

FROG CALL

THE FROG AND TADPOLE STUDY GROUP NSW Inc.

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NEWSLETTER No. 135 February 2015

Photo by Peter Spradbrow *Litoria peroni* Windsor Downs Nature Reserve



Arrive 6.30 pm for a 7pm start.

Friday 6th February

FATS meet at the Education Centre,
Bicentennial Pk, Sydney Olympic Park

Easy walk from Concord West railway station and straight down Victoria Ave.

By car: Enter from Australia Ave at the Bicentennial Park main entrance, turn off to the right and drive through the park. It is a one way road.

Or enter from Bennelong Road / Parkway.

It is a short stretch of two way road.

Park in p10f car park, the last car park before the exit gate.

***** The April meeting is likely to be on 10/4/2015. *****

Please check Frogcall 136 or our website www.fats.org.au to confirm.

Meeting Format Friday 6th February 2015

- 6.30 pm** There are lost frogs (*Litoria chloris*, *L. caerulea*, *L. infrafrenata*, *L. peroni* and *L. gracilentia*) needing forever homes available to FATS financial members. Please bring your FATS membership card and cash \$40 - \$50 donation. Your current NSW NPWS amphibian licence must be sighted on the night. Rescued frogs can never be released. Sorry we have no EFTPOS at meetings. Please contact Monica before the meeting to confirm your interest in adopting a rescued frog.
- 7.00pm** Welcome and announcements.
- 7.30 pm** Main speaker Arthur White "Life as a Wallum Sedge Frog", Jillie Streit Smiths Lake field trip report and Monica Wangmann Northern Corroboree Frog visit at Tidbinbilla Nature Reserve.
- 9.15 pm** Show us your frog images, tell us about your frogging trips or experiences. Guessing competition, continue with frog adoptions, supper and a chance to relax and chat with frog experts.

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LAST FATS MEETING 5 DEC. 2014

Greetings fellow froggers, It's great to see the fantastic photos being posted on Facebook by everyone as the frogging season picks up. The FATS page has about 1,170 members. We all need to be aware of the proper frogging hygiene protocols for when we do go out. This includes ensuring our gumboots, field gear and even vehicles are all clean when moving between sites. For more information please check out this link: <http://www.environment.nsw.gov.au/resou.../nature/hyprfrog.pdf>

We also all need to be aware that certain frogs, particularly threatened species, in addition to being at risk to chytrid fungus are also prone to site disturbance. Other sites are also study sites used by various researchers. Please don't advertise sites in your photos. Some sites are kept discrete for a reason. Thanks guys and happy frogging to you all. **George Madani**

Arthur White chaired the meeting welcoming newcomers and regular attendees. FATS auditory surveys at Sydney Olympic Park were completed last November and December. Thanks to everyone who came out to participate. Monica Wangmann was recognised with life membership of FATS for her work producing 105 Frogcall newsletters for about the last 17 years.

Punia Jeffery spoke in vivid detail about the 100th anniversary of the Berlin Aquarium, her visit to the Warsaw Zoo and their reptile house. Many of the frogs enclosures had detailed, well researched information for visitors and beautifully presented habitats. We felt as though we were there seeing the frogs ourselves.

FATS congratulated Marion Anstis on breaking new ground, in the superior quality of her book "*Tadpoles and Frogs of Australia*", which won the Whitley Silver Medal for best book on Australian natural history, in 2014.

Our main speaker Gerry Swan had us in total fascination as he described life in the open trenches - ten years of involvement with fauna protection during the construction of the biggest high pressure gas line trench in Australia. All the vegetation within a 30 metre wide trench is removed, carefully returned and rehabilitated back to its original condition after the pipe is laid, ensuring that seed beds etc are not lost. Native animals including frogs, caught in the trench are removed or make their own way out via ramps, often providing unique encounters. http://pipeliner.com.au/news/nacap_compl etes_wallumbilla_to_darling_downs_pipeli ne/012063/ The meeting ended with a tasty Christmas supper, guessing competition and lots of good conversation. **MW**

CORRECTIONS TO FROGCALL 134 & APOLOGIES FROG-O-GRAPHIC COMPETITION WINNERS & CALENDAR



Senior Pet Frog winner Christian Hofmann with *Litoria peroni* "Beau"

The Pobblebonk *Limnodynastes dumerilii dumerilii* in the 2015 FATS calendar was photographed by Aaron Payne. Apologies to Aaron (and Karen Russell) for the mistake/s on who the photographer was.



AMPHIBIAN LICENCE RETURNS DUE 1 APRIL 2015

All licensed native animal keepers are required to maintain a fauna record book and lodge it with the Wildlife Licensing and Management Unit DOH NSW NPWS each year.

The e-book is the fastest and most efficient way to do this, but it can alternatively be done in a paper book by licence holders who do not have access to a computer.

<http://www.environment.nsw.gov.au/wildlifelicences/electronicFaunaRecordBook.htm>

FROG-O-GRAPHIC COMPETITION 2015

In 2008 FATS conducted our first Frog-O-Graphic competition. This proved very successful as we have many creative people in the group who take marvellous photos, do incredible drawings and art works, can sculpt, potter or create frog do-dahs from just about anything. So start painting, drawing, photographing or whatever you do to capture the essence of a frog. We look forward to seeing your entries. The competition for FATS members opens Friday 1st August 2015. More information in next April newsletter. **AW**

FROM RAGS TO RICHES AND BACK AGAIN: FLUCTUATIONS IN THE GREEN AND GOLDEN BELL FROG *LITORIA AUREA* POPULATION AT NOWRA ON THE SOUTH COAST OF NEW SOUTH WALES



Amplecting Bell Frogs at Brundee Swamp NP

Abstract: Systematic (time constrained) and targeted surveys were conducted from 1996-2014 for the green and golden bell frog *Litoria aurea* on the Crookhaven River floodplain, east of Nowra on the south coast of New South Wales. In April 2008, a large number of metamorphlings were observed at Brundee Swamp Nature Reserve. This was followed by a significant recruitment of frogs so that by February 2010 *L. aurea* were recorded breeding nearby in Worrigea and Terara Swamps. At the end of April 2010 tens of thousands of metamorphling *L. aurea* dispersed from these wetlands across the floodplain. So-called explosive breeding events have been reported for this species before but never have they been documented. In December 2010 *L. aurea* again bred in Worrigea (and presumably Terara Swamp) and in early April 2011 adult and sub-adult animals appeared to have dispersed a distance of approximately 4 km south-west and 11 km to the south-east of Brundee Swamp.



