# THE AUSTRALIAN SOCIETY OF

# HERPETOLOGISTS

## INCORPORATED

# NEWSLETTER 49

**Published 29 September 2014**

# Letter from the editor

I trust you found yourselves securely amused in the ever capable hands of that respectably amiable Professor Keogh and saucy Dr Mitzy during the 2014 ASH conference.

The 2014 AGM was the first meeting I have missed since I attended my first ASH at 21 years old in Healesville Victoria. A time of a young and impressionable heart left seduced by Rick Shines, well… shine I suppose, a top a bald and knowledgeable head, awed by the insurmountable yet witty detail of Glenn Shea's trivia (not to mention that beard) and left speechless by the ever inappropriate, wildly handsome and ridiculously witty Mr Clemann.

I welcome the newbys to a society that holds a unique place in Australian science. Where the brains and ideas of some of Australia's top scientists are corrupted by their inner herpetological brawn, where copious quantities of beer often leave even the most innocent of professors busting out the most quality of limbo attempts, break dance moves... or just plain naked. Where Conrad Hoskin becomes a lake Ayer dragon to avoid courtship rituals, where the obscure snores of Matthew Greenlees leave phylogenetists confused with analogous evolutionary traits, and where Mark Hutchinson's intimate relationship with every single lizard in the entire country including coastal fringes and off shore islands, puts everyone to shame and anyone left to sleep.

It is with deep regret and sheer delight that I could not join you this year, for my inner black mumma has met with my chameleon calling to leave my big island home and travel west to Madagascar where I am set up, working part time for University of Newcastle and part time for a local organisation called Madagasikara Voakajy for an indeterminate period.

In other news it was pointed out to me by the ever sharp Professor Tyler that I failed to acknowledge South Australia on my high tech multiple choice google docs form for submitting your newsletter updates and that options should in fact be presented in alphabetical order. It is on that note I will leave you to enjoy the alphabetically reported 2014 newsletter. Thanks very much to Jacquie Herbert for the photos from the last conference. Looked like I missed out on some really fun times.

Back legs first,
Deb Bower

**History of Office Bearers**

**Formation Committee (April 1964):-** MJ Littlejohn (Convenor); State Reps IR Straughan (Qld), FJ Mitchell (SA), HG Cogger (NSW), G Storr (WA), RE Barwick (ACT), JW Warren (Vic), AK Lee (Editor).

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Please direct all membership enquiries to the Treasurer, Conrad Hoskin. Membership forms can be downloaded from the ASH web site. Newsletter feedback can be given to Deb Bower. All other enquiries should be directed to the Secretary, Eridani Mulder.

**THE AUSTRALIAN SOCIETY OF HERPETOLOGISTS**

**INCORPORATED**

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**NEW MEMBERSHIP FORM**

The Australian Society of Herpetologists Inc. is a society for professional herpetologists and publishing amateurs. The Society is incorporated in the Australian Capital Territory and is administered by a council of seven members. The Society meets at intervals of between 12 and 18 months, usually in a residential situation away from a major city. Meetings take the form of sessions of scientific papers and a business meeting.
Membership is by nomination by two financial members of the Society who will vouch for the acceptability of the prospective applicant

Dues are currently AUS$35.00 per annum for non-students and $15.00 for full time students. All fees must be tendered in Australian Currency and cheques made payable to: Australian Society of Herpetology Inc. Fees are due in June every year.
If you wish to pay via bank deposit or credit card, please go to:

http://www.australiansocietyofherpetologists.org/Membership%20renewal.html

and fill out the electronic form, or use Paypal for credit card payments.
THIS ENSURES WE ARE NOTIFIED OF YOUR PAYMENT – Thanks!

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**NEW MEMBERSHIP FORM**

| | |
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## NOMINATION FORM

I hereby nominate …….. of (postal address)……..
Email (of new member):……..……for membership of the Australian Society of Herpetologists Incorporated, being satisfied that he/she fills the criteria for membership.

Nominator:……Signature……..

Seconder……Signature…….……

Herpetological interests of new member……..

……

# Australian Capital Territory

## Keogh Lab
## The Australian National University

**Departed but not forgotten:**

Sandra Binning (recent PhD graduate) handed in her PhD at the end of last year and had some much deserved time off skiing in Canada. She has since taken up a postdoctoral position in the biology institute at the Université de Neuchâtel in Switzerland where she is continuing her work on fish morphology and physiology, and the variation within species along natural environmental gradients. Renee Catullo (PhD graduate) is continuing to work on *Uperoleia* taxonomy. The next project is sorting out species boundaries between *U. borealis/crassa/inundata*. She is also working on getting enough samples to describe a number of candidate species. Lisa Schwanz (ARC DECRA Fellow) - spent a summer collecting jacky dragons and raising hatchlings, Lisa collected her first years' worth of data on her jacky dragon colony, including a side project led by new Masters' student Damien Esquerré. With a growing animal colony, Lisa is continuing her ARC DECRA research on offspring sex ratios in jacky dragons. She has recently moved to Sydney to start her Lectureship at University of New South Wales and is preparing for another summer of experiments.

**The current lab:**

Scott Keogh (Sugar daddy) continues to thoroughly enjoy his admin load as Head of Evolution, Ecology and Genetics at ANU and takes particular pleasure in developing new and additional layers or

paperwork for the department. He retains a largely ceremonial position as head of his own lab, but it is not clear if he has any idea what anyone in the lab is actually doing.

**Postdocs**

Maxine Piggot (ARC DECRA Fellow) has seen the light after working in a herp lab for over a year and is now including frogs in her environmental DNA project. She is currently developing methods for detecting Macquarie Perch in the Cotter River Catchment and Booroolong Frogs in streams around Tumut and Gundagai. Following method development and analysis she will then work with Conrad Hoskin to see how well eDNA methods can work on detecting rarer stream dwelling frogs in north-east Queensland.

Mitzy Pepper (Postdoc) is now well and truly settled into the sweet life of a postdoc. She is very close to wrapping up the labwork for a taxonomic revision of the African colourful flat lizards *Platysaurus* (with Profs Keogh and Whiting) and has embarked on the long awaited revision of *Eulamprus*, which may cause Glenn Shea to crap his shiny leggings with excitement. 2014 saw the birth of a Jacky Lizard phylogeny paper in MPE, and a review of the Kimberley in JBiogeog. Mitzy is now crapping her own pants at the thought that she will be a plenary speaker at the upcoming ASH meeting. Her first ASH 2005 in Springbrook seems like a very long time ago indeed!

Kiki Dethmers (Northern Australian Marine Research Alliance Postdoctoral Fellow). The overall aim of Kiki's project is to identify areas within the Arafura and Timor Seas (ATS) where sea turtles are most at risk to entanglement in ghost nets. Ghost nets are a serious concern in northern Australian waters as they potentially damage benthic ecosystems and ensnare marine wildlife, particularly sea turtles. In collaboration with a range of partners Kiki research focusses on developing spatial distribution maps of 1) net aggregation areas through oceanic circulation (particle tracking and global drifters), 2) sea turtle foraging habitat through satellite tracking data and species distribution modelling, and 3) migratory connectivity of nesting and foraging areas through population genetic analysis (mtDNA sequencing). Integration of these maps will contribute to management focused on reducing detrimental impacts of ghost nets on sea turtle populations in this region.

Thomas Merkling (Postdoc, Fyssen Fellowship, France). As a true frenchman, Thomas likes cheese, bread and pastry! He did his Masters and PhD at the University of Toulouse (France) looking at sex allocation and sibling competition in a seabird, the black-legged kittiwake (*Rissa tridactyla*). Although he is still fond of birds, he took the opportunity to study a very different taxon. He came to Australia with a Fyssen post-doctoral fellowship to study the function and evolution of the different colour forms of the frill-neck lizard (*Chlamydosaurus kingii*), as well as more general behavioural ecology stuff.

**PhD students**

Dan Hoops spent the past year finishing up the major elements of his PhD. He completed his final fieldwork season, collecting *Ctenophorus ornatus* and *C. salinarum* from Western Australia. He also completed the lizard brain atlas generated from magnetic resonance images of male *C. decresii* brains, which he presented at the last ASH meeting in January 2014 in Canberra. Dan completed a major success in January when he was able to purchase more beer than could be consumed at ASH. He's spent the first half of 2014 madly analysing data from almost 300 brain images and writing up the results, and will be submitting his thesis shortly.

Marta Vidal-Garcia has been rendering and analysing 3D skeletal data of myobatrachid frogs and gathering some more 3D data for the hylids and microhylids, with an x-ray microCT scanner. She has also been doing fieldwork for the jumping kinematics project, in collaboration with Conrad Hoskin. She is planning to do some more fieldwork soon to cover more species from different environments.

**Masters**

Damien Esquerré (MPhil student). Damien is on the last semester of his MPhil. He is studying the evolution and convergence of head and body shape of pythons and boas. He collected museum specimen data from almost all major museum collections of Australia and some in the United States. He is getting ready to start his PhD in the Keogh lab next year where he will apply some phylogenomics to resolve the python tree of life and study the evolution of python skull shape using 3D imaging. He is also actively collaborating in South American liolaemid lizard taxonomy and systematics and waiting for his field guide on the reptiles of the Santiago de Chile to be published very soon.

Gabi Openshaw has now completed CT scanning goanna heads at the AMRRF (The University of Sydney), and is ready to start analysing the data using 3D geometric morphometrics. Next, she is collecting biomechanical function data (bite force measurements) for a project examining form-function relationships in the goanna head.

Catullo RA, JS Keogh. 2014. Aridification drove repeated episodes of diversification between Australian biomes: Evidence from a multi-locus phylogeny of Australian toad lets (*Uperoleia*: Myobatrachidae). Molecular Phylogenetics and Evolution. In press.

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Esquerré, D, JS Keogh, L Schwanz. 2014. Direct effects of incubation temperature on morphology and temperature-dependent behaviors in jacky dragons (*Amphibolurus muricatus*). Journal of Thermal Biology 43:33-39.

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Openshaw, GH, JS Keogh. 2014. Head shape evolution in monitor lizards (*Varanus*): Interactions between extreme body size disparity, phylogeny and ecology. Journal of Evolutionary Biology 27:363-373.

Pepper, M, MD Marquero, MJ Whiting, JS Keogh. 2014. A multi-locus molecular phylogeny for Australia's iconic Jacky dragon (Agamidae:*Amphibolurus muricatus*): Phylogeographic structure along the Great Dividing Range of south-eastern Australia. Molecular Phylogenetics and Evolution 71:149-156.

Pepper, MR & Keogh, JS. 2014. Biogeography of the Kimberley, Western Australia: a review of landscape evolution and biotic response in an ancient refugium. Journal of Biogeography. Early View. doi:10.1111/jbi.12324

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Shine, R, C Spencer, JS Keogh. 2014. Morphology, reproduction, and diet in Australian and Papuan death adders (Acanthophis, Elapidae). Plos One 9:e94216.

Troncoso-Palacios, J, D Esquerré. 2014. A new species of *Phymaturus* of *the P. mallimaccii* group from the Andes of central Chile (Iguana: Liolaemidae). Phyllomedusa 13:3-15.

Vidal-Garcia, M., PG Byrne, JD Roberts, JS Keogh. 2014. The role of phylogeny and ecology in shaping morphology in 21 genera and 127 species of Australo-Papuan myobatrachid frogs. Journal of Evolutionary Biology 27:181-192.

## The Conservation and Landscape Ecology Group
## Fenner School of Environment and Society

The Conservation and Landscape Ecology Group at the Fenner School of Environment and Society is home to a range PhD, post docs and research fellows that use reptiles as model systems for validating ecological theories relating to metapopulation dynamics, connectivity conservation and landscape processes. The projects are supervised by David Lindenmayer, Damian Michael and Don Driscoll

Damian Michael is in his 14th year of managing several large-scale monitoring programs in southern NSW and north-east Victoria which evaluate reptile responses to woodland interventions and agri-environment schemes. Damian tries to feed this information back to NRM organisations by using empirical evidence as ammunition to drive change. He is also conducting a long-term mark-recapture and population demographic study of small-eyed snakes in Booderee National Park and other small elapids in southern NSW, and remains passionate about python conservation.

Geoffrey Kay is a year into his PhD and is conducting research into the conservation value of agri-environment scheme policy for herpetofauna in private agricultural woodland landscapes. He is currently exploring the opportunities for enhancing agri-environment policy to benefit herpetofaunal diversity in farming landscapes, by identifying habitat elements important for maintaining reptile diversity, as well as exploring dispersal mechanisms for enhanced connectivity of these fragmented landscapes.

Chloe Sato recently graduated from her PhD which examined the influence of ski reports on Alpine reptiles. Chloe has taken up a post-doc with the Fenner School and is longing to work on reptiles again.

Kay, G., Michael, D.R., Crane, M., Okada, S. MacGregor, C., Florance, D., Trengove, D., McBurney, L., Blair, D. and Lindenmayer, D. (2013) A list of reptiles and amphibians from Box-Gum Grassy Woodlands in south-eastern Australia. Check List 9(3): 476-481.

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Michael, D.R. and Herring, M.W (2014) Unexpected records of the Pink-tailed Worm Lizard *Aprasia parapulchella* in chenopod shrubland near Hay, southern NSW. Herpetofauna. (in press)

Michael, D.R. and Alexander, J. (2014) Historical records of the Inland Carpet Python *Morelia spilota* metcalfei (Serpentes: Pythonidae) in north east Victoria and the implications for fire planning. The Victorian Naturalist (in press)

Michael, D.R., MacGregor, C., Okada, S and Lindenmayer, D.B. Predation of a Common Scaly-foot *Pygopus lepidopodus* by an Eastern Small-eyed Snake *Cryptophis nigrescens* in New South Wales The Victorian Naturalist (in press)

Sato, C.F., Wood, J.T., Schroder, M., Green, K., Michael, D.R. and Lindenmayer, D.B. (2013) The impacts of ski resorts on reptiles: a natural experiment. Animal Conservation doi: 10.1111/acv.12095

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## The Institute of Applied Ecology
## University of Canberra

The Institute of Applied Ecology remains engaged in a number of projects of a herpetological nature driven by faculty members Arthur Georges, Stephen Sarre, Tariq Ezaz, Bernd Gruber and Janine Deakin. These projects include ARC funded projects on sex in dragons, biology of the endangered earless dragon, bioregionalisation of the MDB, and conservation of the Murray turtle (through UWA). Industry funded projects include conservation and environmental education of the pig-nosed turtle in PNG and there are a number of projects coming to completion on the phylogeography of freshwater turtles of Australia and PNG. Spatial modelling is a big element of our program now under the leadership of Bernd Gruber. Our capacity for landscape genetics work has had a major boost with the relocation of Diversity Array Technologies limited to our building, a company that specialises in SNP analyses based on double digest RADs (DArTSeq).

On the people side, we welcome Janine Deakin who joined us since the last newsletter. Janine's research focus is on marsupials, but she has engaged with the *Pogona* team to bring the physical mapping of the *Pogona* genome to completion. Peter Unmack, Clare Holleley, Lisa Doucette, Carlos Gonzalez-Orozco continue with us as postdoctoral fellows on the above projects, but Kazumi Matsubara has returned to Japan to take up a position there from next year and Renae Domaschenz has taken up a position with the Australian Institute of Sport. Bhumika Azad has moved to ANU to follow PhD studies. Matt Young remains employed on the CRN Murray-Darling Futures project (including turtles), Xiuwen Zhang on the turtle genetics projects, and Yiran Wang joins us as a bioinformaticist.

On the postgrad front, Maria Boyle has been awarded her PhD for her population modelling studies of sex determination under climate change, Kate Hodges is nearing completion with her chapters published or submitted for publication, and Angelica Lopez and Bruno Ferronato are in the throes of analysis and thesis preparation. Scott Thomson has returned briefly from Brazil to complete his Masters.

Bower, D. and Hodges, K. 2014. *Chelodina expansa* Gray 1857 – Broad-Shelled Turtle, Giant Snake-Necked Turtle Chelonian Research Monographs 5: doi:10.3854/crm.5.071.expansa.v1.2014

Boyle, M., Schwanz, L.E., Hone, J. and Georges, A. 2014. How do climate-linked sex ratios and dispersal limit range boundaries? BMC Ecology 14:19.

Deakin, JE and Ezaz, T (2014). Tracing the evolution of amniote chromosomes. Chromosoma 123: 201-216.

Eisemberg, C., Rose, M., Yaru, B., Amepou, Y. and Georges, A. 2014. Temporal and spatial environment associated with pig-nosed turtle coastal nesting and its influence on body size Journal of Zoology, London, in press.

Eisemberg, C.C., Rose, M., Yaru, B. and Georges, A. 2014. Spatial and temporal trends in pig-nosed turtle (*Carettochelys insculpta*) harvest in Papua New Guinea. Oryx, in press. http://dx.doi.org/10.1017/S0030605313001646.

Ferronato, B., Roe, J.H. and Georges, A. 2014. Reptile bycatch in a pest-exclusion fence established for wildlife reintroductions Journal for Nature Conservation, in press.

Georges, A. 2014. Comment on Taxonomic Practice and the Code (Harvey and Yanega 2013) Bulletin of Zoological Nomenclature, submitted.

Georges, A., Eisemberg, C., Amepou, Y. and Manasi, E. 2014. Turtle Conservation Challenges in Papua New Guinea Turtle Survival August 2014:22-24.

