



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

Welcome to the Autumn/Winter issue of the NatterJack.

We hope you enjoy this issue over the Christmas Holidays.

Wishing you all a Merry Christmas and a Happy New Year.

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It is hoped that the National Pet Centre for Reptile Welfare will be accepting animals from late February 2018. Richard Butler & Kim Le Breuilly are the BHS Rehoming Officers, the next issue of the NatterJack will have full details of how the scheme will work.

Herpetoculturists should be concerned that there is considerable opposition to Reptile fairs & Shows in UK despite them being very well organised by the Federation of British Herpetologist. If you have never been to a Doncaster Show have a look at a YouTube video of the last show:

<https://www.youtube.com/watch?v=9P3IVKHZskI>

# LAMINATION AS A METHOD OF PRESERVING SKIN SLOUGHS

I was interested to read the Short Note “Lamination as a method of preserving sloughs” by Steven JR Allain and Mark J Goodman (*The Herpetological Bulletin* (2016) 138, 29-30). The technique they describe would appear to be an excellent approach to the long-term retention and examination of shed skins.

There are two additional purposes to which such preserved sloughs might usefully be applied. The first of these is when the slough is “evidence” in a legal case – for instance, where there is a suggestion that a captive snake was treated cruelly or a free-living snake was taken illegally from the wild. The former might warrant gross and microscopical examination of the slough for evidence of injuries, including scars from burns and sites of tick attachment, and the latter differentiation, using scalation, of (say) an adder, *Vipera berus*, from a smooth snake, *Coronella austriaca*.



The second important use of shed skins is to diagnose disease. A freshly sloughed skin may show lesions due to physical or infectious insults (see above) and, if sampled, can yield pathogenic organisms such as mites, bacteria and fungi. Allain and Goodman mention that a piece of slough (“part of the discarded or excess trim”) can be retained for DNA studies. Such small samples might also be set aside for

other investigations – for example, for chemical analysis, as described by Jones *et al* (2005) in the context of polychlorinated biphenyls.

Methods of examination of snake (and other) sloughs for forensic and veterinary purposes have been detailed in a number of texts, including a standard work about wildlife







forensic investigation (Cooper and Cooper, 2013). The value of sloughs collected in the wild was described, in the context of non-invasive health monitoring of wildlife, including reptiles, by Cooper (1998).

In passing, I should mention that I first developed my keen interest in the sloughs of reptiles when I was a teenager, 60 years ago. I was already a keen field naturalist and I kept reptiles in captivity. My mentor, the famous naturalist Major Maxwell Knight (Knight, 1959), taught me to collect and save shed skins so that, in addition to being available for educational purposes, they could be used (a) to identify a reptile, (b) to sex it, and/or (c) to diagnose disease. I have

continued to use the techniques learnt from Maxwell Knight and, six decades later, they still serve me in good stead, both as a herpetologist and as a veterinary pathologist.

The skin is the largest organ in the body and examination of it, or its derivatives, plays a vital role in assessing health and wellbeing. Its crucial importance in this respect, in all species has long been recognised:

*"Skin for skin! A man will give all he has for his own life". Job 2:4*

**John E Cooper**



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Advancing Herpetological Husbandry,  
the British Herpetological Society  
and the International Herpetological Society  
Present

## Cooperation - The Future of Husbandry?

*Bringing private, trade and zoological sectors together for the  
betterment of husbandry standards*

Photo © Darrell Raw

<https://www.facebook.com/events/855892324577518/>

**21st-22nd April 2018**

Venue:  
Drayton Manor Park Hotel  
Drayton Manor Drive  
Tamworth  
Staffordshire  
B78 3TW  
United Kingdom  
Tel: 01827 285551



Saturday Registration Free  
Sunday Registration fee: £40.00  
Book at: <http://www.thebhs.org/>

### AGENDA:

**Saturday:** start 9:00, zoo tour followed by husbandry workshops all day. The British Herpetological Society AGM will be held concurrently in the morning, featuring a talk by Ms. Luiza Passos (PhD student at Salford and working with Chester Zoo).

