



**Newsletter of the British Herpetological Society** *Established 1948*

## Editorial

Hello and welcome to the summer edition of The Natterjack.

Massive thanks to Jen Drage of AyeAye Designs for the great new look!

Contributions to this edition are many and varied, and massive thanks to the authors. Zoology student, Emilie Pearson has provided a write-up of the Herp. Symposium and zookeeper Grace Dickinson gives us an insight into the use of reptiles in film and TV work. Sean McCormack continues his regular contributions with an article on the treatment of egg bound Yemen chameleon. Lastly, Adam Radovanovic gives an account of behavioural enrichment in Utila iguanas.

### Thoughts, comments, questions and criticisms?

Want to know more about the BHS and how your council works for you? By all means, let us know! This is your Society, and we want to know what British keepers, scientists and conservationists and others think and feel. Please get in touch, whether via an email to the editor or through the Facebook site.

**David Willis**

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## Conservation

### The Record Pool

Members may be aware of the new ARG UK recording facility, which allows users to enter the details of sightings of local reptiles and amphibians. It is be used by local ARG groups and is useful for getting local information.

Have a look at the website for further details;

<http://www.recordpool.org.uk/>

### Symposium at the Natural History Museum

Emilie Pearson

Supported by the BHS, a 3 day symposium, attended by scientists, conservationists and other workers from around the world, was held at the Natural History Museum. BHS member and university of Bangor student, **Emilie Pearson** gives us her account of events.

April 2013 saw one of the most exciting events on the British Herpetological Society's calendar take place. Following the success of the first British Herpetological Symposium (BHS) held in 2011 at Bangor University, and the first Amphibian Conservation Research Symposium (ACRS) held in 2012 in Manchester, the events were combined this year to give the BHS & ACRS Conference. Held in the Flett Lecture Theatre of the Natural History Museum, London, the conference took place over three days and saw presentations from over 30 different speakers.

The first day started off with a presentation from one of the conferences three Keynote speakers, Professor **Roger Thorpe** of Bangor University, on what Lesser Antillean anoles can tell us about evolution. The talk reviewed the past and ongoing multidisciplinary research into the evolution of the species, and discussed the insights these studies give on the various aspects of evolution in general. This was followed by a presentation by **Dr Isamil Bshaena** of Tripoli University, on the phylogeny and systematics of the North-African Geckos *Tarentola*. The first session finished with the first of the student presentations. **Simon Maddock**, a PhD student based at both the Natural History Museum (NHM) and University College London (UCL), and one of the organisers of the symposium, spoke about one of the areas of research his doctorate focuses

on, the systematics and biogeography of the amphibians of the Seychelles.

The second session began with a presentation by **Dr Liliana Solano** of Manchester University, on the process of combining genetics and ecology to explore conservation strategies of the highly endangered yet highly diverse amphibians of Mesoamerica, in particular the tree frogs of the *Agalchnis* genus. This was followed by a presentation from **Professor Richard Brown** of Liverpool John Moore's University on the evolutionary histories of the Balearic Island lizards *Podarcis lifordi* and *Podarcis pityusensis*. The session ended with another student presentation, this time from Bangor University's **Rebecca Nicholas**, on her work on multilocus inference of phylogenies and species limits in Southern African dwarf adders.

The third session started with a presentation from the Natural History Museum's **Dr Bruno Simões** on the evolution of visual pigments and colour vision in snakes. Next was another student talk from UCL and NHM's Marianne Pearson on her work on the systematics, fossils and biogeographical history of salamanders. **Dr. Richard Pearson**, from the American Museum of Natural History and UCL, then gave a presentation on a novel modelling approach that could estimate the extinction risks for herpetofauna due to climate change. The first day finished with a talk from invited speaker **Professor Stephen Curry** from Imperial College London, on the recent developments and debates surrounding the future of scholarly publishing and open access.

After the conference dinner which was held at the Regency Hotel, delegates arrived the next morning to the second day of the symposium, which started with another of the three plenary lectures.

