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ACTHA INC. NEWS AUG-SEPT 2012

*Newsletter of the
ACT Herpetological
Association Inc.*

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** Denotes Life Members*

**ACT HERPETOLOGICAL ASSOC. INC.
2012 - 2013 MEMBERSHIP RENEWAL
NOW DUE, pls see back page.**

IN THIS ISSUE

Invasive reptiles: Dustin Welbourne was our guest speaker at ACTHA's June 2012 meeting. His excellent presentation was about predictive modelling techniques used to monitor the potential spread of non-indigenous and invasive animals; a summary starts on page 3.

The Australian & International Scene:

Attack of the killer tadpoles: page 7.

Different croaks: different frogs: page 8.

Homebody sea snakes at risk: page 9.

ACTHA has mail! the latest from our fellow herpetological organisations, page 11.

COMING-UP IN THE NEXT ISSUE...



'Conservation of threatened grassland reptiles in the face of urban expansion:

Pt2 – The Grassland Earless Dragon'

A summary of Will Osborne's talk which was given at our April 2012 meeting.

DIARY DATE

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

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

UPCOMING MEETING

Tuesday, 21 August 2012

This month our guest speaker will be **Dan Hoops**, PhD Candidate, Keogh Lab, Research School of Biology, ANU, who will give a presentation about his research field trip in 2011.

"Last September and October I collected *Ctenophorus* dragons from across a wide area of South Australia. I'm studying the physiological effects of intense sexual selection on colour, body shape, and brain evolution. I also have pretty pictures of lizards and the South Australian Outback, and will be bringing some live lizards for show & tell."

Dan is looking for volunteers for this September and October's research field trip, where he will continue catching dragons. Please contact him by email if you are interested: daniel.hoops@anu.edu.au



*This bluey, in my garden, thinks it's Spring!
Have you spotted any reptiles in your garden as temperatures rise during the day?*

Let this Editor know!

INVASIVE REPTILES

Dustin Welbourne was our guest speaker at ACTHA's 19 June 2012 meeting. His 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.

This summary by Mandy Conway, with much assistance from Dustin.



Dustin (pictured left) moved to Canberra in 2003 to study economics and science at the ANU. He started in molecular biology and biochemistry but developed an interest in 'big picture' evolution that saw him move on to

study evolutionary biogeography at the UNSW campus in Canberra. Dustin is currently undertaking a PhD as a civilian there, assessing the use of non-invasive research techniques to monitor ecological communities at continental scales.

Non-indigenous reptiles as a threat to Canberra's biodiversity

Geographic obstacles once stood as barriers to non-indigenous flora and fauna; however, as people and goods are transported around the globe at an unprecedented rate, these are regularly breached. Australia has not been immune to this trend and there are now more than 80 invasive vertebrates, and thousands of plants that call Australia home. In fact, invasive species cost the Australian tax payer approximately Au\$5 billion per year, cause significant social impacts, and are a key threat to native species. While most of the invasive species impacts are attributed to cats, dogs, foxes, rabbits, and wild pigs, invasive reptiles do present a potential threat due to the increase in popularity of reptiles as pets, and the significant diversity of reptiles that Australia hosts.



Above: Brisbane Hospital, which was turned into an acclimatisation society in 1883.

