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ACTHA NEWS
DEC 2009 - JAN 2010

*Newsletter of the
ACT Herpetological
Association Inc.*

YOUR NEW COMMITTEE

President	Joe McAuliffe
Vice President	Ric Longmore
Secretary	Angus Kennedy
Treasurer	Margaret Ning
Newsletter Editor	Mandy Conway
Public Officer	John Wombey *
Excursion Officer	Ric Longmore *
Committee Members	Christian Robertson Philip Robertson Dennis Dyer Peter Child Iris Carter
Student Representative	Jake McAuliffe

* Denotes Life Members

**2009-2010 ACTHA MEMBERSHIP IS
NOW OVERDUE BUT STILL ONLY \$10!**

To make sure your membership remains
current please see the back page of this issue
for subscription payment options.

DIARY DATE

The *bi-monthly* meetings of the Association are usually held on the **third Tuesday of the month at 7.30pm**, Southern Cross Club, Catchpole Street, Macquarie, Belconnen. **But...**

**PLEASE NOTE THE NEW DATE
AND TIME FOR OUR LAST
MEETING OF THE YEAR (BELOW)**

Meetings at the usual time and place will resume in February 2010

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CHRISTMAS PARTY

6pm Thursday, 3rd December 2009

Our Christmas party will once again be held at the Greenhouse complex
within the Australian National Botanic Gardens

"Food, drinks and fine company!" our President says.

To assist with catering please

RSVP to margaretning@iprimus.com.au by cob Wed, 2nd Dec



NEW LOGO FOR ACTHA

Members of the ACT Herpetological Association Inc. have been talking about a new logo for ACTHA for some time and after many suggestions, lots of designs and much thought here it is!

Peter Child, Reptiles Inc. Canberra, designed the final logo, which demonstrates his incredible artistic talent. Where would we be without you?!

Our Newsletter will be the first place it is used, along with recently purchased caps (see below).

Name cards for displays, pins, T-shirts and a large banner for events are in the pipeline.

Ric Longmore is thankfully doing the leg work for these.

NEW ACTHA MERCHANDISE

Caps with new logo - interested??

On a recent trip overseas, Lois McAuliffe managed to have a number of caps emblazoned with the new ACTHA logo and has brought some back. We hope to have these available for sale at *Snakes Alive!* January 2010, where they are expected to sell for \$18.

Offer: We'd like to gauge interest amongst members first so, wait for it...the 20 caps in our hot little hands will be available to current members at our Christmas Party at the SPECIAL PRICE of \$13.

Rules: make sure your membership is up to date and come to the Christmas Party.

See you there!



www.actha.org.au - people are talking!

Our website, which was designed, constructed and uploaded by our very own **Angus Kennedy** has got people talking all over the country. Visitors to the site have expressed their delight at the wealth of information which is continually updated and added to by Angus. He's currently in Canada but this has not stopped him managing the website.

Hopefully most of our members will have had a chance to peruse the site and be amazed. If not, then here's what you're missing and could be adding to:

- photos of some of the local herpetofauna you may see around the ACT and Southern Tablelands region;
- our previous Newsletters in full colour;
- interesting brochures, posters and caresheets produced by ACTHA;
- browsing the forums where anyone in the ACT and Southern Tablelands region can discuss travel, herp sightings, husbandry and even buy and sell;
- see photos and videos from ACTHA events, *Snakes Alive!* and members travel galleries.

Most importantly, all of ACTHA's upcoming meetings and events are advertised to ensure no-one misses out.

So hop onto the site and become informed and involved.

***SNAKES ALIVE!* 2010 WE NEED YOUR HELP!**

The annual *Snakes Alive!* Exhibition for 2010 will again be organised by ACTHA in collaboration with the Australian National Botanic Gardens (ANBG). The theme this year is:

'Back from the brink: survival of the Highly Endangered Corroboree Frog'.

Where: Crosbie Morrison Building, ANBG

When: 18 - 24 January 2010

Times: 10am - 4pm weekdays, 10am - 6pm Saturday and Sunday

Cost: Adults \$5, concessions \$4, children \$2

If you would like to help your Association by volunteering at *Snakes Alive!* 2010 then please register your interest through our website, just follow the links. We particularly need help setting up the previous weekend, crowd and animal management and the clean-up afterwards. See you there!



A note from the Editor

Due to the early deadline for this edition I was unable to finalise the article for the presentation given by Martin Westgate on 'The Frogs who inhabit Jervis Bay' at the October 2009 Meeting. It will appear next edition, my apologies.