**Professor Susan Evans**, of UCL, spoke about the origins of modern squamate diversity with

insights from the Mesozoic record. Next Thomas Williams, a student from the University of Oxford, presented his project looking at territoriality in snakes, specifically the Malagasy giant hognose *Leioheterodon madagascariensis*. Robert Gandola, from the Herpetological Society of Ireland and Operation Wallacea, then talked about the spatial ecology and habitat preferences of three sympatric species of Leaf-tail gecko.

The second session began with a presentation from the Durrell Institute of Conservation and Ecology's (DICE) Robert Ward on influences of habitat structure on the resting herpetofauna of northeast Bahia. Next, also from DICE and a student at the University of Kent, was Gonçalo Rosa, who spoke about the conservation issues of the Rainbow frog *Scaphiophyrne gottlebei* in the Isalo Massif, Madagascar. Claire Tanner, a graduate of Bangor University, then spoke about her work looking at new discoveries of non-native sea turtle species off the Ghanian coast in the Western Region. To finish the session, Jiří Francek and Roman Rozínek from NaturaServis S.R.O spoke about the protection of amphibians and reptiles in the Czech Republic, and the approach NaturaServis use.

After a short break, during which delegates had time to view the nine student posters that were being presented, the third session started with Dr Vicky Ogilvy, from Froglife, speaking about one of the charity's latest projects, Dragon Finder, which aims to increase awareness of conservation issues and improve reptile and amphibian habitats in and around London. Next, Jindřich Brejcha, from Charles University in Prague, spoke about the invasive Pond slider *Trachemys scripta* in the Czech Republic. David O'Brien, from Scottish Natural Heritage, then gave a presentation about the nativeness of great crested newts *Triturus cristatus* in the Scottish Highlands. To finish the day, Neil Madden, from Salford University, spoke about an alternative method for capturing newts to the commonly used bottle trap, the collapsible nylon trap.

The final day started with the last of the plenary speakers, Trent Garner, from the Institute of Zoology, who spoke about whether we can predict when parasites are conservation threats to amphibians. Following this, two students also from the Institute spoke about the research they are carrying out. The first was Kirsten McMillan, who talked about the dynamics of amphibian emerging infectious diseases, followed by Frances Clare, who despite having nearly lost her voice gave a great presentation on tracking shifts in *Batrachochytrium dendrobatidis* infection prevalence in an amphibian community.

The second session began with a presentation from another student from the Institute, Emma Wombwell, about the implications of Chytrid in the Amphibian trade. Next were two more presentations from students, both of whom are from the University of Manchester, and were the other two organisers of the symposium. Rachael Antwis spoke about her work looking at the effects of captivity on the bacterial communities of *Agalychnis* species, while Chris Michaels spoke about his work looking at evidence from the field and the lab that can be used to inform captive husbandry of amphibians.

Diego Cisneros-Heredia from Kings College London and Universidad San Francisco de Quito began the final session of the symposium with a presentation on how it is deforestation and climate change, not disease, that is driving arboreal riverine amphibians to extinction in the tropical Andes. Next Alejandra Zamora, a student from the University of Manchester, spoke about the potential distribution of the chytrid fungus in Guatemala. Marcel Kouete, from Project Cameroon Herpetology, then went on to talk about the natural history and conservation of the caecilian amphibians of Cameroon. The final presentation of the symposium came from Thomas Doherty-Bone, from the NHM and University of Leeds, on how work has begun towards improving the protection of critical amphibian habitat on Mount Oku in Cameroon.

The symposium was wrapped up with a few final comments from the organisers, and the prizes for best student talk and student poster

were awarded. The prize for best student talk was awarded to Emma Wombwell, and the prize for best student poster awarded to Alice Lett from University College Dublin, whose poster detailed her work on the dry forest ecology of chameleons in Madagascar.

## Herpetoculture

### Working with Reptiles and Amphibians

Grace Dickinson



I am a herpetologist, hobbyist and also a commercial animal wrangler. In a nutshell, my job entails using the reptiles and amphibians in my care for a variety of purposes including still photography, TV, film and live events. The company I work for also caters for educational outreach to schools and fetes, and “animal encounters”.