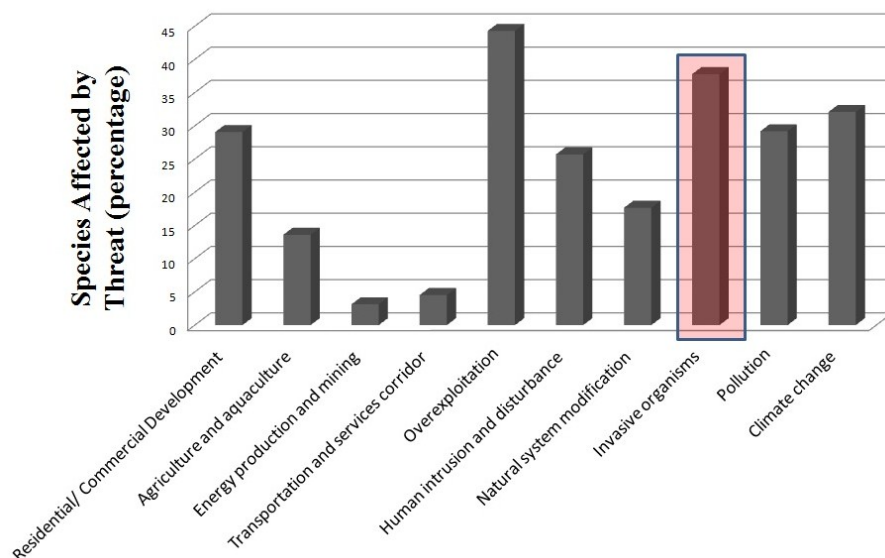
"Most species were introduced to Australia by acclimatisation societies, whose motto was 'to put the best species in the best places'".

Captain Cook would regularly leave pigs and goats on islands he sailed past to establish a food supply for subsequent trips" Dustin said.

What are invasive organisms?

We often think of invasive species as cats and cane toads, but to categorically assign an entire species as invasive is incorrect. An invasive organism is a population of a species that has established beyond their natural range and is disrupting the natural balance. While we consider the cane toad an invasive species here in Australia, in their home range they form part of the natural biodiversity. Furthermore, some non-indigenous species that do establish populations beyond their natural range may undergo a large period of time before becoming invasive, or never become invasive at all. Thus, in order to describe an invasive organism, it must be described in both space and time.

Dustin's research over the past couple of years has focused on non-indigenous reptiles to determine if they are a problem to Australia.



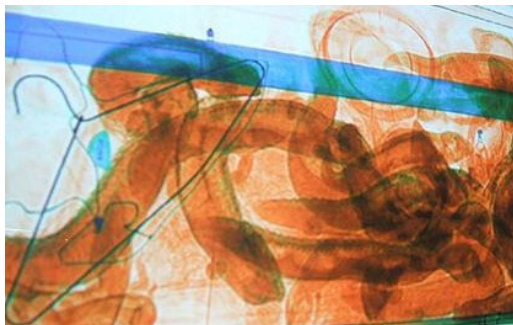
(*Invasive reptiles, cont'd...*)

"Can we do anything about non-indigenous reptiles and are there management strategies that need to be set in place?" he asks.

The invasion process

Uptake and transport

The first step in the invasion process requires that the potential invader comes from somewhere else, a source population. Then it must undergo transport to another region, which happens either legally or illegally, and accidentally or deliberately. In Australia, as an individual it is generally illegal to import non-indigenous species of reptile, however, some reptiles do make it to Australia legally for the zoo industry. Dustin explained that these are examples of deliberate transport, but also that shipping has increased markedly from 1970 to 2007, as has the movement of humans, making the incidence of accidental species introductions more likely. Unfortunately, he adds, the spread of invasive reptiles throughout the world predominantly occurs deliberately, of which Hawaii is a good example. This has led to animal smuggling becoming the third largest crime in the world worth US\$20 billion per year, behind guns and drugs. Dustin showed a slide of several reptile species which were in the process of being smuggled out of Brisbane, including a Pig-nosed Turtle (*below*),

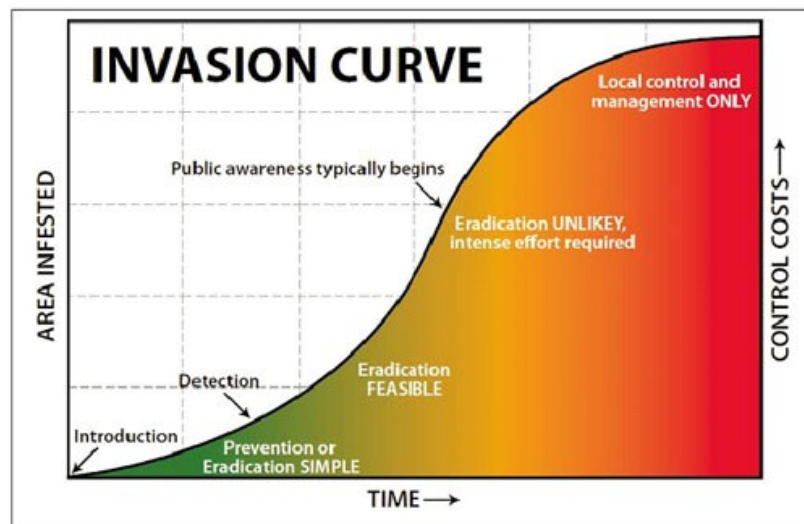


and a number of Shingle-back Lizards (*above*).