Metamorphling Bell Frogs on Swamp Paperbark at
Brundee Swamp

This expansion in distribution and abundance resulted in the recolonisation of historic *L. aurea* sites at Culburra and colonisation of other parts of the catchments where the species was never previously recorded. The recovery was not sustained and from March 2013 to March 2014 the species had declined in abundance and distribution. Most of the recorded breeding occurred in ephemeral wetlands: dispersal from these sites involved movements over highly modified rural and urban landscapes. Refuge sites populated outside the breeding events were strongly associated with stands of Cumbungi *Typha* spp. in drainage systems. These observations illustrate that historic and potential habitat of *L. aurea* should not be disregarded, even if the species has been absent for a considerable period. More effective management of *L. aurea* by government agencies requires a whole of landscape approach. (P157) DOI: <http://dx.doi.org/10.7882/AZ.2014.027>

Management

As a result of the Regional Forestry Agreement reserves such as Brundee Swamp, Saltwater Swamp and Worrigea, totalling some 640 ha of *L. aurea* habitat, came under the management of the NSW NPWS in 2001 (NPWS 2008). At that time the reserves were modelled as potential habitat for the frog, but it was not known how significant the sites were. The portion of Worrigea NR now within the reservation system was slated for urban development and this would have reduced *L. aurea* habitat directly by piping creeks and reducing vegetation cover and indirectly by increased mortality from domestic pets and moving vehicles. Currently there are 384 ha adjacent to Worrigea NR vested for gazettal. A management plan for the Crookhaven population of *L. aurea* was prepared by the author for the Department of Conservation (DEC 2008). Data on this population has expanded considerably over the last six years and the plan requires updating.

Outside the Reservation system the management of the Crookhaven population of *L. aurea* has been reactionary. There have been two referrals to the Commonwealth under the EPBC Act (1979) (Gaia Research 2010b and c). A review of the management of *L. aurea* in the area is currently being undertaken (Daly *et al.* in prep.). The present study indicates that potential breeding, refuge and dispersal habitat for *L. aurea* must be conserved over the entire landscape to facilitate persistence and possible recovery of a species that may be absent from an area for many years. The absence of frogs from a site for a time does not justify the dismissal of that site as potential habitat, nor does it justify the removal of habitat for the species. (p170)

**Australian Zoologist volume 37 2014 p 157 –
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Photo by George Madani



Cyclorana australis Giant Frog

IS FROG SKIN A RED HERRING? (Extracts)

Despite decades of work, compounds in frog skins have failed to yield new antibiotics. Why? In the final weeks of 2012, it seemed that Santa had brought an early Christmas present to a team of Russian scientists—a treasure trove of antimicrobial peptides (AMPs) in the skin of a frog. By screening the Russian brown frog—an edible animal once dipped in milk to prevent it from souring—Antony Lebedev from Moscow State University identified 76 chemicals that prevented the growth of common bacteria like *Salmonella* and *Staphylococcus*. The press release for the study described these substances as “potential medical treasures.”

Rarely a month goes by without a new paper describing new chemicals from frog skins. They are announced by the handfuls, or sometimes hundreds at a time. Since the 1990s, they have been touted as promising leads for the next generation of antibiotics. But despite decades of work, and thousands of candidate compounds, no amphibian peptides have been turned into a marketable drug. “Frog skin is frankly baloney,” said Kim Lewis from Northeastern University in Boston. “The scientific community has gone through tens of thousands of AMPs and not a single one of them made it through clinical studies.”

There is a clear need for new antibiotics. Bacteria are evading even the most potent front-line drugs, and resistance continues to rise. Meanwhile, the production of new drugs has slowed to a crawl since the golden age of antibiotic discovery in the 1940s and 1950s. In the last 50 years, just one antibiotic of an entirely new class has made it into clinical practice, and many pharmaceutical companies have stepped out of the ring altogether.

Progress stalled because scientists picked all the low-hanging fruit. In the 1940s, Selman Waksman discovered streptomycin by systematically testing the compounds that soil microbes used to outcompete each other. Waksman coined the term antibiotics, and went on to discover over 20 such chemicals using the same method. “That platform collapsed in the 1960s due to over mining,” said Lewis. “Companies would find tetracycline a thousand times before they found something new,” added Livermore.

In the quest for new antibiotics, some scientists turned to frogs, and for good reason. Most of our infections occur across mucus membranes, such as those that line our digestive, respiratory, and urinary tracts. Because a frog’s entire skin is essentially a moist mucus membrane, they presumably need something to protect them against the constant barrage of pathogens. “People have legitimately asked why frogs don’t turn into bags of pus,” said David Livermore from the University of East Anglia. “And the answer is that they have many AMPs that protect them.”

The AMP that came closest to success—a compound called magainin, derived from the skin of the African clawed frog—passed through Phase II clinical trials for patients with diabetic foot ulcers, but the drug failed to get approval from the US Food and Drug Administration. That was in 1999. “That field is pretty much dead, now,” said Lewis. “Only academia keeps it alive.” The problem, said Livermore, is that amphibian AMPs tend to be large peptides that make for poor drugs. Some get metabolized too readily, while others trigger immune reactions. Their size also makes it difficult to synthesize them in large enough quantities. “It’s proved very hard to produce anything that’s clinically effective and commercially viable,” Livermore said.

