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ACTHA INC. NEWS

APR - MAY 2013

*Newsletter of the
ACT Herpetological
Association Inc.*

**Previous guest speaker
presentations still available and
now in full colour!**

See pages 4 and 5.



YOUR COMMITTEE FOR 2012 - 2013

President	Dennis Dyer
Vice President	Ric Longmore
Secretary	Vacant/Angus Kennedy
Treasurer	Margaret Ning
Newsletter Editor	Mandy Conway
Webmaster	Angus Kennedy
Public Officer	John Wombey *
Excursion Officer	Ric Longmore *
Conservation Officer	Joe McAuliffe
Committee Members	Iris Carter Greg Flowers Peter Child
Student Representatives	Angelique Harrison Sophie Sloane

** Denotes Life Members*

DIARY DATE

The *bi-monthly* meetings of the Association are 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, 16 APRIL 2013

This month we are delighted to have Gabrielle Openshaw, Research School of Biology, ANU, who will give a presentation on aspects of monitor lizard evolution.

"I will present some results from my honours research on head shape disparity, and how head shape relates to species relationships and habitat. I will also put forward my PhD research plans, which involve building a phylogeny and testing rates of molecular and morphological evolution."

Don't miss this opportunity to also view some brilliant goanna images!

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NEW HERP ARRIVALS

Several ACTHA members have been nervously watching and waiting to see if and when their collection of incubated herp eggs will hatch. I am pleased to announce the following new arrivals!

This Editor was given eleven **Eastern Long-necked Turtle** eggs in the third week of February 2013. They were laid on 28 November 2012.

I carefully positioned them in a tub with soil, kept them on a heat pad set at 23°C and misted the soil every few days. Angus Kennedy took over their care several weeks later and around 18 March four turtles hatched. The remaining eggs were checked in early April by candle-lighting (as routinely done with chicken eggs) and appeared to be unfertilised. The stunning photo below was taken by Angus Kennedy.



Readers may recall last Edition's article about Joe's 'male' **Carpet python** laying a large clutch of eggs. Joe recently sent in the photo below, "it's happening!" followed shortly afterwards by the photo at right.



SMALL GRANTS FOR HERPETOFAUNA CONSERVATION, EDUCATION, TRAINING AND RESEARCH PROJECTS

In recent years the ACT Herpetological Association has granted money towards herpetofauna related projects in various fields such as conservation, recovery, education, training and research. These grants will be made available again this financial year and the Association wishes to advise interested parties of the application process.

The major fund raising effort by our Association is the Snakes Alive! exhibition held each January at the Australian National Botanic Gardens (ANBG). The Association has decided to use a portion of these funds to provide encouragement and assistance in monetary terms to students or others who are currently involved in herpetofauna related activities.

This year grants will be awarded from \$100 - \$1500. Some examples of previous uses are:

- purchase of equipment or materials that would assist students or others who are undertaking herpetofauna research;
- funding of small or pilot school or community education projects related to herpetofauna; or
- assistance to persons or groups to acquire training which would improve academic and/or community contributions to achieving worthwhile herpetofauna related outcomes.

While the awarding of a grant is at the complete discretion of the Association, listed below are some factors that should be considered by applicants when applying for a grant:

- Grants will not be awarded for costs associated with travel. Funding for re-usable equipment will be favoured, but this is not essential.
- Projects within the ACT and Southern Tablelands region will be given priority.
- Due to a limited funding pool, grants may be awarded at a reduced rate.

The Association through its Committee would like to receive expressions of interest from those who feel they may be eligible to receive funds. It is hoped to keep the process straightforward, and to this end, an 'ACTHA Grant Application Form' in PDF format will be sent to you by email for interested people to complete and submit, preferably electronically, to the Association.

Applications will be open from the date of receipt of this letter to 31 May 2013. Applicants will be notified in writing of the outcome of their application within six weeks of the closing date.

Please do not hesitate to contact Angus Kennedy on 0434 270 718 or by e-mail at info@actha.org.au if you wish to discuss this matter further.

Dennis Dyer
ACTHA President
April 2013

HAVE YOU MISSED ANY GUEST SPEAKER TALKS AT PAST ACTHA MEETINGS?