Species of non-indigenous reptile found in Australia

- Snakes > 42 species
- Lizards > 26 species
- Turtles > 25 species
- Gator > 1

Wendy Henderson, along with colleagues from the University of Adelaide, conducted a study to identify which non-indigenous reptiles have been found in Australia, which is significant. Some years ago Dustin wrote an article for the Snakes & Tails magazine in which he asked readers to anonymously contact him to gauge the types of illegal reptiles being kept as pets. Some readers quite openly declared that any reptile could be obtained with one caller stating they had six species of rattle snake and three species of cobra. An Alligator, found on the Southeast coast of Australia in Pambula, shows the caller's claims are credible.



Once an organism has made it to Australia, it has to reach the wild, which either happens due to deliberate actions or because of accidental escapes. In the US, the Burmese Python invasion of the Florida Everglades was caused due to deliberately released pets, and most reptile keepers have experienced that moment when one of their pets has managed to escape its enclosure. But how many make their way permanently into the wild?

Establishing a population

Once an animal finds its way to a foreign region or land and can theoretically live there, it needs to establish itself to become a real threat. But just because an animal can live in an area, where reptiles are concerned, this does not necessarily mean they will establish a population due to limitations in reproduction.

Once an animal has established itself in an area it is still not considered invasive because it has not yet had a dramatic impact on its new environment: it needs to spread to be deemed invasive. Dustin pointed out that this gecko has been predominantly spread unwittingly by humans travelling along Australia's road network. Cargo ships have also brought the geckos to Perth, Kalgoorlie and other port centres around Australia.

There are five reptile species in Australia that are thought to be non-indigenous: these are the mourning gecko, the Asian house gecko, a blind snake, the red-eared slider, and the wolf snake on Easter island.

Once a population spreads and alters the balance of an ecosystem they then are considered invasive. Two non-indigenous reptile species are now considered invasive: the Asian house gecko, and the blind snake which has been transported within the nursery trade.

Problems with managing invasive species

When an organism is first introduced to a new area, it is rarely noticed due to the cryptic nature of most animals, this is especially so with reptiles. As the population of an invader increases it will reach a threshold where they are detected, but by this stage, often the population has significant numbers. This problem is amplified due to the fact that the public have limited information about identifying organisms. Dustin's research was aimed at identifying a way to pre-emptively identifying areas where non-indigenous reptiles may invade.

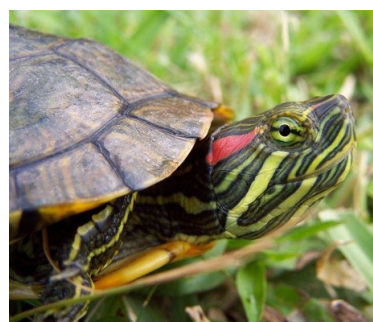
Predictive modelling

By examining the physiology of a selection of potentially invasive reptiles a number of key attributes were found that would limit the establishment of said reptiles. Environmental

