ACTHA News

Newsletter of the ACT Herpetological Association Inc.

April-May 2021

In this issue

The local scene

The Australian and International scene

ACTHA Committee for 2020-2021

President: Jason Spurr

Vice President: **Ric Longmore***

Secretary: Dennis Dyer

Treasurer: Margaret Ning

Newsletter Editor: Brian La Rance

Webmaster: Angus Kennedy

Public Officer: **John Wombey***

Conservation officer: Joe McAuliffe

Committee members: Iris Carter, Greg Flowers, Roy Chamberlain and Peter Child

Youth representatives: Liam Thornton and Jake McAuliffe

**denotes life members*

Christina Zdenek's presentation for the April meeting "***All about Death Adders: The black sheep of Australian snakes***" was excellent.

For members that missed it, it will be emailed out shortly and available via a drop box link.

ACTHA Contact details:

PO Box 440 Jamison ACT 2614

E-mail: info@actha.org.au

Introducing Viperid Snakes of the World – Hank Jenkins

At the February meeting, Hank Jenkins presented on Viperid Snakes of the World. Hank is a herpetologist who lives in Canberra and has worked for the ACT government for many years. He has travelled the world researching and photographing its vipers. He spoke on the groups of Vipers from each continent and the genera and species within them.

There are three subfamilies within the Viperid family, *Viperinae*, *Croatalinae* and *Azemiopinae*. Viperids are widely distributed, being found across Europe, Asia, the Americas and Africa; with Asia having the highest density of the species.

North America has 23 Viperid species spread across three genera. The Genera of Viperids in America are *Crotalus*, *Agkistrodon* and *Sistrurus*. The genera *Crotalus* and *Sistrurus* comprise the rattlesnakes. *Crotalus* has the highest number of species out of the three genera at 17.

South America has 57 species of Viperid across 5 genera. With a warmer and more tropical climate South America hosts a greater diversity of Viperids than its northern counterpart. In contrast to North America, South America supports very few rattlesnake species. South America is home to the longest known species of Viper, the South American Bushmaster (*Lachesis muta*). [Adults grow to an average of 2 to 2.5 m and occasionally 3 m. The largest recorded specimen was almost 3.65 m long, making this the largest of all vipers and the longest venomous snake in the western hemisphere - *Eds*]

Europe contains 8 species of viperid across only a single genus, *Vipera*. The Common European Viper (*Vipera berus*) is the most cold-tolerant of the genus and can occur as far north as the Arctic circle.

Asia has the highest density of viperids with around 150 currently described species, spanning across 19 genera. With the wide range of habitats across Asia, ranging from arid deserts and rocky ranges towards the Middle East and dense tropical rainforests in the south, the Asian continent is able to host a wide variety of niches for the Viperids to allow a great deal of speciation.

Hank's Talk was an excellent and informative introduction to the complex world of Viperids. He discussed the main groups from each continent and was able to answer concisely any questions the audience had.

The life of Gary: snake tracking study reveals the habits of eastern browns in Canberra

Michael Weaver 14 March 2021

Snake researcher and owner of ACT Snake Removals, Gavin Smith, with the telemetry system at the burrow of an eastern brown snake named Gary. Photo: Michael Weaver.

Gary, a 5-6 year-old male eastern brown snake (*Pseudonaja textilis*), is curled in a burrow on the hillside of an undisclosed Canberra suburb waiting for the first rays of sunlight on an autumn morning.

"My five-year-old daughter named him Gary because she thought it would be a great name for a snake," says Gavin Smith, a certified snake catcher, researcher and associate professor at the Australian National University.

Gary is one of five eastern brown snakes that have been caught during the summer, tagged by Canberra wildlife veterinarian, Dr Arianne Lowe, and released as part of a much larger study on how the cryptic creatures move through and make use of Canberra's suburban environment.

The four other snakes have names, too: Flojo, Rambo, Taylor and Penny.

"I decided to name them because it gives them more of a personality – they're magnificent animals and they are sentient beings that just need to be seen differently," Gavin tells *Region Media* while sitting within striking distance of Gary's burrow as galahs call overheard and curious kangaroos listen in on our conversation.

An eastern brown snake shows a classic 'periscoping' posture as it surveys the surrounding environment. Photo: Keith Kaney.

One of the busiest snake seasons on record is also beginning to slow – due to a process known as brumation. Gavin and a number of Canberra snake catchers, including Alex Borg from Canberra Snake Catchers, and Luke Dunn from Canberra Snake Rescue and Relocation, have been flat out rescuing and relocating snakes of all sizes from people's homes, pools, water pipes, backyards and near schools.