You're in luck!! Due to technical problems I am unable to include summaries of two recent presentations in this Newsletter Issue: Gerry Marantelli's talk 'Saving frogs because we must!' and Marta Vidal-Garcia presentation entitled 'Habitat use and body shape in the Australo-Papuan myobatrachid frogs'. I hope to include write-ups of these talks in our next edition.

So, on the following few pages I have listed earlier presentation titles and the Newsletter Issue in which a summary was published. To view the full article just go to our Website and peruse the past issues section You won't be disappointed!

Website: www.actha.org.au

SNAKES ALIVE! 2013

Feb - Mar 2013 ACTHA Newsletter

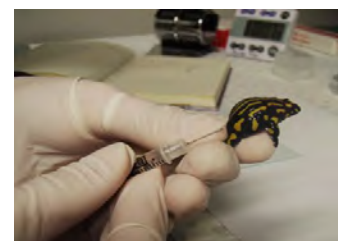
ACTHA's annual *Snakes Alive!* Exhibition was held in January this year and this edition of our Newsletter details highlights of the four days, as scribed by several Members, accompanied by many excellent photos.



THREATENED FROG CONSERVATION IN KOSCIUSZKO NATIONAL PARK: FIGHTING AGAINST THE TIDE OF EXTINCTION

Dec 2012 - Jan 2013 ACTHA Newsletter

Talk by Dr David Hunter, Biodiversity Conservation Section, NSW Office of Environment & Heritage. David has touched on the effects of the chytrid fungus to the world's amphibians in previous talks to ACTHA. At this meeting's presentation he gave an in-depth insight into the way this pathogen is destroying amphibian populations worldwide, concentrating on recent developments in the battle to mitigate its impact. Frogs facing extinction in the Kosciuszko National Park were examined in depth.



(Previous guest speaker presentations, cont'd)

CONSERVATION OF THREATENED GRASSLAND REPTILES IN THE FACE OF URBAN EXPANSION: CASE STUDIES FROM THE ACT PART 1

June - July 2012 ACTHA Newsletter

Will Osborne talked about the conservation of the Pink-Tailed Worm-lizard, *Aprasia parapulchella*, and the Striped Legless Lizard, *Delma impar*, which included an assessment of their natural habitat in the Canberra environs. An informative section highlights in detail a number of other species who are trying to survive amidst factors such as habitat loss.



CONSERVATION OF THREATENED GRASSLAND REPTILES IN THE FACE OF URBAN EXPANSION: CASE STUDIES FROM THE ACT PART 2, THE GRASSLAND EARLESS DRAGON

Oct - Nov 2012 ACTHA Newsletter

Will Osborne spoke about conservation efforts for the Grassland Earless Dragon in this second half of his presentation. The Grassland Earless Dragon is considered to be one of the most threatened species in Australia. Endangered in the ACT and NSW, and thought to be extinct in Victoria, it is a species affected by gross range contraction and habitat loss (over 95% of the suitable grassland habitat has been lost – with the largest remaining areas being in the Monaro). All populations in the ACT have collapsed to very low numbers in the past few years – thought to be the cumulative effects of the recent drought and major habitat loss.

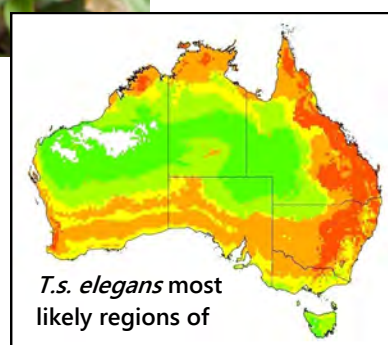


INVASIVE REPTILES

Aug - Sept 2012 ACTHA Newsletter

Dustin Welbourne's presentation outlined the economic, social and environmental impacts of non-indigenous and invasive animals, and included details of his current work on predictive modelling and techniques in monitoring ecological communities, including reptiles.

Tantalised? visit our website to view dozens of really good presentations in full colour!