### Sunday:

08:30-08:50 - Arrival tea, coffee and cookies/pastries  
08:50-09:05 - Host Introductions  
09:05-09:50 - Chris Mitchell - Introduction to Drayton Manor Park Zoo  
09:50-10:35 - Dr. Andrew Gray - Curator of Herpetology at Manchester University  
10:35-10:45 - 10 minute recess  
10:45-11:30 - Tom Wells - Senior keeper at Colchester Zoo  
11:30-12:15 - Dr. Tariq Abou-Zahr - Veterinarian  
12:15-13:35 - Buffet Lunch, runners-up poster presentations  
13:35-14:20 - Tell Hicks - A history of British Herpetology  
14:20-14:30 - Presentation to student by Tell Hicks and judges  
14:30-15:00 - Presentation by student  
15:00-15:15 - Tea, coffee and cookies/pastries  
15:15-16:00 - Dave Perry - Peregrine Livefoods  
16:00-17:00 - Chris Davis - Keynote speaker





# Lizards do evolutionary U-turn over babies

*From the New Scientist ~ 9th December 2017*



WHICH came first, the lizard or the egg? In at least one species, we have an answer: the lizard first gave birth to live young and only later re-evolved the ability to lay eggs. It's a rare example of a complex lost trait re-emerging in a species.

The Common Lizard is found across Eurasia from Ireland to Japan. Its name ***Zootoca vivipara*** means "live-bearing" in both Greek and Latin, and as you might expect, it gives birth to its young. But there are exceptions. Two small populations on the edge of the lizard's range lay eggs. One of these subspecies is found near the border between Spain and France, the other in the southern Alps.

Biologists had assumed these subspecies were remnants of an egg-laying ancestral population from which the live-bearers evolved – something that seems to have happened over 100 times in reptiles. But genetic data from the lizards did not fit this simple story. One suggestion was that live bearing evolved twice. Another was that egg-laying reappeared in one group, but this was thought to be unlikely.

"There is not really any consensus," says Kathryn Elmer of the University of Edinburgh, UK. So her team collected 76 *Zootoca vivipara* lizards from around Europe and carried out thorough genetic studies, looking at over 200,000 sites in the genome. They used this data to build a detailed family tree of common lizards.

The tree shows the egg-laying lizards in the southern Alps are a remnant of the ancestral group. Live-bearing lizards evolved once from this ancestral population and split into several groups. In one group, egg-laying reappeared, creating the Spanish population (bioRxiv, doi.org/cgx8). "I consider this strong evidence of regaining egg-laying," says April Wright of South Eastern Louisiana University. In 2015 she found hints of three other cases of egg-laying re-emerging in lizards. We don't know how or why common lizards began to lay eggs again. It must have happened recently, as these lizards only became live-bearing around 2 million years ago. Perhaps the genetic program used in egg-laying lay dormant for that time, then was reactivated.

However, snakes called sand boas may have re-evolved egg-laying after 60 million years. The old program probably didn't last this long, so sand boas may have evolved this trait from scratch. It is becoming clear that evolution often changes direction. On one Galapagos island, finches evolved thicker beaks during a dry period when small seeds were rare, then swapped to thin beaks when the climate became wetter. But it is a different matter for evolution to go into reverse long enough for a trait as complex as egg-laying to reappear. "I think it's quite uncommon," says Elmer. It does happen, though, contrary to a claim by 19<sup>th</sup> century biologist Louis Dollo. His hypothesis, that such reversions are impossible, is wrongly called Dollo's law, and states: "an organism never returns exactly to a former state, even if it finds itself placed in conditions of existence identical to those in which it has previously lived ... it always keeps some trace of the intermediate stages through which it has passed."

# Blue Iguanas on the Grand Cayman Islands

## Existence threatened due to *Helicobacter*



On May 5th, 2015, Blue Iguana Recovery Programme (BIRP) staff found a wild Blue Iguana (*Cyclura lewisii*) displaying signs of lethargy within the Queen Elizabeth II Botanic Park (QEIBP). The Blue Iguana was identified as "Mobw" and taken to Island Veterinary Services (IVS) where she was tended to by Dr. Ioana Popescu. She died on the same day from septicaemia resulting from a spirochaete infection.

Another wild Blue Iguana, "Opy" –

whose territory overlapped with that of "Obw" – was found by BIRP staff on May 11th with similar symptoms. "Opy" tested positive for spirochaetes, treated by Dr. Popescu, and made a full recovery.