Gavin says the Canberra Snake Tracking Project, which is funded by the Ginninderry Conservation Trust, is the first of its kind in Canberra and will help develop a better understanding of the highly venomous yet vastly misunderstood eastern brown snake. Other local snake species, such as the red-bellied black snake, Dwyer's black-headed snake and tiger snake, are not included in the study because the eastern brown is the dominant snake in the landscape.

Gavin has gone to great lengths to get the study, which began in early December, approved by the ANU Animal Experimentation Ethics Committee and ACT Government Licensing and Compliance. He even set up a small camera at the entrance to Gary's burrow to see his movements. A cool video montage from

the “Garycam” can be viewed on: https://www.facebook.com/CanberraSnakeProject/videos/799437624250245/ .

The slithery trail to unlock the world of snakes will eventually track more than 40 of the creatures during a three-year period, but it is already providing some intriguing data from the first five snakes, including rare footage of Gary eating a much smaller eastern brown snake.

“We know that Flojo has been caught two or three times previously because of the unique markings we’ve seen on her,” says Gavin. “The movement patterns show the snakes have been moving up to 400-500 metres a day in the area where we’ve released them, but, of course, they don’t travel in straight lines.

“We know the snakes aren’t completely dormant, but I’ve already seen them come out of their burrows so I suspect we may see Gary on a sunny winter’s day.”

Gavin says the study will help people understand how to exist with snakes rather than against them.

“There’s so much we don’t know about these snakes,” he says. “They’re completely secretive and cryptic so we want to know more about what kind of burrows they seek out, and when they’re active and when they’re not. What are they eating and what are their behaviours?

“Already, I know quite a lot about these guys’ habits, which is what I’m most interested in. How are they moving through the landscape and how are they interacting with other snakes? We’ve already seen Gary eat another snake, but that’s what they do to survive.”

Gavin says the main battlefront for the eastern brown snake is with humans and their pets.

“Most humans can be socialised and educated into accepting snakes more – not necessarily loving them but just appreciating that they pre-date us here,” he says. “I get a lot of calls from people with pets and that’s completely understandable.”

“I’m visiting these snakes every day to build all this amazing data. I even suspect they are beginning to know my movements, too, from the disturbance in the landscape, but it’s not a threatening one.”

From: https://the-riotact.com/snake-tracking-study-reveals-the-habits-of-eastern-browns-in-canberra/445430

“Waterway wanders”

Review of another short (3 minute) video by Matthew Higgins at: https://youtu.be/itU_7plBMKc

“(This) new video, ‘Waterway Wanders’, filmed in the Bega Valley, looks at a range of Australian wildlife and waterscapes. On the soundtrack there’s a nice folk/country guitar piece by Dan Lebowitz, plus natural bush sounds”. It’s very relaxing watching and includes video of a red bellied black snake and Gippsland water dragon.

Scientists venture deep into Victorian forest to secure future for giant burrowing frog

There's hope for the giant burrowing frog (*Heleioporus australiacus*) after Melbourne Zoo successfully collected tadpoles to begin a breeding program.

Giant burrowing frog (Heleioporus australiacus). Photo: Zoos Victoria

Melbourne Zoo has established the first ever captive breeding program for the endangered giant burrowing frog.

Found in small populations in remote parts of Central and East Gippsland, the embattled frog was hard done by during the 2019–20 bushfires, which spurred scientists into action.

In March, a team of scientists from Melbourne Zoo and the Arthur Rylah Institute for Environmental Research ventured into wild habitats in a remote part of East Gippsland to collect tadpoles.

"Heading into the bush field site to find these tadpoles was a remarkable experience," says Zoos Victoria Threatened Species biologist, Deon Gilbert.

"We were exceedingly lucky to find them, and to share the moment with colleagues who have spent so much time studying this species was beyond special. Everyone was ecstatic."

Frog experts collecting wild giant burrowing frog tadpoles from east Gippsland to start a captive breeding program at Melbourne Zoo. Photo: Zoos Victoria

According to Deon, recent wet weather created the perfect environment for frog collection.

“This species breeds in shallow pools and, unfortunately, the pools can dry out really quickly depending on the weather.

“This year, unlike many others, we have had a lot of rain in early spring and summer, and that produced really good conditions for giant burrowing frogs. So we were lucky enough to find some tadpoles and that’s what has instigated this program.”

Because very little is known about the rare frog, scientists say the first step of the breeding program will be dedicated to gathering information about its wild ecology and captive biology.

“We need to figure out how to grow them, rear them and produce really fit frogs,” Deon says. “And then those frogs will go on to start a conservation breeding program.”

As is the case with many frogs, giant burrowing frog populations have been ravaged by the chytrid fungus, an infectious disease that attacks frog skin.