The Chronicle 29 January 2013

Firefighters hop to frogs' defence

By Mark Sawa

FIREFIGHTERS who battled blazes in Namadgi National Park have been commended for protecting the habitat of the northern corroboree frog.

ACT Minister for Territory and Municipal Services Shane Rattenbury said 26 hectares of land was burnt, stopping just metres from Ginini Flats – a wetland of international significance.

In constructing a 1.7km containment line with bulldozers, crews also protected the Ginini Flats and historical NSW/ACT border markers known as lockspits.

"Since 2003 the wetlands and sphagnum bogs of Ginini Flats have been extensively rehabilitated and a northern corroboree frog captive breeding program, co-ordinated by ecologists ... has actively released frogs back to the site," Mr Rattenbury said.

He said the success in containing the fire at Mount Ginini was due to



Firefighters helped save the habitat of the northern corroboree frog

bushfire preparation and infrastructure work completed since 2003 by ACT Parks and Conservation Service staff.

Just like in 2003, a lightning strike sparked the bushfire in the snow gum forests. Fire crews then worked tirelessly to contain and suppress the bushfire.

ACT Frogwatch co-ordinator

Anke Maria Hoefer said the northern corroboree frog has had its habitat destroyed in the past by fire and it has been on the brink of extinction, mainly due to a fatal fungus infection.

She said the tiny frogs, which can sit comfortably on a five cent piece, used to be prolific but the fungus had almost wiped them out.

Even before their habitat was decimated by the 2003 firestorm, she said their numbers had plummeted.

There are almost two dozen species of frogs in the ACT. Nine of them are relatively common and can be found in backyards, national parks and parklands. But many of the local frog species are either in decline or threatened with extinction.

The corroboree frog, which is not found anywhere else in the world, has dealt with habitat destruction, introduced pests, disease and other factors that have led to its decline.



HERPS RECENTLY SPOTTED

A Cunningham Skink seen at entrance to Tidbinbilla Sanctuary. Photo: Tony Lawson



Leaf-tailed Gecko under a house in Gordon, Sydney. SVL 11cm

Photo: Brian Conway



Angus Kennedy took this pic (at right) on his recent trip to Indonesia. It's obviously a very big reptile and we hope to get Angus to show us more images of the beast at a meeting soon!



ACTHA INFORMATION AND ID REQUESTS

From Adam:

"I spotted a **baby brown snake** (easily identified by colour & distinctive black head) close to my home yesterday (approx 25 degrees) the snake was 20-25cm long. I was hoping you may be able to advise the following:

How old would the snake be at that size?

How many eggs are laid?

How far will they travel at that age?

Obviously I am concerned that I am likely to encounter more of them around the house (not great with small children). I do live out of Canberra (towards Murrumbateman) and yes we have had plenty of mice/rats about which we are trying to control.

Thank you."

ACTHA expert response:

"Hi, at that size it is one of this season's young, probably hatched in the last couple of months. Clutch size will vary according to the size and condition of the mother. I've heard of clutches over 30 eggs but suspect averages to 20 to 25 or so. The answer to your third question is a bit harder. Basically they disperse soon after hatching and I'd say they will continue to do so until they find suitable refuge. Many will succumb to predators during this time.

You are right to have concerns regarding safety for your family. I suggest you teach your children to stay clear of snakes of all sizes and colours. Also the reduction of suitable habitat near the house will reduce the chances of encountering them near or in the house. This can include long grass or unmaintained garden areas, piles of just about anything (garbage, old farm machinery etc.). These sorts of things provide a safe haven for snakes, both juveniles and adults. Ultimately this is the reality in living in rural or semi rural areas, even in Canberra brown snakes are common."



From Ian and Kate Robertson:

"Please find attached a picture of the frog that has inhabited our Narrabundah garden for the last couple of summers. There are three in total and they seem disappear in autumn."

ACTHA expert answer:

It is *Litoria peronii*, Peron's Tree Frog, a common species in this region.



THE AUSTRALIAN & INTERNATIONAL SCENE

Extinct frogs hop back into the gene pool

Nicky Phillips, SMH, 15 March 2013

In what may be considered an early Easter miracle, an extinct species of native frog has begun its rise from the dead.