The views expressed by contributors and authors and any links to Websites provided in this Newsletter are not necessarily those of ACTHA.

COMMUNAL NESTING AMONGST OTHERWISE SOLITARY REPTILES

Source: *www.Sciencealert.com.au* (Feb 9, 2009)

The proportion of communally nesting reptiles was underestimated partly because reptile nests are so hard to find, and also because many species do not nest.

Reptiles are not known to be the most social of creatures. But when it comes to laying eggs, female reptiles can be remarkably communal, often laying their eggs in the nests of other females. A new study from the ANU suggests that this out-of-character behaviour is more common in reptiles than was previously thought.

Scientists from the **Research School of Biology at ANU** performed an exhaustive review of literature on reptile egg-laying. **Dr Sean Doody** and his colleagues **Dr Scott Keogh** and **Dr Steve Freedberg** found that communal nesting has been reported in 255 lizard species as well as many species of snakes and alligators. The behaviour was also documented in 136 amphibian species.

"Most of what we know about communal nesting in animals with backbones comes from birds, which typically have conspicuous nests," Dr Doody said. "In contrast, nests of reptiles and amphibians are generally difficult to find. It was previously thought that about five per cent of reptiles and amphibians lay eggs communally. However, if we exclude species for which nests are not known that proportion rises dramatically to 85 per cent or more, at least for Australian lizards. This suggests that communal egg-laying is much more common than previously thought, and it is now necessary to explore why it occurs in these species."

Other scientists have explored theories about shared parenting or nest-site scarcity being behind communal nest behaviour among reptiles, but the ANU researchers believe that there may be another evolutionary advantage for female reptiles in sharing nesting sites.

"Building a nest can be hard work for reptiles," Dr Doody said. "Some female lizards may spend days digging a hole deep enough to deposit eggs. During that time she is not doing other important things such as finding food. She is also

more vulnerable to predators. Females can avoid these costs by simply laying eggs in a nest that someone else has gone to the trouble to build. But sharing nests can also have a downside. When the eggs hatch, babies are immediately forced to compete with each other for resources. In addition, closely packed egg groups have an increased risk of disease transmission."

Using a mathematical model, Dr Doody and his colleagues show that if the benefits to the mother outweigh the costs to the offspring, communal nesting makes evolutionary sense for reptiles. But when the costs of nesting together outweigh the benefits, we should expect to see solitary nests. This would explain why many reptile species occasionally use both shared and solitary nests.

More study needs to be done to confirm the model, Dr Doody says, but it is a starting point. The research is published in the September issue of the *Quarterly Review of Biology*.

CHYTRIDIOMYCOSIS AND GREEN TREE FROGS

Source: *James Cook University* (Oct 26, 2009)

The mystery of how the killer frog disease Chytridiomycosis destroys its victims is a step closer to being solved following the work of a group of scientists from **James Cook University**, the **University of Sydney** and the **University of New Mexico**.

Published in the latest edition of *Science*, the team reports on a series of experiments they conducted designed to test the effects of the fungus on the skin of green tree frogs.

"We measured skin functioning in frogs with severe Chytridiomycosis. We also tracked physiological changes in blood and urine, and monitored heart function," lead author **Dr Jamie Voyles** from James Cook University said.

"Our team of pathophysiologists, veterinary pathologists and disease ecologists found that the skin's functions are severely impaired by the fungus. We think this leads to loss of electrolytes and cardiac arrest in frogs infected with the pathogen," she said.

Dr. Voyles said the focus of this study was to understand how the fungal pathogen kills frogs.

"This question was unresolved for many years because superficial fungal infections are not normally lethal," she said.

In Australia, Chytridiomycosis is thought to be responsible for extinctions of eight species of frogs, and severe reductions in the numbers of other species in all states and territories except NT.

Another of the authors, **Dr Lee Berger** from James Cook University, said that unfortunately many frog species, including the Southern Corroboree Frog, still faced imminent extinction due to Chytridiomycosis.

"Urgent funding is required for work on developing methods for managing the disease in nature," she said, "because it is resulting in the greatest loss of biodiversity due to disease in recorded history."

Worldwide, it has caused declines and possibly extinctions in at least 200 species of frogs in Central, South and North America, Europe, Africa, Spain and New Zealand.