Other groups have identified bacteria-killing compounds from sources as diverse as clay, alligator blood, cockroach brains, panda blood, and ocean mold. But these discoveries—based primarily on in vitro tests of new compounds—provide a false sense of security, Lewis said. “That there is no shortage of antibiotic sources is bogus. That’s where the main problem is: we don’t have reasonable sources of new compounds,” he said—sources that are likely to lead to successful new drugs. “A reasonable starting point for any story worthy of publishing is to have an effective compound in a systemic mouse model of infection. Once you cross that barrier, then it makes sense to talk about it.”

As far as what those reasonable sources will be, Livermore thinks that bacteria are more likely to yield new antibiotics than frog skin. “There’s a long catalog of small molecules from bacteria that prove to be successful antibiotics, but no success from large peptides, which is what you’d more likely find from frogs or insects,” he said.

While soil bacteria have yielded most of their secrets, those in more exotic locales, such as caves and deep-ocean sediments could harbor new classes of drugs. And, Lewis noted, such discoveries are now supported by technology that allows researchers to grow previously “unculturable” bacteria in the lab. “Looking at bacteria from odd ecological niches you’d hope will give you a new small molecule like penicillin,” said Livermore.

By Ed Yong | January 2, 2013 <http://www.the-scientist.com/?articles.view/articleNo/33818/title/Is-Frog-Skin-a-Red-Herring/>



SYDNEY ROYAL EASTER SHOW – 7 & 8 APRIL 2015

The 2015 Sydney Royal Frog & Reptile Show competition is now open for entries. If you are interested in entering your pet or pets into the comp, then please contact Wild Expo Info info@wildexpo.com.au with your name, mobile, & species of animal(s) you would like to enter. Lizards, Goannas, & Frogs 7th April, Snakes & Frogs 8th April \$35 / animal entry fee, dropping to \$25 / animal for 4 or more entered. Please visit www.wildexpo.com.au for all the details on how to enter. Mark Harvey Wild Australia Expos Pty Ltd Incorporating The Wild Australia Expo The Australian Frog & Reptile Show The Sydney Royal Frog & Reptile Competition Ph: 9487 1117 PO Box 569 Turramurra NSW 2074



Karen Russell's *Litoria splendida* pet frogs

**FIRE ANTS IN AUSTRALIA
THIS IS A BATTLE
WE CAN'T AFFORD TO LOSE**



Fire ants here in Port Botany, Sydney:

- inflict a painful, burning sting
- invade our backyards, parks and recreational areas
- threaten native flora and fauna
- injure domestic animals
- damage crops and equipment.



Photo source Queensland DAFF

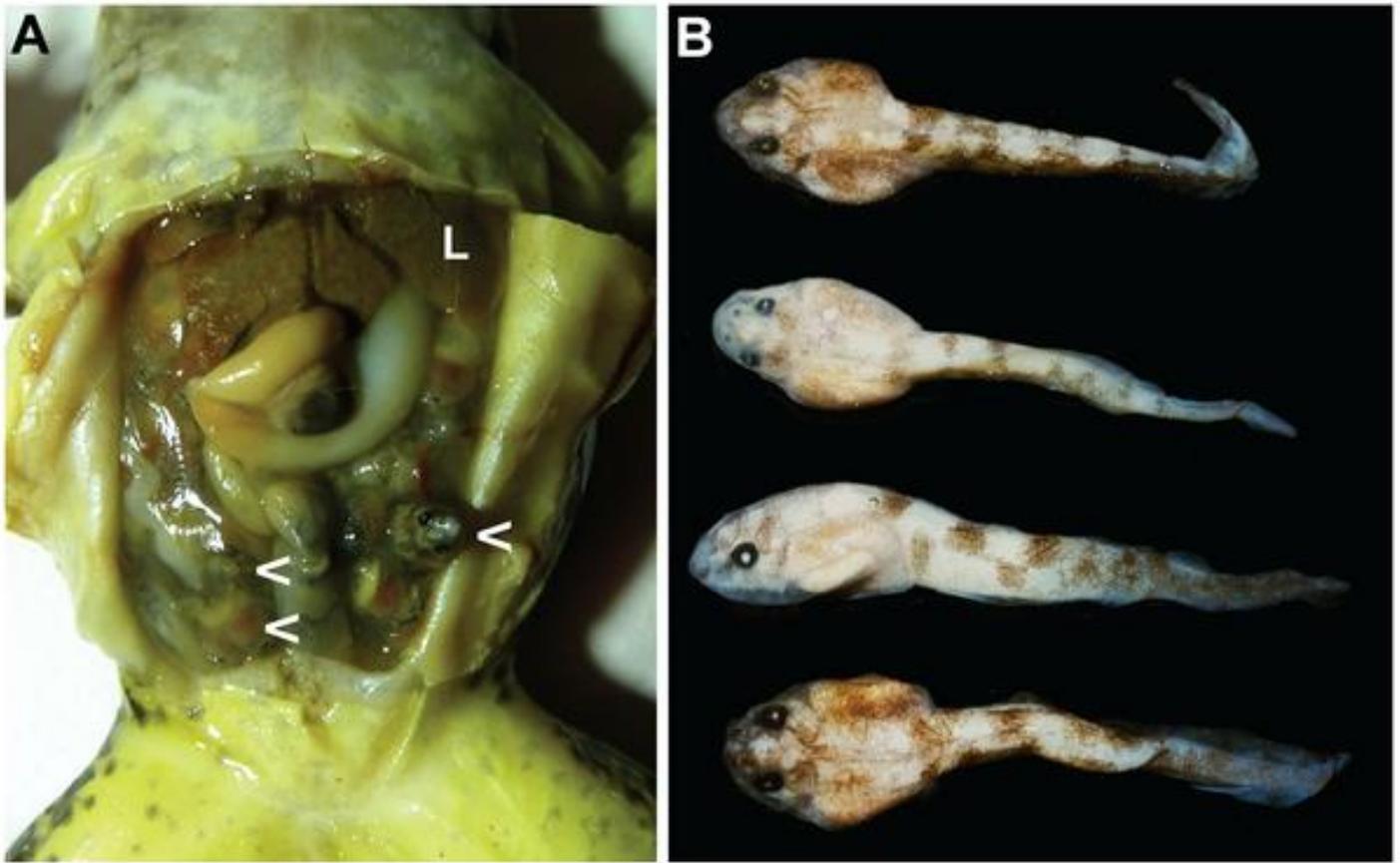
<http://www.dpi.nsw.gov.au/agriculture/pets-weeds/insects/fire-ants>

Never before have these highly aggressive and destructive ants been found outside of Queensland. The new infestation could seriously undermine efforts to rid them from Australia.

