT The Australian National University

At the **ANU's Research School of Biology**, the parasitology groups (those of **Carol Behm**, **Kieran Kirk**, **Rowena Martin** and **Kevin Saliba**) have moved into a new building, designed by Lyons architects and providing state-of-the-art laboratory facilities. The building is named the Linnaeus Building after Carl Linnaeus, the Swedish botanist, zoologist and physician whose wide range of interests, including parasites, is represented by the research conducted in the School.

The New Year will see a major boost to parasitology research in Canberra, with the arrival in January of **Alex Maier** (presently an ARC Research Fellow at Latrobe University) and **Giel van Dooren** (presently an ARC QE2 Fellow at the University of Melbourne). Both Alex and Giel are to take up continuing positions in the Research School of Biology, based in the School's Division of Biomedical Science and Biochemistry. Alex and his group will continue their work on malaria parasite biology and Giel will establish a group working on both *Toxoplasma* and malaria parasites.

Haylee Weaver (ex **Alleva** lab) received a Churchill Fellowship earlier this year, to travel overseas to learn new techniques for working with *Acanthocephala*. She will travel to the UK, United States and Mexico in the new year. The Governor-General presented the fellowship and appeared genuinely interested in this obscure group of parasites!



Fig7. NCMCRS (Tasmania) staff and students at the 1st Australasian Aquatic Animal Health Scientific Conference in Cairns July 2011

Tasmania The University of Tasmania

National Centre for Marine Conservation and Resource Sustainability

Research students and staff from NCMCRS attended 1st Australasian Aquatic Animal Health Scientific Conference in Cairns from 5 to 8 July 2011. They were the largest group representing any institution at that conference (12 out of 124 registered participants, the next most represented institution was CSIRO – 9 combined from livestock and marine divisions) and contributed 11 papers (out of 71 presentations – 15% of total presentations), 9 of which were presented by them (the other two were co-authored by NCMCRS). The presentations ranged from Atlantic salmon to Southern Bluefin tuna and kingfish health. Some of the breakthroughs reported at the conference was Dr **Phil Crosbie's** presentation on fulfilling Koch's postulates for *Neoparamoeba perurans* as agent causing amoebic gill disease and life cycle of blood fluke *Cardicola forsteri* (only the second marine blood fluke infecting fish known and the first discovered using molecular methods) which was presented by our collaborator Dr **Robert Adlard** from Queensland Museum. This research included also **Tom Cribb** from University of Queensland, **Nathan Bott** and **Craig Hayward** from SARDI (at the time of the study) and members of tuna industry. The conference was a great opportunity for PhD students to present their results and four PhD students from NCMCRS gave oral presentations. Prof **Barbara Nowak** was one of the conference organiser and chaired the session on Finfish Parasites together with Dr **Phil Crosbie**. The conference program was very interesting and finished with conference dinner (photo of the group at the dinner attached). The conference was very successful for catching up on new research, developing new collaborations and a great opportunity for networking in general. While we spent all days at the conference venue, we could still enjoy warm tropical evenings.

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UNDER THREAT: Sarah Catalano with a slide of the parasite she is studying and, below, cuttlefish near Whyalla.

CLARE PEDDIE
SCIENCE REPORTER

A TINY parasite is helping scientists work out if giant Australian cuttlefish in the Upper Spencer Gulf are unique to this part of the world, or if they mingle with other groups elsewhere.

The scientists are concerned cuttlefish are threatened by development in the gulf, including the proposed BHP Billiton desalination plant at Point Lowly.

University of Adelaide PhD student Sarah Catalano, 23, says the tiny parasites found in the kidneys of cuttlefish would be a "useful tool".

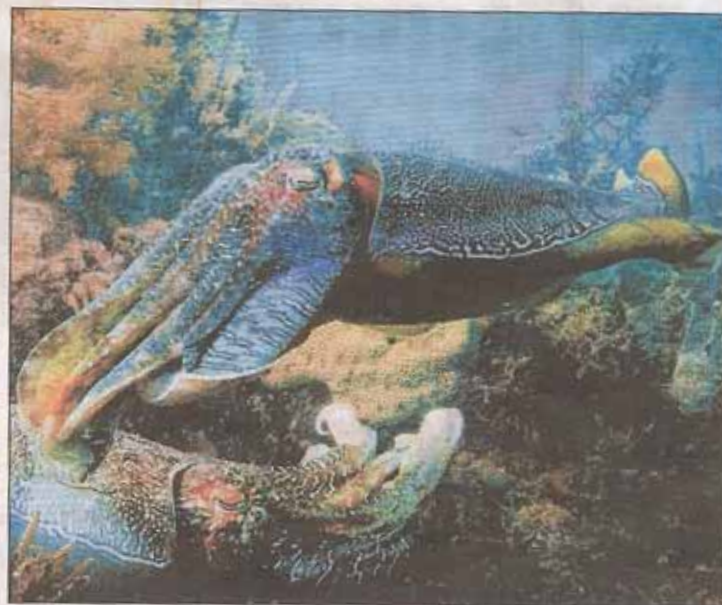
"There are five different populations of the cuttlefish in Australia, but they could be different species," she said.

