



## ACTHA CONTACT DETAILS

PO Box 160  
Jamison ACT 2614  
E-mail: [info@actha.org.au](mailto:info@actha.org.au)  
Website: [www.actha.org.au](http://www.actha.org.au)



*Who is Precious? Find out on page 5.*

## ACTHA INC. NEWS OCT–NOV '14

*Newsletter of the  
ACT Herpetological  
Association Inc.*

### YOUR COMMITTEE FOR 2013 - 2014

President	Dennis Dyer
Vice President	Ric Longmore
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Conservation Officer	Joe McAuliffe
Committee Members	Iris Carter Greg Flowers Peter Child
Student Representatives	Vacant

*\* Denotes Life Members*

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### DIARY DATE

The *bi-monthly* meetings of the Association are usually held on the **third Tuesday of the month at 7.30pm**. Our usual venue is:

**Belconnen Soccer Club, Hawker  
(cnr Belconnen Way & Springvale Drive)**

### UPCOMING MEETING

**TUESDAY, 21 OCTOBER 2014**

**Damien Esquerre Gheur, Keogh Lab, ANU**

#### **The Evolution and Convergence of Ecomorphology in Pythons, Boas and their Relatives**

Damien will be talking about the biology and evolution of pythons, boas and related lineages, and present some of his research on the evolution of different head shapes and how it relates to different ecological life-styles, especially how ecology can predict snake head and body shape. Damien would also like to share his personal experiences with some of the Chilean herpetofauna he has come across during the course of his research.

## ACTHA'S WEBSITE DEVELOPED & MAINTAINED BY ANGUS KENNEDY

ACTHA continues to actively pursue online and social media to promote an understanding and appreciation of Australian herpetofauna and the work of the Association year round.

The ACTHA website remains one of our main points of contact with the public and we continue to get regular enquiries and significant visitor volume. You can view the website at <http://actha.org.au/> Critical feedback and suggestions are always welcome - let us know what you think!

### Some highlights:

<http://actha.org.au/news.html>

<http://actha.org.au/snakes-alive.html>

<http://actha.org.au/research.html>

## ELAPID SNAKES OF CANBERRA

*Ric Longmore, ACTHA's esteemed Vice President, was our guest speaker at ACTHA's 19 August '14 meeting. This summary of Ric's talk is by Mandy Conway (using photos taken of Ric's projector 'slides'. Thanks Iris!)*

Ric started his presentation by saying "I've only been interested in snakes for 55 years and I caught my first Tiger Snake at Lake George at the tender age of 11 years."

### The family Elapidae

The Elapidae are the venomous front-fanged snakes that dominate the Australian snake fauna. They have enlarged syringe-like fangs set at the front of the mouth which are connected to a venom gland at the rear of the head through a duct beneath the skin on the upper jaw. With over 90 described species, these predominantly terrestrial snakes are predators of vertebrates: most small species and the juveniles of larger species are lizard specialists with a few preferring frogs; large species predate upon various reptiles, frogs, mammals and birds.

### There are nine species of snake recorded for the ACT

The only non-venomous snake recorded for the ACT is the Blackish Blind Snake,

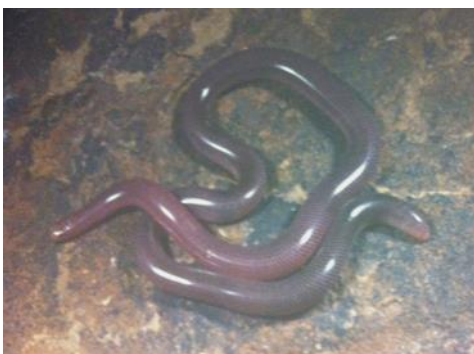
*Ramphotyphlops nigrescens*, and yes it does resemble a rather large earthworm. Reaching an average length of 38 cm, they have

no eyes, rather degenerate black spots where eyes used to be. Subterranean and oviparous [egg laying], it comes to the surface at night, especially when it is warm and wet, feeding on termites and ants. Ric has caught this snake on Mount Ainslie in the past, adding "They are not all that rare just uncommonly found." There are 43 species of blind snakes recorded in Australia.