This is an ant you don't ever want to live with. In southern US, where there is a large infestation, you can't stand still, you can't wear thongs, you can't sit on the grass in your own backyard.

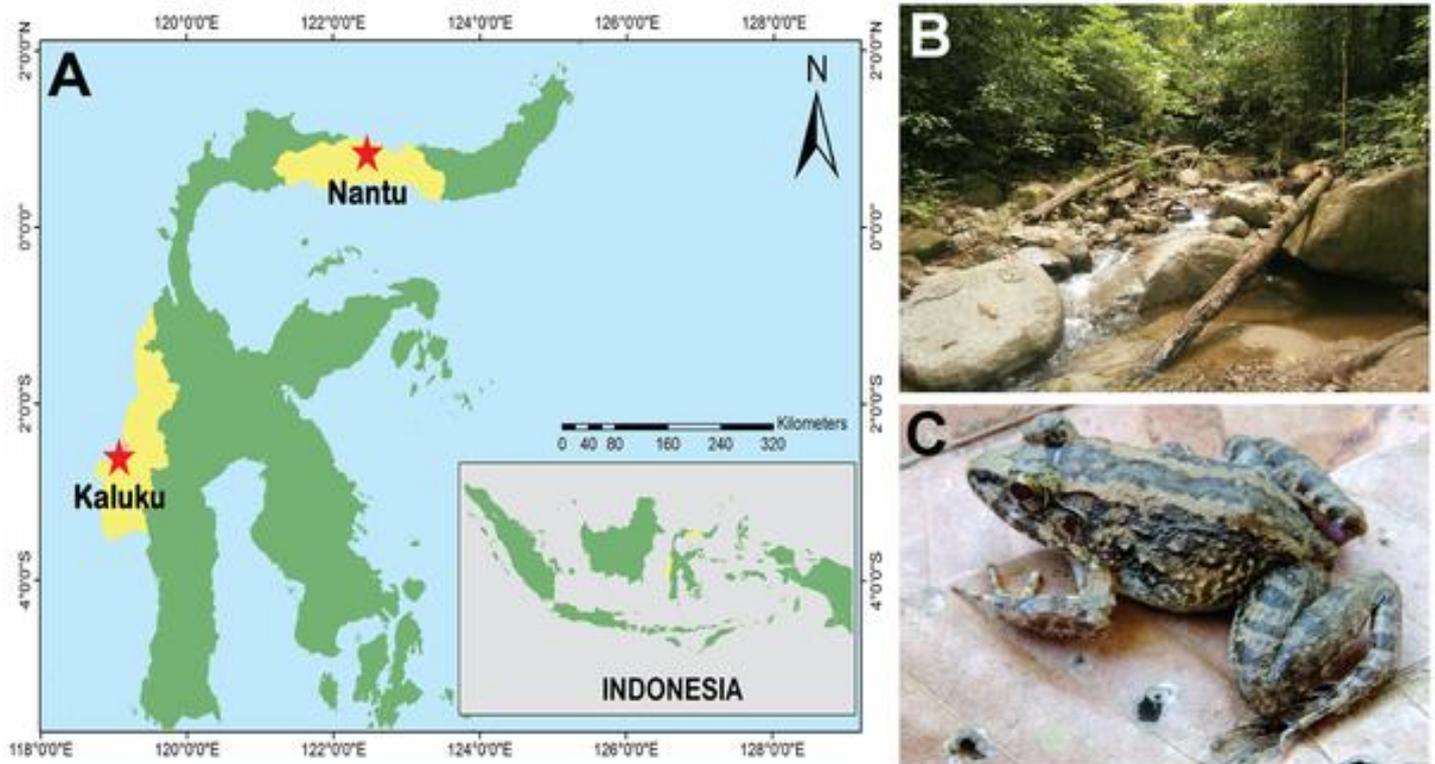
https://www.youtube.com/watch?v=_eUd_DK9Rcw#t=26

THE REPRODUCTIVE BIOLOGY AND LARVAE OF THE FIRST TADPOLE-BEARING FROG, *LIMNONECTES LARVAEPARTUS* (extracts)