Someone asked me the other day, “so when do reptiles actually ever get used for media stuff?” Animals are used far more frequently in films

and media than people realise until you start looking out for it! In most of the major films we supply animals for, our creatures feature in “blink and you’ll miss it” moments, but nonetheless are considered vital to setting a scene, providing the right mood or atmosphere, or telling a story. Snakes are really iconic animals and have for centuries fascinated humans, frequently associated with temptation, the sinister, re-birth, eternity, seduction, sensuality, danger... and so the work my snakes get is mainly still fashion photography, entwined among jewellery, beauty products, perfume, or draped on a glamorous model. These same appealing qualities make them sought after in music videos too. This month I shot for a forthcoming science quiz show for television, presented by a comedian and featuring celebrity guests.

For one segment they wanted to demonstrate where the saying “getting cold feet” comes from, so they got a guest to remove his socks and shoes and sit in a chair with his feet up, which were monitored with thermal imaging cameras and a remote thermometer gun. The chap was then required to put his hand into various “fear boxes”, that unbeknown to him (though with a transparent front panel so the studio audience could see and react) contained either snakes, giant toads, or rats. His fear reaction was encouraged with the use of lighting, mood music, the reaction of the audience and presenter, and me, giving health and safety briefing, hamming up the danger element. The results were interesting, as the temperature of his feet dropped a whopping 5 degrees in about a minute (as the adrenaline from his fear caused his blood to be channelled to his vital organs for use in “fight or flight”). “Fear box” work is not uncommon, though is not something we like to undertake unless we can guarantee a very controlled environment, as it is higher risk (for human and animal safety) than just the regular handling of an animal, but we select species of placid temperament and individuals that are very experienced for such

things. Personally I do not agree with the use of reptiles as fear mongering instruments; as a reptile fanatic it is naturally against everything I stand for, however, even when we are called to use animals as “scary” objects, we always find opportunity to educate and change people’s opinions and preconceptions, which make the job really rewarding. After the afore mentioned TV stunt, I made a point of catching up with the guest and chatting to him about the animals, which he ended up making friends with, so all in all, it was a job well done! It is the “sneaky” educational aspect of my job that I enjoy the most, because I tend to work with a demographic of people that wouldn’t necessarily go to zoos or watch nature documentaries, but when they encounter our animals in the flesh and at close quarters, it’s amazing how engaged they become and how much they want to learn.

Animal welfare is our primary interest, and so to undertake the jobs that are required of them, our animals must be habituated to handling, flash photography, being boxed or bagged, travelling and working with crowds, loud noises, sudden movements and frightened people. Training always starts at home. Wherever possible we acquire animals young so they have plenty of time to be socialised and accept new things easily, but sometimes we take on “rescue” or rehome animals, or surplus from other collections. These animals can take longer to adjust as may have had negative experiences with people, and require time to tame down and learn to trust us. It’s basically all gentle handling, and then animals graduate to meeting groups of people, maybe going into a school, which is a controlled situation, or a photography studio job... we aim to keep at least two of each animal in order to have a “back up” animal, so they can share the work load on a day of filming, which keeps stress to a minimum. In an ideal situation, and the majority of the time, I get the opportunity to recommend a species to fit the brief the client provides, for example to select a naturally

arboreal species if the shot requires a climbing action, or a sluggish species for a static shot, or a naturally docile animal to work with a fashion model or actor. Some of my more seasoned colubrids will allow me to position each section of their body exactly as it is required and they will stay in that position, they have become so accustomed to being manipulated for still photography. Of course all animals have individual personalities, and there are some have more aptitude to handling and working than others. Some never become reliable enough for certain jobs or situations, and you can’t force an animal to do something it isn’t happy about doing. We have one iguana who is very sociable and seems to get enjoyment from meeting people and having human contact so he is ideal for school visits and educational road shows, or working with actors. We have another who only cooperates with me personally, and does not enjoy being handled so much, but is an attractive animal ideal for still photography, or shots that require movement, such as filming a jungle scene last year for “Galapagos 3D” a documentary narrated by Sir David Attenborough.