**Above:** "This image of two Eastern Brown Snakes, *Pseudonaja textilis*

[*Pseudonaja*: pseudo = pretend, naja = Cobra] which were caught within half an hour of each other in Fyshwick, was taken by my good friend John Wombey." The second deadliest snake in the world, which grows to just over 2m, it is probably Eastern Australia's most frequently encountered large venomous snake and Ric has had many calls over the years to remove this elapid from suburbia. Extremely swift, alert and nervous, they are quick to retaliate if provoked. They can be found in a range of colours, and even banded at birth. "A baby brown snake still has very potent venom,







**Above:** A one month old baby Brown Snake.

they just don't have as much. If you got bitten by a baby you'd be unlikely to die however you would still receive the same venom toxicity and become dangerously ill."

Ric commented that all snakes can swim however you'd be hard pressed to find a brown snake doing so.

**Below:** The **Red-bellied Black Snake**, *Pseudechis porphyriacus*, is, in Ric's opinion, the pinnacle of vertebral evolution; "one of the most attractive snakes." It is venomous but not terribly dangerous, with few fatalities attributed to this species, Ric commented. Many bites are 'dry', ie no venom is injected by the snake. This snake



inhabits Eastern Australia's streams, swamp and lagoon areas, frequently entering the water where it feeds principally on frogs. Red-bellied Black Snakes from Queensland have very little red colouration, the red lateral and underbelly scales being either pink or white. Ric recalls catching a Red-bellied Black Snake which gave birth to 19 live young: they were returned post-haste to Copping's Crossing.

**Top Right:** The **Tiger Snake**, *Notechis scutatus*, one of the deadliest snakes in the world, is highly variable in colour, ranging from pale grey through olive, brown and reddish to dark blackish brown, usually with a series of narrow

(Elapid snakes of Canberra cont'd,...)

*Tiger Snake*



cross-bands formed by paler yellow-edged scales. They are live-bearing, with the average litter size being 23 young. The photo above was taken at Rose Lagoon which is just past the township of Collector, off the Federal Highway. This species also spreads its 'hood', similar to the brown snake, trying to make themselves look bigger.



**Above:** The **Highlands Copperhead**, *Austrelaps ramsayi*, reaches a total length of 1.3m, feeds principally on frogs and reptiles, is live bearing, and usually found in or near marshes or swamps, where large aggregations may occur. They can handle the cold and are active both day and night. Ric commented that a man was fatally bitten near Nimmitabel fairly recently. Ric once kept a couple of Copperheads with some Red-bellied Black Snakes. The Copperhead ended up eating one of these snakes.

**Below:** The small, slender **White-lipped Snake**, *Drysdalia coronoides*, which can be found in the cooler climes of the Brindabella's, grows to a total length of 40cm.





(Elapid snakes of Canberra cont'd,...)

Giving birth to live young, they are venomous however not deemed dangerous. There are four types of anti-venom used in Australia for snake bites, and a bite from the White-lipped Snake would be covered under Tiger Snake anti-venom.

**Below:** This image of the **Black-headed Snake**, *Parasuta spectabilis dwyeri*, was taken at Coppins Crossing. Whilst an elapid, it is not considered terribly dangerous. A small snake which has a fierce temperament, Ric recalls finding one in Civic. Ric feels this snake could become endangered locally due to the Molonglo road works.

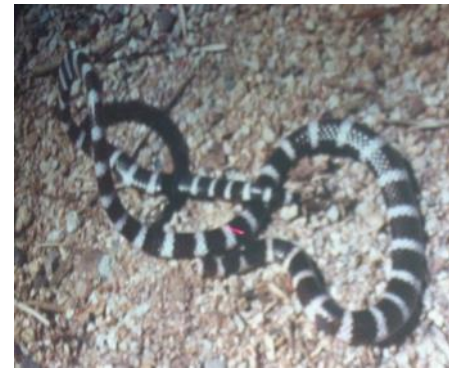


**Above:** The **Eastern Small-eyed Snake**, *Cryptophis nigrescens*, is a secretive, nocturnal snake which mainly feeds on skinks. Ric has caught this snake at Tidbinbilla Nature Reserve, hiding under rocks. This snake is dangerously venomous, but its fangs aren't really equipped to lethally inject a human



**Left:** Thurrallilly St Queanbeyan, was where this **Eastern Bandy-bandy** *Vermicella annulata*, was found. A nocturnal, burrowing snake, Ric says

it hasn't been officially recorded from the ACT. They are considered venomous, predominantly feeding on blind snakes. The image at right shows the Bandy-bandy throwing its body into a 'loop' which is held off the ground. An effective scare tactic.