Australian scientists have grown embryos containing the revived DNA of the extinct gastric-brooding frog, the crucial first step in their attempt to bring a species back to life.

The team from the aptly named Lazarus project inserted the dead genetic material of the extinct amphibian into the donor eggs of another species of living frog, a process similar to the technique used to create the cloned sheep Dolly. The eggs continued to grow into three-day-old embryos, known as blastulas.

"This is the first time this technique has been achieved for an extinct species," said one of the project scientists, conservation biologist Michael Mahony.

While many scientists have argued it would be impossible to bring a species back from the dead like in the film *Jurassic Park*, the Lazarus project's breakthrough suggested the revival of extinct species was no longer the realm of science fiction.

Over five years the team led by University of NSW palaeontologist Mike Archer painstakingly inserted DNA extracted from a frozen specimen of the bizarre gastric-brooding frog, which incubated its eggs in its stomach before giving birth through its mouth, into hundreds of donor eggs from a distant relative, the great barred frog, whose DNA had been deactivated by UV light.



Above: Frozen for 40 years
Photo: Marco Del Grande

In the beginning, the single cell eggs "just sat there", said Professor Archer. "But then, all of a sudden, one of the cells divided, and then it divided again, and again. "There were a lot of high fives around the laboratory at that point," said Professor Archer,

who was to announce the team's achievement at the TEDxDeExtinction event in Washington on Friday.

While the embryos had yet to develop into tadpoles, genetic tests revealed the dividing cells contained the DNA of the extinct frog. "We do expect to get this guy hopping again," Professor Archer said.

The team has also demonstrated that the cloning technique, known as somatic nuclear cell transfer, could be used to conserve the genomes of other critically endangered species, particularly frogs, whose populations have plummeted around the world.

"We haven't brought back the gastric-brooding frog yet but we've developed a tool that can stop other frogs going extinct," said Professor Mahony, from the University of Newcastle.

But the team's success so far did not come easily. "It's not as if we're following a recipe," said Professor Archer.

The project would have remained a science fiction fantasy were it not for the foresight of Adelaide frog researcher, Mike Tyler, who froze a gastric-brooding frog specimen before it disappeared from the wild in 1979 and became extinct in 1983. (Image below)



"It's a minor miracle that a university freezer hasn't been turned off in a power failure," Professor Archer said.

The leader of the technical work, Monash University reproductive biologist Andrew French, said it was also amazing the team was able to extract viable DNA from the dead frog's cells.

The annual breeding cycle of the donor egg frog also meant the team had only a few weeks a year to conduct their experiments, Dr French said.

(*The Australian and International Scene, cont'd...*)

While the results are yet to be published, the group felt it was time to talk about their success.

"We thought it was probably time to put the flag in the sand," said Professor Archer, who has previously directed attempts to revive the extinct Tasmanian tiger.

Australian endangered species: Retro Slider, *Lerista allanae*

*Eric Vanderduys,
Research Projects Officer, CSIRO ,
The Conversation, 7 March 2013*

When asked to name an Australian lizard, most Australians would probably pick the familiar blue-tongue, stumpy lizard or bearded dragon, or perhaps the iconic thorny devil, frill-neck lizard or a goanna. Poorly known to most Australians is the lizard group known as skinks – which includes the blue-tongue and stumpy lizard – but which consists of hundreds of species, in a diverse range of sizes and shapes.

Lerista is a genus of skinks commonly known as 'sliders'. It contains over 90 species of mostly small, burrowing skinks with reduced limbs – limbs that are short, often with fewer than five fingers or toes, or are missing altogether. The Retro slider (*Lerista allanae*), has tiny back legs and no front legs. It grows to about 15 cm, nearly half of this being tail. It is grey to silver or pale brown, and each scale has a dark spot or streak on it. It is named after Retro Station, a grazing property where it was originally collected.



Status

Sliders have restricted distributions – sometimes just a few square kilometres. Usually sliders inhabit loose leaf litter and sandy soils, and not heavy, clay soils prone to floods. Those areas are often separated by unsuitable habitat, leading to tiny distributions.

