IUSSI AUSTRALASIAN SECTION NEWSLETTER

March 2010

Welcome to our third Newsletter

The Australian IUSSI has lost one of its most loyal supporters: Ross Crozier. I think we are all still trying to come to terms with this loss. The Australian social insect society will never be the same. Simon Robson has been so kind to write a special tribute to Ross for this newsletter. I understand that the funeral held in Townsville was attended my many of Ross' former colleagues, students and postdocs. Thanks to modern technology, even overseas people could be 'present'. We wish Ching Crozier and family strength and courage to build a new life without the wonderful Ross.

Madeleine Beekman

Treasurer of the Australian Section of the IUSSI (madeleine.beekman@sydney.edu.au)

Annual General Meeting

We will hold our AGM during the International Congress in Copenhagen. Section meetings are scheduled for Tuesday August 9. See the official website at www.iussi.org/iussi2010/.
Because we have now obtained members from New Zealand (and more to come I hope), we can no longer get away with our logo. Suggestions for a new logo will be discussed at our AGM. Please send your ideas to me before then.

MB

2011 IUSSI (Australian Section) Meeting Announcement

The Australian Section proposes to hold a joint meeting with the Australasian Evolution Society in Townsville, August 12,13 & 14, 2011. So please add this date to your timetable, get out the Hawaiian shirts, and be prepared for some nice warm winter weather (the way it should be) and excellent scholarly discourse. Further details to follow.

MB

Rossiter Henry Crozier (1943-2009)

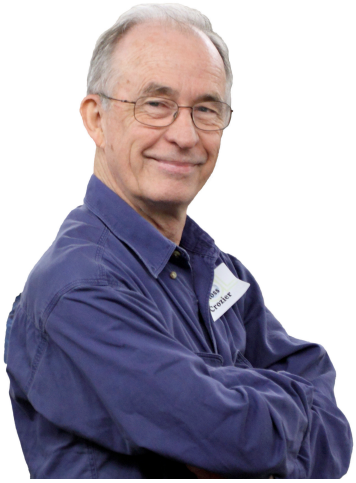


Photo: Alex Wilde

On 12 November 2009 after a typically happy morning, Ross Crozier collapsed in his office and despite the efforts of many, could not be revived. He passed away in the company of his wife Ching and numerous members of his laboratory and School. He is survived by

Ching, his two sons Ken and Michael, granddaughter Madeleine and siblings Brian and Judy. His passing sent a shock wave around the world.

Ross held a special place in the IUSSI and in Australian social insect research in particular. He was the President of the society in 1998/1999 when the Australian section hosted the successful XIII International Congress and he continued to play an active role promoting the society and social insect research on a global scale.

While Ross's research efforts were embedded in the study of social insects and social evolution, they had a much wider impact on the areas of evolutionary genetics and conservation biology, and included a diversity of additional non-social taxa such as fig wasps, fish, crocodiles, birds, bats and even octopus. With a strong background in population genetics and the theory underpinning this area, Ross pushed the newly developing molecular technique to answer critical questions of social and evolutionary biology.

The breadth of his significant contributions and influence are immense: over 70 Honours, postgraduate and postdoctoral researchers trained in his laboratory, he co-authored papers with 75 different colleagues in the last three years alone, from a career total of over 200 papers generating over 5000 citations. In addition to membership in the Australian Academy of Science and the American Association for the Advancement of Science, Ross was the first recipient of the Hamilton Award from the IUSSI. The appearance of testimonials in journals such as Science, Ecology Letters and Evolution (with more to come) further highlights the breadth and depth of his achievements.

For those not familiar with Ross' path, he was born to an Australian family in India during the second world war, and spent most of his early years in Burma and Malaya. Ross' father worked in the mining industry and travelled extensively, and each of his siblings, Brian and Judy, were born in different countries. And while Watson and Crick were working on the structure of a potentially interesting chemical called DNA, Ross had already made his first entree into the world of social insects (he opened a nest of termites: alas, we never did ask Ross what species), an area he would pursue passionately for the rest of his life. He completed his school education as a border at Geelong Grammar School in Victoria, then studied genetics at the university of Melbourne, influenced by the evolutionary geneticists Michael J.D. White, himself a student of J.B.S. Haldane. It was here that Ross met his future wife and research colleague, Ching Kok.