Approximately 15 more Blue Iguanas, both from the wild and captive populations at the QEIBP, were found either unwell or deceased over the next 2 years. Unwell individuals were treated by Dr. Popescu and accompanying IVS staff in which several survived and made full recoveries. Necropsies performed on deceased individuals, by either veterinarians from St. Matthew's University or Wildlife Conservation Society, did not reveal any pathognomonic signs. Other investigations isolated a novel *Helicobacter* spp. from blood and faecal samples and revealed that it was linked to approximately half of the cases recorded.

Very little is known about this *Helicobacter* spp, but it is hypothesised that the invasive Green Iguana (*Iguana iguana*) population within the QEIBP harbour and disseminate this novel pathogen to the Blue Iguanas. Dr. Popescu with The University of Edinburgh (UOE) will conduct a study to test this



hypothesis. The study will involve the collection of faecal samples from Green Iguana populations throughout Grand Cayman, with particular emphasis placed on the QEII BP population, and sending them to the Massachusetts Institute of Technology (MIT) to confirm or deny the presence of the *Helicobacter* spp. through PCR testing.

If the hypothesis is supported by Dr. Popescu's study, a greater understanding of the pathogen's epidemiology will be established. This may in turn provide us with a disease model to follow, allowing us to better prevent and treat infected Blue Iguanas. The study can also be used as an essential framework to guide future conservation strategies for not only BIRP, but for our native Sister Isles Rock Iguana (*Cyclura nubia caymanensis*) and other native iguana species in countries that have the invasive Green Iguana. Furthermore, the study will both strengthen current and form new relationships with project partners including the University of Edinburgh, International Reptile Conservation Foundation (IRCF), Massachusetts Institute of Technology, The National Trust for the Cayman Islands (NTCI), Blue Iguana Recovery Programme, and The Department of Environment of the Cayman Islands (DoE).

As a partner in the Blue Iguana Recovery Programme, the IRCF has secured funding for the PCR testing in the amount of US\$3,800.00. The funding originated from the pet loving folks who made significant donations towards iguana conservation during Ty Park's IguanaFest held in May 2017. The IRCF, NTCI, DoE, MIT, and the UOE are grateful to all those who donated, which has provided the means to address this critical mission to once again help save the Blues and other iguanas that could be effected by this disease.

If you would like to contribute to this effort to help support emergency veterinary services for Blues found to be infected or to help support the Blue Iguana Recovery Programme you can make **donations online** at:

[www.IRCF.org/donate](http://www.IRCF.org/donate) "Select "**Blue Iguana Recovery Program**".

Donors in Cayman can email: [clumsden@nationaltrust.org.ky](mailto:clumsden@nationaltrust.org.ky) or visit our website at [www.nationaltrust.org.ky](http://www.nationaltrust.org.ky)

<http://www.ircf.org/helicobacter-disease-threatens-the-existence-of-the-blue-iguana/>



THE UNIVERSITY of EDINBURGH  
The Royal (Dick) School  
of Veterinary Studies



## PROJECT PROPOSAL

Ioana Popescu, DVM  
MSc Conservation Medicine  
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### PRELIMINARY PROJECT TITLE

Investigations into green iguana (*Iguana iguana*) as a potential reservoir for a novel strain of *Helicobacter* spp, pathogenic for the endangered blue iguana (*Cyclura lewisi*).

### INTRODUCTION

*Cyclura lewisi* is an iguana species indigenous to Grand Cayman. They were once classified as Critically Endangered with under 25 individuals left in the wild (Burton, 2004). However, thanks to intensive conservation efforts, they were re-classified as Endangered by IUCN in 2012. Current threats to the species include predation from feral dogs and cats, habitat conversion, traffic accidents, and indirect influences from the invasive green iguana (*Iguana iguana*) (IUCN, 2012).

Due to a previously undescribed, "mystery illness," the Queen Elizabeth II Botanic Park (QEIBP), located in Grand Cayman, encountered a series of casualties in both its wild population and captives within the breeding facility. Symptoms are unspecific and include lethargy, inappetence, weakness of the hind quarters, collapse and sudden death. Necropsies did not reveal any pathognomonic signs. After intensive investigations, a novel *Helicobacter* spp has been isolated from blood and faecal samples and linked to approximately half of the cases recorded.

Presently there is no information regarding this bacteria, and nothing is known about its pathogenicity, epidemiology, geographical distribution or whether it is species specific or a multi-host pathogen.