Melbourne Zoo has had previous success with breeding programs for the Baw Baw frog and southern corroboree frogs, which face similar challenges.

From: Australian Geographic, March 31, 2021

https://www.australiangeographic.com.au/topics/wildlife/2021/03/scientists-venture-deep-into-victorian-forest-to-secure-future-for-giant-burrowing-frog/

Critically Endangered Alpine Tree Frogs – *Litoria verreauxii alpina*

Reprinted with permission from the Frog Call Newsletter, April 2021.

Last week we found the last straggler tadpoles of this season's clutches of Critically Endangered Alpine Tree Frogs (*Litoria verreauxii alpina*) about to complete development and make their way onto land.

Way back in '03 I was tasked with drafting the National Recovery Plan for this beautiful frog, as well as assembling a National Recovery Team to oversee conservation actions. Unfortunately, the feds never got around to publishing the Plan, and although I updated it several times over the years, it remains in draft form 18 years on. Despite that, the (now low key) Recovery Team continues to plan for this frog's future. I've experienced the highs of being involved in the discovery of populations, and the lows of watching several of those populations crash, sometimes to total loss.

There is some conjecture as to whether the ATF truly 'deserves' subspecies' status, but however that topic is decided, the facts are that it was once almost ubiquitous in the High Country, from Mt Baw Baw to Davies Plain (and on into Kosciuszko National Park; but, curiously, absent from Mt Buffalo), but is now barely hanging on at less than a handful of localities in Vic. There has been a catastrophic 'crash' across the high elevation parts of the nominal species' range, and it is now totally gone from places like Baw Baw, Lake Mountain, and the Bogong High Plains, and disappearing fast from some other areas.

This means a serious loss of intra-species diversity, and a loss of a significant proportion of the amphibian fauna and biomass in the High Country. The primary driver of the rapid (mere decades) losses has almost certainly been the disease chytridiomycosis. However, where it is just hanging on a range of highly plausible pressures (as well as the disease) continue, including: drought, use of breeding ponds for firefighting training, logging, development in alpine resorts, damage to habitat from deer, feral horses and cattle, and – of course – a changing climate. In fact, every one of the few remaining populations has at least one (and most have several) existential threats operating right now.

On the up-side, the Alpine Tree Frog has the potential to be a remarkably informative model frog for experimental reintroductions. Not only could such actions secure this frog into the future, they could also provide enormously valuable lessons for reintroductions of pond-breeding amphibians elsewhere. It's a similar story with the emerging conservation paradigm of 'genetic rescue' – this frog is an ideal candidate for exploring that approach.

Scientist’s eye electronic nose as potential 'game changer' to combat wildlife trafficking

By Elicia Kennedy

13 February 2021

It doesn't sound like a great defence strategy, but a lizard's scent may be its best weapon against the growing threat of wildlife poaching.

Key points:

- A team of Australian researchers is working on creating an "electronic nose"
- The device will replicate the role of sniffer dogs in detecting crime
- It's hoped the "nose" will help to combat native reptile trafficking

A team of Australian researchers is working on the development of an electronic nose which scientists believe could be a "game changer" in preventing the smuggling of native wildlife out of the country.

The device will essentially replicate the behaviour of sniffer dogs and be used by customs and mail authorities to find wildlife hidden in parcels and luggage.

According to financial intelligence agency AUSTRAC, native reptiles are the most trafficked live Australian animal. A single lizard can sell on the black market for up to $20,000.

Shinglebacks (bobtails) are measured before the researchers collect odour samples.
Photo: ABC News: Elicia Kennedy

The lucrative price tag means the trading of wildlife has become a huge money-spinner for organised crime, generating a predicted global revenue of $23 billion every year.

University of Technology Sydney (UTS) forensic chemist Dr Maiken Ueland is part of a team leading the work to develop the device.

"An electronic nose will really be a game changer," Dr Ueland said.

"If you can just scan all the incoming mail, all the incoming luggage, it is going to be a massive time saver and it means that we can capture a lot more of the illegal wildlife trade that is currently undetected."

Electronic nose to combat wildlife trafficking

The device is initially being designed to detect the odour of shinglebacks — or bobtails, as they're known in Western Australia — because the lizard is one of the most highly-trafficked Australian animals.

Shinglebacks — or bobtails, as they're known in WA — are only found in Australia.
Photo: ABC News: Elicia Kennedy

"Shinglebacks are popular because they are only found in Australia," said Dr Greta Frankham, a wildlife forensic scientist at the Australian Museum.

"Overseas collectors want things that are rare or that are hard to get."