Georges, A., Zhang, X., Unmack, P., Reid, B.N., Le, M. and McCord, W.P. 2014. Contemporary genetic structure of an endemic freshwater turtle reflects Miocene orogenesis of New Guinea. Biological Journal of the Linnean Society 111:192-208

Grimm, A, Gruber, B and Henle, K (2014). Reliability of different mark-recapture methods for population size estimation tested against reference population sizes constructed from field data. PLoS ONE 9(6): e98840.

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# New South Wales

## Rick Shine group
## University of Sydney

The Shine Lab group is hopping (and sometimes slithering) along well. Cane toads remain the primary focus, funded by Rick's Laureate Fellowship from the ARC, but we haven't completely neglected the snakes either.

On the toad front, most of our effort has gone into collecting animals from across their Australian range, measuring their phenotypes (behaviour, morphology, physiology, etc.), genotypes, and epigenotypes, and then breeding them so we can examine the same traits in their offspring. The underlying aim is to use Aussie toads as a model system to look at rapid evolutionary change. To compare these beasts to their progenitors, we are also planning work in Hawaii and Brazil.

**Toadlord**

Rick Shine continues to zip around organizing things, writing papers, giving talks, doing interviews, checking Google Scholar every day to see if his h-index has increased, and carefully reading the latest medical research on ways to combat male pattern baldness. Toad secretions are a traditional medicine for this purpose in Japan, but so far it doesn't seem to be working for him.

Rick received a Eureka Award (for Outstanding Mentor of Young Researchers) in 2013; this makes him the only person to have won three of these awards (his others were for research and for communicating science to the public). In 2014 he was given the Robert Whittaker Distinguished Ecologist Award from the Ecological Society of America. He was a keynote speaker at the 2013 European Herpetological Conference in Hungary.

He is writing a couple of popular books (or at least, he hopes they'll be popular) – one on cane toads and one on snakes. Every January, he disappears to New Caledonia to continue his long-running mark-recapture studies on sea snakes, and to check out some good French cuisine.

**Collaborators**

We are working with several groups, mostly Australian, to exploit the opportunities of the cane toad system. Martin Whiting from Macquarie University is running some of the cognition work; Keith Christian from Charles Darwin University is involved in the physiological studies; Lee Ann Rollins (Deakin University) is the Queen of Toad Genetics and Epigenetics. Ben Phillips (University of Melbourne) seems to be involved in just about everything. Other epicentres of (sometimes joint) toad research include Jonno Webb and collaborators at University of Technology Sydney; and Ross Alford, Lin Schwarzkopf and team at James Cook University. Our work in Western Australia is collaborative with David Pearson, from the WA Department of Parks and Wildlife. Cathy Shilton (NT Veterinary Pathology Labs) handles all the complicated lab stuff in Darwin. And lots of ex-labbers are still in the mix as well, notably Crystal Kelehear who is US-based these days with a toad-based fellowship from the Smithsonian. Takashi Haramura (Kyoto) is looking at invasive toads in japan. In terms of reptile work, we are continuing to collaborate with Mats Olsson (Sydney Uni), Sylvain Dubey (University of Lausanne, Switzerland), Weiguo Du (Chinese Academy of Sciences) and Troy Baird (Oklahoma State University), as well as several others.

**Postdocs**

Greg Brown (the old man on the dam wall) is enjoying his ARC Future Fellowship, and the chance to expand his immunology work from toads to snakes. After 15 years based at Middle Point near Fogg Dam, Greg offers a living example of the perils of spending too long in the bush.

Michael Crossland continues his research on chemical communication systems in cane toad tadpoles, looking at attractant chemicals (to trap toad tadpoles) and suppression chemicals (to retard development and survival of toad embryos). He is still based at Middle Point, but hoping to expand this work to invasive cane toad populations in Japan next year in collaboration with researchers at Kyoto University.

Matt Greenlees has shed about half his former body mass, and is looking lean, mean and keen. We're not sure if the weight loss was intentional, or a consequence of having a new baby (Bethany), plus too many other jobs to list (including undergrad teaching and course organization, field trips to the NSW north coast to chase toads, animal ethics forms, more animal ethics forms, yet more animal ethics forms …).

Camila Both is heading back to Brazil soon, after almost two years at Middle Point examining toad behavior, and running trials to quantify personality. We are hoping to maintain the collaboration with her, looking at toads within their native range.

Jayna DeVore is dividing her time between Sydney and Middle Point. She ran two monster experiments on phenotypic plasticity in toads last wet-season, and is usually seen beneath a large pile of papers, bearing mountains of yet-to-be-entered data.

As our resident Frenchman, Simon Ducatez has brought Old World culture to Middle Point. Simon has been working with Michael Crossland on responses of toad tadpoles to pheromones, and on density-dependence issues from toad larvae originating from different Australian populations. He is also pursuing more general (theory-based) projects on invasive species.

Zhiqiang Zhang has arrived from China to spend a year up at the field station near Fogg Dam. Zhiquiang's specialty is toad immunobiology, and he brings with him some new methods that we are keen to incorporate into our studies. His arrival (together with his wife Wen Wen) has also added substantially to the quality of Chinese food available at the research station.

Hong Li is another Chinese scholar, who will spend a year with us to examine developmental plasticity in reptiles. His special interest is in selective forces for the evolution of viviparity. Hong will be based in Sydney, and work on the Brindabella skinks with Melanie Elphick.

**Graduate Students**

Uditha Wijethunga (Ph. D, from 2012, on cane toad ecology and evolution) has been working for 2 years on the southern invasion of cane toads. Embryonic and larval life history stages of cane toads might have to face to novel challenges such as cooler temperature, acidic conditions and high salinities as a result of their movement along the coastal border of NSW. Understanding the extent which these factors affect toad development and plasticity is crucial for management. Uditha's experiments suggest that toad eggs and larvae cannot tolerate extremely high or low pH, but they do have the flexibility to successfully reach metamorphosis over a wide range of pH conditions and also they have the ability to overcome wide variation of saline environments. That tolerance should allow further expansion of cane toads in southern Australia.

Sarsha Gorissen (Ph. D, from 2012, on conservation biology of endangered reptiles) is enjoying swamping around the Blue Mountains and Newnes Plateau researching the endangered Blue Mountains water skink, *Eulamprus leuraensis*. Her second field-season included the collection of a sizable data set on post-fire abundances and morphometrics, as well as habitat scoring of swamp zones and trap micro-habitats. Having received grants from the Humane Society International, ESA, ASH and USyd, the lizards are sitting pretty; well, prettier :)

We don't need to update you on Georgia Ward-Fear (Ph. D., from 2013, on invasive toad impact and control), because you see a story about her (with a picture of her harassing a goanna) whenever you turn on the TV or look at a magazine. With occasional breaks in local hospitals to recover from dreaded tropical illnesses, Georgia is working with the Balanggarra Corporation and a host of others (the WA Department of Parks and Wildlife, NERP, etc.) on an ambitious program to teach toad-aversion to floodplain goannas. The lizards are trained, the toads are arriving … soon we will know if it works. If not, Georgia clearly has a career in wildlife documentaries anyway.

Daniel Natusch (Ph. D., from 2013, on ecology of tropical pythons) is catching a few snakes, in between fixing his field vehicle. When he gets some spare time he tries to radio-track scrub pythons and invariably spends days lost within the Cape York rainforest. While lost he catches snakes attempting to climb emergent trees to eat birds before returning to his field vehicle to find it won't start. And thus the vicious cycle repeats itself.

Cameron Hudson (Ph. D., from 2013, on cane toad morphology and locomotion is a Canadian who has spent the past year frantically measuring toads from populations across Australia, and chasing them with a blunt stick. His project is focused on phenotypic evolution of cane toads across their invaded range, with emphasis on morphology and locomotor performance. Cam is based at Middle Point, where he is raising toads from invasion front and long colonized populations in a common

garden experiment to compare heritability and genotypic plasticity of morphology. He is currently involved in a collaboration with Colin McHenry's lab at Monash University that focuses on geometric morphometrics of cane toad skeletons. In 2015 he plans on traveling to Brazil to sample toads from their native range.

Jodie Gruber (Ph. D., from 2013, on cane toad behaviour). After a year of 'thinking like a cane toad' (and running many pilot studies!), Jodie has developed a suite of trials to test the cognitive abilities of cane toads across their invasion range in Australia. Designed with cane toad ecology and behaviour in mind, these trials will test cognitive traits that may contribute to invasion success such as spatial learning and memory, modes of navigation, associative learning and problem-solving. Adult toads from across the invasion range are currently being put through their cognitive paces. Later, F1 youngsters from Team Bufo's common-garden breeding stock will also be tested to disentangle environmental and genetic effects. Jodie's work was very briefly mentioned (amid a wealth of other glistening gems of Shine Lab research) in a New Scientist article entitled Learning to love the cane toad earlier this year. Jodie at least, has learned to love the cane toad in the first year of her PhD - what the toads themselves have learned will be revealed in the next year!

Serena Lam (Ph. D., from 2013, on cane toad epigenetics). Serena has had health problems and has suspended candidature for the moment. We are hoping to see her back at the lab bench next year.

Samantha McCann (Ph. D, from 2014, on cane toad control) not only survived her Honours year with Matt and Rick, but has come back for more. She will focus on translating some of the exciting new pheromone-control methods into landscape-scale deployment. That work likely will take her from Lismore to Kununurra, and probably Hawaii.

Georgia Kosmala (Ph. D, from 2014, on cane toad physiology) has recently arrived from Brazil, Ancestral Home of the toad. She will look at thermal and hydric aspects of cane toad biology, including comparisons of toads from different habitats (rainforest to desert) and different areas (Cairns to Kununurra, Hawaii, Brazil). Georgia will be co-supervised by Keith Christian (Charles Darwin University), so that she will have the benefit of advice from a real physiologist.

**Honours students**

Samantha McCann (2012-13) looked at dispersal ecology of invasive toads in northern NSW (jointly supervised by Matt Greenlees and Rick Shine, and by Dave Newell from Southern Cross University). Sam clarified some of the physiological and behavioural tricks that are allowing toads to go into much colder areas then were thought possible.
Greg Clarke (2013-14) studied toad pheromonal communication (jointly supervised by Michael Crossland and Rick Shine).
Chris Jolly (2013-14) filled in a large gap in our knowledge of toads: their impact in southern Australia (jointly supervised by Matt Greenlees and Rick Shine).
Felicity Nelson (2013-14) explored the intricacies of host-parasite relationships in frogs and their native lungworms, as well as seeing what happens when the native lungworm infects a toad (jointly supervised by Greg Brown and Rick Shine)
Damian Holden (2014) is close to submitting his thesis on toad immunology and behaviour (jointly supervised by Greg Brown and Rick Shine). Damian has been studying behavioural aspects of the immune response in toads.

**Tech staff**

Melanie Elphick has survived her 19th year working for Rick and as old age and menopause sets in she is becoming bossier than ever around the lab. Thankfully Rick sees this as some kind of asset. Because everyone in the lab is scared to put a toe out of line, the lab is running smoother than ever! In between hot flushes Mel relishes all the manuscript formatting and figure preparation work that comes her way. And this summer she has the chance to don her fieldwork gear and head back to her beloved Brindabellas with a new Chinese post-doc Hong Li, to continue the long-term research program on the

oviposition biology of the 3-lined alpine skink, *Acritoscincus* (*Bassiana*) *duperreyi*. Mel would like to have said a little more about her role in the lab but she had to go and count the number of all non-compliant powerboards in the lab, offices and animal house rooms….

Chalene Bezzina helps Mel to run the lab, keeps the study animals well-fed and happy, and enjoys discussing the All Blacks' superiority over the Wallabies to anyone who'll listen (especially Rick).

**Book chapters**

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## Niche Environment and Heritage section of Amphibian Research University of Newcastle

Frank Lemckert continues to undertake intermittent work on frogs and reptiles through various avenues available to him. In his own time he wanders the Watagans keeping an eye on his beloved frog ponds and maintains his long term marking of *Litoria peronii* to see how the populations vary through time and how much frogs move around between adjacent ponds (they don't really). Several years of chasing *Litoria aurea* at Nowra has come to an end, but Frank is getting the chance to do some population estimates for *Mixophyes iteratus* on the mid-north coast and has been blessed with the opportunity to monitor *Litoria brevipalmata* in a couple of places through a period of impossible to predict rainfall (his hair is getting much greyer and he has developed a nervous twitch whenever it rains at Yamba). Frank still works as secretary of the NSW Declining Frog Working Group whose recent meetings have raised a) serious concerns about the conservation status of the Heath Frog (*Litoria littlejohni*) though the southern half of its range; and b) have been working to provide general feedback and assistance as well as a progressing a conservation project for *Litoria aurea* for the NSW new Saving our Species Program being operated by the NSW Office of Environment and Heritage. So he tries to keep the frog work going, but could do with some work on the scalies.

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## Conservation Biology Research Group
## University of Newcastle

The Sydney Olympic Park ARC funded project has wound to an end but Carla Pollard, Melanie James continue to write their PhD theses on adaptive management and conspecific behaviour of bell frogs respectively. James Garnham is in the final stages of writing up his PhD on the threatening processes of the endangered green and golden bell frog. Once the thesis beast is put down he can't wait to get back out into the field and catch critters. Amalina Abu Bakar and Maddie Sanders were brave enough to become Deb Bower's first ever Honours students and nailed it also working between Sydney Olympic Park and the laboratory with their respective bell frog ecological studies. Deborah Bower finished her postdoc and has been released from the nuptial grip of the froggiest of labs to escape to Madagascar in search of herps with penises. She has maintained a part time position with the University of Newcastle while working with a local Malagasy NGO on habitat use of critically endangered day geckos and assisting with a projecting researching how biodiversity is affected by *tavy* (slash and burn) agriculture. She recently had her first parasy (chigoe flea) imbedded in her foot and has fallen in love with *Brookesia* - the most scrumptious chameleons of all. Michelle Stockwell, while in the midst of her post-marital bliss/ 'when are the babies arriving?' annoyance haze, continues to work on her post-doc investigating habitat restoration methods for amphibians in the presence of disease. She currently spends more time writing and supervising students than wading around in swamps, but she's ok with this. Her pet dragon Queen Latifah Stockwell-Bower-Clulow continues to keep her delighted and amused, when she isn't pooping on keyboards.

Other Honours students that have come through in the last year include Lachlan Campbell, Loren Bainbridge (now our full time RA) and Doug Webb working on bell frogs – our research has been diverse and included testing the ability to predict extinct populations, looking at sub lethal impacts of chytrid on bell frog performance and as always trying to determine how we can improve restoration strategies to increase population viability of threatened frogs. We also welcomed Matt Edgar to the team, long term volunteer and boyfriend of the lab – now a shiny new RA. Team Kimberley took on Honours students Hugh James working on goanna nesting ecology and Josh Green on cane toad overlap with Magnificent tree frogs. Simon Clulow has been madly trying to write up papers in between trips to Madagascar and the U.S. Michael Mahony is preparing for sabbatical (why aren't you coming to Madagascar?) and John Clulow is getting ready to turn 60 and wondering where all the time went. Jose Valdez, David Wright and Kaya Klop-toker continue to plug away at more bell frog related PhD theses. Stephen Mahony comes to the lab in between undergraduate courses to talk about geckos and sometimes about other geckos.

We also have a shiny new website so for more information head to:

http://danielhincks.com/index.html

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## Marion Anstis
## Newcastle

Working on a revision of the *Cyclorana platycephala* species group with two new taxa involved, more taxonomic papers in the pipeline. Have just been awarded the Whitley Silver Medal for my book Tadpoles and Frogs of Australia. The award is the top award given annually by the Royal Zoological Society, NSW for the Best Australian Natural History book, (2014). Thanks again to the University for their support through my PhD and the production of this book!

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## Amphibian Ecology and Conservation – Skye Wassens research group
## Institute of Land, Water and Society, Charles Sturt University

After moving southwards from UNSW on completing her PhD, Joanne Ocock has been working as a research associate and lecturer at Charles Sturt University. Jo has been on the team monitoring Commonwealth Environmental Water in the Murrumbidgee floodplain wetlands, and coordinated several fieldtrips to the Lowbidgee wetlands over spring-summer. As well as counting a bazillion fish, a good number of southern bell frogs (*Litoria raniformis*) were seen and heard, which was a very encouraging outcome from the 2013-14 watering event.

Carmen Amos completed another field season for her PhD in the lower Lachlan Catchment and Amelia Walcott has just put out her first lot of data recorders in the mid and upper Lachlan as part of her Phd.

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## Thommo's lab
## University of Sydney

New People to the Lab team include Kevin Hendrawan and Aditi Misra who are just finishing their honours projects on aspects of the immunological consequences of pregnancy in *Pseudemoia entrecasteauxii*, and focal adhesions in the uterine epithelium of the skink *Saiphos equalis*.

Oliver Griffith's PhD project is going very well. He has just completed a tour of labs in the USA and presented his results at Evolution 2014, and at the Yale University, Systems Biology Seminar Series. Oliver has recruited funding for his research by receiving an ASH Student Research Grant and University of Sydney Graduates Union of North America Alumni Scholarship. Oliver has been bringing his research to the public, by writing a popular article for The Conversation and through radio interviews for ABC Alice Springs and 2SER.

Matt Brandley has moved back to Sydney (actually the central coast) from Canberra. He is still working hard on the transcriptome of the uterus and embryos of bimodally reproductive skinks.

Van (James Van Dyke) has completed his NSF-funded postdoc, in which he got an excellent paper in American Naturalist. He continues at the University of Sydney while he awaits the outcome of further funding applications

Camilla Whittington is currently working on functional genomics of skink pregnancy and has just returned from Belgium where she was an invited plenary speaker at the 2014 EMPSEB Evolutionary Biology Conference. She also spent some time in America this year and she was invited to give a seminar in New York (CUNY). Camilla is currently the early career researcher representative on the Genetics Society of Australasia (GSA) Executive, and was on the organising committee of this year's GSA conference.