Ross completed his PhD at Cornell under the supervision of the renowned ant biologist William L. Brown, and the moved on to the University of Georgia as a demonstrator in Genetics, before returning to Australia as a lecturer at the University of New South Wales, where he rose to the rank of Professor. In 1990 Ross moved to La Trobe University as the Chair of the Department of Genetics and Human Variation, and in 2000 made his final move to the James Cook University, where he took up a personal Chair as Professor of Evolutionary Genetics in the School of Marine and Tropical Biology.

Some of the most notable achievements to become evident after Ross' passing, in additional to the recognition of his scholarly contributions, were the high personal esteem in which Ross was held, and the breadth and scope of his contributions to the life of his family and colleagues. There was a universal acceptance that Ross was a scholar and gentleman, who played a significant role as mentor and colleague. Testimonials flowed in from those who had know Ross at many stages in his life, from one of his school teachers at Geelong Grammar who remembers meeting Ross on the day he arrived in Australia, to graduate school office mates and recent PhD students. Many commented on Ross' love of Macintosh computers and gadgets, and even within his family, his love of 'pockets full of pen's and a good

pair of shorts' is still a point of discussion.

Ross managed to keep in contact and continue to support many of his students long after they left his laboratory. And although the Crozier lab will close at the end of this year with completion of the final graduate students and postdocs (from Germany and China), the spread and success of so many 'Crozierites' throughout the world means that the critical and enthusiastic study that so typified Ross, will continue unabated.

It is difficult to end a discussion of Ross' achievements confident that his achievements and impacts on both a professional and personal level have been appropriately acknowledged. So I will simply end by borrowing a statement from Barry Bolton, who summed up the feeling of many when he noted "You were a good bloke Ross, and I shall miss you."

Simon Robson

Who's New?

Our section is the only one that continues to grow. Lets work hard to keep the numbers up.
The following people have joined us this year. Hopefully we will here more about them in our next newsletter.

Tim Schaerf, Vanina Vergoz and Michael Holmes, Sydney University
Alison Mercer, University of Ontago, New Zealand
Lloyd Stringer, Plant and Food Research, Christchurch, New Zealand (see further to read more about Lloyd)
Theo Evans, CSIRO Entomology, Canberra (it took me years to finally get Theo to sign up!)
Ben Kelly, James Cook University
Ryszard and Joanna Maleszka and Paul Helliwel, Australian National University (see further for some news from ANU)
David Guez, University of Canberra

News from Curtin University: book launch

Ants (Family Formicidae) are a major feature of Western Australian ecosystems. They perform a variety of important functions that include the recycling of nutrients, disposing of dead material (e.g., invertebrate and even vertebrate carcases), facilitating the germination of native plant species and providing sustenance for small, insectivorous vertebrates that include in particular various native birds and reptiles as well as two specialised mammals. Until recently, however, there has been no authoritative source of information that draws together the taxonomy and known biology of West Australian ant species.

From left to right: VC Jeanette Hacket, Brian Heterick and Jonathan Majer

This dearth of integrated knowledge has been addressed in a new publication that covers the ant species of the most ant biodiverse region in Western Australia, namely the South-west Botanical Province (SWBP). This is 'A Guide to the Ants of South-Western Australia' by Brian Heterick (published August 2009, publisher: the Western Australian Museum, ISBN 978-1-0-929-0843-43-4, 205pp.). This guide informs the reader of the truly amazing diversity of the ant fauna found in southern Western Australia, in which there are 12, possibly 13 subfamilies, at least 65 genera, and over 500 species. On these terms, the south-western portion of Western Australia compares favourably with the continents of Africa and North America, especially at the higher taxonomic levels, despite its much smaller surface area. As well as a key to workers of nearly 500 ant species (i.e., all species known to the author at the time of writing, including very many undescribed ants known only from Curtin University voucher numbers), the guide

contains over 700 line drawings, 22 taxonomic and habitat plates, and a discussion of topics such as the concept of 'species', ants as bioindicators, tramp and pest ant species, the unique features of an ant, native habitats, etc. At the end of the work are two appendices containing a summary of species recorded from the SWBP and records from individual districts within the SWBP. In addition, there is a glossary of terms used in the work, and an extensive bibliography. The guide contains keys to subfamily, genus and species, and discussion of all individual species recorded in its pages, especially their identifying features and their biology (where known). This book, which comes in an attractive hard cover, has recently been favourably reviewed by Dr. Steve Shattuck (Australian National Insect Collection, CSIRO, Canberra).