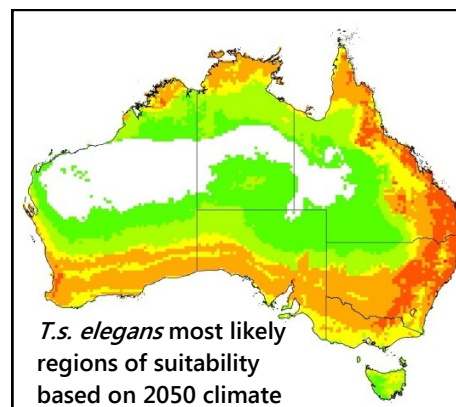
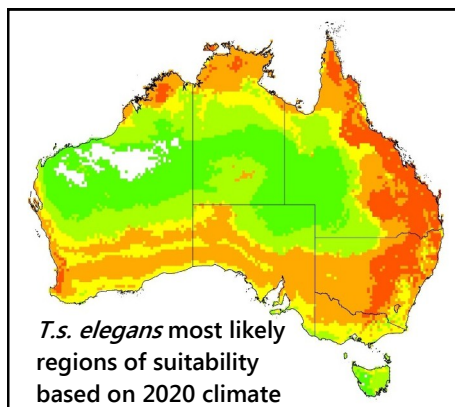
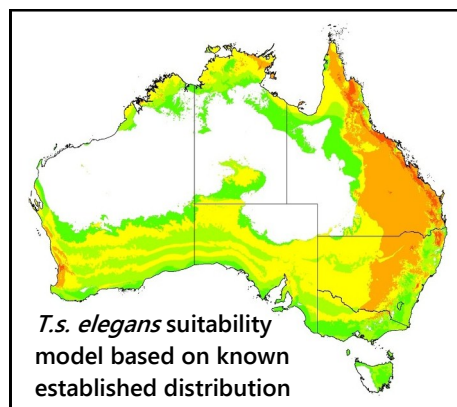
factors such as the maximum and minimum temperatures, rainfall, average temperatures and radiation levels were found to be important in the environmental requirements of reptiles. From these factors, the realised niche, that is the limits of temperature and rainfall etc, which these species can tolerate, was used to map the potential distribution in Australia.

Dustin spoke of a Red-eared Slider population in Russia that was living in waters which were flowing from a nuclear reactor. Whilst this species seems to be able to live anywhere, there are in fact limitations. France did a lot of studies on this particular pest species. Eggs were retrieved and placed in the ground at differing latitudes. Certain latitudes resulted in good, viable clutch sizes. Locating eggs further north resulted in skewed populations that failed to establish.

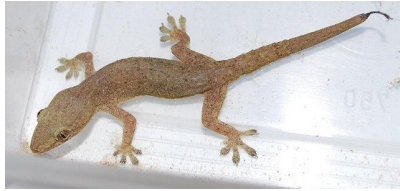
Could the Red-eared Slider live in Canberra? Climate change, extreme and conservative scenarios, adjusting the variables and producing a middle-of-the-range scenario has shown that by 2050 we may well see them in this region. (see maps below). By 2100 the population is predicted to extend down the east coast of Australia. Corn Snakes could populate Brisbane and Perth, and the Iguana could call the northern areas of Australia home. So are non-indigenous reptiles a threat specifically to Canberra's biodiversity? Not imminently but the potential is certainly there.



Red-eared Slider,
T.s. elegans



Dustin described a potential problem with this type of modelling, specifically that the evolution of the animal cannot be accounted for. Establishing a population in one area may only be for a short period of time, 10 or 20 years



before the animal moves on, as in the case of the Asian house gecko (*left*) where the population has continuously moved south, adapting to

cooler climate. This is an animal that has a fast turn-over of individuals which results in a faster adaptation to these environments.

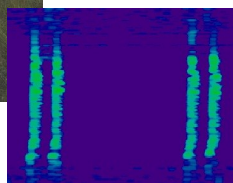
Another factor that cannot be accounted for is micro-climate exploitation, for example small species that can't live in a cool area could survive in a house's warm wall cavity in that same area.

Defence Automated Monitoring using Survey Cameras and Sound

Dustin went on to describe what he has been working on for his PhD, namely he has been recording animal movements using cameras and sound and comparing the results with work done at other universities. The use of non-invasive research methods is of major importance as the collection of valuable data can be achieved.

Sound

Using acoustic and ultrasonic detectors, birds, bats and frog calls can be collected simultaneously. Sound signatures can then be analysed to create a database of species that are living in any given habitat. This technique is not greatly new and many researchers have used such technology for some time.