Shervin Aslanzadeh and Nadav Pezaro have now both graduated and moved on. Shervin is living in Adelaide while Nadav is working in various African countries and considering his next scientific move. Jacquie Herbert still keeps control of everything in the lab during her two days a week. Bec (Rebecca) Bray, who is doing a PhD at Monash with David Chapple, co-supervised by Mike, is writing her PhD thesis. She is also working at Museum Victoria as a Research Assistant to Jane Melville and Collection Registration Officer.

Jess McGlashan is doing a PhD on turtles eggs with Ricky Spencer at the University of Western Sydney (co-supervised by Mike Thompson and by Fred Janzen at Iowa State) has completed all of her field and lab work and is busily writing her thesis. She had an exciting trip to China this year to help Dr Weigu Du with some of his egg research.

Celine Goulet is working hard on her PhD on *Lampropholis delicata* with David Chapple at Monash, cosupervised by Mike. Other non-herp students in the lab, Melanie Laird and Jess Dudley, are working on pregnancy in mammals, while Fran van den Berg, is finishing her PhD on flat rock spiders.

Mike, together with Ricky Spencer, Bruce Chessman and Arthur Georges received a new ARC Linkage grant to study serious declines of turtles on the River Murray. Mike was invited to give a presentation on the placenta of lizards at the recent meeting of the Australian Society for Reproductive Biology.

All herp members of the lab attended ASH 2014, of course, and most members of the lab attended the Australian and New Zealand Society of Comparative Physiology and Biochemistry (ANZSCPB) meeting in Melbourne in December, 2013.

Oliver presented a talk at Evolution 2014 titled The evolution of placentae; complex trait evolution can be constrained by ancient features of an organism's genome in Raleigh, North Carolina. Camilla and Matt gave presentations at this year's Genetics Society Conference in Sydney. Van attended the Joint

Meeting of Ichthyologists and Herpetologists in Chattanooga, Tennessee, where he presented a paper on cues for reproduction in squamate reptiles in a symposium on lizard reproductive biology. He also presented a paper on the evolution of pit organs in snakes in a symposium on infrared reception in boas, pythons, and pit vipers. He presented a paper on the nutritional constraints on evolution of placentotrophy in skinks at the 2014 Evolution meeting in Raleigh, North Carolina. Fran presented at the International Society for Behavioral Ecology in New York. Mel and Jess Dudley attended the European Molecular Biology Laboratory's (EMBL) PhD course that was held in July this year at the Australian National University (ANU) in Canberra.

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Whittington, C.M. and K. Belov. 2014. Tracing monotreme venom evolution in the genomics era. Toxins 6(4): 1260-1273.Wu, Q., C.K. Fong, M.B. Thompson, and C.R. Murphy. 2014. Changes to the uterine epithelium during the reproductive cycle of two viviparous lizard species (*Niveoscincus* spp.). Acta Zoologica (accepted 7 Aug, 2014).

Grellet-Tinner, G., M.B. Thompson, L.E. Fiorelli, E. Argañaraz, L. Codorniú, and M. Hechenleitner. 2014. The first pterosaur 3-D egg: Implications for *Pterodaustro guinazui* nesting strategies, an Albian filter feeder pterosaur from central Argentina. Geoscience Frontiers doi: 10.1016/j.gsf.2014.05.002.

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Van Dyke, J.U., D.A. Steen, B.P. Jackson, and W.A. Hopkins. 2014. Maternal transfer and embryonic assimilation of trace elements in freshwater turtles after remediation of a coal fly-ash spill. Environmental Pollution 194: 38-49.

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Whittington, C.M. and K. Belov. 2013. The platypus: a venomous mammal. In: Evolution of Venom Glands, Handbooks of Toxinology, Calvete, J.J. (ed), Springer.

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# Northern Territory

## Keith Christian's Physiological Ecology Lab
## Charles Darwin University

Matt Brien will be submitting his PhD thesis in 2014, and his paper: Intra- and interspecific agonistic behaviour in hatchling Australian freshwater crocodiles (*Crocodylus johnstoni*) and saltwater crocodiles (*Crocodylus porous*) won the annual Australian Journal of Zoology Best Student Paper Award for 2013.

Adrian Gurra completed his Honours project on temperatures in crocodile nests and the implications of climate change, and he has just started a PhD at CDU. More recently, Guillaume Puig completed his Honours project on correlations between gecko toe pad morphology and ecological habitat.

Sam Godwin is starting a PhD on the microbial communities of ecologically diverse amphibians and reptiles.

Tracy, C. R., K. A. Christian, N. Burnip, B. J. Austin, A. Cornall, S. Iglesias, S. J. Reynolds, T. Tixier, C. Le Noene. 2013. Thermal and hydric implications of diurnal activity by a small tropical frog during the dry season. Austral Ecology 38:476-483. (IF=1.738)

Seymour, R.S, C.M. Gienger, M.L. Brien, C.R. Tracy, S.C. Manolis, G.J.W. Webb, and K.A. Christian. 2013. Scaling of standard metabolic rate in estuarine crocodiles *Crocodylus porosus*. Journal of Comparative Physiology B 183:491-500. (IF=2.204)

Brien, M.L., G.J. Webb, J.W. Lang, K.A. McGuinness, and K.A. Christian. 2013. Born to be bad: agonistic behaviour in hatchling saltwater crocodiles (*Crocodylus porosus*). Behaviour 150:737-762. (IF=1.166)

Webb, G.J.W., S.R. Reynolds, M.L. Brien, S.C. Manolis, J.J. Brien, K.A. Christian. 2013. Improving Australia's crocodile industry productivity. RIRDC Publication No. 12/139. https://rirdc.infoservices.com.au/items/12-139.

Brien, M.L., G.J. Webb, J.W. Lang, and K.A. Christian. 2013. Intra- and interspecific agonistic behaviour in hatchling Australian freshwater crocodiles (*Crocodylus johnstoni*) and saltwater crocodiles (Crocodylus porosus). Australian Journal of Zoology. 61:196-205. (IF=0.775)

Brien, M.L., J.W Lang, G.J Webb, C. Stevenson, and K.A. Christian. 2013. The good, the bad, and the ugly: agonistic behaviour in juvenile crocodilians. PloS ONE 8: DOI:10.1371/journal.pone.0080872.

Tracy, C.R., Tixier, T., Le Noene, C., and Christian, K.A. 2014. Field hydration state varies among tropical frogs species with different habitat use. Physiological and Biochemical Zoology 87:197-202.

Brien, M.L., G.J. Webb, J.W. Lang, K.A. McGuinness, and K.A. Christian. 2014. The relationship between early growth and survival of hatchling saltwater crocodiles (*Crocodylus porosus*) in captivity. PloS ONE 9: DOI:10.1371/journal.pone.0100276.

# Queensland

## Phillips Lab (AKA TeamCogg)
## James Cook University

Ben Phillips has recently relocated to University of Melbourne where he is able to spend long hours staring out the window at the cold greyness whilst thinking about the tropics. He divides his time between the crack team that is TeamCogg (evolution in peripheral isolates, using *Lampropholis coggeri* as a model), and attempting to develop an analogous team in Melbourne. He still resists football tribalism and coffee snobbery, but is getting the sense that these are futile battles.

John Llewelyn continues to be happily overwhelmed by the large amount of data TeamCogg is collecting. And whilst it often seems like more data lead to more questions, every now and then he gets the feeling that some quite respectable answers are found along the way (including those to questions that weren't actually asked!).

Stewart Macdonald continues to capture the tails of little brown skinks, much as they've captured his heart. Turns out that they make a great system in which to study the interplay with between connectivity, environment, local adaptation, and Oxford commas. Stewart has finished fieldwork and is now embarking on his genetics component.

Amberlee The Dark Instrument Hatcher continues to collect tens of thousands of data points on lizard physiology whilst keeping the lizard colony happy and thriving. Despite everyone's concerns for her mental health she continues to be more balanced and sane than anyone else in the team.

Andrew Coates has recently joined the group for a project on gecko parasites. He's interested in fitness effects as well as how infection dynamics changes across range edges. These lofty aims boil down to very close examination of lizard poo, an art he is becoming well practiced in.

Brown, G. P., Greenlees, M. J., Phillips, B. L., & Shine, R. (2013). Road transect surveys do not reveal any consistent effects of a toxic invasive species on tropical reptiles. Biological Invasions, 15, 1005-1015. doi: 10.1007/s10530-012-0346-2

Lindstrom, T., Brown, G. P., Sisson, S., Phillips, B. L., & Shine, R. (2013). Rapid shifts in dispersal behaviour on an expanding range edge. Proceedings of the National Academy of Sciences USA, 110(33), 13452–13456.

Perkins, T. A., Phillips, B. L., Baskett, M. L., & Hastings, A. (2013). Evolution of dispersal and life-history interact to drive accelerating spread of an invasive species. Ecology Letters, 16(8), 1079-1087. doi: 10.1111/ele.12136

Phillips, B. L., & Puschendorf, R. (2013). Do pathogens become more virulent as they spread? Evidence from the amphibian declines in Central America. Proceedings of the Royal Society B-Biological Sciences, 280(1766), 20131290.

Reside, A. E., VanDerWal, J., Phillips, B., Shoo, L. P., Rosauer, D. F., Anderson, B. A., . . . Williams, S. E. (2013). Climate change refugia for terrestrial biodiversity: Defining areas that promote species persistence and ecosystem resilience in the face of global climate change (pp. 216). Gold Coast: National Climate Change Adaptation Research Facility.

Scheffers, B. R., Phillips, B. L., Laurance, W. F., Sodhi, N. S., Diesmos, A., & Williams, S. E. (2013). Increased arboreality of frogs with increasing altitude suggests a novel biogeographical dimension. Proceedings of the Royal Society B-Biological Sciences, 280, 20131581. doi: http://dx.doi.org/10.1098/rspb.2013.1581

Storlie, C. J., Phillips, B. L., VanDerWal, J., & Williams, S. E. (2013). Improved spatial estimates of climate predict patchier species' distributions. Diversity and Distributions, 19(9), 1106-1113.

Tingley, R., Phillips, B. L., Letnic, M., Brown, G. P., Shine, R., & Baird, S. J. E. (2013). Identifying optimal barriers to halt the invasion of cane toads *Rhinella marina* in arid Australia. Journal of Applied Ecology, 50, 129-137. doi: 10.1111/1365-2664.12021

Keppel, G., Mokany, K., Wardell-Johnson, G., Phillips, B. L., Welbergen, J. A., & Reside, A. E. (2014). Quantifying the capacity of refugia for conservation planning under climate change. Frontiers in Ecology and the Environment, in press.

Llewelyn, J., Schwarzkopf, L., Phillips, B. L., & Shine, R. (2014). After the crash: How do predators adjust following the invasion of a novel toxic prey type? Austral Ecology, 39, 190-197. doi: 10.1111/aec.12058

Pearson, D. J., Webb, J. K., Greenlees, M. J., Phillips, B. L., Bedford, G. S., Brown, G. P., . . . Shine, R. (2014). Behavioural responses of reptile predators to invasive cane toads in tropical Australia. Austral Ecology, 39, 448-454.

Reside, A. E., Welbergen, J. A., Phillips, B. L., Wardell-Johnson, G. W., Keppel, G., Ferrier, S., . . . VanDerWal, J. (2014). Characteristics of climate change refugia for Australian biodiversity. Austral Ecology, in press.

Scheffers, B. R., Phillips, B. L., & Shoo, L. P. (2014). Asplenium bird's nest ferns in rainforest canopies are climate-contingent refuges for frogs. Global Ecology and Conservation, in press.

Shine, R., & Phillips, B. L. (2014). Unwelcome and unpredictable: the sorry saga of cane toads in Australia. In A. Stow, N. Maclean & G. I. Holwell (Eds.), Austral Ark: The state of wildlife in Australia and New Zealand: Cambridge University Press.

Storlie, C., Merino-Viteri, A., Phillips, B., Vanderwal, J., Welbergen, J., & Williams, S. (2014). Stepping inside the niche: microclimate data are critical for accurate assessment of species' vulnerability to climate change. Biology Letters, in press.

April E. Reside, Daniela M. Ceccarelli, Joanne L. Isaac, David W. Hilbert, Cath Moran, John Llewelyn, Stewart Macdonald, Conrad J. Hoskin, Petina Pert and Jennifer Parsons. (2014) Biodiversity – Adaptation pathways and opportunities. In: Adaptation Pathways and opportunities for the Wet Tropics NRM Cluster region


## Ecological Sciences, Queensland Herbarium
## Department of Science, Information Technology, Innovation and the Arts (DSITIA)

The Ecological Sciences team at the Queensland Herbarium (team leader Teresa Eyre) has been busy since the last update, including working on existing biodiversity monitoring projects, conducting threatened frog surveys in south-east Queensland and securing additional funding.

The Australian Collaborative Rangelands Information System (ACRIS) project has been completed; a collaborative trial across rangeland jurisdictions to test the design and methods for a national scale biodiversity surveillance monitoring program across contrasting ecosystems and management regimes. The trial comprised vertebrate fauna (including pits, funnels and active searches) and vascular flora surveys at rangeland sites in Qld, NT and SA. The Queensland component used data collected from working grazing properties in the Mulga Lands bioregion. Unfortunately, funding for the ACRIS program has been discontinued.

Surveys are about to kick off again for the second round of sampling for the Mitchell and District Landcare Association (MDLA) (Biodiversity Fund) project in the Mulga Lands and Brigalow Belt bioregions. The project aims to collect data on biodiversity and grazing land condition changes over time in three broad vegetation types.

The team has recently secured funding from Ipswich City Council (ICC) for a fire monitoring project that will aim to assess change in fauna populations and species composition in response to fire management, on conservation parks and estates within the ICC area. While hot on the topic of fire, the team, in collaboration with CSIRO, is contributing to a publication (in prep) investigating how fire influences reptile assemblages across a broad remnant vegetation type in the Mulga Lands and Brigalow Belt bioregions from several years of monitoring data.

To accompany the Terrestrial Vertebrate Fauna Survey Guidelines for Queensland, specific targeted survey approaches are continuing to be developed for threatened species not dealt with by the Commonwealth survey guidelines. The Targeted Species Survey Guidelines mostly feature species listed under the Queensland Nature Conservation Act 1992 but not listed under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999. They have been prepared for use by anyone planning to undertake targeted surveys on threatened species in Queensland, and include recommendations about the minimum survey effort required to detect these listed species.

So keep an eye on the website (NB: website has recently changed, see link below) for the guidelines and new herpetofauna targeted species guidelines! You'll also find some useful field datasheets on the website, so check it out!
http://www.qld.gov.au/environment/plants-animals/biodiversity/vertebrate-survey/

Eyre, T. J., Ferguson, D. J., Kennedy, M., Rowland, J., Goulding, W. & Maron, M. (in review) Long term logging and thinning in cypress pine forest: counterintuitive changes in habitat attributes and response of fauna.

Ferguson, D. J., Mathieson, M. T. & Eyre, T. J. (in press) Additional information on the beaded gecko *(Lucasium damaeum*) and smooth knob-tailed gecko (*Nephrurus levis*) at their eastern limit in southwest Queensland. The Queensland Naturalist.

Rowland, J., Nottidge, B., Ferguson, D. & Mathieson, M. (2012) Predation by an eastern brownsnake *Pseudonaja textilis* on a common death adder *Acanthophis antarcticus* (Serpentes: Elapidae). Herpetofauna 42(1 & 2): 46-55.

## One Health Research Group
## James Cook University

We have a new facebook page, which we will keep updated with publications, news and photos. Please head over to https://www.facebook.com/onehealthresearchgroup or search one health research group.

Laura Grogan is just about to give her Pre-Completion Seminar Understanding host and environmental factors in the immunology and epidemiology of chytridiomycosis in anuran populations in Australia.

Laura Brannelly (PhD candidate), reintroduced the captive raised alpine tree frogs, *Litoria verreauxii* alpina, into Kosciuszko National Park. She then conducted an intensive mark recapture study of their survival and disease status during their breeding season.

Lee Berger and Rebecca Webb recently finished a pilot experiment looking into the feasibility of using antifungal implants to protect amphibians against chytridiomycosis. They used Terbinafine implanted subcutaneously in the forearms of cane toads. Samples were taken frequently over a three month period to determine the level of terbinafine in the blood and skin.

Alicia Maclaine has just joined our group and is doing her PhD on viruses and bacteria in native reptiles and Asian house geckos.