**Below Right:** Although not officially recorded in the ACT, the **Southern Death Adder**, *Acanthophis antarcticus*, can be found throughout southern continental Australia: a dubious record exists of a specimen found in the Gungahlin area in 1932. A snake which does not crawl very fast, it usually lies in wait for prey, wiggling the tip of its tail near its snout.



Adults feed largely on small mammals and birds whilst juveniles feed on reptiles. Ovoviviparous [embryos develop inside eggs that are retained within the mother's body until they are ready to hatch] it can produce up to 20 young in a litter, usually between December and April. There are four species in Australia: the Northern, Southern, Desert and Pilbara.

As the next slide was shown, Ric asked his audience if we had already seen it? Yes it does resemble the Black-headed Snake but it is in fact a **Little Whip Snake**, *Parasuta flagellum*, from Tarago. There is a slight difference in the patch



on the head, it has more scales around the body and there are more sub caudal scales from the anus back. The main difference is that the black

colouring doesn't extend to the nasal area. It is technically venomous but not dangerous. They give birth to live young and feed on skinks, they are cryptic, and live in rocky hills. They are also not often encountered.



#### A younger Ric

The picture at left is of a much younger Ric! and he is holding a King Brown Snake "which you don't want to get bitten by out in the bush" he emphasised. Ric has needed antivenin four times in his lifetime and there are some nasty side-effects. "I remember the last serious bite I had. You can be affected by haemorrhaging, shortness of breath, and other reactions when given the antivenin and the doctor

has to weigh up the reactions against whether he will give you the antivenom or antihistamines."



Ric, with a stunning red beret, is seen here holding a long snake, which is a hint. "Yes it is a **Taipan**, *Oxyuranus scutellatus*, which measured just under 6 feet. There are now three species of Taipan in Australia and they are all deadly. The Taipan has the biggest fangs of any other snake in Australia, measuring about 5/8ths of an inch. The fangs are rigid as opposed to the movable fangs of vipers."

"This is an interesting story. I was called in by Customs many years ago to identify a snake that was being illegally exported. It was a Copperhead. I felt the snake and said there was something in it whereupon it was dissected, revealing small bags filled with heroin or cocaine."

Ric finished his presentation by inviting members to get up close and personal with his beloved **Woma called Precious**. For those members who didn't attend the meeting, Precious will be at the Australian National Botanic Gardens in January 2015 for our annual *Snakes Alive!* Exhibition. Come along, help out and get to admire and hold many other reptiles!



*Above: Thanks also to our multi-tasking Pres. for working the slide carousel out for this meeting!!)*





## THE AUSTRALIAN & INTERNATIONAL SCENE

### Lizards help us find out which came first: the baby or the egg?

Oliver Griffith, PhD Candidate, Evolutionary Biology, University of Sydney, *TheConversation*, August 2014



*Above: The southern grass skink gives birth to live young and is a valuable species for understanding placenta evolution.*

Have you ever wondered why we give birth to live young rather than lay eggs? Scientists have pondered this for a long time and answers have come from an unlikely source: some of Australia's lizards and snakes!

In research published this month in the *American Naturalist*, my colleagues and I at the University of Sydney studied reptile pregnancy to identify the factors necessary for a placenta to evolve.

Although most reptiles lay eggs, live birth has evolved many times in the group of reptiles that includes lizards and snakes.

Some of Australia's most iconic species, such as the blue-tongue lizards and red-bellied black snakes, have discarded egg-laying and instead hang onto their babies for the duration of pregnancy and give birth to fully developed young.

#### First came the egg

Evolution is a slow process, which means that many adaptations we see in animals today arose a long time ago. Pregnancy in mammals is no exception.

The earliest mammals laid eggs. A couple of these egg-laying ancestors are still around today – the platypus and echidna – and both are found in Australia.

From fossil evidence we know that today's live-bearing mammals had a live-bearing ancestor that roamed the earth 160 million years ago, so

live birth in mammals must have evolved before this.