Another example of us being able to make use of personality differences is a challenging shoot we did recently for a music video for a very famous musician. Cobras and crocodiles were required, and the desired shots were of attack/defence poses. I have four morelets crocodiles in the collection, measuring around 5 feet in length, and who show remarkable personality differences. We were shooting at home in our film studio, which was pre-heated to cater for the reptiles thermal needs. I selected our most reliable crocodile, but on the day she didn’t open her mouth or snap at all when prompted, which has never happened before! So we fetched her extremely aggressive sibling, who obliged us with a fantastic show of snapping which made for some really exciting footage. Worth noting for interests sake is that all four crocs are the same sex and have been raised together with the same diet and same

exposure to handling, and the most aggressive is the slightly smaller one, whereas the most placid is the largest one. Although I use both classical and operant conditioning techniques to train all of my reptiles to an extent, the core of our success when handling or wrangling is down to having well habituated animals and above all being able to predict and gauge each animals behaviour and work with them accordingly. Working with venomous and crocodilians is obviously high risk, and we employ the use of Hex armour and hooks where appropriate. To avoid unnecessary risk, we stock animals that are venomous mimics, such as king snakes and milk snakes.

Other logistics we must consider are moving our animals and having them potentially waiting around on set for periods of time. I favour plastic storage boxes, and while I bag snakes to travel them securely (with a hot water bottle, towels and a pre-heated vehicle) once on a location animals are transferred into a furnished box so they can have access to water, a hiding place and substrate that meets their humidity needs. I use heat mats, or in the case of chameleons, UV lamps as well, to maintain good colouring. We always set the animals in a quiet area, and cover the boxes to give them maximum privacy and minimal stress. Occasionally the problem is not keeping the animals warm enough but in fact stopping them from getting too hot! If we are shooting a model under studio lighting, a snake or lizard may require more breaks than usual to allow it to cool down as they can become overly active! We observe the animals' behaviour closely when filming to ensure if they begin to get tired or stressed they have a break, and at live events our contracts have strict limitations on the time that animals are displayed or handled for. Another consideration when travelling animals is feeding schedules. We never travel snakes or croc on a full stomach as this can cause gastric upsets or vomiting, or defecating in the bag, and even aggressive behaviour. It's also important that a snake or croc has had

chance to fully digest and defecate prior to a job, to avoid unwanted accidents on a film set, or worse, a celebrity!

It's a varied job, a joy to be able to work with so many different species, and although there is a commercial purpose, there is always such a prolific education opportunity in sharing animals- no matter what the situation- it is always very rewarding. There is also something to be said for being able to use ones knowledge, experience and relationship with an animal to achieve a specific task, something I am very lucky to be able to do for a living.

## Vet's corner: Operation on a Yemeni Chameleon

**Sean McCormack**

Reproductive problems in captive reptiles are a common presentation in clinical practice, most frequently in lizards and chelonians, as well as snakes on occasion. Conditions can range from hemipenile prolapse in male snakes and lizards after over exuberant breeding behaviour to difficulties giving birth or laying eggs in female animals. One of the most common reproductive problems presented to my clinic is egg binding in lizards, closely followed by turtles, tortoises and snakes. The term 'egg binding' can be misleading however and actually can be used to describe two very different conditions. A detailed understanding of the physiology of these conditions is crucial in order to diagnose and correctly treat affected animals. The difference in these conditions relates to whether the female in question has ovulated and produced actual eggs or not. The first condition is called pre-ovulatory egg binding or follicular stasis, and occurs when the ovaries begin to become active and prepare for breeding season by producing masses of mature follicles which fail to progress to egg development. The second condition is true egg binding or dystocia and refers to an inability to lay a clutch of generally fully formed eggs, fertilised or otherwise.