And congratulations to Alex Roberts who is expecting her first child! And for obtaining a Queensland Accelerate fellowship to study *Bd* virulence!

http://onlinelibrary.wiley.com/doi/10.1002/ece3.1199/full
Voyles, Jamie, et al. Experimental evolution alters the rate and temporal pattern of population growth in *Batrachochytrium dendrobatidis*, a lethal fungal pathogen of amphibians. Ecology and Evolution (2014).

http://www.sciencedirect.com/science/article/pii/S0034528814001854 Woodward, A., L. Berger, and L. F. Skerratt. Short communication: in vitro sensitivity of the amphibian pathogen *Batrachochytrium dendrobatidis* to antifungal therapeutics. Research in Veterinary Science(2014).

http://www.jwildlifedis.org/doi/abs/10.7589/2013-07-186
Shaw, Stephanie D., et al. Baseline Cutaneous Bacteria of Free-Living New Zealand Native Frogs (*Leiopelma archeyi* and *Leiopelma hochstetteri*) and Implications for Their Role in Defense Against the Amphibian Chytrid (*Batrachochytrium dendrobatidis*). Journal of wildlife diseases (2014).

http://www.herpconbio.org/Volume_9/Issue_1/Voyles_etal_2014.pdf VOYLES, JAMIE, et al. INITIAL ASSESSMENT OF HOST SUSCEPTIBILITY AND PATHOGEN VIRULENCE FOR CONSERVATION

AND MANAGEMENT OF TASMANIAN AMPHIBIANS. Herpetological Conservation and Biology 9.1 (2013): 106-115.

http://onlinelibrary.wiley.com/doi/10.1111/cobi.12322/full
SCHEELE, BEN C., et al. Interventions for Reducing Extinction Risk in Chytridiomycosis-Threatened Amphibians. Conservation Biology (2014).

http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1004015
Grogan, Laura F., et al. Surveillance for Emerging Biodiversity Diseases of Wildlife. PLoS pathogens 10.5 (2014): e1004015.

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0090750
Kolby, Jonathan E., et al. First Evidence of Amphibian Chytrid Fungus (*Batrachochytrium dendrobatidis*) and Ranavirus in Hong Kong Amphibian Trade. PloS one 9.3 (2014): e90750.

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0089660
Kolby, Jonathan E. Presence of the Amphibian Chytrid Fungus *Batrachochytrium dendrobatidis* in Native Amphibians Exported from Madagascar. PloS one 9.3 (2014): e89660.

http://www.sciencedirect.com/science/article/pii/S0006320713004552 Scheele, Ben C., et al. Decline and re-expansion of an amphibian with high prevalence of chytrid fungus. Biological Conservation 170 (2014): 86-91.

http://www.jove.com/video/51166/reduced-itraconazole-concentration-durations-are-successful-treating
Brannelly, L. A. Reduced Itraconazole concentration and durations are successful in treating *Batrachochytrium dendrobatidis* infection in amphibians. J. Vis. Exp. (85), e51166, doi:10.3791/51166 (2014).

Young S, Whitehorn P, Berger L, Skerratt LF, Speare R, Garland, S., Webb, R. Defects in host immune function in tree frogs with chronic chytridiomycosis. PLoS ONE 9(9): e107284. doi:10.1371/journal.pone.0107284 (2014)

## Landscape Ecology and Conservation Group
## School of Geography, Planning & Environmental Management, UQ

In may this year, Melissa Bruton, the sole ASH-er in this group, finished chasing reptiles around St George, and completed her PhD. This well-received thesis provides baseline information about habitat use patterns by reptile communities and species in regenerating drylands landscapes.

The woma python radio-tracking part of this PhD was filmed for the 8th episode of Steve Irwin's Wildlife Warriors.

Bruton MJ (2014) Multiscale patterns of habitat use by reptiles in regenerating landscapes. PhD Thesis. School of Geography, Planning and Environmental Management, The University of Queensland, St Lucia.

Bruton MJ, McAlpine CA, Smith AG, Franklin CE (2014) The importance of underground shelter resources for reptiles in dryland landscapes: a woma python case study. Austral Ecology early view DOI:10.1111/aec.12150

Bruton MJ, McAlpine CA, Maron M (2013) Regrowth woodlands are valuable habitat for reptiles. Biological Conservation 165: 95-103

Bruton MJ (2013) Arboreality, excavation, and active foraging: novel observations of radiotracked woma pythons *Aspidites ramsayi*. Memoirs of the Queensland Museum - Nature 56: 312-329

## Vertebrate Ecology Lab (Schwarzkopf Lab)
## James Cook University

We had many new arrivals and a few departures here in the Vertebrate Ecology Lab at James Cook University. Lin Schwarzkopf continues to teach and do research, her administrative roles have subsided a bit, and she tries to talk to everyone at least once in a while, usually with lunch as an inducement.

Heather Neilly and Eric Nordberg have joined the laboratory as PhD students, Rachel Heckathorn as an honours student, and Lauren Heilbronn as a minor project student to work at Wambiana Station with Queensland Dept of Agriculture, Fisheries and Forestry, and Meat and Livestock Australia. They'll be studying the influence of grazing on vertebrates in general (Heather), and geckos (Eric), red-backed fairy wrens (Rachel), and fence skinks (Lauren), in particular. They've all been counting and catching, spotting, grabbing and scooting around on quad bikes this winter.

Swati Banergee and Sasha Greenspan have also just joined us to do PhDs on the ecology of frog disease, Swati is learning to work the big machines that go ping, to quantify and characterise antimicrobial peptides, while Sasha is filling in the blanks for an ecological model of the coexistence of *Bd* and frogs. Gus McNab seems to be moving towards finishing his masters on mist frogs and *Bd* in lowland locations. Denise McGregor is working on reptiles with fur somewhere in the rainforest – no one has seen her for ages (she was sighted in America). Kiyomi Yasumiba has finished her PhD data collection on cane toad acoustics, and is listening to a lot of calls and figuring out the differences between them. We expect she will move towards the most attractive call soon. Ben Muller is still doing his masters sorting out the best way to catch a toad, and MSc student Arnaud Gourret is finding out that rainforest nocturnal thermoconformers (leaf-tailed geckos) thermoregulate. Justin Perry mainly works for CSIRO but will soon finish his PhD on feathered reptiles and fire. Rickard Abom is still providing technical support to the College, while his PhD on the influence of weeds on vertebrates

simmers away in the background. Should come to a boil any minute… Daryl Trumbo is staring at cane toad sequences for his PhD at the University of Washington, and will find a pattern any day now. Jodie Nordine just started her honours on boldness in skinks. Mathew Vickers has finished his PhD and is post-docing in France, caring for baby snakes while he drinks wine, eats cheese and, oh, yeah, writes up his PhD. Betsy Roznik finished her PhD and is post-docing in sunny Florida, joined shortly by Dave Pike who has finished his teaching contract here at JCU. Leila Brook finished her PhD on furry reptiles cum laude, and is teaching at Deakin University, while publishing more of her papers. Sara Bell completed her PhD on the best way to protect frogs from *Bd* using probiotics, and now works for the Australian Institute of Marine Science studying coral disease. Anna Pintor is writing up her PhD on Rapaport's rule and skink geographic range size, and can visualise the mountains of Germany she will visit as soon as she's done**.** Technical Support Officer Richard Duffy is studying the responses of predators to cane toads, while ably helping everyone else get on with it. He helped Rachel so much they got married!

Cisterne, A., Vanderduys, E. P., Pike, D. A., & Schwarzkopf, L. (2014). Wary invaders and clever natives: sympatric house geckos show disparate responses to predator scent. Behavioral Ecology, 25(3), 604-611.

Daskin, J. H., Bell, S. C., Schwarzkopf, L., & Alford, R. A. (2014). Cool temperatures reduce antifungal activity of symbiotic bacteria of threatened amphibians–Implications for disease management and patterns of decline. PloS one, 9(6), e100378.

Hacking, J., Abom, R., & Schwarzkopf, L. (2014). Why do lizards avoid weeds? Biological Invasions, 16(4), 935-947.

Hagey, T., Harte, S., Vickers, M., Harmon, L., & Schwarzkopf, L. (2014). How geckos stick in nature: Ecology and biomechanics of gecko feet. Paper presented at the Integrative and Comparative Biology.

Llewelyn, J., Schwarzkopf, L., Phillips, B. L., & Shine, R. (2014). After the crash: How do predators adjust following the invasion of a novel toxic prey type? Austral Ecology, 39(2), 190-197.

Manicom, C., Alford, R., Schoener, T. W., & Schwarzkopf, L. (2014). Mechanisms causing variation in sexual size dimorphism in three sympatric, congeneric lizards. Ecology, 95(6), 1531-1544.

Sapsford, S. J., Roznik, E. A., Alford, R. A., & Schwarzkopf, L. (2014). Visible Implant Elastomer marking does not affect short-term movements or survival rates of the treefrog *Litoria rheocola*. Herpetologica, 70(1), 23-33.

Yeager, A., Commito, J., Wilson, A., Bower, D., & Schwarzkopf, L. (2014). Sex, light, and sound: location and combination of multiple attractants affect probability of cane toad (*Rhinella marina*) capture. Journal of Pest Science, 87(2), 323-329.

Bell, K., Blomberg, S., & Schwarzkopf, L. (2013). Detrimental influence on performance of high temperature incubation in a tropical reptile: is cooler better in the tropics? Oecologia, 171(1), 83-91.

Goodman, B. A., Schwarzkopf, L., & Krockenberger, A. K. (2013). Phenotypic integration in response to incubation environment adaptively influences habitat choice in a tropical lizard. American Naturalist.

Sapsford, S. J., Alford, R. A., & Schwarzkopf, L. (2013). Elevation, Temperature, and Aquatic connectivity all influence the infection dynamics of the amphibian chytrid fungus in adult frogs. PloS one, 8(12), e82425.

Tang, L. S., & Schwarzkopf, L. (2013). Foraging behaviour of the Peaceful Dove (*Geopelia striata*) in relation to predation risk: group size and predator cues in a natural environment. Emu, 113(1), 1-7.

**Hero Frog Lab**
**Griffith University**

Two PhD completions this year: Dr Katrin Lowe:  Landscape ecology and bioclimatic conditions of the Wallum Sedge Frog (*Litoria olongburensis*) in coastal wallum wetlands of eastern Australia and Dr Danial Stratford: Predicting and measuring the impacts of climate change on frogs in SE Qld.

Visiting PhD student Mark Blooi from The University of Ghent, Belgium has been keeping me busy running around looking for micro-organisms in water that eat chytrid zoospores.

Current project investigating the thermal biology of *Mixophyes* is heading into another breeding season.

If you know somebody looking for a great PhD project working on these awesome frogs - contact Jean-Marc (m.hero@griffith.edu.au)

**Books**

Magnusson, W. E., R. Braga-Neto, F. Pezzini, F. Baccaro, H. Bergallo, J. Penha, D. Rodrigues, L. M. Verdade, A. Lima, A.L.M. Albernaz, J.-M. Hero, B. Lawson, C. Castilho, D. Drucker, E. Franklin, F. Mendonça, F. Costa, G. Galdino, G. Castley, J. Zuanon, J. Vale, L. Campos, R. Luizâo, R. Cintra, R.I. Barbosa, A. Lisboa, R.V. Koblitz, A. R. Mendes-Pontes & C. Nunes da Cunha. 2013. Biodiversity and Integrated Environmental Monitoring. Attema Design. California, USA. ISBN # 978-85-65551-05-2

**Book chapters**

Hero, J.-M., J D. Roberts, C. J. Hoskin, K. Lowe, E. J. Narayan & P. J. Bishop. 2014. Austral Amphibians – Gondwanan relicts in peril. Pp. XXX Chapt. 21. In Austral Ark: The State of Wildlife in Australia and New Zealand. (edited by A. Stow, Maclean and Howell), Cambridge University Press.

Hero, J.-M., G.W. Lollback, J. Shuker & J.G. Castley. 2013. PPBio LTER plots in sub-tropical eucalypt woodland of Karawatha Forest within the TERN SEQ Peri-urban Supersite. Feature Box 8.8 pp320-322 In Chapter 8, Lindenmayer, D., Prober, S., Crane, M., Michael, D., Okada, S., Kay, G., Keith, D., Montague-Drake, R. & E. Burns. Temperate eucalypt woodlands. In Biodiversity and Environmental Change: Monitoring, Challenges and Direction. (Eds: Lindenmayer, D., E. Burns, N. Thurgate and A. Lowe). CSIRO PUPLISHING. Melbourne, Australia.

**Journal articles**

Simpkins, C.A., M. Van Sluys & J.-M. Hero. 2014. Swabber effect: Swabbing technique affects detectability of *Batrachochytrium dendrobatidis*. Herpetological Review. accepted Oct. 2013, in press, Nov 2014

Parnell, T., E. Narayan, M. Magrath, S. Rowe, J.-M. Hero. 2014. Evaluating physiological stress in Sumatran tigers (*Panthera tigris ssp. sumatrae*) managed in Australian Zoos. Conservation Physiology 2014-045.R2 in-press

Narayan, Evans & Hero. 2014. Monitoring physiological stress in semi-free ranging populations of an endangered Australian marsupial, the Greater Bilby (*Macrotis lagotis*). European J. Wildlife Research. DOI 10.1007/s10344-014-0842-z

Treby, D. L., J. G. Castley & J.-M. Hero. 2014. Forest conservation policy implementation gaps: consequences for the management of hollow-bearing trees in Australia. Conservation and Society. in-press (accepted 5 March 2013)

Narayan, E. & J.-M. Hero. 2014. Acute thermal stressor increases glucocorticoid response but minimizes testosterone and locomotor performance in the cane toad (*Rhinella marina*). PLoS ONE. DOI: 10.1371/journal.pone.0092090

Narayan, E., H. McCallum & J.-M. Hero. 2014. Over-wintering tadpoles of *Mixophyes fasciolatus* act as reservoir host for *Batrachochytrium dendrobatidis*. PLoS ONE. DOI: 10.1371/journal.pone.0092499

Simpkins, C.A., J.D. Shuker, G.W. Lollback, J.G. Castley & J.-M. Hero. 2014. Environmental variables associated with the distribution and occupancy of habitat specialist tadpoles in naturally acidic, oligotrophic waterbodies. Austral Ecology. 39:95–105

Davies, N., D. Field, L. Amaral-Zettler, M. S Clark, J. Deck, A. Drummond, D. P Faith, J. Geller, J. Gilbert, F. Oliver Glöckner, P. Hirsch, J.-A. Leong, C. Meyer, M. Obst, S. Planes, C. Scholin, A. P Vogler, R.D Gates, R. Toonen, V. Berteaux-Lecellier, M. Barbier, K. Barker, S. Bertilsson, M. Bicak, M.J. Bietz, J. Bobe, L. Bodrossy, A. Borja, J. Coddington, J. Fuhrman, G. Gerdts, R. Gillespie, K. Goodwin, P.C. Hanson, J.-M. Hero, D. Hoekman, J. Jansson, C. Jeanthon, R. Kao, A. Klindworth, R. Knight, R. Kottmann, M.S. Koo, G. Kotoulas, A.J. Lowe, V. Thór Marteinsson, F. Meyer, N. Morrison, D.D. Myrold, E. Pafilis, S. Parker, J.J. Parnell, P.N. Polymenakou, S. Ratnasingham, G.K. Roderick, N. Rodriguez-Ezpeleta, K. Schonrogge, N. Simon, N.J. Valette-Silver, Y. Springer, G.N. Stone, S. Stones-Havas, S.-A. Sansone, K.M. Thibault, P. Wecker, A. Wichels, J.C. Wooley, T. Yahara, A. Zingone. 2014. The founding charter of the Genomic Observatories Network. GigaScience 3:2

Narayan, E. & J.-M. Hero. 2014. Repeated thermal stressor causes chronic elevation of baseline corticosterone and suppresses the physiological endocrine sensitivity to acute stressor in the cane toad (*Rhinella marina*). Journal of Thermal Biology. 41: 72-76.

Davidson, C., C.E. Williamson, K. Vincent, S.M. Simonich, K.A. Stanley, J.-M. Hero & K.M. Kriger 2013. Anuran population declines occur on an elevational gradient in the western hemisphere. Herpetological Conservation & Biology. 8:503−518.

Wortley L., J.-M. Hero & M. Howes 2013. Evaluating ecological restoration success: A review of the literature, restoration ecology. 21: 537–543 (most downloaded paper in 2013).

Narayan, E., G. Clark, P. Martin-Vegue, T. Parnell, A. Mucci & J.-M. Hero. 2013. Faecal cortisol metabolites in Bengal (*Panthera tigris tigr*is) and Sumatran tigers (*Panthera tigris sumatrae*). General & Comparative Endocrinology. 194:318–325.

Narayan, E., J. Cockrem & J.-M. Hero. 2013. Changes in serum and urinary corticosterone and testosterone in adult male cane toad (*Rhinella marina*) during short-term capture and handling. General & Comparative Endocrinology. 191: 225–230.

Evans, N., E. Narayan, J.-M. Hero. 2013. Effects of natural weathering conditions on fecal cortisol metabolite measurements in the greater bilby (*Macrotis lagotis*). Australian Journal of Zoology. 61: 351-356.

Hero, J.-M., J.G. Castley, S. A. Bulter & G. Lollback. 2013 Biomass estimation within an Australian eucalypt forest: meso-scale spatial arrangement and the influence of sampling intensity. Forest Ecology and Management. 310: 547-554.

Lowe, K., G. Castley & J.-M. Hero. 2013. Acid frogs can stand the heat: amphibian resilience to wildfire in coastal wetlands of eastern Australia. International Journal of Wildland Fire. http://dx.doi.org/10.1071/WF12128

Narayan, E. & J.-M. Hero. 2013. Repeatability of baseline corticosterone and acute stress responses to capture, and patterns of reproductive hormones in vitellogenic and non-vitellogenic female Fijian ground frog (*Platymantis vitiana*). Journal of Experimental Zoology, Part A: Ecological Genetics and Physiology. 3119A:471-481.

Narayan, E., J. Cockrem & J.-M. Hero. 2013. Sight of a predator induces a corticosterone stress response and generates fear in an amphibian. PLoS ONE. 8:e73564.

Graham, C., E. Narayan, H. McCallum & J.-M. Hero. 2013. Non-invasive monitoring of stress physiology within free-living highland and lowland populations of native Australian Great Barred Frogs (*Mixophyes fasciolatus*) General and Comparative Endocrinology. 191:24–30.