Remote automated cameras

Remote cameras are systems that automatically take pictures of animals when they move in front of the camera. The problem is, that the way they operate requires the animal to be warmer than the surrounding temperature. Because of this, remote cameras have not previously been used to study reptiles. Dustin has pioneered a new method enabling these cameras to be used, with excellent results being achieved. The results of this work will be published in coming months, but he did describe the process briefly.

Conventional cameras work off passive infrared, which relies on sensing body heat. The problem with photographing reptiles is that they are often of a similar temperature to the ambient surrounding environment. Dustin's solution was to place a cork board in the view of the cameras detection field. They were placed at intervals along a drift fence (*below*).



This 'pad' heats to a hotter temperature than the grass beside it so that when a reptile walks across it it triggers the camera to take an image (the sensor works off hotter or cooler bodies which move over the cork board). All the results from physical searches for reptiles can be achieved the same way using this system. Amongst the images was one of a baby She-oak Skink, which was not seen during other manual surveys.



(Invasive reptiles, cont'd...)

One major advantage of these systems is that the data can be sent to numerous people for verification. Furthermore, the public is now able to get involved in such research with an App called Instant Wild. Viewers can see pictures taken from all over the world and identify them, assisting researchers on the ground.

Reactive eradication



"It doesn't seem to be covered in our invasive species management plan."



THE AUSTRALIAN & INTERNATIONAL SCENE

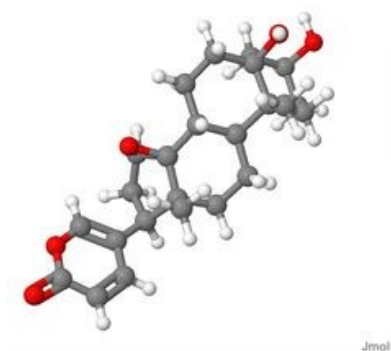
Attack of the killer tadpoles

Author: Ian Musgrave, Senior lecturer in Pharmacology, University of Adelaide.

Article appeared in 'The Conversation', 13 June '12

"I've written before about the toxins secreted by the Cane Toad. The toad's venom is a complex mix of chemicals. The most important is related to digoxin, the toxin found in the Foxglove plant, and works the same way. It changes the excitability of the heart muscle, causing the heart to contract wildly and ineffectually, or stop completely.

This brew of poisons is what makes an animal that would normally be a crunchy treat into a last meal for native lizards, local marsupial carnivores and dogs. The surviving predators tend to give the toxic toads a wide berth.



Above: Structure of Marinobufagin, I. Musgrave

Yet, ironically, this very toxin that protects the toad may be its undoing, according to some clever research reported in The Conversation today. Because it's not just the adults that are poisonous. The toad's eggs also produce some of the toxins that adults produce, and secrete them into the water.

Lots of animals use chemical signals to find food (think sharks following traces of blood) or mates (pheromones secreted by moths and other insects that drift on the wind) where mere visual identification would not be effective. These chemical signals can also be used as a warning (don't eat me, I'm poisonous).

The wafts of toad egg toxin drifting through the water deter predators from eating the eggs (water beetles for example, rather than the dogs and lizards the adults face). This generally works well, except for one problem.

Any pond where toads lay their eggs will have a finite amount of food. If all the Cane Toad eggs in a pond hatched, the tadpoles would rapidly run out of food. So it pays the early hatching tadpoles to hunt down and eat the Cane Toad eggs that have not yet hatched.



But if Cane Toad eggs are hidden in murky waters in the breeding ponds, how does a Cane Toad tadpole efficiently hunt down the eggs? By following chemical cues. And what chemical cue is unique to the Cane Toad eggs? The very toxin that protects them from other predators! No other animal in Australia produces these toxins.

Of course, Cane Toad tadpoles are resistant to the toxins that the Cane Toad eggs secrete, so the toxin is not a deterrent to them snacking down on the eggs.

Now here's the clever bit: the researchers used this information to devise a way to clear out Cane Toads from their breeding areas.