Pre-ovulatory follicular stasis commonly occurs in relatively young females that have recently

matured and become reproductively active, and is most frequently observed in unmated or virgin females with a very good state of nutrition and ample body condition. The ovaries begin to produce follicles in preparation for mating and subsequent egg production, yet fail to progress to the next stage of egg production due to excessive body energy reserves, lack of a mate, as well as hormonal imbalance and a natural drive by the body to produce as large a clutch as possible. One of my main recommendations when keeping female egg laying lizard species, chameleons and agamids in particular, is to feed sparingly. The reptile hobby encourages keepers to feed often and in large quantities, sometimes at the expense of the animals health with obesity and unnatural growth rates contributing to many premature deaths.

The following case study outlines a recent patient that was diagnosed and treated for pre-ovulatory follicular stasis in my clinic at Richmond Vets. 'Tia' is a very well cared-for 10 month old Yemen or Veiled Chameleon (*Chameleo calyptratus*) that presented to a neighbouring practice with a diminished appetite, moderate lethargy and a somewhat distended abdomen. X-rays performed there revealed multiple spherical soft tissue opacity masses occupying a large volume of her abdomen. She was referred to me for diagnosis and appropriate treatment, and on inspection of the X-ray images an immediate diagnosis of follicular stasis was made. If it was a case of true egg binding or dystocia the masses would have been oval or ovoid in shape rather than spherical and most likely the shells would have been calcified resulting in a bright white perimeter similar to bone density rather than that of soft tissue. Because in this condition the ovaries remain stuck in the follicular phase of the cycle, it is pointless and in fact dangerous to treat medically with calcium and oxytocin hormonal injections as one would to encourage egg laying in a dystocia case. The follicles are still high up in the oviduct and attached to the ovaries hence cannot be laid. Therefore the only option for treatment is to surgically remove the follicles, as well as the ovaries and oviducts to prevent future reproductive problems. If left untreated affected individuals generally die by becoming anorexic due to severe abdominal

distension and discomfort, eventually fading away becoming progressively weaker and dehydrated. In some cases the follicles begin to degrade or even rupture causing a massive inflammatory process within the abdomen resulting in a fatal peritonitis. If detected early enough, husbandry changes such as reducing environmental temperature and dramatically reducing food intake may help to curtail further follicle production, and encourage resorption of immature follicles. In most cases however the process is too far advanced by the time it is detected and the animal is showing signs of ill health.

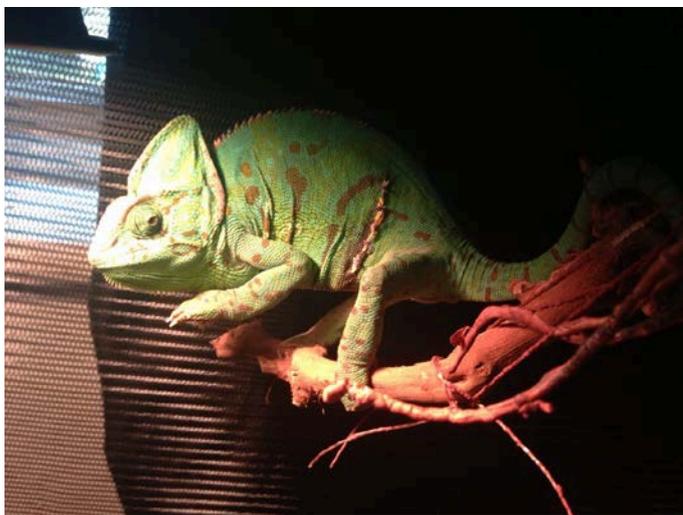
Tia was admitted and given subcutaneous fluids and antibiotics the day before surgery. She was anaesthetised using a combination of injectable agents to immobilise her and maintained in a deep plane of anaesthesia using Sevoflurane gas. An incision was made over her caudal ribcage which extends very far back in chameleons compared with other lizard species, to gain access to her abdominal contents.