Narayan, E., K. Webster, V. Nicolson, A. Mucci & J.-M. Hero. 2013. Non-invasive evaluation of physiological stress in an iconic Australian marsupial: the Koala (*Phascolarctos cinereus*). General & Comparative Endocrinology.187:39-47.

Narayan, E., J.F. Cockrem & J.-M. Hero. 2013. Repeatability of baseline corticosterone and short-term corticosterone stress responses, and their correlation with testosterone and body condition in a terrestrial breeding anuran (*Platymantis vitiana*). Comparative Biochemistry & Physiology 165: 304-312.

Kindermann, C., E. Narayan, C. Wild, F. Wild & J-M Hero. 2013. The effect of stress and stress hormones on dynamic colour-change in a sexually dichromatic Australian frog. Comparative Biochemistry and Physiology A. 165: 223-227.

Narayan, E., J-M. Hero & J.F. Cockrem. 2013. Are baseline and short-term corticosterone stress responses repeatable in free-living amphibians? General and Comparative Endocrinology. 164:21-28.

## Physiological Ecology Group – David Booth
## School of Biological Sciences

Research has centred around biology of sea turtles and freshwater turtles. Liz Sim and Carla Pereia have submitted their PhD theses both of which focused on the incubation and hatchling recruitment biology of sea turtles. Alice Carpentier completed per Honours project examining the relationships between tissue stable isotope signals in mothers, eggs and hatchlings of loggerhead turtles. Bonita Prior completed her Honours project examining the diet and stable isotope signals in green turtles from Port Curtis. Juan Lei completed his Honours project examining the relationship between temperature and specific dynamic action in Asia house geckos. In 2013 Uzair Rusli started his PhD work examining the energetics of nest escape behaviour and in freshwater and sea turtles. In July 2014 Juan Lei started a PhD study to examining goanna biology focusing on predation of sea turtle nests at Wreck Rock Beach adjacent to Deepwater National Park.

Lei, J., X. Sun, K. Jiang, G. Vogle, D. T. Booth and L. Ding. (2014). Multilocus phylogeny of Lycodon and the taxonomic revision of *Oligodon multizonatum*. Asian Herpetological Research 5: 26–37. DOI: 10.3724/SP.J.1245.2014.00026

Booth, D.T. (2014). Longer incubation periods are energetically costly for turtle embryos. Annual Research & Review in Biology. 4(19):2931-2937.

Sim, E.L., D.T. Booth and C.J. Limpus (2014). The effect of non-modal scute patterns on phenotype and locomotor performance of loggerhead (*Caretta caretta*) and flatback (*Natator depressus*) turtle hatchlings. Copeia 2014:63-69 doi: http://dx.doi.org/10.1643/CP-13-041

Zewe, F.L., and D.T. Booth (2014). A preliminary study on the effect of isolation on frog larval growth and metamorphosis. Australian Zoologist 37:1-5.

Wood, A., D.T. Booth and CJ Limpus (2014). Sun exposure, nest temperature and loggerhead turtle hatchlings: Implications for beach shading management strategies at sea turtle rookeries. Journal of Experimental Marine Biology and Ecology 451:105–114. DOI dx.doi.org/10.1016/j.jembe.2013.11.005

Micheli-Campbell, M. A., T. Baumgartl, D.T.Booth, H.A. Campbell, M. Connell, and C. E. Franklin (2013). Selectivity and repeated use of nesting in a freshwater turtle. Herpetologica 69:383-396.

Berry, M., D.T. Booth and C.J. Limpus (2013). Artificial lighting and disrupted sea-finding behaviour in hatchling loggerhead turtles (*Caretta caretta*) on the Woongarra coast, south-east Queensland, Australia. Australian Journal of Zoology 161: 137-145. DOI: 10.1071/ZO13028

Booth, D.T, R. Feeney and Y Shibata (2013). Nest and maternal origin can influence morphology and locomotor performance of hatchling green turtles (*Chelonia mydas*) incubated in field nests. Marine Biology 160: 127-137. DOI 10.1007/s00227-012-2070-y

Read, T., D.T. Booth and C.J. Limpus (2013). Effect of nest temperature on hatchling phenotype of loggerhead turtles (*Caretta caretta*) from two South Pacific rookeries, Mon Repos and La Roche Percée. Australian Journal of Zoology 60: 402-411. DOI: 10.1071/ZO12079

# South Australia

**James Menzies**
**University of Adelaide**

James is continuing work on *Nyctimystes* species of New Guinea (Anura: Hylidae).

Tyler, M.J. and Menzies, J.I. (2013). Case 3613. An application to have *Nyctimystes cheesmani* Tyler (1964) set aside in favour of *Nyctimystes cheesmanae* Tyler 1964. Bulletin of Zoological Nomenclature 70, 30-32.

Menzies, J.I. (2014). Notes on *Nyctimystes* (Anura: Hylidae) tree frogs of New Guinea, with descriptions of four new species. Alytes 30, 42-68.

Menzies, J.I. (2014). Notes on *Nyctimystes* species (Anura, Hylidae) of New Guinea: the *Nyctimystes narinosus* species group with descriptions of two new species. Transactions of the Royal Society of South Australia 138. 135-143

Tyler, M.J. & Menzies, J.I. (2013) Case 3613 an application to have *Nyctimystes cheesmani* (Tyler) 1964) set aside in favour of *Nyctimystes cheesmanae* Tyler (1964), Bulletin of Zoological Nomenclature 70, 30-32.

Menzies, J.I. (2014). Notes on *Nyctimystes* (Anura, Hylidae) tree frogs of New Guinea with descriptions of four new species. Alytes 30, 42-68.

Menzies, J.I. (2014), Notes on *Nyctimystes* species (Anura, Hylidae) of New Guinea: the *Nyctimystes narinosus* species group. Transactions of the Royal Society of South Australia 138, 135-143.

Menzies, J.I. (2014). Notes on *Nyctimystes* species (Anura, Hylidae) of New Guinea: the *Nyctimystes papua* species group. Alytes (in press)

## Mike Tyler
## University of Adelaide

Mike was awarded the 2013 UNESCO award for services to the environment.

Tyler, M.J. and Menzies, J.I. (2013). Case 3613. *Nyctimystes cheesmanae* Tyler 1964. (Amphibia, Anura: Hylidae): request for setting aside the name in favour of Nyctimystes cheesmanae Tyler 1064. Bull. Zool. Nomencl. 70(1): 30 – 32.

Graham, L.D., Glattauer, V., Li, D., Tyler, M.J. and Ramshaw, J.A.M. (2013). The adhesive skin exudate of *Notaden bennetti* frogs (ANURA: *Limnodynastidae*) has similarities to the prey capture glue of Euperipatoides sp. Velvet worms (Onchophora: Peripatopsidae). Comp. Biochem. Physiol. Part B. 165: 250- 259.

Tyler, M.J. (2013) Pheromones and Amphibian Behavior. In Toxinology. SpringerReference.com.

## Bull Lab
## Flinders University

Mike Bull has been leading the team focusing on sleepy lizards, pygmy bluetongue lizards and Slaters skinks.

The sleepy lizard project is concentrating on social networks among the lizards living in an area, and how that influences the transmission of parasites. The pygmy bluetongue project continues with new insights into social interactions and the impact of sheep grazing on lizard behaviour and conservation strategies including photographic identification of individuals, movement of individuals through the population and the feasibility of translocation and relocation of this species. The slaters skink project is

focussed on the conservation of this species and the development of artificial refuges, with an aim to use this information in restoration and potential relocation projects in the future.

Dale Burzacott continues as Mike Bull's research assistant and lab coordinator.

Stephan Leu is continuing his work on social networks and linking them with parasite transmission processes in order to understand host-parasite interaction dynamics. Currently, he is investigating salmonella transmission through sleepy lizard networks. His team have just commenced their 2014 field season and are equipping the lizards with miniature GPS data loggers. These detailed locational data are the basis for his modelling.

The lab has two new members, Tara Daniell and Kelsey Bennett. Both Tara and Kelsey are honours students working on the pygmy bluetongue project. Tara will be working on captive breeding in pygmy bluetongue lizards. This project is in collaboration with Monarto Zoo. Specifically, she will be assessing how different ratios of male and female lizards influence lizard behaviour. Kelsey will be contributing to the research on grazing impacts on pygmy bluetongue lizards by assessing how vegetation cover influences predation rates (bird predation). She will also be looking at how pygmy bluetongue lizards respond to a perceived predator by filming individual lizards exposed to an artificial predator.

Jess Clayton is now in the third year of her PhD. She continues her research on the wolf and trapdoor spiders which construct the burrows utilized by pygmy bluetongue lizards. She now has two seasons of comprehensive data, detailing the dynamics of spider burrows (including lizard occupants) and the impact of sheep grazing on these spider burrow dynamics. This season she will be conducting manipulated spider digging experiments to identify which environmental factors influence burrow construction, and she will be identifying the burrowing spider assemblage that is present across the pygmy bluetongue lizard range.

Torben Nielsen is also in the third year of his PhD and continues his research on grazing impacts on pygmy bluetongue lizards. This season he will be focussing on the effects of overgrazing on pygmy bluetongue lizard populations.

Julie Schofield is close to completing her PhD. Julie has been investigating the level of movement within and between pygmy bluetongue populations and has found that despite having a small range there are still high levels of genetic structuring in the sampled populations of Pygmy Bluetongue lizards. Her work indicates that the current and historical dispersal of pygmy bluetongue lizards is low.

Mehregan Ebrahimi has finished his PhD with flying colours! He is now working at the Shiraz University in Iran and is sorely missed in the Bull Lab! Mehregan contributed significantly to our understanding of how pygmy bluetongue lizards cope with translocations, by identifying how they react to a variety of key factors which affect the success of translocations.

Last, but certainly not least, Aaron Fenner, after many years of service in the Bull Lab, has now left to work for the Arid Recovery team in South Australia. Here he will work on the restoration of arid zone ecosystems and hopefully be able to put some of his herpetology knowledge and experience in to action. Aaron has been a valued member of our team, providing everyone in the lab with expert advice and support on all things reptile for many years. We wish him the best of luck and hope to get to work with him again in the future!

Ebrahimi, M. and Bull, C.M. (2013). Determining the success of varying short-term confinement time during simulated translocations of the endangered pygmy bluetongue lizard (*Tiliqua adelaidensis*) Amphibia-Reptilia, 34(1) pp. 31-39.

Ebrahimi, M. and C. M. Bull (2014). Resources and their distribution can influence social behaviour at translocation sites: Lessons from a lizard. Applied Animal Behaviour Science 156(0): 94-104.

Ebrahimi, M. and Bull, C.M. (2014). Short term dispersal response of an endangered Australian lizard varies with time of year. PLoS One, 9(8).

Ebrahimi, M. and C. M. Bull (2014). Visual conspecific cues will not help in pygmy bluetongue lizard translocations. Applied Animal Behaviour Science 151(0): 102-109.

Pedlar, R., Brandle, R., Fenner, A. L. and Lennon, S. (2014) Limbless geckoes hanging on? Lessons in exploiting arid zone unpredictability from an elusive habitat specialist pygopod. Wildlife Research (In press).

Pettigrew, M and Bull CM (2014) Prey capture behaviour by pygmy bluetongue lizards with simulated grazing. New Zealand Journal of Ecology 38(1): 45-52.

Schofield, J., Gardner, M.G., Fenner, A.L, and Bull, C.M (2014). Promiscuous mating in the endangered Australian lizard *Tiliqua adelaidensis*: a potential windfall for its conservation. Conservation Genetics 15(1): 177-185.

Shamiminoori, L., Fenner, A.L, and Bull, C.M. (2014). Weight watching in burrows: variation in body condition in pygmy bluetongue lizards. Australian Journal of Zoology.

Staugas, E.J., Fenner, A., Ebrahimi, M. and Bull, C.M. (2013). Artificial burrows with basal chambers are preferred by pygmy bluetongue lizards, *Tiliqua adelaidensis*. Amphibia-Reptilia, 34(1) pp. 114-118.

Wohlfeil, C.K., Leu, S.T., Godfrey, S.S., Bull, C.M. (2013). Testing the robustness of transmission network models to predict ectoparasite loads. One lizard, two ticks and four years. International Journal for Parasitology: Parasites and Wildlife 2, 271-277.

# Tasmania

## BEER Group (Behavioural Ecology and Evolutionary Research) University of Tasmania

Erik Wapstra (surprisingly) has actually been in Tasmania all year, after spending much of 2013 in the UK and Sweden (working on the long term collaborative sand lizard project with Mats Olsson). Erik was awarded an ARC Future Fellowship in 2011, and is thus concentrating on research, primarily the long-running project on the snow skink, *Niveoscincus ocellatus*, now in its 16th field season. He has also been experiencing the fluffy side of life, working with Elissa Cameron on an ARC funded project investigating sex ratios in mammals. Geoff While, is still splitting his time between research at the University of Oxford with Tobias Uller, and work here at UTAS. At UTAS Geoff coordinates two of the Schools largest ecology units while also expanding his research projects both at Oxford and with the *Egernia* system.

Jo McEvoy is working as a post-doctoral fellow on both furry and scaly critters. She is working with Elissa Cameron and Erik Wapstra on their ARC sex ratio project, while continuing to pursue work on the *E. whitii* system she did her PhD on with Geoff and Erik, and helping out with some of the long-running *N. ocellatus* work. Laura Parsley has welcomed a baby boy since handing in her PhD late last year. Laura's PhD project with Sue Jones and Erik examined the endocrinology of reptilian gestation, and specifically how embryonic hormone exposure may be modulated, and the potential for endocrine disruption in the metallic skink, *N. metallicus*. She is currently working as a post-doctoral fellow for Erik on Ecophysiology in snow skinks.

Mandy Caldwell is in the final stages of her PhD project examining the potential for behavioural, physiological, and ecological traits to buffer climate impacts in snow skinks. She and her young family have recently moved back to New Zealand where she is currently writing up her thesis. Yuni Eswayanti is in the final stages of her PhD project examining the physiological flexibility of the spotted snow skink. Yuni has had to return home to Indonesia where she is currently writing up. Ben Halliwell spent three months of this year in the UK experiencing life at Oxford with Tobias and Geoff. Ben's PhD project with Geoff, Tobias and Erik continues to examine the evolution of sociality in *Egernia* and he spent much of his time in spring and summer excited to watch hours of lizard interactions in our new outdoor enclosures. Hannah Macgregor, Geoff 's PhD student based at both UTAS and Oxford, spent 3 months with us over the summer and is shortly to return to us. She likes the weather here. Hannah's PhD project builds from Geoff and Tobias' now long term research on invasive wall lizards in the UK as well as phylogeography of skinks in Tasmania. We welcome George Cunningham and Kirke Munch to the BEER group this year. George and Kirke have recently started their PhD's with Erik and Geoff on the *N. ocellatus* system and *E. whitii* system respectively. George is investigating the effects of climate on sex determination and sex allocation in *N. ocellatus*. He has been in Tasmania for only eight months, having moved with his partner, (Erin) two dogs (Basil and Pepper) and cat (Captain Courageous) from Victoria in January, the day before beginning his PhD. Kirke's project will examine the role of personality in the evolutionary origin of sociality in *Egernia* and possibly venture into social network analysis using funky new technology. In addition, Gabriella Ljungström joins the group as a guest; her PhD is supervised by Mats Olsson (USYD) and Erik (UTAS) is based at Goteborg University and is examining the quantitative genetics of climate change in lizards (she will spend time playing with snow skinks in Spring/summer). Our group has also have a wonderful cohort of Honours students: Tom Botterill-James and Emily Barnes are completing projects on the role that habitat structure plays in influencing pair stability and parental care in *Egernia*; EJ Yeoh is working on nutritional ecology in snow skinks and Simon McKeown is working on population variation in birthing asynchrony in *Egernia* with Geoff and Erik. Kaely Kreger is doing a project on phylogeography of snow skinks with Chris Burridge and Erik.

Elissa Cameron and Amy Edwards (both BEER group members who work on fluffy things) continue to resist our efforts to convert them to the scaly side of life. Furthermore, they have since encouraged Erik and Jo to the fuzzy way of research. Elissa and Amy have recently returned from South Africa

and the USA where they pursued research collaborations (South Africa) and attended the International Society for Behavioural Ecology conference (USA). Amy's PhD project involves sex allocation in mammals. Scott Carver (disease ecology) is still firmly split between mammals, insects and reptiles, and he and Geoff are currently advertising for honours and PhD students to work on collaborative projects examining the role that reptile community dynamics play in influencing disease and parasite spread. Sue Jones (Comparative Endocrinology and Ecophysiology) has now retired after seeing her final students to completion. Ashley Edwards continues her work on examining key components of the reproductive physiology of the blue tongue lizard, *Tiliqua nigrolutea*, and has also had an increase in focus on teaching and learning directives at the university level.

Cadby, C.D., Jones, S.M., and Wapstra, E. (2014). Geographical differences in maternal basking behaviour and offspring growth rate in a climatically widespread viviparous reptile. Journal Experimental Biology, 217: 1175-1179.

Ganswindt, S B., Myburgh, J.G., Cameron, E.Z., Ganswindt, A. (2014). Non-invasive assessment of adrenocortical function in captive Nile crocodiles (*Crocodylus niloticus*). Comparative Biochemistry and Physiology, Part A, 177: 11-17.

Heathcote, R., Bell, E., D'Ettorre, P., While, G.M. and Uller T. (2014). The scent of sun worship: basking experience alters scent mark composition in male lizards. Behavioural Ecology and Sociobiology, 68, 861-870.