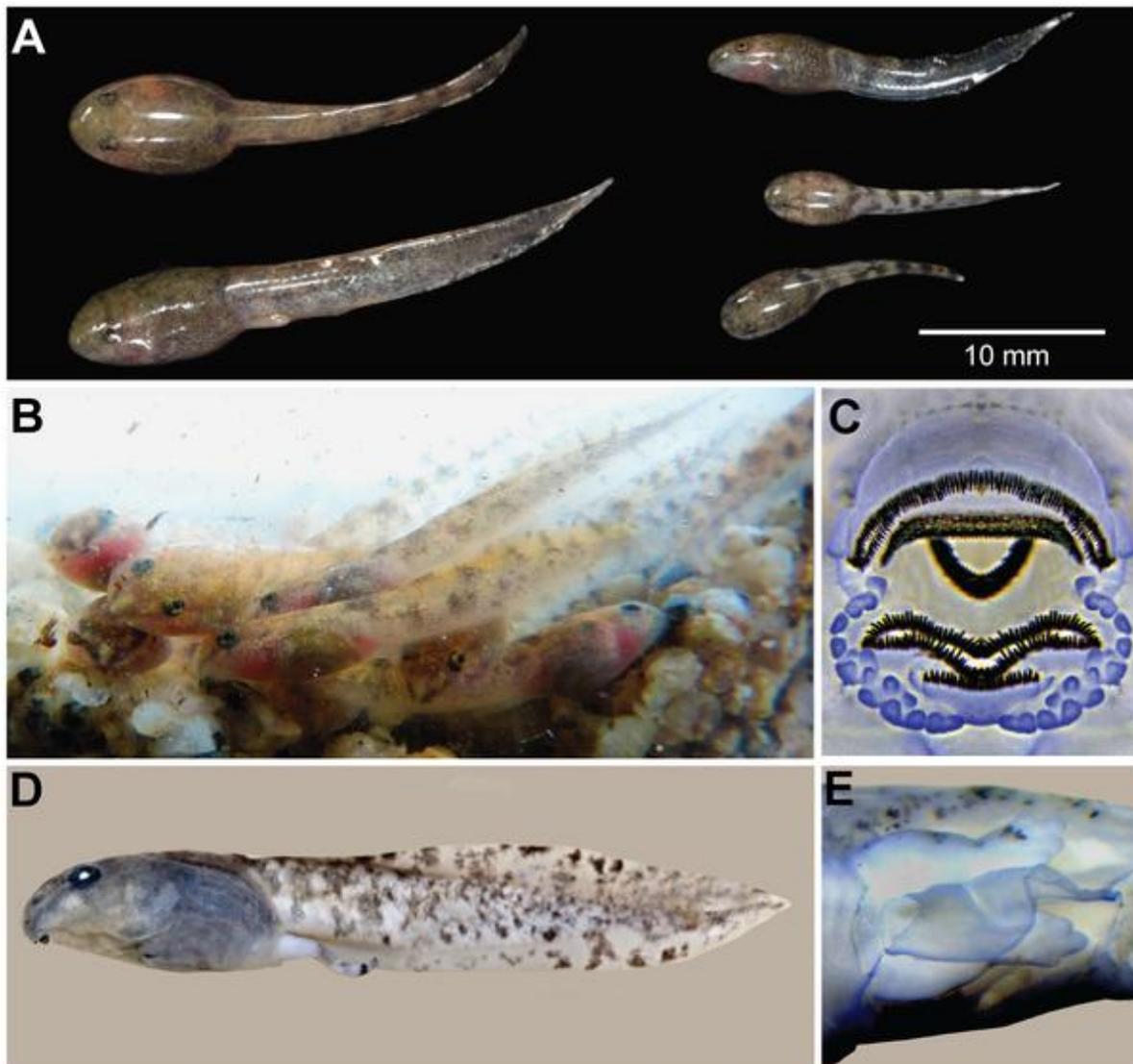
Most of the reproductive modes of frogs include an exotrophic tadpole, but a number of taxa have some form of endotrophic development that lacks a feeding tadpole stage. The dicroglossid frog genus *Limnnectes* ranges from China south into

Indonesia. The breeding biologies of the approximately 60 described species display an unusual diversity that range from exotrophic tadpoles to endotrophic development in terrestrial nests.



There have been mentions of oviductal production of typical, exotrophic tadpoles in an undescribed species of *Limnonectes* from Sulawesi, Indonesia. Here we examine newly collected specimens of this species, now described as *L. Larvaepartus* and present the first substantial report on this unique breeding mode.

Typical exotrophic tadpoles that are retained to an advanced developmental stage in the oviducts of a female frog are birthed into slow-flowing streams or small, non-flowing pools adjacent to the streams.



Discussion: (extract) Production of typical exotrophic tadpoles in the oviducts of a frog is a reproductive novelty. There are cases in which a froglet is released from the oviducts (e.g., one *Eleutherodactylus* and *Nimbaphrynoides*), and tadpoles or froglets may be birthed from other parts of a parent's body (e.g., *Assa*, *Gastrotheca*, *Rheobatrachus* and *Rhinoderma*), but no other species is known to give birth to typical tadpoles. All available information suggests that female *Limnonectes larvaepartus* releases their young as typical exotrophic tadpoles in slow parts of streams similar to where the gravid female was found. The larvae do not have sufficient yolk reserves to carry them through metamorphosis and there was no evidence that nutrients are supplied by the oviductal wall. Embryos in the oviducts in some African bufonids are provided with nutritional uterine secretions after the yolk is exhausted, and some indication of nutrient transfer is suspected in *Rhinoderma*. Cycles of fat storage in tropical frogs are poorly studied, but the fat bodies of the gravid female examined were not depleted. This, and the presence of food material in the females' intestine,

suggests that the females are not energetically stressed by carrying oviductal young.

Acknowledgments: J. McGuire and two anonymous reviewers gave valuable input to this manuscript. A. Hamidy and E. Arida from the Museum Zoologicum Bogoriense assisted with the exportation and examination of specimens, and A. P. Kartono from the Faculty of Forestry at the Bogor Agricultural University assisted in the preparation of permits for the fieldwork. The North Sulawesi Forestry Office (BKSDA Sulawesi Utara) in Manado provided permits and assistance. A. Nusantara, N. T. Ayuningrum and F. H. Faz assisted with the field surveys. Their supports are gratefully acknowledged. <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0116154> Mirza D. Kusri, Jodi J. L. Rowley, Luna R. Khairunnisa, Glenn M. Shea, Ronald Altig Published: 2 January 2015 DOI: 10.1371/journal.pone.0116154 The reproductive biology and larvae of the first tadpole-bearing frog, *Limnonectes larvaepartus* PLoS ONE 10(1): e116154.

HERPDIGEST

NEW SPECIES OF LEGLESS AMPHIBIAN FOR CAMBODIA

Often mistaken for snakes the newly called *Ichthyophis cardamomensis* is a caecilian, an order of limbless amphibians, with larger species known to grow to 1.5 metres in length. Caecilians have a valuable role in the ecosystems of tropical and subtropical regions, including providing a food source for the red tailed pipe snake (*Cylindrophis ruffus*). Caecilians eat invertebrates, such as earthworms, ants and termites. It is only the second caecilian species ever discovered in Cambodia. The other is the striped Koa Tao Island caecilian, *I. kohtaoensis*, which is also found in, Laos, Myanmar, Thailand, and Vietnam.