Last year, the OIE, the World Organisation for Animal Health, declared Chytridiomycosis globally 'notifiable' meaning that the 172 countries that are members of the OIE are required to report on the status of this disease in their country every six months and to implement strategies to limit transmission to other countries.

James Cook University scientists have led the research into the disease since 1996, when Professor Rick Speare suggested that the decline in Australian frog species and populations was due to a new, contagious disease moving as an epidemic wave through coastal Queensland.

The work has been supported by the Department of the Environment, Water, Heritage and the Arts, and the Australian Research Council.

Most people know that frogs and freeways don't make good bedfellows but the impact of cars and trucks on frogs go way beyond the occasional squishing. New research led by AEDA's Kirsten Parris has found that traffic noise is drowning out the mating call of some frogs. It's believed that this could be one of the reasons for the large-scale decline of frog populations in Melbourne.

Mathematical modelling predicts that in areas with lots of traffic noise, male Pobblebonk frogs that could once be heard by females some 800 metres away can

now only be heard within 14 metres. And just like humans trying to attract a mate in a noisy bar, this acoustic interference might be causing havoc with their social life. Dr Parris made the discovery while undertaking research on nine frog species in public ponds in and around Melbourne.

"Being heard is important," she said. "If the females can't hear the male frogs then they have less chance of breeding successfully."

Frogs with low-frequency calls are particularly affected, given that most urban noise – from traffic to air conditioners – comes across as a low rumble. And in response to this threat it appears that some frogs

are changing their calls. With Honours students Meah Velik- Lord and Joanne North, Dr Parris found that the Southern Brown Tree Frog was adapting to urban noise by producing a squeakier and higher-pitched call. This new call helps them to be heard, but does not completely make up for the effect of the traffic noise.

After monitoring 50 sites around Melbourne,

Dr Parris says Kew Billabong in the inner-eastern suburbs might be the worst place for calling frogs because of the nearby Eastern Freeway.

Mount Macedon and the far-eastern suburbs, such as Belgrave, are much easier places for frogs to be heard as they have little traffic.

"I've been studying frogs in Melbourne since 2000," says Dr Parris. "Recently, my colleague Dr Andrew Hamer from the Australian Research Centre for Urban Ecology (ARCUE) revisited some of my original sites and found that whole populations have disappeared. This is what's known as local extinction, and it's possible that urban noise is contributing to this process."

But it's not just noise conspiring against the frogs. Dr Parris says several species, including the threatened Growling Grass Frog, are struggling in and around drought affected Melbourne.

"Year after year there's not enough water for them to breed successfully," she explains. "Eventually the frog population declines to nothing, and roads and other barriers in the urban environment prevent new frogs from moving into those ponds. So even if they fill with water again, they stay empty of frogs."



And with climate change forecasts of reduced rainfall for many of our cities, the frogs' predicament is expected to worsen. This is why Dr Parris and colleagues have started a pilot program with the Melbourne Zoo and the Royal Botanic Gardens Melbourne that aims to put frogs back into urban areas where they have disappeared. However, for such programs to be effective it's important that we understand the impacts and threats posed by urban noise.

"Frogs are a very important part of the ecosystem, and some species are also very sensitive to environmental changes," says Dr Parris. "It's often said that frogs are our canary in the coalmine; providing an early indication that all is not well in the environment. Well, these 'canaries' are falling off the perch so maybe it's time we started heeding the warning." Though Dr Parris says the environment is not her only motivation for trying to repopulate Melbourne's ponds with frogs.

"The sound of calling frogs makes many people happy," she says. "Hearing frogs provides a small connection with nature, one that is quite precious to anyone living in a big city."

A GECKO'S TAIL

Source: Henry Fountain (Sept 10, 2009)

Like some other animals, the gecko can perform a neat trick when threatened by a predator: it can amputate its own tail. The dropped tail serves to distract the predator, and by losing it, the lizard can run faster.

But the tail doesn't just sit there. It can make movements for up to half an hour.

Dr Timothy E. Higham of Clemsen University and Anthony P. Russell of the University of Calgary have now studied those movements in detail. An amputated gecko tail, reported in *Biology Letters*, can swing back and forth and even flip into the air.

Dr. Higham said he was interested in trying to understand the motor patterns in the tail, which appear to be coming from neurons in the spinal cord that make up what is referred to as a central pattern generator, or C.P.G. "It's similar to what happens in other vertebrates," he said. "The problem is to study them, you have to disconnect the spinal cord from the head."