By smearing a small amount of Cane Toad toxin in a trap, and letting the toxin leak out into the water of a pond, the hungry Cane Toad tadpoles seeking to consume their as yet unhatched brethren sniff out the poison, swarm up into the traps and are caught.

It's like the pheromone traps we use to catch insect pests, but instead of attracting them with a potential mate, we attract the tadpoles with a potential meal.

Excitingly, it looks like the traps were able to virtually clear out the ponds of Cane Toad tadpoles with minimal effects on other fauna. Probably because the toxin that attracts the Cane Toad tadpoles repels native fish and native frogs.

The toxin traps have the potential to clear breeding ponds efficiently, and to be easily transportable to wild terrain.

Of course, the Cane Toad is spread over such a wide area and has penetrated into such difficult to reach landscapes that any control method will be facing heroic challenges.

Still, it would be gently ironic if the very toxin that makes Cane Toads such a devastator of native wildlife were to contribute to their removal or control."



Different croaks: different frogs

Posted 6 June '12. http://www-public.jcu.edu.au/news/current/JCU_103594

One species of frog has become three including one unique to Hinchinbrook Island following studies of their genetics and mating calls.

Research published by James Cook University's Dr Conrad Hoskin and colleagues shows that this particular north Queensland rainforest frog really consists of three species.

"Even though these three species look and sound quite similar to us as humans, there is very little interbreeding between them," Dr Hoskin said.

"This is in large part due to the degree of genetic difference among them but also probably due to the differences in mating call. They probably don't find each other attractive or perhaps they don't even recognize each other as potential mates."

Detailed research on variation in genetics and mating calls across populations of the Ornate Nursery-frog (*Cophixalus ornatus*) over the past decade has revealed that one species is really three.

The Ornate Nursery-frog (*Cophixalus ornatus*) was formerly considered to be found through much of the mountainous rainforest of the Wet tropics region, between approximately Townsville and Port Douglas.

However, the findings, published in the international science journal *The American Naturalist*, show that there are substantial genetic differences between populations in the northern half of the range, those in the southern half of the range, and those on Hinchinbrook Island.

The genetic data shows that these populations diverged from each other millions of years ago. Where the north and south frogs overlap in distribution on Mt Bartle Frere (behind Innisfail), there is very little hybridization between them.

Dr Hoskin said that the populations are so different that they represent three different species, one in the north of the Wet Tropics, one in the south, and one on Hinchinbrook Island.

He has now described and named the new species in the most recent edition of the international science journal *Zootaxa*.

The northern populations retain the original name, the Ornate Nursery-frog (*Cophixalus ornatus*), because that is where the first specimens came from in the late 1800s.

Dr Hoskin has named the southern species the Southern Ornate Nursery-frog (*Cophixalus australis*), with the *australis* bit of the species name being Latin for 'southern'; and he has named the island species the Hinchinbrook Island Nursery-frog (*Cophixalus hinchinbrookensis*), with the species name meaning 'belonging to Hinchinbrook' in Latin.

Dr Hoskin said the Hinchinbrook Island species is particularly interesting.

"This is the only vertebrate species that is restricted to Hinchinbrook Island," he said.

"Everybody knows Hinchinbrook Island is an amazing place, but this just adds to the environmental value of the island. The genetic data shows that the frogs have clearly been doing their own thing on Hinchinbrook Island for an incredibly long time."

"Cyclone Yasi battered Hinchinbrook Island, but now Hinchinbrook gets a positive in being recognized for having its own unique frog."

Dr Hoskin said.

The new species are small frogs (approx. 2.5 cm in length) that live in leaf litter and low vegetation.

Males climb up on to tree trunks and other elevated spots to call in summer after rain. The calls are loud and sound a bit like the bleat of a lamb.

The frogs are called nursery-frogs because, unlike most other frogs, they lay their eggs on land and the males look after them.

"These frogs lay small numbers of eggs in moist areas on the forest floor and the tadpole develops cramped up inside the egg. When it's developed into a small frog it hatches out of the jelly egg and goes off into the forest to look after itself," Dr Hoskin said.

"The process is amazing. The eggs are clear so you can watch the tadpoles developing into frogs inside the eggs.