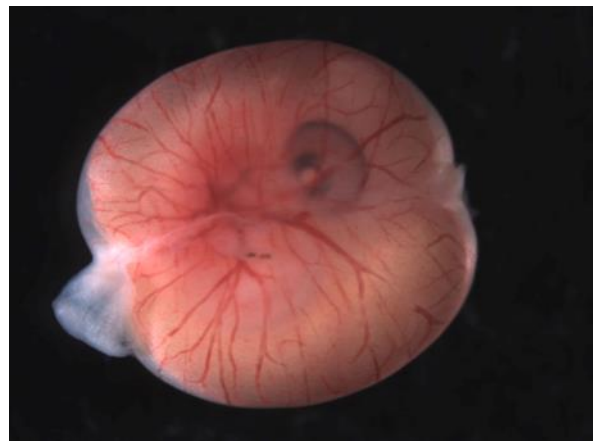
Understanding why evolutionary transitions that happened so long ago occurred can be difficult to infer. So researchers have to rely on systems where evolutionary transitions have occurred more recently.

#### Some lizards do it both ways – but why?

Live birth has evolved more recently in reptiles than in mammals. One Australian species, Bougainville's skink, has a live-bearing form on Kangaroo Island, off South Australia, but had an egg-laying form found on the mainland in South Australia, Victoria and New South Wales.

In cases where a single species has both egg-laying and live-bearing populations, we can infer live birth has evolved very recently. In these recent origins of live birth it is much easier to study why and how pregnancy evolves.

We know from reptile studies that live birth has several advantages over pregnancy.



*Above: Developing lizard embryo inside the placenta.*

In cold environments, eggs can have low survival rates because embryos are too cold to complete development. Meanwhile, pregnant mothers can either produce their own body heat (as in mammals) or can bask in the sun to warm themselves (as in reptiles), which keeps embryos warm enough to grow.

Pregnancy does offer one major disadvantage – mothers are burdened with the cost of carrying around their offspring for a long time. The mammal with the longest pregnancy is the African elephant, which can be pregnant for nearly two years.

In contrast, mothers that lay eggs get the advantage of their embryos developing in a nest. For most reptiles, this means that once the eggs are laid, they will leave them to fend for themselves.

#### **What's needed for a placenta to evolve**

Reptile live birth is very similar to mammalian live birth. After the eggs are fertilised, they are held inside the mother's uterus. As the embryo begins to develop, a placenta forms.

The placenta is the support organ for pregnancy. It allows mother and embryo to communicate and it allows the mother to provide nutrients to the embryo as it is developing.

Some reptiles have a placenta that provides all of the nutrients embryos receive before birth, just like most mammals. Some species have a placenta that is very simple and transfers very few nutrients, and only provides embryos with oxygen necessary for respiration.

But other species of lizard transfer an intermediate amount between these two extremes, and one such species is the Australian southern grass skink, found in some of Australia's coldest regions including the Blue Mountains, Snowy Mountains and Tasmania.

Studying this intermediate amount of nutrient transport allowed us to see how maternal diet during pregnancy might favour the evolution of a mammalian-like placenta. We found that mothers that ate more through pregnancy gave birth to larger offspring.

#### **Some mothers ate their offspring**

We also found that when food is limited, the mothers turned to a more sinister strategy to maintain their own body condition. They aborted and cannibalised their own offspring. Although eating your offspring sounds like a terrible idea, it can be beneficial for mothers.

In environments where there is insufficient food, instead of giving birth to small offspring that have a low chance of surviving, the mother can regain nutrients by eating their offspring. Nutrients gained from cannibalising their offspring can then be used to produce more offspring in the next breeding season.

Because low food abundance resulted in unsuccessful pregnancies, we were led to conclude that nutrient provisioning by the

placenta is only viable when mothers have predictable access to food throughout pregnancy.

#### **What about birth in human ancestors?**

This research allows us to tell a story about our own evolutionary history.

The first mammals laid eggs, then due to predation on eggs or perhaps cold temperatures, mothers held onto their eggs in the uterus until development was complete. They were much more successful.

In these first live-bearing mammals, the embryos required adequate access to oxygen and this induced the evolution of a placenta.

In an environment where food availability was predictable, females evolved to provide developing embryos with nutrients using the placenta, as occurs during pregnancy in humans.