### PROJECT RATIONALE

This master's thesis project is aimed at investigating the presence of the pathogenic *Helicobacter* spp. in green iguana populations adjacent to the QEIBP wild and breeding facility populations in order to establish a primary disease reservoir. If sufficient funding is available, an island-wide survey could be conducted. Due to close contact and phylogenetic similarity of the two species, it is hypothesised that green iguanas present a high probability of harbouring and disseminating this novel pathogen to blue iguanas. Establishing a reservoir would greatly improve our understanding of this pathogen's epidemiology and would provide a broader



information base for decision making regarding biosecurity of the facility. It could also provide a practical disease model, helpful in establishing an appropriate treatment protocol and evaluating faster, cheaper and more accurate diagnostic tools. Furthermore, green iguanas have the potential to invade other islands, posing a risk for native iguana species, such as sister isles rock iguana (*Cyclura nubila caymanensis*) in Cayman Brac and Little Cayman.

## SCIENTIFIC BACKGROUND

*Helicobacter* is a Gram-negative, spiral shaped bacteria belonging to the phylum *Spyrochaetes*. It is known to be a commensal pathogen in many species (including humans), and has been reported to cause gastritis, cellulitis and septicaemia in a variety of hosts (Solnik and Schauer, 2001). However reports of pathogenic *Helicobacter* in reptiles are extremely limited (Jacobson et al., 1980, Stacy and Wellehan, 2010). Case under-reporting could be explained by the difficulty in diagnosis: *Helicobacter* requires extremely specific conditions to be cultured, and there are no readily available tests for the veterinary practitioner. Other testing includes fluorescent in situ hybridisation (FISH) and polymerase chain reaction (PCR) that targets the 16S ribosomal RNA gene.

For the present survey, a 16S rRNA PCR method has been developed by the Massachusetts Institute of Technology, Department of Biological Engineering, using samples of the originally infected blue iguanas.

## METHODOLOGY

The Cayman Islands Department of Environment (DoE) launched an island-wide invasive green iguana (*Iguana iguana*) cull, where animals are humanely trapped and euthanised by trained personnel. Culled iguanas located inside and in the proximity of Queen Elizabeth II Botanical Park would be selected randomly for post-mortem examination. This particular location is chosen due to the fact that the endangered blue iguana (*Cyclura lewisi*) reproduction facility is located here, and furthermore, the *Helicobacter* strain has been associated with blue iguana deaths in the captive and wild populations only around this park. The number of green iguanas selected for the study will ultimately depend on the funding available, however a minimum of 100 animals will be sampled.

During the post-mortem examinations, any gross pathologic changes will be recorded in order to correlate with the presence of *Helicobacter*. Additionally, the following sampling protocol will be followed:

- ◆ *Helicobacter* culture media: whole blood and feces in separate media vials, followed by freezing at low temperature
- ◆ Cytology
- ◆ Blood smear (heart blood)
- ◆ Impression smear of liver on a glass slide
- ◆ Impression smear of spleen on a glass slide

- ◆ Frozen samples
- ◆ Whole blood (collected from the heart, not spun/separated)
- ◆ Spleen
- ◆ Liver
- ◆ Feces or cloacal swab
- ◆ Additional samples at the prosector's discretion (These are not essential for *Helicobacter* diagnosis/confirmation, but can be helpful if other diseases are suspected)
- ◆ Formalin samples
- ◆ Full set of tissues
- ◆ Endoparasites
- ◆ Ectoparasites in alcohol

Additional information, such as sex, size, weight, approximate age, etc. would be recorded, as well as environmental and spatial parameters: GPS coordinates, temperature, rain fall and proximity to stagnant waters. Anecdotally, it has been noticed that *Helicobacter* outbreaks in blue iguanas during the past years have been associated with heavy, prolonged rain fall, therefore any relationship between the presence of *Helicobacter* and these covariants will be investigated.

Collected samples will be processed at the Massachusetts Institute of Technology, Department of Biological Engineering, mainly through polymerase chain reaction (PCR) that targets the 16S ribosomal RNA gene. Specific primers have been developed using material from infected blue iguanas. The cytological examination will be performed on island, and the frozen and formalin fixed samples will be banked for follow-up studies.

## PROJECT OUTCOME

After completion of tests, the data would be statistically analysed, prepared for publication and presented to the University of Edinburgh, DOE, National Trust and all relevant stakeholders together with a set of suggestions regarding further actions.