"These frogs further show us the unique environment we live in in north Queensland. The area has unique diversity found nowhere else, including new species we are still only just discovering".

The papers referred to are:

Hoskin CJ. 2012. Two new frog species (Microhylidae: Cophixalus) from the Australian Wet Tropics region, and redescription of *Cophixalus ornatus*. *Zootaxa* 3271: 1-16.

Hoskin CJ, Tonione M, Higgie M, MacKenzie JB, Williams SE, VanDerWal J & Moritz C. 2011. Persistence in peripheral refugia promotes phenotypic divergence and speciation in a rainforest frog. *The American Naturalist* 178: 561-578.]

Homebody sea snakes at risk

ARC Centre of Excellence for Coral Reef Studies, 4 May '12. *The study*

"Sea snakes rarely venture far from home"
by Vimoksalehi Lukoschek and Richard Shine has been published in the latest issue of *Ecology and Evolution*. <http://www.sciencealert.com.au/news/20120405-23360.html>

Australia's sea snakes may be more in danger of extinction than previously thought, marine scientists say.

New research on turtle-headed sea snakes that frequent coral reefs in Australia and nearby New Caledonia has found they are strongly attached to their home reef and rarely venture even a few kilometres to neighbouring reefs.

Researchers from the ARC Centre of Excellence for Coral Reef Studies (CoECRS) and The University of Sydney used genetic 'fingerprinting' to show that this behaviour has resulted in significant genetic differentiation in populations of the turtle-headed sea snake, *Emydocephalus annulatus*, living on adjacent reefs. These snakes occur in shallow-water coral reef habitats from the Philippines to the Great Barrier Reef and from New Caledonia to north western Australia.

"The genetic divergence we found confirms that snakes rarely travel to other locations to mate, regardless of the distance, and means that if one population were to decline or disappear, it is unlikely to be 'replenished' by neighbouring snakes, because snakes rarely move between reefs," says lead researcher Dr Vimoksalehi Lukoschek from CoECRS and James Cook University.

"For eight years, sea snakes on two reefs that are adjacent to each other in New Caledonia

(Australian & International scene, , cont'd...)

have been captured, tagged with a microchip device and released," says Prof. Rick Shine from the University of Sydney. "In almost all instances, the snakes were repeatedly recaptured on the same reef during summers and winters.

"This finding matches with the genetic dataset, which showed that snakes on their home reefs were more closely related to each other genetically, than they were to snakes on the neighbouring reef. Similar genetic patterns have also been documented for other coral reef sea snake species."

"The implications are that coral reef sea snakes are extremely vulnerable to disturbances in their local habitats, which could be caused by human activities or environmental changes," says Dr Lukoschek. "This is of great concern, given that some Australian populations of turtle-headed and other reef-associated sea snakes have undergone massive declines or local extinctions in recent years, particularly at Ashmore Reef in the Timor Sea, and also on some reefs in the southern Great Barrier Reef."

While the reasons for this behaviour of sea snakes are still unknown, physical barrier is not one of them, the researchers say.

"Although movement between reefs by sea snakes can be hindered by deep-water channels, our study sites were in close proximity and

connected by shallow-water reef. These sea snakes can swim well and could easily have travelled to the neighbouring reef but they didn't."

"It is possible that they don't move far because they forage exclusively on the eggs of reef fishes that are laid in nests on reefs, so they stick to reefs where they know the locations of those nests. Land snakes have been shown to have memory and the same may also be true for sea snakes. It is also possible that they like to stay close to their 'relatives'."

The findings raise doubts on the ability of Australia's coral reef sea snake populations to recover from serious setbacks and highlight the need for greater awareness about the conservation status of these species.

"Perhaps because they are snakes, sea snakes have a very low profile on the conservation agenda. Some populations of coral reef sea snakes have declined sharply over the past ten years, but this has gone largely unnoticed and almost no effort has been made to find out why," Dr Lukoschek says. "We need to pay more attention to these species, particularly because most of the coral reef species that have disappeared from Ashmore Reef are endemic to Australia."