Without studies on pregnancy in lizards and snakes it would not be possible to understand these evolutionary steps.

Next time you ponder why some particular trait has evolved, it might be worth considering if reptiles could shed some light on the answer.

### **Vale 'Gump', the last known Christmas Island Forest Skink**

*John Woinarski, Charles Darwin University,  
Don Driscoll, ANU, Hal Cogger, Aust Museum,  
TheConversation, 8 August 2014*



*Above: Gump, who died in May of this year, was the last known member of her species*

Among the most haunting and evocative images of Australian wildlife are the black and white photographs of the last Thylacine,

languishing alone in Hobart Zoo. It's an extraordinary reminder of how close we came to preventing an extinction.

That loss is also an important lesson on the consequences of acting too slowly. Hobart Zoo's Tasmanian tiger died just two months after the species was finally given protected status.

Last year, we wrote about the last-known Christmas Island Forest Skink, an otherwise unremarkable individual affectionately known as Gump. Although probably unaware of her status, Gump was in a forlorn limbo, hoping to survive long enough to meet a mate and save her species. It was an increasingly unlikely hope.

Despite substantial effort searching Christmas Island for another Forest Skink, none was found.

On 31 May 2014, Gump died, alone. Like the Thylacine, she barely outlived the mechanisms established to protect her, dying less than five months after being included on the list of Australia's threatened species.



### **Sudden decline**

Until the late 1990s, Forest Skinks were common and widespread on Christmas Island. Their population then crashed, and has now vanished. It has been a remarkable disappearance but not entirely peculiar, as it was preceded by an eerily similar pattern of decline and extinction (in 2009) for the Christmas Island Pipistrelle, the most recent Australian mammal known to have become extinct. Nor is the skink unique among the island's native reptiles – most of them have shown similar patterns of decline.

We think Gump's death is momentous because it probably marks the extinction of her species. If so, this will be the first Australian native reptile known to have become extinct since European colonisation – a most unwelcome distinction. (Unlike the death of an individual, extinction can be hard to prove. There are, after all, some optimists who believe Thylacines still live. For the Forest Skink, the trajectory of decline and the fruitlessness of dedicated searches provide reasonable grounds to presume extinction, although this conclusion may take some years to be officially recognised. And, of course, we'd like to be proved wrong.)

### **Lessons and legacies**

Gump's death might be passed over as a trivial bit of bad news and quickly forgotten. But Forest Skinks have been around since before modern humans walked out of Africa, so their extinction on our watch is not trivial. We should treat this loss with a profound respect, and seek to learn lessons that may help prevent similar losses in the future.

### **These are the legacies we seek from Gump's life and death:**

First, we should acknowledge that extinction is an unwelcome endpoint that is usually caused by ecological factors, but in recent times has often been compounded by deliberate human action or inaction. In most cases, extinction can be seen as a tangible demonstration of failure in policy and management, of inattention or missed opportunities.

In comparable cases elsewhere in our society, such as unexplained deaths or catastrophic governmental shortcomings, coronial inquests are instigated. Such inquests are widely recognised as a good way to learn lessons and to change practices in a way that will help avoid future failures. Inquests are also useful to acknowledge accountability, and to explain negative events to the public.

An inquiry – albeit more modest than a coronial inquest – is an appropriate response to any extinction. The presumed first extinction of an Australian reptile species would make for a worthwhile precedent: how could it have been averted, and what lessons can we learn?



Second, the Australian government has shown a welcome attention to the conservation of threatened species. It has appointed the first Threatened Species Commissioner, and federal environment minister Greg Hunt recently committed to seeking to prevent any more Australian mammal extinctions.

We would urge that this avowed interest be further consolidated by the loss of the Christmas Island Forest Skink, with a clear statement that this extinction is momentous and deeply regretted. The government should explicitly seek to avoid future preventable extinctions (a commitment recognised internationally through the Millennium Development Goals), and should pledge to implement a more effective and successful strategy for conserving Australia's threatened species (and biodiversity generally).

Third, it is no coincidence that two endemic vertebrate species have gone extinct on Christmas Island in the past decade, and that many other native species are declining there, despite the fact that most of the island is a national park.

Christmas Island's extraordinary natural values are not being matched by the resources provided to manage them, or by their low profile in our national awareness. The island meets the criteria to qualify as a World Heritage site, and it is time for the government to seek such a listing.