The Retro Slider is one such species, inhabiting slight rises in a landscape of fertile, deeply cracking clay soils near Clermont in central Queensland's Brigalow Belt. They are known from four locations over a 40 km range, and the area they occupy is unknown, but possibly as small as a few square kilometres. The main stronghold is Retro Station, a lightly grazed property with, importantly, patches of trees with deep, undisturbed leaf litter. Retro sliders also occur along road verges.

Originally known from two or three locations the Retro slider was missing for 49 years until rediscovered near one of the original sites in 2009. It is listed as endangered on a state and national level, and critically endangered under the IUCN.

Threats

It's important to consider the past to help understand the Retro slider's predicament.

The area was heavily grazed by sheep before cattle rose to prominence. The use of agricultural chemicals, including insecticides has been widespread at times and this may have had consequences for termites and small invertebrates, which the Retro slider eats.

The effects of widespread drought and flooding are unknown but likely to be detrimental to Retro sliders. Drought because it reduces ground cover and therefore may increase exposure to predators and extreme temperatures; and floods because they may force skinks to the soil surface, again exposing them to danger.

Fire may impact on Retro sliders by burning leaf litter, habitat for their prey and also exposing the sliders to the dangers mentioned above.

Exotic grasses, especially buffel grass, can come to dominate the habitat where Retro sliders live. The effects of buffel invasion are not known, but Retro sliders have not been found under buffel clumps, despite extensive searching. Like gamba grass in northern Australia, a worrying aspect of buffel is that it favours burning, which can kill the small stands of trees and shrubs that Retro sliders use.

Feral animals, **especially foxes and cats** may impact Retro sliders. Both have been seen eating other slider species. Foxes and cats are likely to

amplify other threats. Sliders exposed at road edges, or due to fire and flood, are easy prey for predators.

Strategy

There is no current formal coordinated management strategy in place for Retro sliders. The Retro slider is not known to occur within the protected estate, so management on private land and road reserves will be imperative for its long term survival.

The landholder of the property where most sliders have been found is proud to have a critically endangered species under his stewardship and is committed to helping to minimise threats.

The Commonwealth has drafted a Recovery Plan for the Brigalow Belt Reptiles that lists the Retro slider and eight other reptile species. WWF and the Queensland Murray-Darling Committee have also drafted a management plan including seven additional species from the Brigalow Belt.

Queensland Transport is cooperating with the Queensland Department of Science, Information Technology, Innovation and the Arts to protect or enhance Retro slider habitat where it occurs on road verges. Fire and buffel grass management are important components of this. Areas where the Retro slider have been found on road verges have been carefully mapped so that the impact of road management or upgrade activities are minimised.

Conclusion

Given the skink's small size, enhancing existing habitat should not prove difficult. Establishing one or two additional habitats away from the current sites would be beneficial in guarding against localised events such as flooding or fire. A bonus would be to find one or more populations on the protected estate.

For many years the Retro slider had the dubious distinction of being Australia's only reptile thought to be extinct. Its rediscovery and the fact that it has been found in a growing number of sites in the last three years give hope for a secure future.

Australian endangered species:

Sea snakes

Kate Sanders, *The Conversation*, 21 February 2013

Short-nosed, *Aipysurus apraefrontalis*, and Leaf-scaled, *A. foliosquama*, sea snakes are restricted to coral reefs in Western Australia. Both species are known from Ashmore and Hibernia Reefs, while the Short-nosed has occasionally been found between Exmouth and Broome. As closest relatives, they are both around 80 centimetres long and are banded purplish-brown. They are distinguished by the size and shape of their heads – hence their common names.



Since 1998 sea snakes have vanished from reefs in Western Australia. This Leaf-scaled sea snake may already be extinct.
Photo: Hal Cogger

Both species forage in crevices and burrows on shallow reef flats and edges and have powerful venom with which to subdue their prey. Little is known of their diets other than Leaf-scaled sea snakes feed on a variety of reef fishes such as wrasse and gudgeons, whereas the few diet records available for Short-nosed sea snakes suggest they might prey mostly on eels.