The Australian Museum — a partner in the research — is the country's forensic wildlife hub and where agencies that enforce wildlife crime turn to for expert advice and help with prosecution.

"Detection of trafficked wildlife can be quite difficult," Dr Frankham said.

"They may wrap [the animals] in bandages or place them inside something … they might even put things in the luggage or package that will try and trick the dogs so they can't smell them."

The project to develop the electronic nose will not only improve detection but also provide vital new DNA information about the lizards.

"Knowing where they have come from in the wild will allow us to have better strategies to try and prevent poaching in the first place," Dr Frankham said.

Tiny compounds hard to disguise

While a human nose can't sniff out a reptile, a trained dog can, because every animal is constantly producing an odour.

In scientific terms, this odour is the result of volatile organic compounds, or chemicals, being emitted into the air.

Bobtails from different regions show different skin colour variations. Photo: ABC News: Elicia Kennedy

The type of odour produced mostly depends on what kind of food the animal eats, as well as its genetic make-up.

The advantage for this team of scientists is that these compounds are very hard to disguise.

"[These] volatile organic compounds also have the advantage that they are very small molecules," Dr Ueland said.

"So, they can escape from packages, which means that we can detect odour from outside the package."

Dr Ueland said the team was sampling more than 100 shinglebacks from across the country because the scientists expect lizards will emit different odours depending on where they live.

The research team is working on a method that will not only identify live animals in packages, but also animal powders or body parts, which continue to produce odours.

"Getting a method that is really going to be able to detect across a whole range — [both] live species that will smell a fair bit more and those powders and figurines that might be a lot trickier to detect," Dr Ueland said.

Humble bobtail hunted for 'exotic pet' trade

Fellow UTS researcher Amber Brown has spent the past year travelling the country collecting odour samples from the four different sub-species of shingleback.

WA is the only state that is home to all four sub-species, so it has been an important location for the team.

UTS scientist Amber Brown has been studying the bobtails on Rottnest Island. (ABC News: Elicia Kennedy)

Once captured, each lizard is measured, blood-tested and then placed in a vented container for 20 minutes. After the sampling device has collected the odour, it's sealed up for analysis back at the laboratories at UTS and the Australian Museum.

"We spent our first trip in the Goldfields," Ms Brown said.

"That population of shingle backs have a unique orange colour, which also gives them a high market value in the illegal wildlife trade."

Bobtails found in the Goldfields region of WA have a distinctive colour which is highly prized by wildlife traffickers. (Photo: Amber Brown, UTS)

The bobtails of Rottnest Island are also highly prized for their speckled colouration.

In 2018, a 45-year-old Japanese man was caught at Perth International Airport trying to smuggle bobtails — collected from Rottnest Island, the Mid-West and Perth — to Hong Kong.

Six months later, another two Japanese nationals were caught with 13 bobtails collected from all over the state, wrapped in towels and placed inside plastic containers in a suitcase. Both were sentenced to five months in prison.

"A lot of people don't understand the demand for the shingleback … as an exotic pet," Ms Brown said.

"A lot of Australians don't know that there is an illegal wildlife trade here in Australia. It's just a very valuable animal."

Disease, biosecurity risks a concern

Dr Frankham said the COVID-19 pandemic had helped to highlight the disease risks of wildlife crime.

"It is an issue for wildlife all over the world — not just in Australia — because it can lead to the extinction of species as well as biosecurity risks," Dr Frankham said.

"As we have learnt a lot about in the last year, they can move diseases into new environments, which can be a threat not only to the native animals in that area but also to human populations."

While the electronic nose will initially be used to help uncover shinglebacks, the research team hopes it will be the first of many native Australian species the device will be able to detect.

"For us, this really is the big groundwork," Dr Ueland said.

"Then it's going to be all about getting a big data set for us to be able to branch out, so it will just be adding more and more different types of species into our repertoire."

Some reptiles through the lens of local photographer, Angus Cleary

Below is a series of images from local photographer and amateur herpetologist, Angus Cleary.

Monaro grassland earless dragon
Tympanocryptis osbournei, Cooma, NSW

Red-crowned toadlet, *Pseudophryne australis*, Watagans, NSW

Patternless delma or Patternless legless lizard, *Delma inornata*, Canberra, ACT.

Note the readily visible ear canal, which is one of the external features distinguishing lizards from snakes

Central netted dragon, *Ctenophorus nuchalis*, Olympic

Burton's legless lizard, *Liasis burtonis*, Gluepot Reserve, SA

And finally, a snippet of humour …
What shoes do amphibians wear?
Open toad sandals. Oh no! ☺

But even worse … How good is a python's memory? It can hold several mega bytes.

Aaah!