"Using the parasites we can look into this."

Ms Catalano was the first person to look at the new Australian "dicyemid" parasite under the microscope. In March she will visit the world's leading expert on this type of parasite in Japan, to describe the new species. The trip is funded by the Australian Society of Parasitology.

"It's something no one else has looked at before, no one has seen before, so it's really exciting," Ms Catalano said.

Her supervisor, Professor Stephen Donnellan, first noted strange parasites in the kidneys of cuttlefish in 2005. He took samples and proposed a PhD



project, hoping to find someone like Ms Catalano to take a closer look. "It's by far one of the most fascinating organisms I've come across," he said.

"Definitely amongst the world's weirdest animals. They only have about 40 cells in their entire body, so no organs or tissues. They reproduce inside themselves and live inside the kidneys of octopus, squid and cuttlefish."

Professor Donnellan is worried about the future of the unique breeding aggregation at Whyalla. Numbers have dwindled in re-

cent years and the desalination plant could make matters worse.

"We think that the population of cuttlefish that breeds in Whyalla only comes from the Upper Spencer Gulf," he said.

"The implications are pretty obvious. If the animals that are breeding at Whyalla only come from local waters, then any disturbance of the water quality ... could have a very dramatic effect on that breeding aggregation."

"Because they're an annual species, if they miss a breeding season it's going to have a dramatic impact."

Sarah Catalano (The University of Adelaide) and her interview in the *Adelaide Advertiser* in December 2011

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41:09 (01 August)

The effects of experimentally infecting Australian tree frogs with lungworms (*Rhabdias pseudosphaerocephala*) from invasive cane toads

Lígia Pizzatto, Richard Shine

Gene expression evidence for off-target effects caused by RNA interference-mediated gene silencing of Ubiquitin-63E in the cattle tick *Rhipicephalus microplus*

A.E. Lew-Tabor, S. Kurscheid, R. Barrero, C. Gondro, P.M. Moolhuijzen, M. Rodriguez Valle, J.A.T. Morgan, C. Covacin, M.I. Bellgard

41:10 (15 August)

Small worms, big appetites: ratios of different functional morphs in relation to interspecific competition in trematode parasites

Tommy L. F. Leung, Robert Poulin

41:11 (01 September)

Risk factors for helminth infections in a rural and a peri-urban setting of the Dongting Lake area, People's Republic of China

Julie Balen, Giovanna Raso, Yue-Sheng Li, Zhen-Yuan Zhao, Li-Ping Yuan, Gail M Williams, Xin-Song Luo, Meng-Zhi Shi, Xin-Ling Yu, Jürg Utzinger, Donald P McManus

Peroxidase catalysed cross-linking of an intrinsically unstructured protein via dityrosine bonds in the oocyst wall of the apicomplexan parasite, *Eimeria maxima*

Kelly Mai, N.C. Smith, Zhi-Peng Feng, Marilyn Katrib, Jan Slapeta, Iveta Slapetova, Michael G Wallach, Catherine Luxford, Michael J Davies, Xuecheng Zhang, Raymond S Norton, Sabina I Belli

41:12 (01 October)

High-throughput multi-parameter flow-cytometric analysis from micro quantities of *Plasmodium*-infected blood

Simon H. Apte, Penny L. Groves, Joanne S. Roddick, Vanusa P. da Hora, Denise L. Doolan

41:13/14 (November/December)

Exploring the *Fasciola hepatica* tegument proteome

R Alan Wilson, Janelle M Wright, William de Castro Borges, Sophie J. Parker-Manuel, Adam A. Dowle, Peter D. Ashton, Neil D. Young, Robin B. Gasser, Terry W. Spithill

Photo gallery

First International *Chromera* Workshop, 21-25 Nov 2011
Heron Island Research Station on Australia's Great Barrier Reef



Photo gallery

2011 ASP Annual Conference, 10-13 July 2011, Cairns, Queensland



Photo gallery

2011 ASP Annual Conference, 10-13 July 2011, Cairns, Queensland



Winners of the ASP Student and Early Career Researcher prizes, from left: top row Showgy Ma'ayeh (Monash), Rina Wong (UWA) with Denise Doolan, Joshua Sweeny (Murdoch), Ashlie Hartigan (Uni Syd) with Denise Doolan, second row Sarah Catalano (Uni Adel) with Denise, Charlene Willis (QIMR) with Denise.



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