The fourth hoped-for legacy concerns the so far successful captive breeding program for two other Christmas Island species that otherwise would have gone the same way as Gump: the endemic Blue-tailed Skink and Lister's Gecko. This is an admirable accomplishment. But it is at best a halfway house, because a species solely represented by individuals in cages becomes an artifice. We urge the government to commit fully to a currently proposed conservation plan for Christmas Island that seeks to allow such species to return to their natural haunts, following eradication or effective control of their primary threats such as introduced black rats, feral cats, yellow crazy ants, giant centipedes and wolf snakes.

Fifth, this extinction has largely been enacted out of public view. With the exception of a 2012

scientific paper, the few reports documenting the Christmas Island Forest Skink's decline are not readily accessible.

There is an island-wide biodiversity monitoring program (which is admirable), yet the results of such monitoring are not routinely reported or interpreted to the public. Our society deserves to be warned of impending and unrecoverable losses, and to know when good management has averted them.

This case is not unusual: for most Australian threatened species, it is difficult if not impossible to find reliable information on population trends. This makes it difficult to prioritise management, making it likely that management responses will be initiated too late, and it severely limits public awareness of conservation issues. We recommend the development of a national biodiversity monitoring program that would allow ready public access to information about trends in threatened and other species.

It is 78 years since the death of the last Thylacine. Our photographs of extinct Australian animals are now taken in colour, rather than black and white. But has anything else improved? We hope it will.

### **Rapidly evolving lizards show how some creatures can adapt to beat climate change**

*Amanda Bates, University of Southampton,  
TheConversation, 16 September 2014*



*Above: Can the Brown Anole Lizard outrun climate change, Image: Lanare Sevi.*

Lizards from the deserts of Australia to the tops of mountains in Costa Rica have given us insights into how animals take advantage of their environment to be less cold-blooded. Lizards seek out sunny patches or the warm underside of rocks where they can soak up the heat to enhance digestion or run faster. When it gets too hot, they can escape the heat by finding shade or retreating to burrows underground.

In particular, tropical species, including lizards, are thought to be especially vulnerable to climate warming because they already live at temperatures that can be dangerous. Without the sweat glands or metabolic control that mammals take for granted, lizards can heat up very quickly if they find themselves caught out in the sun for too long.

Species living in the tropics are also thought to have behavioural adaptations that are finely tuned to stable and predictable weather regimes, such as daily activity rhythms. Such behaviours that may be ill-suited to the increasing variability that is predicted with climate change where flexibility may be an asset.

In a world of greater climatic extremes, lizards may over-expose themselves to dangerous temperatures, or may find themselves with only a few opportunities to feed or find mates if their activity patterns are constrained to a particular window in temperatures.

This question of how animals might respond to a warmer and more variable world is the focus of a new study aimed at understanding how evolution might come into play as our climate changes. Are species' current tolerances and behaviours fixed – or can we expect scope for rapid evolutionary change through adaptation? Will some animals be saved by evolution?

### **Speedy lizards**

Michael Logan from Dartmouth College in the US conducted a clever experiment with his colleagues to test whether tropical lizards have the potential to change their physiology over generations to better adapt to a warmer environment, but also one that is less predictable.

The authors moved a population of brown anole lizards (*Anolis sagrei*) from a forested site in the Bahamas to a nearby open peninsula

where daily temperatures on the ground were more than 2°C higher than the lizards were used to. They found that in a warmer and more variable climate, those lizards that survived functioned better in the heat, were fast and were also active over a broad range of temperatures.

The authors conclude that a new environment rapidly selected the lizards that were best suited to survival. They expect subsequent generations of peninsular lizards will continue with hard-wired evolutionary changes in their physiology and behaviour – eventually a new form of the species may emerge, tailored to towards the hotter peninsula.

Even so, the authors do not distinguish whether the shifts in the characteristics of the peninsular lizards are genetically based, which would be a prerequisite for evolutionary change – the traits need to be heritable and passed on to subsequent generations. Indeed, there isn't much evidence for genetic change in response to climate change.

### **Evolution in fast-motion?**

Yet animals as diverse as pink salmon and soil mites have shown rapid evolutionary changes can occur in just a few generations, as opposed to the typical view that evolution takes hundreds of years to manifest itself. Yet even though evolution may rescue some species as the world warms, we don't factor it in to our predictions of which plants and animals will be the most vulnerable to climate change.