The Short-nosed and Leaf-scaled sea snakes are fully marine and rarely come ashore. They belong to the Hydrophiini – a group of more than 60 species that evolved from Australia's venomous land snakes and are now found throughout the Indo-West Pacific.

Status

Short-nosed and Leaf-scaled sea snakes were prolifically abundant on Ashmore and Hibernia Reefs during the 1970s and 1990s. However, Mick Guinea and colleagues have documented dramatic declines in both species since 1998. No Short-nosed or Leaf-scaled sea snakes were

recorded on either reef during intensive surveys between 2001 and 2012.

The status of Short-nosed sea snakes on the Western Australian coast is unknown, but the few scattered records between Exmouth and Broome suggest they were never widespread.



*Above: A high and dry Short-nosed Sea Snake.
Photo: Hal Cogger*

Both species are classified as Critically Endangered by the IUCN and under Australia's Environment Protection and Biodiversity Conservation Act.

Threats

The reasons for the severe declines of Short-nosed and Leaf-scaled sea snakes remain a mystery. Nine other sea snake species have disappeared from Ashmore and Hibernia over the last 15 years, yet their habitats are intact, and snakes are not affected by over-fishing. This may suggest major environmental change, perhaps related to surface water temperatures, salinity and rainfall patterns, and sedimentation. In the same period seismic surveys for oil and gas have increased, using air gunning, although the impact on sea snakes is unknown.

Whatever factors are responsible, they have not only affected the snakes in shallow coral areas but also species that once occupied the reef edges, seagrass beds and deeper waters surrounding the reef.

Strategy

Continued surveys of the sea snakes are vital. These should focus on Ashmore and Hibernia reefs, but should also include coastal reefs where the Short-nosed has been recorded and might still exist. If the Leaf-scaled sea snake is

not already extinct, there may yet be time to enact a recovery plan for both species.

We need a better understanding of environmental and direct human threats to sea snakes. First, environmental conditions on Ashmore and Hibernia reefs should be compared to reefs that still support healthy numbers of sea snakes. Studies of the impact of seismic air gunning on sea snakes are also urgently needed and will soon be underway.

Conclusion

Solving the mystery of the decline of Short-nosed, Leaf-scaled and other sea snakes in Ashmore and Hibernia will require a multidisciplinary effort. However, if sea snakes are indeed a miner's canary of coral reef health, understanding their disappearance should be a top priority for marine conservation.

Dragons colour study could fuel breakthroughs

Jake Sturmer, Science and Technology correspondent, ABC news, 7 April 2013

The CSIRO is hoping a new Australian study of native bearded dragons could lead to breakthroughs in medicine and the gathering solar energy.

University of Melbourne scientist Dr Devi Stuart-Fox has just launched a \$470,000 study investigating how and why bearded dragons change colours.



"They can change colour from almost black, very dark grey, to really bright red particularly when they're being aggressive with each other," Dr Stuart-Fox said.

"What I'm particularly interested in is changes across the full range of solar radiation or solar energy.

"From colours that we can't see like the ultraviolet all the way through to the near infra-red."

Dr Stuart-Fox is hoping to get a clearer understanding of the evolution of colour changing in animals.

"[It's] quite a special ability in nature and we can understand why we get the kind of diversity of adaptations that we see," she said.

The Melbourne scientist has just won a \$40,000 special fellowship in Paris for her discoveries about colour changing animals.

The CSIRO is hoping this latest study will lead to even further discoveries in animals that could have many practical uses.

"The system that Devi's looking at is not only responsive to visible light, but the UV and the near infra-red," CSIRO material scientist Phil Casey said.

"This will provide inspiration for us as to how we mimic those systems and materials for energy application, for sensors, for coatings, and maybe even further for biomedical applications."

The CSIRO has already made breakthroughs in this area, creating fibres that respond to temperature changes.

The fibres can be made into bandages which can reveal if a wound is infected without the doctor having to remove the bandage.

"The potential here is to be able to indicate the state of health of a wound by any temperatures that may be generated through infection," Mr Casey said.

Dr Stuart-Fox's study is expected to take several years.



Above: The native bearded dragon can change colour from bright red to black