Jonathan Majer

News from ANU

Honey Bee Epigenetics In The Science Museum In London

The Science Museum in London is redesigning its award winning biomedical gallery called 'Who am I' to include the latest discoveries in genomics and epigenomics. The next generation gallery, to be launched in July 2010, will contain a display on honey bee epigenetic regulation of development and behaviour. ***Ryszard Maleska*** (ANU) is interacting with the exhibition content developer to find a way to prepare a visually interesting exhibition. One objective of this venture that is based on Ryszard's lab 2008 Science paper is to increase the awareness of the profound implications of environmental factors, such as diet, on gene expression, non-genetic inheritance and causes of various diseases.

He does it again!

As in previous years, ***Paul Helliwel*** (ANU) outclassed the competition during the Royal Canberra Show and received the highest award for his bee-related products. Apparently, his mead was a killer, but an exemplary brood frame previously used for one of the experiments also impressed the judges. Between the shows, Paul continues making an important contribution to Ryszard Maleszka's Molecules to Memory project by providing beekeeping expertise, designing behavioural paradigms and training students.

A proud Paul Helliwell

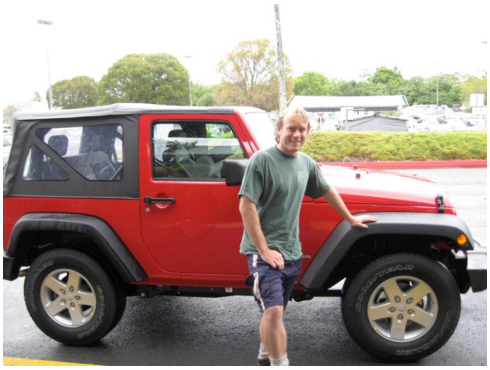
Paper highlighted

A recent publication from Ryszard Maleszka's group entitled "Epigenetic regulation of the honey bee transcriptome: unravelling the nature of methylated genes" received a rare score of 9 (Exceptional) in the Faculty of 1000 review. This open access paper is available at the BMC Genomics web site or via Medline (Foret et al., 2009, 10, 472).

Ryszard Maleska

Introducing Lloyd Stringer

Hi, I'm ***Lloyd Stringer***, working as part of the Chemical Ecology group based at Plant and Food Research Ltd in Lincoln, Canterbury, New Zealand. The group works on manipulating the behaviour of a range of insects using semio-chemicals such as sex pheromones and plant compounds (see



the Pherobase for examples) http://www.pherobase.com/.

My interests are in biosecurity particularly detection and eradication/management of insects, by assessing the probability of detecting species using different traps and lures at various densities to controlling insects using pheromones for mass trapping, sterile insect release and more novel techniques. Currently, some of our research is focussing on the Argentine ant and the Red imported fire ant; investigating the potential of an over-supply trail pheromone to disrupt trailing behaviour of ants causing ants to lose their way in their environment (Suckling et al. 2008, 2010).

Other social insect research includes *Vespula* spp. In New Zealand beech forests (*Nothophagus* spp.). These forests have large populations of wasps (particularly *Vespula vulgaris* displacing earlier *Vespula germanica* infestations) likely due to the huge abundance of honeydew produced by native scale insects *Ultracoelostoma* spp. Wasps compete with native fauna for the honeydew and in such large numbers (the forests are alive with a hum in summer) pose an issue for trampers and other visitors to infested areas. Our work in this area is around the attraction of the various castes to traps and baits.

Suckling DM, Peck RW, Manning LM, Stringer LD, Cappadonna J and El-Sayed AM (2008) Pheromone disruption of Argentine ant trail integrity. Journal of Chemical Ecology; 34: 1602-1609. http://dx.doi.org/10.1007/s10886-008-9566-4

Suckling DM, Peck RW, Stringer LD, Snook K and Banko PC 2010 Trail pheromone disruption of Argentine ant trail formation and foraging. Journal of Chemical Ecology; 36:122-128. http://dx.doi.org/10.1007/s10886-009-9734-1

(Social Insect) Meetings

Australasian Society for the Study of Animal Behaviour (***ASSAB***): Australian Cotton Research Institute in Narrabri, NSW, from 6-10 April 2010 http://assab2010.eriophora.com.au/

International Behavioural Ecology congress (***ISBE***): Perth 26 September - 1 October 2010 http://isbeperth2010.com/