McEvoy. J., While, G.M., Sinn, D.L., and Wapstra, E. (2013). The role of size and aggression in intrasexual male competition in a social lizard species, *Egernia whitii*. Behavioural Ecology and Sociobiology, 67:79–90.

Michaelides, S., While, G.M., Bell, C. and Uller, T. (2013). Human introductions create opportunities for intra-specific hybridization in the non-native range of the common wall lizard, *Podarcis muralis*. Biological Invasions, 15, 1101 – 1112.

Parsley, L.M., Wapstra, E. and Jones, S.M. (2014). In utero exposure to the oestrogen mimic diethylstilbestrol disrupts gonadal development in a viviparous reptile. Reproduction, Fertility and Development, in press.

Parsley, L.M., Wapstra, E. and Jones, S.M. (2014). Placental and embryonic tissues exhibit aromatase activity in the viviparous lizard *Niveoscincus metallicus*. General and Comparative Endocrinology, 200: 61-66.

Parsley, L.M., Wapstra, E. and Jones, S.M. (2014). Yolk contributes steroid to the multidimensional endocrine environment of embryos of *Niveoscincus metallicus*, a viviparous skink with a moderately complex placenta. Comparative Biochemistry and Physiology part A. Molecular & Integrative Physiology, 171: 51-56.

Uller, T. and While, G.M. (in press). Evolutionary Ecology of Reproductive Investment in Lizards. In Reproductive Biology and Phylogeny of Reptiles. Science Publishers, New Hampshire, USA.

Wapstra, E. and Olsson, M. (2014). The evolution of polyandry and patterns of multiple paternity in lizards. In J. Rheubert, D. Siegel, S. Trauth and B. Jamieson (eds), The reproductive ecology and phylogeny of lizards. Science Publishers, New Hampshire, U.S.A.

While, G.M. and Uller, T. (in press). Quo vardis Amphibia? Global warming and breeding phenology in Frogs, Toads and Salamanders. Ecography.

While, G. M., Halliwell, B. and Uller, T. (in press). The Evolutionary Ecology of Parental Care in Lizards. In Reproductive Biology and Phylogeny of Reptiles. Science Publishers, New Hampshire, USA.

While, G.M., Uller, T., Bordogna, G. and Wapstra, E. (2014). Promiscuity resolves constraints on social mate choice imposed by population viscosity. Molecular Ecology, 23: 721–732.

# Victoria

## Animal Behaviour Group
## La Trobe University

The Animal Behaviour Group at La Trobe University has broad interests in behaviour but has a particular focus on lizards. Group leader, Richard Peters, continues his work on motion signalling in *Amphibolurus muricatus,* while PhD students Andrea Narvaez and Jose Ramos also work on motion signalling by lizards. Andrea is studying *Anolis* lizards of Ecuador while Jose is investigating motion signalling by Australia's agamid lizards. A central theme across the student projects and Richard's work is the influential role played by plant habitats in constraining signal structure. Other projects in various stages include studies of *A. muricatus* dorsal patterns by Honours student Jon Salisbury and cryptic movement of veiled chameleons by undergraduate student Angela Simms. The latter being undertaken in collaboration with Devi Stuart-Fox. In addition, Richard and Jose visited China for several weeks to study toad head agamas on the Tibetan plateau with Dr Qi Yin from the Chengdu Institute of Biology.

For more information visit the Animal Behaviour Group's webpage (with links to our facebook group site): http://www.peterslab.info

## Arthur Rylah Institute for Environmental Research
## Department of Environment and Primary Industries

Clemann, N. (2013). Release or retain? Prioritising biodiversity conservation when deciding the endpoint for Victorian reptiles and frogs removed from the wild for research purposes. The Victorian Naturalist 130(5): 207-211.

Clemann, N., Scroggie, M. P., Smith, M. J., Peterson, G. N. and Hunter, D. (2013). Characteristics of refugia used by the threatened Australian growling grass frog (*Litoria raniformis*) during a prolonged drought Wildlife Research 40: 385-392.

Clemann, N. and Gillespie, G. R. (2013). National Recovery Plan for the Southern Bell Frog *Litoria raniformis*. Department of the Environment, Canberra.

Clemann, N. and Howard, K. (2013). Surveys for threatened amphibians in flood-affected parts of the Grampians National Park. Report to Parks Victoria. Arthur Rylah Institute for Environmental Research, Department of Environment and Primary Industries, Heidelberg.

Clemann, N, Howard, K. and Lindeman, M. (2013). Survey for the Grassland Earless Dragon *Tympanocryptis pinguicolla* between Melbourne and Geelong. Arthur Rylah Institute for Environmental Research, Department of Environment and Primary Industries, Heidelberg.

Heard, G. W., Scroggie, M. P., Clemann, N. and Ramsey, D. S. L. (2014). Wetland characteristics influence disease risk for a threatened amphibian. Ecological Applications 24(4): 650-662.

Ng, J., Clemann, N., Chapple, S. N. J. and Melville, J. (2014). Phylogeographic evidence links the threatened 'Grampians' Mountain Dragon (*Rankinia diemensis Grampians*) with Tasmanian populations: conservation implications in south-eastern Australia. Conservation Genetics 15: 363-373.

Howard, K. and Clemann, N. (2014). Alpine Tree Frog population assessment at Mt Bullfight Nature Conservation Reserve. Arthur Rylah Insitute for Environmental Research, Department of Environment and Primary Industries.

## Quantitative and Applied Ecology Group and Australian Research Centre for Urban Ecology
## School of Botany, University of Melbourne

Stefano Canessa is approaching the end of his PhD, dealing with hard decisions in amphibian conservation and beyond. Recent collaborations include the IUCN Reintroduction and Conservation Breeding Specialist Group and the Zoological Society in London. In his frantic spinning around the globe, Stefano has been involved in reintroductions of frogs in Australia, turtles in Italy and adders in Britain, thinking about population dynamics, disease risks and management costs. Andrew Hamer has been investigating the impacts of roads and urbanisation on frogs and freshwater turtles, and in the process has reignited his passion for *Litoria aurea* by studying a metapopulation in the South Nowra region of NSW. He's also collaborating with Hungarian herpetologists looking at usage of under-road tunnels by European herps and recently got to see his first fire salamander in the field. Geoff Heard is currently in herpetological exile in the United Kingdom. He's working with Prof. Chris Thomas at the University of York on various projects, including the role of chytrid on the metapopulation- and range-dynamics of Australian frogs. He'll return to the Lucky Country in late 2015. Claire Keely is getting to the pointy end of her PhD on the conservation genetics of growling grass grogs around Melbourne. As well as her on-field successes – including submission of papers on genetic sampling techniques for amphibians and the genetic structure of growling grass frogs around Melbourne – Claire has just produced a 53 cm, 8 lb bouncing boy called Max. Mum and bub are doing well. Kirsten Parris has continued her investigations of urban noise and its impacts on acoustic communication in frogs, in collaboration with Donnavan Kruger from North West University, South Africa. She is also set to start a new project on the ecological costs and benefits of constructed wetlands in urban habitats for frogs and other taxa (aquatic invertebrates, fish and birds). Reid Tingley continues to indulge his obsession with invasive herps, both in the field and from the command prompt. In 2014, Reid hosted a workshop in Broome that brought together NGOs, community groups, academics and government agencies to discuss the feasibility of halting the spread of cane toads in WA. Thanks to a recent ARC Linkage grant, Reid will spend the next couple years studying the sensitivity and cost-efficiency of environmental DNA for monitoring aquatic fauna, including growling grass frogs in suburban Melbourne. Matt West is keeping his head down, attempting to complete his PhD and in doing so evaluate the impact of chytrid fungus on *Litoria spenceri* and *Litoria lesueuri*. Matt is also working with DEPI, the Amphibian Research Centre and Parks Victoria to evaluate recent experimental releases of *L. spenceri* and to tease apart factors linked to the species decline.

Awards
G. Heard – Victorian Postdoctoral Research Fellowship, 2014-2017.
K. Parris – ARC Linkage Grant, 2014-2017 (Swearer, Parris, Mulder, Pettigrove and Coleman, Assessing the ecological costs and benefits of artificial wetlands in urban landscapes).
R. Tingley – ECR Grant: Optimal monitoring of freshwater biodiversity using environmental DNA – Faculty of Science, The University of Melbourne.

Media
'Salty wetlands help curb fungus killing frogs'. The Age, 19/11/ 2013.
'Alarm over imported newt invasion'. SBS World News Radio, 30/06/2014.
'Cane toads on the march: invasive species finds 'ideal niche' in Australia'. The Guardian, 01/07/2014.
'Cane toads: Buffer zone near waterways considered to prevent pests travelling south'. ABC News, 20/05/2014.

Canessa S and Parris KM (2013) Multi-scale, direct and indirect effects of the urban stream syndrome on amphibian communities in streams. PLOS One 8(7): e70262.

Hale JM, Heard GW, Smith KL, Parris KM, Austin JJ, Kearney M and Melville, J (2013) Structure and fragmentation of growling grass frog metapopulations. Conservation Genetics 14: 313-322.

Hamer, AJ and Parris, KM (2013) Predation modifies larval amphibian communities in urban wetlands. Wetlands 33, 641–652.

McCarthy MA, Moore JL, Morris WK, Parris KM, Garrard GE, Vesk PA, Rumpff L, Giljohann KM, Camac JS, Bau, SS, Friend T, Harrison B, and Yue B (2013) The influence of abundance on detectability. Oikos 122: 717-726.

Mahony, MJ, Hamer, AJ, Pickett, EJ, McKenzie, DJ, Stockwell, MP, Garnham, JI, Keely, CC, Deboo, ML, O'Meara, J, Pollard, CJ, Clulow, S, Lemckert, FL, Bower, DS and Clulow, J (2013) Identifying conservation and research priorities in the face of uncertainty: a review of the threatened bell frog complex in eastern Australia. Herpetological Conservation and Biology 8, 519–538.

Parris KM (2013) Anthropogenic noise constrains acoustic communication in urban-dwelling frogs. Proceedings of Meetings on Acoustics 19: 010055.

Smith KL, Hale JM, Gay L, Kearney M., Austin JJ, Parris KM and Melville J. (2013) Spatio-temporal changes in the structure of an Australian frog hybrid zone: a 40 year perspective. Evolution 67: 3442–3454.

Canessa, S., Hunter, D., McFadden, M., Marantelli, G. and McCarthy, M.A. (2014). Optimal release strategies for cost-effective reintroductions. Journal of Applied Ecology, 51(4): 1107-1115.

Canessa, S., Martel, A. and Pasmans, F. (2014). Designing screening protocols for amphibian disease that account for imperfect and variable capture rates of individuals. Ecological Applications, 24(5): 1204-1212.

Hamer, AJ, van der Ree, R, Mahony, MJ and Langton, T (2014) Usage rates of an under-road tunnel by three Australian frog species: implications for road mitigation. Animal Conservation 17, 379–387.

Heard, GW, Scroggie, MP, Clemann, N and Ramsey, DSL (2014) Wetland characteristics influence disease risk for a threatened amphibian. Ecological Applications 24, 650–662.

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## Zoos Victoria
## Victoria

Zoos Victoria (ZV) is a not for profit zoo-based conservation organisation comprising of Melbourne Zoo, Healesville Sanctuary and Werribee Open Range Zoo. We have a commitment that no Victorian terrestrial vertebrate species will go extinct on our watch with a focus on 20 'Fighting Extinction' species; notably eight of our 20 key species are herps.

We have had an exciting past 12 months for herp-based programs:

Baw Baw Frogs (*Philoria frosti*) - major advances in enhancjng captive management skills of a species never previously held in captivity, with collection of two egg masses on Mt Baw Baw in November 2013 and successful hatching and rearing of tadpoles through to 57 little frogs that are now six months old. Husbandry challenges of fluid retention in some of the tadpoles and dietary calcium imbalance were overcome and the young frogs are thriving. Egg collection was made possible by the efforts of the experienced field team and captive success was underpinned by a major funding allocation by ZV to install a refrigerated shipping container at Melbourne Zoo.
Moving forward, ZV and the Department of Environment & Primary Industry (DEPI) are jointly funding field surveys in late 2014 to track the status of the wild population.

Southern (*Pseudophryne corroboree*) and Northern Corroboree Frogs (*Pseudophryne pengilleyi*) – both species continue to be Fighting Extinction priorities for ZV. 378 Southern Corroboree Frog eggs from Melbourne Zoo and Healesville Sanctuary were released at a range of sites across Mt Kosciusko with partners from Taronga Zoo and NSW Office of Environment & Heritage.
Complementing support for the southern species, 109 Northern Corroboree Frogs were transferred to Tidbinbilla Nature Reserve for further raising prior to release.

Alpine She-oak Skinks (*Cyclodomorphus praealtus*) and Guthega Skinks (*Liopholis guthega*) – both species of alpine skink are being held in specially designed alpine-mimicking enclosures at Healesville Sanctuary. We are working closely with partners from DEPI and La Trobe University to investigate the best captive-breeding and husbandry techniques to manage these species. Following collection of a few more individuals from the wild in March this year, the Alpine She-Oak Skinks have been successfully over-wintered at 2$^{o}$C and will be warmed up and paired for breeding at the end of September. In the meantime, our Guthega Skinks have been kept at a balmy 16$^{o}$C until we work out their temperature tolerance with the help of researchers at La Trobe University.

Grassland Earless Dragons (*Tympanocryptis pinguicolla*) – ZV is working with DEPI researchers and other field partners to develop a survey project with the goal of locating the species in Victoria, commencing in October 2014.

Outside of Australia – ZV continues its major partnership with the Mabuwaya Foundation in north-east Philippines. This focuses on the Philippine Crocodile (*Crocodylus mindorensis*), considered to be the most threatened species of crocodile in the world. The crocodile population in north-east Luzon Island, which reached 100 known individuals in 2013, are the only wild population able to be safely accessed and are hence critical to securing the species in the wild. 2013 also saw the second captive breeding at Melbourne Zoo, with the 13 hatchlings destined to be transferred to other zoos in Australia, USA and Philippines.

Further afield, Zoos Victoria was honoured to have a new species of Wolf Snake named after us – *Lycodon zoosvictoriae*. This recognises our support for Fauna & Flora International's work in the Cardamom Mountains in western Cambodia. A description of the new snake can be found at DOI: http://dx.doi.org/10.11646/zootaxa.3814.1.3 – Neang et al. (2014) A new species of wolf snake (Colubridae: *Lycodon* (Fitzinger, 1926) from Phnom Samkos Wildlife Sanctuary, Cardamom Mountains, south-west Cambodia.

Banks, C., Traher, R. and Hobbs, R. (2014) Captive management and breeding of the stuttering frog (*Mixophyes balbus*) at Melbourne Zoo. Herpetological Review, 2014, 45(1), 43–49.

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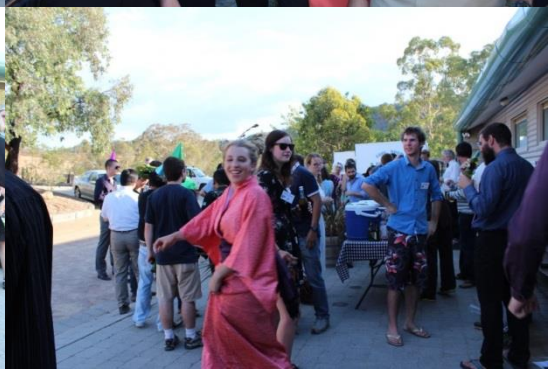

## Robert Lab
## La Trobe University

With threats of being expelled as a herpetologist I have finally got a student (Zak Atkins) in my lab working on my research first love - viviparous skinks. I do plan to get back to gaining herping cred and Zak is going a long way in helping me achieve this. Although he put my noosing skills to shame and I must head out in the field this coming summer for some much needed practice.

Zak completed his honours project in 2013 on The ecology of the Guthega skink (*Liopholis guthega*) on the Bogong High Plains: a decade of post-fire recovery. On gaining a strong first-class completion I managed to convince him to stay on for a PhD, so I expect we will all begin to know a little more about this elusive reptile in the not too distant future.

Atkins, Z., Clemann, N. & Robert, K.A. (in press) Does shelter site selection aid persistence of a threatened alpine lizard? Assessing *Liopholis guthega* populations a decade after severe fire in south-eastern Australia. Journal of Herpetology.

## Melville Group
## Museum Victoria

Jane Melville's group have produced a good crop of papers, babies and theses this year. Congratulations to Sumi Hunjan on her little girl, Uma and congratulations to Claire Keely on her thumper of a baby, Max. Claire Keely is close to completion of her PhD thesis on Growling Grassfrogs

in an urban environment, with papers already submitted. Maggies Haines says her brain is fried from thesis writing but has still managed to get the first paper from her thesis on *Pseudemoia* taxonomy accepted for publication. Once her PhD is submitted in October she is heading to the Moritz lab for a couple of months to try and get a better handle on what the heck is going on. Paul Oliver is finishing up his gecko postdoc at Melbourne Uni and Museum Victoria and will be taking up a postdoc with Craig Moritz. Rebecca Laver is working away on her PhD on phylogenetics of Velvet geckos (*Oedura*) and *Strophurus* in the Top End. Katie Smith has taken up a permanent position at Museum Victoria as a Vertebrate Collection Manager. She has been re-organising and registering specimens as well as venturing out for a few marine turtle recoveries. Kirilee Chaplin has moved from Dave Chapple's lab at Monash to MV, and has started a PhD entitled Conservation, ecology and population genetics of earless dragons (*Tympanocryptis* spp.) in Queensland grasslands, supervised by Jane Melville and Jo Sumner. Jane and Jo continue to be very busy and important.