The forested Cardamom Mountains Range represents some of the largest remaining areas of habitat for more than 80 threatened species, including Asian elephant and gaur. "These discoveries are important to demonstrate that much of Cambodia's biodiversity remains unknown and unstudied by science, and many more areas need to be searched," said lead scientist Neang Thy. "We are still learning about this area and the animals in it, since it was a region formerly held by the Khmer Rouge and the mountains were closed to researchers until the 1990s. **extracts Wildlife Extra- 1/18/15 Volume # 15 Issue # 5 1/19/15 - Publisher/Editor- Allen Salzberg**

REDISCOVERY OF THE CRITICALLY ENDANGERED STREAMSIDE FROG, *CRAUGASTOR TAURUS* (CRAUGASTORIDAE), IN COSTA RICA

Abstract In 1987 the amphibian decline crisis reached its apex in Costa Rica when at least 17 species experienced population crashes and subsequently went undetected for decades. The amphibian declines in Costa Rica were relatively well documented and came to exemplify the current global amphibian decline crisis. The Mesoamerica endemic frog clade, the *Craugastor punctariolus* species group, is one of most severely affected anuran clades, experiencing a loss of 26 out of 33 species throughout Mesoamerica. Eight species of *C. punctariolus* group frogs occur in Costa Rica, and all declined following the 1987 die-off; despite intensive surveys over the last 14 years, most remain undetected. To date, only one species in this group, the stream-breeding frog *C. ranoides*, is known to have a stable population, and only in the Santa Elena Peninsula.

Here we document the rediscovery of another species, the South Pacific streamside frog *C. taurus*, in southeastern Costa Rica, representing the first sighting after fifteen years of searching. We discovered two previously unknown populations in *Punta Banco*, the driest section within the historical range, in an area representing only 4% of the historical distribution. Our findings add to the short but growing list of recently rediscovered amphibian species in Costa Rica and provide encouraging news in an otherwise discouraging situation for amphibian conservation. Additional research and monitoring are urgently needed to develop long-term management plans for this and other Critically Endangered species. **Link to full article:** [http://tropicalconservationscience.mongabay.com/content/v7/TCS-2014-Vol7\(4\)_628-638_Chaves.pdf](http://tropicalconservationscience.mongabay.com/content/v7/TCS-2014-Vol7(4)_628-638_Chaves.pdf) Mongabay.com Open Access Journal-Tropical Conservation Science Vol.7 (4): pages 628-638 2014 Gerardo Chaves¹, *Héctor Zumbado-

Ulate^{1,2}, Adrián García-Rodríguez^{1,6}, Edwin Gómez³, Vance Thomas Vredenburg⁴ and Mason J. Ryan⁵ HerpDigest.org: The Only Free Electronic Newsletter That Reports on the Latest News on Herpetological Conservation, Husbandry and Science Volume # 14 Issue # 74 12/22/14 - Publisher/Editor- Allen Salzberg

THE SEEING POWER OF FROGS: FROGS CAN DETECT SINGLE PHOTONS OF LIGHT

Miniature light detectors in frog eyes known as retinal rod cells are directly and unambiguously shown to detect single photons of light - an astounding sensitivity considering that a humble 60 watt light bulb spews out a staggering 1020 photons per second. Using a specially developed light source that generates single photons, a new A*STAR study finds that a rod cell has an almost one-in-three chance of detecting an incoming photon.

Scientists have known for some time that rod cells are sensitive to single photons.

In the developed light source, a nonlinear optical crystal is irradiated with light from an ultraviolet laser. Most photons pass directly through the crystal, but approximately one in a million is split into two visible-light photons having twice the wavelength (532 nanometers) of the original photon (266 nanometers). One of these two photons is detected by a photodiode and used to trigger an acousto-optical modulator, causing it to divert the second photon to a tapered optical fiber directed at a pipette containing a rod cell from a frog's eye (see image). Any signal produced by the rod cell is then detected.....

The new light source could be further used to investigate how the quantum efficiency varies with wavelength, since it is easy to vary the wavelength of the generated single photons.

The above extract is based on materials provided by The Agency for Science, Technology and Research (A*STAR). Journal Reference: Nam Mai Phan, Mei Fun Cheng, Dmitri A. Bessarab, Leonid A. Krivitsky. DOI: 10.1103/PhysRevLett.112.213601 20 January 2015 www.sciencedaily.com/releases/2015/01/150120084545.htm Volume # 15 Issue # 6 1/21/15

SOME OPEN-ACCESS HERP JOURNALS

<http://www.ircf.org/journal/>
<http://www.herpconbio.org>
<http://jnah.cnah.org> (Have I missed any? send url to asalzberg@herpdigest.org)

NORTHERN TERRITORY'S DWARF CROCODILES FIGHTING BACK AGAINST 'TOXIC PREY' BY NIBBLING CANE TOAD'S BACK LEGS



This cane toad's mangled back legs could prove a theory about dwarf crocodile adaptation. (Supplied: Dr Adam Britton)

A miniature and rare species of crocodile is fighting back against a common Northern Territory pest by nibbling on the back legs of cane toads. The dwarf crocodile was first discovered in Arnhem Land in the early 1980s. It is also known as a pygmy crocodile due to its size and grows up to just a metre long.



Dr Britton's dwarf crocodile is six years old and still considered a juvenile. (105.7 ABC Darwin: Emilia Terzon)

There are thought to be only hundreds of the freshwater crocodiles across northern Australia. In 2006, researchers were excited to confirm a new cluster of dwarf crocodiles near Bullo River, about 11 hours' drive south of Darwin. After an infestation of cane toads moved into the river in 2008, there were

grave concerns for the small crocodiles' survival. The introduced American cane toad has toxic glands in its shoulders, eyes, ovaries and eggs.