There are some obvious reasons for this. While "rapid" evolution is possible, it still takes a while to unfold – longer than the duration of typical research grants and PhD programmes. For some slow-reproducing species, such as those from cold polar environments or large mammals, it may take decades or more to observe. Only the most patient evolutionary biologists would devote their life to investigating how each generation of elephants has further adapted to climate change.

The capacity for evolutionary change is also tricky to predict as so much depends on context. Some populations of a particular species will contain individuals with certain characteristics – the capacity to tolerate extreme heat, say – that will allow those individuals best



suited to a new environment to survive and the population to carry on, as seems to be the case in the brown anole lizards experiment. Other populations, without these adaptable individuals, will simply die out.

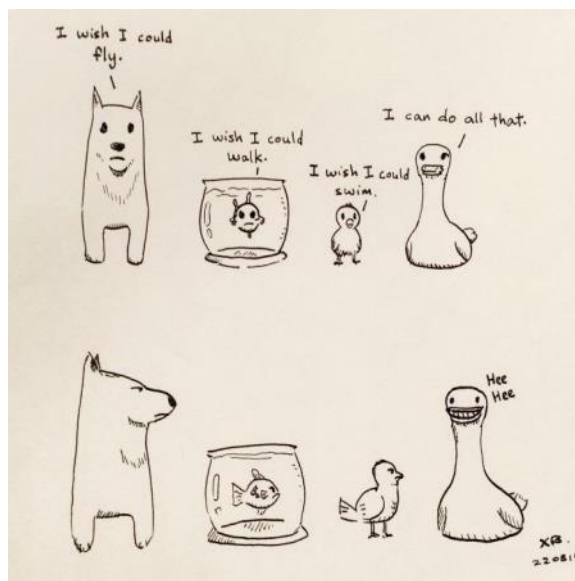
### Evolution as conservation

We presently face the most exceptional extinction rates of modern times. Rapid environmental change is already outpacing the capacity for many species to adapt and survive, but certainly some will beat climate change.

One of the big questions this research poses relates to conservation: which species can we best assist through establishing new populations and supplementing declining

populations with measures such as artificial breeding programmes? But this may be too narrow a focus. These fast-adapting lizards show that evolutionary change itself could yet be put to good use in conservation.

While efforts have focused on saving threatened creatures by moving populations to safer places or trying to preserve their habitats, this study shows that moving them to more extreme environments can pre-adapt populations to a warmer world. Crucially, it suggests another tool to help identify those species that will have a chance under climate change and opens the possibility that we could give some species an adaptation head start.



# **ACT HERPETOLOGICAL ASSOCIATION INC.**

## **2014 - 2015 MEMBERSHIP RENEWAL NOW OVERDUE**

Membership renewal runs from 1 July 2012 to 30 June 2013 and costs \$10 for a family or single membership.

'Herpetofauna' is an additional \$12 for two issues per annum.

**Payment at our August meeting** would be appreciated.

**OR** please make your cheque out to ACTHA Inc., fill in your details below and send it to the ACTHA Membership Officer, PO Box 160, Jamison ACT 2614.

*Surname:*

*Given name(s):*

*Address:*

*State/Territory:*

*Postcode:*

*Telephone (h):*

*Telephone (w):*

**Email:**

**OR** you could make a direct deposit to ACTHA's bank account:

St George Bank, BSB 112-908, A/c 486822880 (*pls note new account number!*)

**PLEASE!** Don't forget to note your name so we can identify whose payment it is on our Bank Statement.

Queries? please call Margaret on 02 6241 4065 (h).

### **DIARY DATE**

The *bi-monthly* meetings of the Association are usually held on the **third Tuesday of the month at 7.30pm**. Our usual venue is:

**Belconnen Soccer Club, Hawker (cnr Belconnen Way & Springvale Drive)**

### **UPCOMING MEETING**

**TUESDAY, 21 OCTOBER 2014**

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#### **The Evolution and Convergence of Ecomorphology in Pythons, Boas and their Relatives**

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Damien would also like to share his personal experiences with some of the Chilean herpetofauna he has come across during the course of his research.



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