Ng, J., Clemann, N., Chapple, S. N., & Melville, J. (2014). Phylogeographic evidence links the threatened 'Grampians' Mountain Dragon (*Rankinia diemensis* Grampians) with Tasmanian populations: conservation implications in south-eastern Australia. Conservation Genetics, 15(2), 363-373.

Paul M. Oliver, Rebecca J. Laver, Katie L. Smith, Aaron M. Bauer (2014) Long-term persistence and vicariance within the Australian Monsoonal Tropics: the case of the giant cave and tree geckos (*Pseudothecadactylus*). Australian Journal of Zoology 2014; 61(6):462-468.

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Haines, M. L., Moussalli, A., Stuart-Fox, D., Clemann, N., Melville, J. (In press) Phylogenetic evidence of historic mitochondrial introgression and cryptic diversity in the genus *Pseudemoia* (Squamata: Scincidae). Molecular Phylogenetics and Evolution

Smith, K. L., Hale, J. M., Kearney, M. R., Austin, J. J., & Melville, J. (2013). Molecular patterns of introgression in a classic hybrid zone between the Australian tree frogs, *Litoria ewingii* and *L. paraewingi:* evidence of a tension zone. Molecular ecology, 22(7), 1869-1883.

## Chapple Lab: David G. Chapple
## Monash University

Honours students Brooke Melki-Wegner, Dan Littlewood, and Shannon Walsh are just beginning their projects on various aspects of the behavioural and evolutionary ecology of the invasive lizard *Lampropholis delicata*.

Lynette Plenderleith has returned from Queensland to her home campus in Clayton to complete her Ph.D. on the ecology of native frogs, which will incorporate her research from Lord Howe Island, and new chapters on phenology and tadpole development. To fund her research this year, Lynette's project is being funded by a Ric Nattrass Research Grant from Queensland Frog Society and a Holsworth Wildlife Research Endowment award. Bec (Rebecca) Bray, co-supervised by Mike Thompson of the University of Sydney, is writing her PhD thesis focusing on the biogeographic origins of species, evolutionary processes on islands and the disruptive effects of invasive species. She is also working at Museum Victoria as a Research Assistant to Jane Melville and Collection Registration

Officer. Celine Goulet, co-supervised by Mike Thompson, is in her second year of her PhD investigating thermal biology, personality, and cognition in *L. delicata*. To fund her research, she has been awarded a Holsworth Wildlife Research Endowment. Marcus Michelangeli, co-supervised by Bob Wong, is doing his PhD examining the role of personality in the success of the invasive delicate skink, and how its behaviour may differentiate the species from other closely related species that have failed to invade beyond their native range.

Kirilee Chaplin had completed her honours in 2013 with Dave and is currently at Museum Victoria where she is doing her PhD entitled Conservation, ecology and population genetics of earless dragons (*Tympanocryptis* spp.) in Queensland grasslands, supervised by Jane Melville and Jo Sumner. To fund her project, she has been awarded a full Holsworth Wildlife Research Endowment. Jack Eades recently completed his Honours with the co-supervision of Bob Wong where he investigated sexual differences in behaviour in the mosquitofish, focusing on repeatability of behaviours and behavioural syndromes. Hannah Moule recently completed her Honours with the co-supervision of Mike Thompson where she investigated the impacts of urbanisation on the behaviour and morphology of L. delicata in the Sydney region, focusing upon behavioural syndromes.

Fiona Kang was a recent undergraduate who examined the effect of urbanization on exploratory behaviour of the *L. delicata*. Other non-herp students in the lab include Will Sowersby, Krystina Mossop, and Marie Henriksen. Will, co-supervised by Bob Wong, is investigating resource trait use and polymorphism in the introduced neotropical Red Devil cichlid fish (*Amphilophus labiatus*). He recently travelled to Nicaragua in Central America to sample Red Devil cichlids. As part of an ongoing international collaboration, Will then conducted analysis on cichlid samples collected from Nicaragua, at the Museo Nacional de Ciencias Naturales in Madrid, Spain and at the Universität Basel, Switzerland. In August Will attended the International Society for Behavioural Ecology conference in New York City and the Animal Behavior Society conference in Princeton. He was fortunate enough to win a best poster prize at the International Society for Behavioural Ecology Conference. Will's project is funded by a Holsworth Wildlife Research Endowment. Krys, co-supervised by Bob Wong, is exploring the implications of a changing environment and mechanisms of persistence in the desert goby, an arid-adapted fish found in Central Australia. She has recently presented at the Animal Behavior Society Congress, International Society for Behavioural Ecology Congress, and the Australian Society for Fish Biology Congress where she was awarded an ASFB Gilbert P. Whitley Award (Senior) for an outstanding oral presentation on fish or fisheries. Marie, co-supervised by Melodie McGeoch and Steven Chown, is studying spatial variation in the food webs and interaction of Trichilogaster gall wasps and Acacia plants.

Di Virgilio G, Laffan SW, Ebach MC, Chapple DG (2014) Spatial variation in the climatic predictors of species compositional turnover and endemism. Ecology and Evolution 4: 3264-3278, doi: 10.1002/ece3.1156

Chapple DG, Ritchie PA (2013) A retrospective approach to testing the DNA barcoding method. PLoS ONE 8: e77882.

Patterson GB, Hitchmough RA, Chapple DG (2013) Taxonomic revision of the ornate skink (*Oligosoma ornatum*; Reptilia: Scincidae) species complex from northern New Zealand. Zootaxa 3736: 54-68.

Tingley R, Hitchmough RA, Chapple DG (2013) Life-history traits and extrinsic threats determine extinction risk in New Zealand lizards. Biological Conservation 165: 62-68.

Chapple DG, Whitaker AH, Chapple SNJ, Miller KA, Thompson MB (2013) Biosecurity interceptions of an invasive lizard: origin of stowaways and human-assisted spread within New Zealand. Evolutionary Applications 6: 324-339.

Cromie GL, Chapple DG (2013) Is partial tail loss the key to a complete understanding of caudal autotomy? Austral Ecology 38: 452-455.

Böhm M, Chapple DG…& 240 other authors (2013) The conservation status of the world's reptiles. Biological Conservation 157: 372-385.

Chapple DG, Miller KA, Kraus F, Thompson MB (2013) Divergent introduction histories among invasive populations of the delicate skink (*Lampropholis delicata*): has the importance of genetic admixture in the success of biological invasions been overemphasized? Diversity and Distributions 19: 134-146

## Climatic and Metabolic Ecology Lab (camel)
## Zoology Department
## University of Melbourne

Research areas:

- Climatic constraints on distribution and abundance
- Physiological ecology
- Metabolic theory
- Biophysical ecology

New people to the laboratory include Rocío Aguilar: Research Officer. PhD Candidate on Eco-physiology and habitat use of desert Iguanids of the volcanic Patagonian Andes, Argentina (National University of Cuyo - GIB – CONICET). Rob Hayes: Completed High school at Scotch College, Melbourne. Bachelor of Science Candidate at the University of Melbourne. Third year research project in lizard water loss. And Himali Ratnayake: BsC from the University of Colombo, Sri Lanka a PhD Candidate in Science working on heat budgets of the Australian flying foxes.

Associates:
Ary Hoffmann (Bio21 – The University of Melbourne - Australia)
Tim Jessop (Zoology Department – The University of Melbourne - Australia)
David Karoly (ARC Centre of Excellence for Climate System Science – School of Earth Sciences – The University of Melbourne - Australia)
Bas Kooijman (Faculty of Earth and Life Sciences-Vrije Universiteit–Amsterdam)
Nicola Mitchell (Centre for Evolutionary Biology – The University of Western Australia -Australia)
Paul Oliver (The University of Sydney – Australia)
Warren Porter (Department of Zoology–The University of Wisconsin Mad.–USA)
Brendan Wintle (The Quantitative and Applied Ecology Group – The University of Melbourne – Australia)
Craig White (Craig White's Evolutionary Physiology Lab - Comparative Animal Physiology – The University of Queensland – Australia)

Recent graduations:
Natalie Briscoe PhD, Understanding how climate affects the koala, *Phascolarctos cinereus*: the roles of behaviour, morphology and physiology.

We now have a new website: http://camelunimelb.wordpress.com/

We published a paper on the importance of tree trunks as a heat sink for koalas which received a lot of media attention (see http://camelunimelb.wordpress.com/news-2/). Tree trunks can be substantially cooler than the air due to the water moving up their trunks, and create microclimates that are likely to be important for arboreal herps.

We have published a global microclimate dataset in the journal Scientific Data, which involves monthly estimates of above- and below-ground microclimates under different levels of shade and for different substrate types. These are suitable for making biophysical calculations (body temperature, water loss) but may also be useful for correlative species distribution modelling.

We also published a test of the microclimate modelling system that we use in the journal Methods in Ecology and Evolution.

Briscoe, N. J., K. A. Handasyde, S. R. Griffiths, W. P. Porter, A. K. Krockenberger and M. R. Kearney 2014. Tree-hugging koalas demonstrate a novel thermoregulatory mechanism for arboreal mammals. Biology Letters 10(6).

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White, C. R. and M. R. Kearney. 2014. Metabolic scaling in animals: Methods, empirical results, and theoretical explanations. Comprehensive Physiology 4:231-256.

Barton, M., P. Sunnucks, M. Norgate, N. D. Murray and M. R. Kearney (2014). Co-gradient variation in growth rate and development time of a broadly distributed butterfly. PLoS One 9(4): e95258.

Sunday, J. M., A. E. Bates, M. R. Kearney, R. K. Colwell, N. K. Dulvy, J. T. Longino and R. B. Huey 2014. Thermal safety margins and the necessity of thermoregulatory behavior across latitude and elevation. PNAS 111:5450-5451.

Barton, M., W. P. Porter and M. R. Kearney 2014. Behavioural thermoregulation and the relative roles of convection and radiation in a basking butterfly. Journal of Thermal Biology 41:65-71.

Kearney, M. R., A. Shamakhy, R. Tingley, D. J. Karoly, A. A. Hoffmann, P. R. Briggs, and W. P. Porter. 2014. Microclimate modelling at macro scales: a test of a general microclimate model integrated with gridded continental-scale soil and weather data. Methods in Ecology and Evolution 5:273-286.

Overgaard, J., M. R. Kearney, and A. A. Hoffmann. 2014. Sensitivity to thermal extremes in Australian *Drosophila* implies similar impacts of climate change on the distribution of widespread and tropical species. Global Change Biology 20:1738-1750.

Kearney, M. R. 2013. Activity restriction and the mechanistic basis for extinctions under climate warming. Ecology Letters 16:1470-1479.

Antoine Guisan, Reid Tingley, John B. Baumgartner, Ilona Naujokaitis-Lewis, Patricia R. Sutcliffe, Ayesha I.T. Tulloch, Tracey J. Regan, Lluis Brotons, Eve McDonald-Madden, Chrystal Mantyka-

Pringle, Tara G. Martin, Jonathan R. Rhodes, Ramona Maggini, Samantha A. Setterfield, Jane Elith, Mark W. Schwartz, Brendan A. Wintle, Olivier Broennimann, Mike Austin, Simon Ferrier, Michael R. Kearney, Hugh P. Possingham & Yvonne M. Buckley. 2013. Predicting species distributions for conservation decisions. Ecology Letters 16:1424-1435.

Maino, J., M. R. Kearney, R. M. Nisbet, and S. L. A. M. Kooijman 2014. Reconciling theories for metabolic scaling. Journal of Animal Ecology 83:20-29.

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Smith, K. L., J. M. Hale, L. Gay, M. Kearney, J. J. Austin, K. Parris, and J. Melville. 2013. Spatio-temporal changes in the genetic and acoustic structure of a frog hybrid zone in south-eastern Australia: a 40 year perspective. Evolution 67: 3442–3454.

Mitchell, N., M. R. Hipsey, S. Arnall, G. McGrath, H. Bin Tareque, G. Kuchling, R. Vogwill, M. Sivapalan, W. P. Porter, and M. R. Kearney. 2013. Linking eco-energetics and eco-hydrology to select sites for the assisted colonisation of Australia's rarest reptile. Biology 2:1-25.

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White, C. and M. Kearney. 2013. Determinants of inter-specific variation in basal metabolic rate. Journal of Comparative Physiology B 183:1-26.

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Jessop, T., M. Kearney, J. Moore, T. Lockwood, and M. Johnston. 2013. Evaluating and predicting risk to a large reptile (*Varanus varius*) from feral cat baiting protocols. Biological Invasions 15:1653-1663.
Kearney, M. R. and C. R. White. 2013. Testing metabolic theories. The American Naturalist 180:546-565.

Richardson, K. M., A. A. Hoffmann, P. Johnson, S. R. Ritchie, and M. R. Kearney. 2013. A replicated comparison of breeding-container suitability for the dengue vector *Aedes aegypti* in tropical and temperate Australia. Austral Ecology 38:219-229.

## The Wildlife Ecology & Behaviour (WEB) group
## Curtin & Murdoch Universities

This group is led by Bill Bateman (Curtin Uni) and Trish Fleming (Murdoch Uni). We are interested in factors that influence antipredator behaviour of amphibians and lizards, have continued our research into the influence of tail autotomy on lizard behaviour, and are expanding our horizons into urban reptile ecology.

Erica Dallenogare is continuing her research into the effects of fire in *Banksia* woodlands on the reptile community. Ash Wolfe is 6 months into her PhD examining the effects of urbanisation on bobtails and dugites. Tracey Moore completed her study on the effects of *Eucalyptus* wandoo decline on fauna and has just graduated. Dr Tracey is now working with the Department of Parks & Wildlife. Shannon Dundas is currently investigating the effects of jarrah drought deaths on the reptile community.

Our group has several potential projects available for future Hons and PhD students in these areas and we would welcome any enquiries (bill.bateman@curtin.edu.au or t.fleming@murdoch.edu.au).

SJ Dawson, PJ Adams, RM Huston, PA Fleming 2014 Environmental factors influence nest excavation by foxes. Journal of Zoology In press , PW Bateman, PA Fleming (2014) Body size and group size of Cuban tree frog (*Osteopilus septentrionalis*) tadpoles influence their escape behaviour. Acta Ethologica, in press

PW Bateman, PA Fleming (2014) Living on the edge: Effects of body size, group density and microhabitat selection on escape behaviour of southern leopard frogs *Lithobates sphenocephalus*. Current Zoology, in press.

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PW Bateman, PA Fleming, BC Jones, BB Rothermel (2014) Defensive responses of gopher tortoises (*Gopherus polyphemus*) are influenced by risk assessment and level of habituation to humans. Behaviour 151: 1267-1280.

PA Fleming, LE Valentine, PW Bateman (2013) Telling tails: Selective pressures acting on investment in lizard tails. Physiological and Biochemical Zoology 86: 645 - 658.

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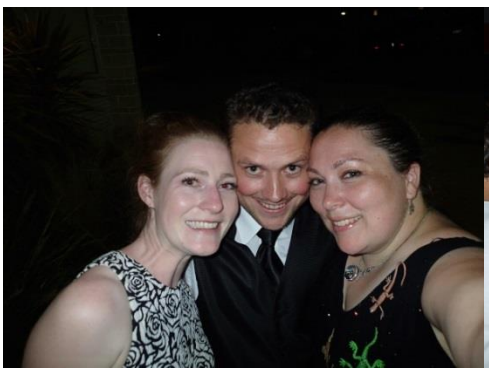

## Nicki Mitchell's Lab
## The University of Western Australia

With Dale Roberts retiring to greener pastures in Albany, Nicki's lab at UWA has a big hole (or ditch, dam, swamp) to fill. Not that Dale has left in any sense of the word, as no doubt his newsletter entry will attest. New PhD lab members in 2014 are Blair Bentley (who has already grown a beard in preparation for his first ASH) and Tabitha Bitterli, who joins us from Switzerland (via Plymouth). Blair has had a lot of fun doing sea turtle fieldwork in the Kimberley, while staying away from crocs (not). Blair is doing many things relating to sea turtle embryos and their vulnerability (or otherwise) to climate change, including getting under way with transcriptomics. Tabitha begins her PhD in October, and will revive the froggy enterprises in the lab that have declined of late as animals with carapaces have taken over. Sophie Arnall and Hasnein bin Tareque are in the home straights of their PhD projects about western swamp tortoise physiology and energetics (Sophie), and the wetlands in which they reside (Hasnein) to inform assisted colonisation practice. Anna Carter (VUW, New Zealand) is in a

similar place with her PhD on tuatara from Stephens and Little Barrier Islands, except that she is modelling the animals AND their habitat and developing uncanny skills in programming and supercomputing. Sophie and Anna are well supported and mentored by Michael Kearney, whose NicheMapR empire grows by the day. Jamie Tedeschi is also in the final stretch of her PhD, and is discovering that the exhausting lab work rearing more than 2000 sea turtle embryos and analysing their mRNA has been worth it, as the results of some complex analyses that Nicki can't understand are revealing. More in a subsequent newsletter… MSc student Stephanie van Lohuizen has been working with Rio Tinto data to analyse the environmental drivers of nest and emergence success of flatback turtles in the Pilbara, while another MSc student Alexandra Windsor is also modelling western swamp tortoises, but doing it via population viability analysis. The bottom line is that the populations aren't very viable. And last but not least, honours student Nick Rodriguez has joined the lab to work on the defining the fundamental niche of the western swamp tortoise embryo, co-supervised by Gerald Kuchling. That leaves Nicki, who is co-ordinating first year biology in her spare time while writing up research. Dang - it's the other way round!