Charles Darwin University crocodile researcher, Dr Adam Britton, said the notorious pest presented a "toxic prey" for the rare reptiles. "If these crocodiles...grab [the cane toads] in their mouths and bite down into their toxin glands, they get enough toxin to kill them," he said.

Dwarf crocodiles adapt One year after the cane toads arrived, Dr Britton and his partner recorded a 75 per cent drop in the Bullo River crocodile population. "We were worried that they were completely going to disappear," Dr Britton said.

Yet they were also intrigued to discover the bodies of some unusually dismembered toads near the river. "[My partner] found a large number of toads with twisted back legs and they had little teeth marks on them," he said. There are no toxins in the hind legs of cane toads, meaning this part of its body is able to be consumed.

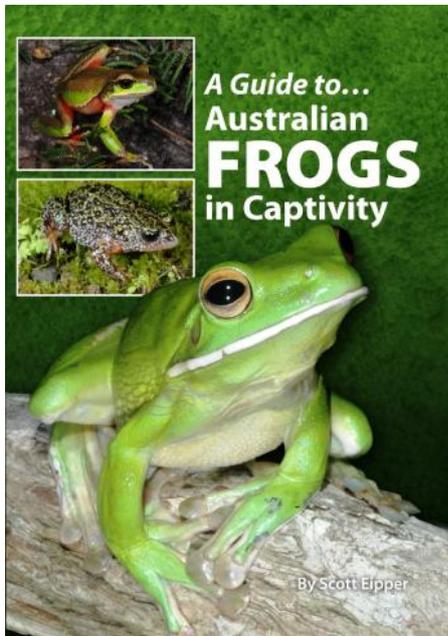
The nibbled cane toad bodies were therefore a hopeful sign that the dwarf crocodiles were figuring out how to safely eat their prey. "If any crocodile actually seizes a toad by its back legs and successfully rips them off and eats them, it's going to learn that it can get a meal without being poisoned." "They were learning and adapting to this toxic prey."



Dwarf crocodiles were first discovered at Bullo River in 2006. (Supplied: Dr Adam Britton)

Last month, the team once again surveyed the area and found more dead cane toads with either whole or partial missing back legs. They also found dwarf crocodiles in areas from which they had previously disappeared, adding weight to the team's cane toad adaptation theory. "It's pretty conclusive that's what is going on," Dr Britton said.

Dr Britton and his partner are hoping to return to Bullo River next year to survey the region's more inaccessible areas by helicopter. He said learning more about the elusive dwarf crocodile would help highlight broader issues with the environment and the impact of cane toads. "It takes a lot to kill a crocodile but if their numbers decline you know that something serious is going on." **105.7 ABC Darwin By Emilia Terzon 17 Nov 2014 Forwarded to Frogcall by Stephen Weir <http://www.abc.net.au/news/2014-11-17/dwarf-crocodiles-learning-to-fight-back-to-cane-toad/5896738>**



BOOK REVIEW A GUIDE TO AUSTRALIAN FROGS IN CAPTIVITY

Australian herpetoculture trails the USA and Europe in many aspects but particularly in amphibian husbandry and breeding, where progress has been slow and intermittent. It was with great anticipation that I received a copy of this new publication and there is no doubt it is streets ahead of anything produced locally before. The book is divided into three main sections, beginning with general aspects of husbandry, such as housing, feeding and breeding. This is followed by a section on health and diseases and then finally the second half of the book covers specific species accounts. The photography throughout is of a high standard and I am especially pleased to see useful photographs of cage types, furnishings and equipment, which are often omitted in place of extra species pictures. Scott's species photographs are a beautiful bonus in the book and the addition of habitat shots will assist keepers in assessing the captive requirements of the species concerned. However, I was a little disappointed that the photograph captions in the husbandry sections did not include scientific names.

The husbandry section includes invaluable information on amphibian care that is often overlooked or glossed over, such as handling, enclosure design and layout and heating - all essential components for successful husbandry. The heating and feeding sections are especially useful and cover a broad range of options in some detail. Some of the information in other sections is unfortunately not so thorough and further clarification and data should have been provided to avoid confusion, particularly in regard to lighting, humidity and tadpole feeding.

The health and diseases section is a fantastic addition to the book and provides a welcome overview to this aspect of amphibian care that, to my knowledge, has not previously been readily available. This chapter is written by exotic animal veterinarian, Dr Robert Johnson, in a

way that general keepers and hobbyists can understand and interpret.

Finally, the species section is richly illustrated with great photographs and efficiently consolidates a great deal of information into brief subsections, particularly with respect to breeding, egg production and growth. It is difficult not to be repetitive with this type of format and I wondered if combining several closely related species together may have been a better option in some cases. This would have enabled space for more detailed data, for example on the use of different techniques to stimulate breeding in certain species. However, the amount of invaluable information squeezed into this publication will ensure that it will always be close at hand for any keen hobbyist having the pleasure to work with our fascinating and unique Australian frogs. **By Scott Eipper 152pp. Rob Porter reviews an important new title for frog enthusiasts. Available from Reptile Publications Phone (07) 5568 0011 Email: reptiles@reptilepublications.com.au www.reptilepublications.com Reviewed by Rob Porter. Published by Reptile Publications © 2012.**



Tadpoles and Frogs of Australia by Marion Anstis and other frog titles are available from Reptile Publications

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Above Blacksnake below feeding trial. See article by Chris Jolly in Frogcall 134 All recent FATS newsletters can be found at www.fats.org.au



FATS MEETINGS commence at 7 pm, (arrive 6.30 pm) and end about 10 pm at the Education Centre, Bicentennial Park, Sydney Olympic Park, Homebush Bay. They are usually held on the **first Friday of every EVEN month** February, April, June, August, October and December (but not Good Friday). **The April meeting is likely to be on 10/4/2015, however please check Frogcall or www.fats.org.au to confirm.** Call, check our web site, Facebook page or email us for further directions. We hold 6 informative, informal, topical, practical and free meetings each year. Visitors are welcome. We are actively involved in monitoring frog populations, field studies and trips, have stalls at local events, produce the newsletter FROGCALL and FROGFACTS information sheets. All expressions of opinion and information are published on the basis that they are not to be regarded as an official opinion of the Frog and Tadpole Study Group Committee, unless expressly so stated. **Material from FROGCALL MAY NOT BE REPRODUCED** without the prior consent of the writer, photographer, editor or president of FATS. Permission from FATS and/or author/s must be obtained prior to any commercial use of material. The author/s and sources must be always fully acknowledged.