*Sean and assistant performing the operation.*

After carefully exteriorising the masses of follicles and associated ovary one side at a time, a tiny encircling ligature was placed over the blood vessels and connective tissue supplying the ovaries in order to excise them safely. The difficulty with this operation is that the ovaries lie in very close proximity to both the vena cava, the large blood vessel returning blood to the heart on one side, and to the adrenal gland on the other. So placement of the

ligatures is rather tricky, especially in such tiny patients. In total 76 follicles, both ovaries and most of the oviduct tissue was excised from Tia before carefully closing the incision in two layers starting with the muscles of the ribcage followed by the skin itself. Tia received pain medications during the operation. She also received more fluids to replace blood losses, and crucially was kept warm throughout in order to metabolise the anaesthetic drugs safely. The immobilising drug combination was reversed with a further injection after taking her off the anaesthetic gas, and she recovered well over the following hour or so. She was kept in overnight for monitoring and discharged to go home the following day on oral antibiotics. I am pleased to say she has recovered excellently.



Tia on the road (branch?) to recovery

## Uta Island Iguana (*Ctenosaura bakeri*) Enrichment at The Birmingham Nature Centre

### Adam Radovanovic

Enriching the lives of captive animals has become a necessity over the years. Zoological institutions have been developing innovative and interesting ways to provide an animal with the necessary means to behave as naturally as possible. Enrichment has always been a priority with animals we associate with a certain level of intelligence, e.g. big cats, elephants, primates etc. Over the past few years, enrichment has

proven to work with all known orders of reptilia including snakes.

I'm currently working with four critically endangered Uta Island iguanas (*Ctenosaura bakeri*). These lizards are active, diurnal hunters and react immediately when food is present. They are omnivorous and will eat a variety of fruits, vegetables, leaves, insects, crustaceans and small vertebrates. In the wild, these lizards won't get food handed to them on a plate, so why should we give it to them in such a way in captivity? I always strive to base a species natural ecology on how I keep them in captivity and *C. bakeri* is no exception. *C. bakeri* respond to colour and movement. I have created two types of enrichment for these lizards. The first is "The Bamboo Grub Tub" and the second is "Peppers Alive"

### The Bamboo Grub Tub

The idea for this enrichment came from Grant Kother at London Zoo where coconuts hollowed out and filled with insects were used in green tree monitor (*Varanus prasinus*) enclosures. I wanted to try a similar idea with *C. bakeri*. A piece of large bamboo was cut above both of the knots to allow for a completely sealed hollow chamber. Various sized holes were drilled into the bamboo and a hook was screwed into the top to allow it to hang from the ceiling of the enclosure. Insects were then added and as they slowly try and escape the holes in the bamboo chamber, the iguanas will actively jump up and try to consume them. This enrichment keeps the iguanas' active for much longer than simply throwing a handful of insects into the enclosure. This enrichment also has a positive effect on their physiology as they are more inclined to use their muscles to climb and jump.

*C. bakeri* respond to bright and vivid colours and will often delve into a feeding frenzy whenever they are presented with dandelion flowers, strawberries, mango and peppers.

I decided to combine two nutritious food items for an enrichment idea. Three small holes are cut into a red or yellow pepper and the inner contents including the seeds are pushed out of the holes leaving a hollow chamber. Locust and pachnoda grubs are pushed into the pepper. Once full, the pepper is placed on the floor of the enclosure. The iguanas rush over to eat the contents of the pepper, biting and ripping it open with their jaws. They even use their limbs to try and pry the holes open. This enrichment keeps the iguanas occupied far longer than the bamboo grub tub. Once all of the invertebrates have been consumed, the iguanas then start to eat some of the pepper. This enrichment is conducted every couple of weeks to allow for a balanced diet.

Enrichment is very rewarding and yet very simple to achieve interesting results that benefit these animals to behave naturally.

## BHS Business

The BHS Council will be meeting in November and the new website will be up and running very soon. Our Journal now has the highest impact factor of any herpetological journal, and consideration is being given to open access publications. The Society is in a very strong position currently, thanks to the hard work of Council members and your ongoing support.