Mitchell, N., Hipsey, M., Arnall, S., McGrath, G., Bin Tareque, H., Kuchling, G., Vogwill, R., Sivapalan, M., Porter, W., and Kearney, M. 2013. Linking eco-energetics and eco-hydrology to select sites for the assisted colonisation of Australia's rarest reptile. Biology 2:1-25.

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Tomlinson S, Arnall SG, Munn A, Bradshaw SD, Maloney SK, Dixon KW, Didham RK (2014) Applications and implications of ecological energetics. Trends in Ecology & Evolution 29:280-290

Grayson KL, Mitchell NJ, Monks JM, Keall SN, Wilson JN, Nelson NJ. 2014. Sex ratio bias and extinction risk in an isolated population of tuatara *Sphenodon punctatus*. PloS one 9:e94214

Dade, M., Pauli, N., & Mitchell, N.J. 2014. Mapping a new future: using spatial multiple criteria analysis to identify novel habitats for endangered species. Animal Conservation doi: 10.1111/acv.12150

Grayson KL, Mitchell NJ & Nelson NJ. 2014. A hot threat to New Zealand's tuatara. American Scientist 102: 350-7

Stubbs, J., Kearney, M.J, Whiting, S. D., & Mitchell, N.J. Models of primary sex ratios at a major flatback turtle rookery show an anomalous masculinizing trend. Climate Change Responses (in press)

Arnall, S., Kuchling, G., and Mitchell N . A thermal profile of metabolic performance in the rare Australian chelid, *Pseudemydura umbrina*. Australian Journal of Zoology (in press).

### J Dale Roberts
### University of Western Australia

JDR retired on July 1, 2014. He is now working in the Centre of Excellence in Natural Resource Management, UWA, Albany. He has a position as a Senior Honorary Research Fellow. He has ongoing interests in polyandrous mating systems - working with the trade-offs between investment in testis mass and muscle in *Crinia georgiana* and in the evolution of call structures versus genetic subdivision in *Geocrinia leai* - they are both frogs - latter with Dan Edwards.

I am also still working with Jana Reniers, Ph D student at KU Leuven, Brussels, looking at age structure and egg investment across environmental gradients in *Crinia pseudinsignifera* in the WA wheatbelt.

Current students - one Honours student co-supervised by Steve Hopper (yes- the one who works on plants) investigating reptile use of lizard traps - Noongar constructions of uncertain function on granite outcrops found across south-western Australia.

No current Ph D students working on herps - but several others - plant, pseudoscorpion & millipede phylogeography and phylogenetics, urban ecology of cockatoos, kaluta (a mammal) life history, population structure and conservation success, biogeography of marine fish assemblages, and, ecology of feral cats and how to design better killing tactics!

Cheng WC, Chen YH, Yu HT, Roberts, JD & Kam, YC 2013 Sequential, polygynous double clutching does not produce more tadpoles in a tree frog with paternal care. Ethology119, 286-295.

Riley, K, Berry OF & Roberts, JD 2013. Do global models predicting environmental suitability for the amphibian fungus, *Batrachochytrium dendrobatidis*, have local value to conservation managers? Journal of Applied Ecology 50, 713–720.

Vidal-García, MV, Byrne PG, Roberts JD & Keogh JS 2014. The role of phylogeny and ecology in shaping morphology in 21 genera and 127 species of Australo-Papuan myobatrachid frogs. Journal of Evolutionary Biology 27, 181–192.

And the major work for the year:

Rix MG, Edwards DL, Byrne,M, Harvey MS, Joseph L & Roberts JD 2014. Biogeography and speciation of terrestrial fauna in the south-western Australian biodiversity hotspot. Biological Reviews available on-line, doi: 10.1111/brv.12132

And yes if you search there is one in Computers and Electronics in Agriculture (and another in the Journal of Applied Entomology)!

# Nationwide

### Australian Wildlife Conservancy

AWC is currently supporting post-graduate research students focusing on *Liopholis kintorei* at Newhaven Sanctuary. This research aims to:

- increase our understanding of habitat selection and population persistence by identifying specific habitat requirements in particular characteristics related to fire history,
- provide detailed information on the social structure and dispersal behaviour of *L. kintorei* and,
- experimentally investigate the effect of fire and predator pressure on *L. kintorei* persistence at Newhaven.

Elsewhere in AWC, the north-east crew have been collecting samples in the Gulf of Carpentaria for Craig Moritz's group, still trying to unravel *Gehyra*s amongst other things, and are now chasing small brown skinks around Brooklyn in north Queensland.
This year's survey at Piccaninny Plains on CYP brought the first record of *Pseudothecadactylus australis* for the sanctuary, in an isolated rainforest patch.


WE MISS YOU
DEB

# International

**OULALAB**
**Station d'Ecologie Expérimentale du CNRS à Moulis USR 2936**

Fabien is still enjoying the life in the south of France and is busy playing with snakes and lizards down there. Two main projects are currently being developed. One to deal with the way phenotypic plasticity facilitates an amphibious life style along altitudinal and latitudinal gradients in the water snake *Natrix maura*, and the other where Fabien is desperately trying to understand the fine mechanisms allowing snake eggs to hatch synchronously (or do they?).

Mathews Vickers has been busy finishing his PhD, which he is now preparing again for publication, his initial attempts having been mercilessly rejected by his peers, who clearly think he can do better. Handing in his thesis in May, Mat left Townsville for the greener pastures and steeper hills of the Pyrenees, to take up a Post Doc with Fabien Aubret.

Together, they are on a journey discovering the dispersal propensity and characteristics of the quintessential *Natrix: Natrix natrix*. Roughly fifteen minutes after arriving in France, Mat sustained a respectably serious knee injury, forcing his new employer to conduct almost all of his field work.

In a shift from the field based ecology, Mat is now busy with laboratory experiments on such BS as Behavioural Syndrome and exploratory behaviour.

Aubret, F., Tort, M. & Blanvillain, G. (2013). A non-invasive method of measuring heart rates in small reptiles and amphibians. Herpetological Review 44, 421-423.

Aubret, F. (2013) Heart rates increase after hatching in two species of natricine snakes. Scientific Reports 3, doi:10.1038/srep03384.

Bestion, E., Teyssier, E., Aubret, F., Clobert, J. & Cote, J. (2014) Maternal exposure to predator scents: how to prepare offspring to a risky natal environment? Proceedings of the Royal Society of London B., in press.

Aubret, F. & Mangin, A. (2014) The snake hiss: potential acoustic mimicry in a viper-colubrid complex. The Biological Journal of the Linnean Society, in press.

Aubret, F. (2014) Island colonisation and the evolutionary rates of body size in insular neonate snakes. Heredity, doi:10.1038/hdy.2014.65.

Aubret F, Tort M, Michniewicz RJ, Blanvillain G & Coulon A. 2014. Cooperate or compete? Influence of sex and body size on sheltering behaviour in the wall lizard*, Podarcis muralis*. Behaviour, in press.

# Minutes

**Minutes of the 39th AGM of the Australian Society of Herpetologist Inc.**

**ASH Inc. AGM 2014 - Greenhills Camp, Canberra, ACT.**

**Meeting opened by President Scott Keogh at:** 1737 on Thursday 30th January 2014

**Present:** Scott Keogh, Mitzy Pepper, Eridani Mulder, Conrad Hoskin, Rick Shine, Steve Donnellan, , David Newell, Mike Mahony, Joanna Sumner, Jean-Marc Hero, Lynette Plenderleith, Peter Harlow, Stewart MacDonald, Gordon Grigg, Kate Umbers, Nicki Mitchell, Megan Higgie, Ben Phillips, Devi

Stuart-Fox, Craig Moritz, Anna Carter, Kate Hodges, Simon Blomberg, Edward Narayan, Yolarnie Amepou, David De Angelis, Richard Peters, David Chapple, Jennifer Taylor, Francis Lemckert, Erik Wapstra, Andrew Amey, Simon Hudson, Glenn Shea, Leonie Valentine, Mike Thompson, Matt Greenlees, Paul Doughty, Ryan Ellis, Rick Shine, Matthew Bulbert, Marion Anstis, Lin Schwarzkopf, Sarsha Gorissen.

Apologies: Ric Longmore, Memento Hudson, Dale Roberts, Phil Byrne, Murray Littlejohn.

All motions moved and seconded are asked for support via show of hands for and against. If no against votes are recorded the motion is passed as all in favour.

Minutes of the 2013 Minutes were read by Eridani Mulder, and it was moved by Simon Hudson that the minutes be accepted as an accurate record of the previous meeting. Seconded by Ben Phillips, all in favour, motion carried.

Scott Keogh brought it to the attention of the meeting that Patsy Littlejohn has passed away. Scott Keogh wrote a letter of condolence to Murray Littlejohn on behalf of the society.

Paul Cooper is putting out a commemorative article in the Aust. J of Zoology about Dick Barwick's life and work.

**Treasurer's report**

Conrad Hoskin gave a short slideshow on the financial status of the society. Thanks to Ben for having the accounts in such good order.

Conrad mentioned that the last few conferences have been cost neutral, with seed money going straight from conference holder to next conference holder.

Matt Greenless moved that treasurer's report be accepted, and Nicola Mitchell accepted. All in favour.

Following the Treasurers report there was discussion among members about what happens with conference account keeping and the need to show a paper trail to the auditor – Conrad will discuss with the auditor as to what exactly is required and ensure that we provide it. It was also brought to our attention that in the previous decade audits have been inconsistent, occurring every few years, when actually it needs to be done annually.

Scott Keogh pointed out that when Ric Longmore & John Wombey were in charge this process was very organised. Since that time, it has been slightly more disorganised, with the society paying late fees for submission of paperwork, and with Scott Keogh (as Public Officer) writing an apologetic letter. Mitzy Pepper (the new Public Officer) submitted our forms again, and ASH Inc. has an extension until April 2015, to submit the audit (with around $700 late fees). We can go through a process to have the meetings at different time to what is stated by the ACT incorporations act. Otherwise we can go back to having extraordinary meetings. The executive committee agreed to follow up and find out the best course of action for the society. Lin Schwarzkopf suggested that another use of ASH funds is to hold AGM in Canberra, Ben Phillips suggested we use Skype instead.

**Research Grants**

Scott Keogh reiterated the point made at the 2013 AGM that the society should reinstate research grants, however we have not yet moved ASH money into a higher interest account. Conrad Hoskin will follow this up after the meeting.

Mike Thompson reiterated the society should elect a treasurer/secretary from the same geographic location, and that process has been working since 2010.

Scott Keogh moved that the society form a committee to administer research grants in 2013. Seconded Conrad Hoskin. All in favour.

**2015 ASH CONFERENCE**

Scott Keogh talked about the next conference and AGM. The location of the next meeting has already been organised, so that it can be in conjunction with SRARNZ, for the Third Reunion of the Australasian Societies of Herpetologists (TRASH), which will be held in Melbourne in January 2015.

Scott Keogh also discussed the length of the conference, which has historically 2.5 days, and whether we need to lengthen it to accommodate the number of delegates now attending (196 in 2014).

Possibilities include adding a day or half day or encouraging more speed talks. Erik Wapstra suggested that we could also encourage more posters. Craig Moritz suggested combined poster/talk. Eridani Mulder suggested more concurrent sessions – but trying to keep the conference more remote constrains the venue.

**Secretary's report**

2013 year has gone very smoothly.

We've had 18 new members sign up over the course of 2013.

ASH currently has 161 fully paid up financial members and 183 members in various states of arrears.

We have the usual problem with emails being out of date, but the strike rate is improving, and I currently only have around 10 emails that are bouncing.

We had a brief issue with the website being down, immediately after Conrad sent out the renewals, but that was a hosting issue and nothing to do with us and has now been fixed.

Craig Moritz moved that the Secretary's report be accepted, seconded by Mike Mahony. All in favour.

**GENERAL BUSINESS**

Scott Keogh then handed over to Steve Donnellan and Mark Hutchinson to speak about the ASH moderated Australian herpetofauna species list proposal.

**Proposal for the Australian Society of Herpetologists to moderate a national checklist of Australian amphibian and reptile species.**

There are several sound reasons why a national faunal checklist is of value to the scientific community and any instrumentalities that manage or deal with faunal issues, i.e. state and national legislators, environmental assessors, quarantine enforcers etc.

For many years the Australian Biological resources Study (ABRS) has maintained a national checklist of our flora and fauna in the Australian Faunal Directory (AFD) and of late the directory

(scientific names list) has underwritten the integrity of the major national infrastructure project The Atlas of Living Australia.

To date the Australian Faunal Directory content has been edited by typically a single individual taxonomist for each major faunal group. Two problems arise from this method of resourcing the construction and maintenance of the list:

1) The list maybe regarded by some as one person's opinion rather than a community consensus.

2) The work burden can be substantial for a single individual.

As a potentially well tried and enduring model for a national checklist, we can look to the US Official Names List** that reflects the consensus opinion of six herpetological societies in the US and Canada and is now in its 7th edition. Their list is moderated by a committee of 18, chaired by Brian Crother. This model has worked exceptionally well for a number of decades.

In our initial discussions, the ABRS is happy to consider the model of the peak society for a major faunal group taking responsibility for the content of their respective group in the Australian Faunal Directory. This arrangement has numerous advantages, including using an existing web-based system for delivery of the AFD and satisfying the ABRS's desire to reflect a community consensus for its species lists.

We suggest an additional feature to the approach currently adopted by the ABRS. In the US checklist a summary of the decision behind each name determination is also presented under each taxon name. We suggest that this dialogue and trail of evidence should also be included in our proposed implementation for moderation of the amphibian and reptile section of the AFD. Transparency of decisions and presentation of the evidential basis for them is good scientific practice

**Scientific and standard English names of Amphibians and Reptiles of North America North of Mexico, with comments regarding confidence in our understanding Committee on Standard English and Scientific Names Brian I. Crother (Committee Chair) 7th Edition 2012.

Steve Donnellan proposed that:
1) through a select sub-committee, ASH composes a national checklist of the Australian reptiles and amphibians
Seconded by Marion Anstis, all in favour.
and
2) ASH publishes the national checklist through the reptile and amphibian sections of the Australian Faunal Directory (AFD), maintained by the Australian Biological resources Study (ABRS)
Seconded by Lynette Plenderleith, all in favour.

Simon Hudson asked about creating standard common names and Andrew Amey suggested using those in Wilson and Swan 2012.

**OTHER BUSINESS**

Marc Hero talked about the next upcoming World Congress of Herpetology in Hangzhou, China.

Nicki Mitchell brought it to the attention of the meeting that current ASH life member Margaret Davies, and also Andrew Burbidge received the Order of Australia Medal in the 2014 Australia Day honours list. Andrew is well known to the herpetological community for his pioneering work on the Western Swamp Tortoise.
Nicki Mitchell proposed that the society write them a letter of congratulation on behalf of the society. Motion seconded by Rick Shine, all in favour.

Simon Hudson spoke about need for 'vetting' of ecologists on EIS projects and if ASH would support a process to determine what constitutes a suitably qualified person to survey and undertake EIS' involving Australian herpetofauna. A position statement supported by ASH members present at the meeting.

Mark Hutchinson moved that Simon Hudson prepare a draft document to be presented to the next AGM. Seconded Mike Thompson. All in favour.

**ELECTION OF NEW OFFICE BEARERS**

The committee was stood down. Scott Keogh continued to run the meeting.

Nominations were received by the President 21 days before the AGM as listed below.

President: Joanna Sumner

Vice President: no nomination (position is taken by former President)

Ordinary Member: Lynette Plenderleith

As there were no other nominations, the nominees were elected unopposed, with the full executive listed below.

President: Joanna Sumner

Vice-President: Scott Keogh

Treasurer: Conrad Hoskin

Secretary: Eridani Mulder

Ordinary Members: Kate Umbers

Ordinary Members: Lynette Plenderleith
(Former Ordinary Member Matt Greenlees had reached the end of his 3 year tenure as stipulated by the ASH constitution)

Editor: Deb Bower

Public Officer: Mitzy Pepper

Jo Sumner accepted the presidency, and thanked Scott Keogh for his excellent year of ASH presidency, and for a very successful 2014 conference.

Rick Shine moved that Murray Littlejohn and Dale Roberts be ejected from the meeting in absentia. Seconded by Lin Schwarzkopf and Murray and Dale were duly ejected.

Meeting closed 1837.

**ADDENDUM**

The Student Prize winners at the 2014 conference were as follows:

The **Peter Rawlinson Prize for PhD** presentation was awarded to Mozes Blom for his talk entitled:

Cryptic Crypto's: Unexpected patterns of diversification in a widespread clade of Australian skinks (Mozes Blom & Craig Moritz)

The runner-up for this category was Emma Kelly for her presentation on:

The impact of climate change and skewed sex ratios on sea turtle reproduction.

The **Murray Littlejohn Prize** for best Honours presentation was awarded to Mitchell Scott for his talk:

Chemical communication and sexual selection in a nocturnal snake (small-eyed snake, *Cryptophis nigrescens*) (Mitchell Scott, Martin Whiting, Jonathan Webb and Rick Shine).

The runner-up in this category went to Lisa Stevenson for her talk on:

Back to basics: what do we know about the thermal limitations of *Batrachochytrium dendrobatidis*?

**The Ric Longmore Prize for best Poster** was awarded to Jose Ramos for his poster:

No need to get violent:  Movement-based communication in lizards

With the runner up being Viviana Cadena for her poster:
Physiological colour change and background matching in two populations of bearded dragons (*Pogona vitticeps*)