CONSERVATION COUNCIL ACT REGION CONFERENCE

OUR FUTURE OUR ENVIRONMENT

21 - 22 SEPTEMBER 2012, FENNER SCHOOL, ANU CANBERRA

**CALL FOR PRESENTATIONS AND EARLY BIRD
REGISTRATIONS CLOSE ON 31 JULY 2012**

photo: yellow box, Eucalyptus melliodora, Matthew Frawley

Our Future Our Environment provides participants with an opportunity to share their experiences, contribute their views, and to network to achieve the highest quality environment for Canberra and the surrounding region.

We are encouraging our community to express a vision of what we want Canberra and its regional environment to be like in the next decades or century and what we need to do to get there.

This conference will build community involvement in, and understanding of, regional environmental challenges including community engagement, water, transport, energy, waste reduction, climate change, sustainable growth, indigenous knowledge, planning, environmental legislation, biodiversity, the political cycle, and protection of our heritage.

ACTHA HAS MAIL!

Compiled by Mandy Conway, Editor

ACTHA receives several herpetological publications in return for copies of our Newsletter, as well as other material from time to time. I look through this 'mail' and generally file most of it for future reference.

"South Australian Herpetology Group (SAHG): Newsletter No. 151, Autumn 2011

General articles include identification of local reptiles, keeper's corner, book reviews and field excursion articles.

Article: Reptiles within the Mallee Habitat west of the Middleback Ranges, Upper Eyre Peninsula, SA, Oct & Nov 2011, by Peter Matejcic (SAHG member). Article contains photos and lists of reptile species found on two visits to the area. Exact species location co-ordinates are included.

Field trip report: Boolcoommatta Reserve revisited, Northern Olary Plains, SA, 6-9 April 2012, by Peter Matejcic.

South Australian Herpetology Group (SAHG): Newsletter No. 150, Summer 2011

General articles include identification of local reptiles, keeper's corner, book reviews and field excursion articles.

Keeper's corner: Early recollections studying and keeping *Lerista* skinks, by Gary Stokes.

'Milking the Taipan', Adelaide Zoo is now home to the only pair of Central Ranges Taipan in captivity in the world.

Field trip report: A reptile study of the Lefevre Peninsula Coastal Reserves, Dec 2010 and Mar 2011, by Peter Matejcic

Cape York Herpetological Society Newsletter

Volume 3 Issue 4, August 2012

Sent as a PDF file to your ACTHA Editor, this Issue advertises the Society's next guest

speaker: Jack Shield, who has 25 years experience working in Cape York and Torres St Island communities as a Qld Govt veterinarian and animal welfare inspector. He will discuss new Qld legislation which aims to reduce the suffering of sea turtles killed by the indigenous community, specifically how practices can be modified. Fantastic info and photos from field trips is also included.

Kosciuszko2Coast K2C Groundcover Newsletter Issue No. 11, April 2012

K2C is a partnership of 11 government agencies and non-government groups. The newsletter is sent as a PDF file to your ACTHA Editor and aims to disseminate information on grasslands, woodlands, riparian areas, wetlands and bogs, small bush birds, arboreal mammals and significant forest species. Issue No. 11 includes details of recent successful grants, on-going projects, as well as articles on 'Don't spread the lovegrass', 'Endangered peppercress', the earless dragon, koalas, and farms as frog and reptile sanctuaries.

Contact: Lauren Van Dyke
Email: facilitator@k2c.org.au

FROGWATCH Mid year Newsletter 2012

Sent as a PDF file to your ACTHA Editor, the newsletter keeps readers up to date with Frogwatch activities, including upcoming field trips and frog ID training seminars. Several seminars and field trips will be held in September '12. The Frogwatch monitoring period for 2012 starts in October.

Contact: Anke Maria Hoefer
Phone: (02) 6278 3309
Email: frogwatch@ginninderralandcare.org.au
Web: www.ginninderralandcare.org.au



ACT HERPETOLOGICAL ASSOCIATION INC. 2012 - 2013 MEMBERSHIP RENEWAL NOW DUE

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 040003311

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).



ACTHA News

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