Thank you to the many Frogcall supporters.

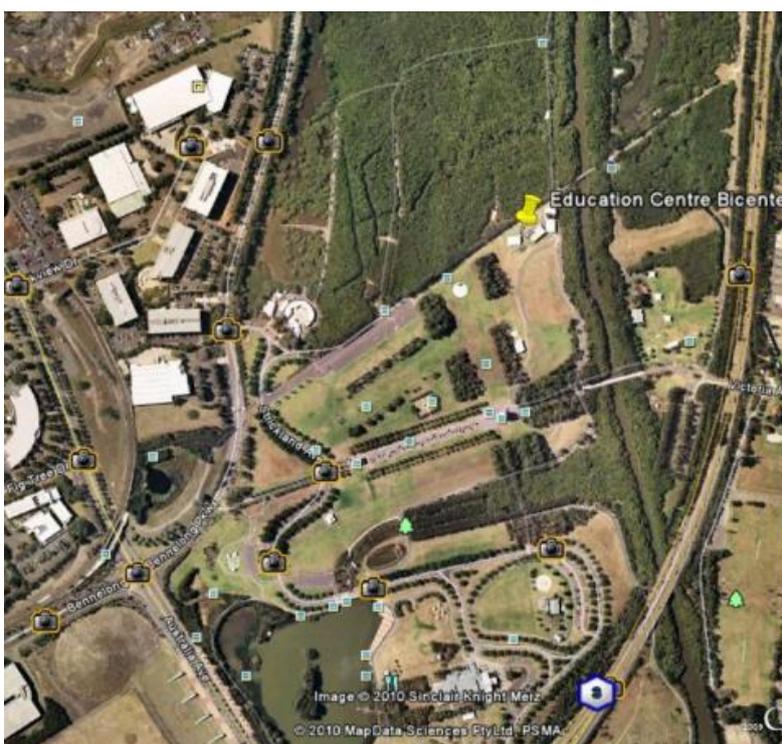
Your articles, photos, media and webpage links, membership administration and envelope preparation is greatly appreciated. Special thanks to regular newsletter contributors, Lothar Voigt, Robert Wall, George Madani, Karen & Arthur White, Andrew Nelson, Wendy & Phillip Grimm, Marion Anstis and Bill Wangmann.



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FIELD TRIPS

Please book your place on field-trips; due to strong demand, numbers are limited. Be sure to leave a contact number. Regardless of prevailing weather conditions, we will continue to schedule and advertise all monthly field-trips as planned. It is YOUR responsibility to re-confirm in the last few days, whether the field trip is proceeding or has been cancelled. Phone Robert on 02 9681 5308.

27-29 March

Smiths Lake Camp-out

Leaders: Arthur and Karen White

The Smiths Lake week-end is a perennial favourite amongst FATS members. In a very small area we are able to look at a great diversity of habitats, ranging from rainforest to eucalypt woodland to wallum swamp. Each habitat possesses its own unique suite of frogs. This weekend, Arthur and Karen will show us the subtle changes that occur in frog populations between these habitat types. We will also examine why frogs "choose" a particular habitat and lifestyle.

Karen and Arthur have an expert knowledge of this area, having studied it for many years. This weekend, they will show us many aspects of its natural history. During the day, members like to swim, snorkel or go bushwalking. Dormitory-style-accommodation and camping sites are available. All kitchen facilities, crockery and utensils supplied. There is a non-refundable fee of \$17-50 p.p. per night. For further details and bookings, phone Karen and Arthur directly on ph. 9599 1161.

This is the final field trip for the 2014/15 season. FATS will recommence field trips in Spring.

In the event of uncertain frogging conditions (e.g. prolonged / severe drought, hazardous and /or torrential rain, bushfires etc.), please phone 9681-5308. Remember! rain is generally ideal for frogging! Children must be accompanied by an adult. Bring enclosed shoes that can get wet (gumboots are preferable), torch, warm clothing and raincoat. Please be judicious with the use of insect repellent – frogs are very sensitive to chemicals! Please observe all directions that the leader may give. Children are welcome, however please remember that young children especially can become very excited and boisterous at their first frogging experience – parents are asked to help ensure that the leader is able to conduct the trip to everyone's satisfaction. All fieldtrips are strictly for members only – newcomers are however, welcome to take out membership before the commencement of the fieldtrip. All participants accept that there is some inherent risk associated with outdoor fieldtrips and by attending agree to; a release of all claims, a waiver of liability, and an assumption of risk.

FIELD TRIP REPORT

Castlereagh: Leader: Peter Spradbrow. 11th October 2014

We first called in to nearby Windsor Downs, where we startled the eastern grey kangaroos, who are clearly unaccustomed to being disturbed here in the evening. The wetlands were in good condition following some intermittent rain over the previous weeks.

On our approach, it was clear that the chorus of rocket frogs *Litoria latopalmata* were dominating the rather balmy night. Peter quickly found a couple of nice specimens. Further searching revealed many dwarf tree frogs *Litoria fallax* (photo by Peter Spradbrow, right) and Peron's tree frogs *Litoria peronii* (see front page). Joel however, found the frog-of-the-night, a really nice Banjo frog, *Limnodynastes dumerilii greyii*.

Moving on to Castlereagh, we added *Litoria dentata* and *Crinia signifera* to our list. Interestingly, we failed to pick up any *Limnodynastes ornatus* on the night, a species that we regularly pick up at this site. It just highlights the fluctuating nature between sites and frog populations on any given night.

Many thanks to Peter for organising another interesting and informative night with lots of photo opportunities. R.W.