The lizard disconnects its spinal cord on its own, in a harmless way. Just a pinch near the base is all it takes to cause the gecko to drop, or autotomize, its tail.

The researchers studied leopard geckos, taking videos of the tails (see one at nytimes.com/science) and recording electrical activity in the muscles with electrodes.

Most central pattern generators that have been studied, Dr. Higham said, produce rhythmic and predictable movements. The Leopard Gecko tail has some rhythmic pendular swings, he said, but also produces much more complex movements. "It has these crazy flips and jumps and lunges," he said.

The elaborate movements might be related to habitat, Dr. Higham said. Leopard Geckos live on the ground in the desert, and a dropped tail would most likely remain visible to a predator.

"The more ballistic and complex movements might be more beneficial in that sort of terrain," he said. "They might distract the predator more."

The Tokay Gecko, which lives in trees, is not known to produce such complex movements — and presumably does not need them, because its tail would fall to the ground or otherwise be less noticeable.

Dr. Higham said geckos might turn out to be a useful animal for further research on pattern generators because no destructive surgery was required. "Having a tiny tail that is so easily prepared," he said, "might give insight into what these C.P.G.'s are and how they work."

TRUE BLUE: KOMODO DRAGON MAY HAVE EVOLVED IN AUSTRALIA

Source: STR New/Reuters 2009

A team of scientists has overturned the theory that the world's largest lizard evolved on the islands of Indonesia.

Weighing around 70kg and growing up to three metres long, the Komodo Dragon is regarded as the world's largest lizard.

But the discovery of an array of fossilised bones at three different sites across Queensland has triggered a new theory - that Australia was a hub for lizard evolution.

The research, led by Dr Scott Hocknull of the Queensland Museum, involved scientists from Malaysia, Indonesia and Australia.

Once reputed to be the origin of the Chinese dragon myth, the Komodo Dragon is now in such small numbers it's considered a vulnerable species.



The remaining five thousand or so live on a handful of isolated islands in eastern Indonesia, which many scientists always believed was their birthplace.

Dr Hocknull says the fossilised bones discovered in Queensland are identical to the Komodo Dragon.

"It was a particular set of fossils that were found at Mount Etna in Queensland that were dated around 300,000 years old that really sparked my interest," says Dr Hocknull.

"I was figuring out what on earth they were and my assumption was that it was just going to be another species of lizard that lived in Australia, and still does, say for example a lace monitor. But it was much much bigger."

Dr Hocknull says the fossils show that the Komodo Dragon had its origins here in Australia about four million years ago and persisted in Australia until at least 300,000 years ago.

"What it shows is that again Australia is home to some very strange and very peculiar animals that now no longer live on our continent and have found a home elsewhere," he says.

Extinction trigger

The researchers believe the Komodo Dragon dispersed westward, reaching the island of Flores around 900,000 years ago.

The size of the fossils found in Australia suggest it was always a large land-based lizard and it spent four million years here before it became extinct.

The question is what caused its extinction?

"Well we don't know because the 300,000 year record is the youngest record that we have," says Dr Hocknull. "We can assume that the Komodo may have kicked along in Australia right up until human arrival. There's no reason to assume not."

"Perhaps humans were the cause of their extinction; perhaps it was climate change, perhaps a combination of both.

"What the record on Flores shows in Indonesia is that the Komodo Dragon was there for over a million years kicking along quite nicely. Big faunal changes, volcanic eruptions, all these amazing things happening on that island and yet the komodo dragon existed without any major issues."

According to Dr Hocknull that all changed about 2000 years ago when its range retracted to the coast lines of where it is now found.

"The only thing you can link that to is habitat destruction and persecution by modern humans," he says.

Man versus dragon

The Komodo Dragon is well known as a man eater, and would have no doubt put up a good fight against modern man.

But why did it survive and thrive on the tiny isolated Indonesian island of Flores?

Palaeontologist Professor Tim Flannery of Macquarie University in Sydney has a theory.

"It became extinct, we think about 50,000 years ago, about the time that humans arrived in Australia, and of course it disappeared from every other island in Indonesia except Flores," says Prof Flannery.

"The one interesting thing about Flores is that it is the home of the 'hobbit'. The hobbit was there for about two million years and maybe hobbit hunting was a bit like pre-school for the Komodo Dragon, they learnt how to deal with human-like hunters.

"Whereas in Australia and the rest of the islands the first thing that turned up was fully modern humans and they seem not to have been able to cope with that."