## COSTS

The funding necessary for this project can be estimated as following (all estimates given in USD):

- Laboratory PCR testing: approx. \$30/sample x 100 samples = \$3000 (Discussions are being conducted with MIT to obtain a discounted price)
- Shipping and transport costs: approx. \$350
- Protection gear (gloves, masks, disinfectants, overalls): approx. \$200
- Overhead costs: \$250

**TOTAL = \$3800**



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Typical *Helicobacter* spp.

On Sunday 30<sup>th</sup> May the Federation of British Herpetologists [FBH] was donated a 60 square metre site at the entrance to the National Pet Show - Area 32 - to be held at the London ExCeL Centre in 6 days' time!

The BHS was invited to attend as a national reptile society and three local Essex societies were also invited to fill the area and "make up the numbers"

8:00am Saturday the 6<sup>th</sup> of May – As final preparations are taking place at stand A32 for The Federation of British Herpetologists (FBH) before the doors open at 9:30am and approximately 12,000 people walk through the humungous doors looking for prospective pets.

With all the signs and banners up, flyers and handouts ready, information sheets



and other literature on display to take home about these animals and even some about how they are even helping with medical research to look at the stall is set.

One last check by the Vet to make sure all of the animals that the clubs and societies have brought along to show and handle are comfortable in their display enclosures and everyone has water and is securely locked we are ready for a great couple of days of



showing and educating the public about just how amazing these animals are and truly rewarding they can be as pets.

At 9:30am the humungous shutter doors slide up and open to reveal waiting crowd of people eager to enter and see if they can decide on what sort of animal they would like as a pet.

With members from The British Herpetological Society (BHS), The British Reptile & Amphibian Society (BRAS), The Essex Reptile & Amphibian Club (ERAC) and The East Sussex Reptile & Amphibian Society (ESRAS) in attendance, ready and waiting with animals in hand to show, educate and dispel the many widely held but incorrect myths and fears that surround these animals the show gets under way.

A fantastic selection of animals has been brought along by the clubs and societies including.

- A Blue Phase Emerald Tree Monitor - *Varanus prasinus***
- A Freckled Monitor - *Varanus tristis orientalis***
- A Water Monitor – *Varanus Salvator***
- A Canary Island Giant Lizard - *Gallotia galloti***
- A Leatherback Bearded Dragon – *Pogona vitticeps***
- Rankins Dragons - *Pogona henrylawsoni***
- A Blue Tongued Skink - *Tiliqua scincoides scincoides***
- A selection of 5 Corn Snakes - *Pantherophis guttatus***
- A selection of 4 Royal Pythons – *Python Regius***
- A Hog Island Boa Constrictor – *Boa constrictor imperator***
- A selection of 3 Reticulated Pythons – *Python reticulatus***
- Madagascan Hissing Cockroaches - *Gromphadorhina portentosa***
- ‘Tiger Stripe’ Madagascan Hissing Cockroaches - *Princisia vanwaerebeki***
- A Chilean Rose Tarantula - *Grammostola rosea***
- 3 Solomon Island Monkey Tailed Skinks - *Corucia zebrata***
- 2 Bosc Monitors - *Varanus exanthematicus***
- A Western Hognose Snake - *Heterodon nasicus***
- A Pueblan Milk Snake - *Lampropeltis triangulum campbelli***
- A Chuckwalla - *Sauromalus ater***
- 2 Cuban Night Anoles - *Anolis equestris***



A great selection of animals from the most commonly kept to some of the more rarely seen species for people to see and interact with.

With all of the animals looking spectacular many people left with mouths agape at the awesome beauty and amazing examples of evolutionary problem solving these animals display. Adults and children alike crowded around the BHS tables, so packed was the crowd that frequently security guards told us to “control the crowd” and “keep the walkways clear”.

Throughout the day we are visited by many 1000’s of people wanting to look,

stroke, hold and have photos with the snakes and lizards we brought along. Among the people in attendance which seemed to range from New-born's to Octogenarians (80+), from people who had had reptiles and exotics before and still do, to people for whom this was their very 1<sup>st</sup> encounter any sort of reptile or exotic ever and those who wanted to conquer their long held unexplained fears they all left with a smile and a new found appreciation and respect for these animals.

It was truly fantastic to see reptiles and exotics represented in such numbers and so positively from us as Hobbyist's right through to Industry, Suppliers and Wholesalers showing exactly what is achievable with setups nowadays with all of the new equipment that is now available.

It was great to witness the Hobby coming together from different Clubs and Societies displaying together alongside Industry helping each other out. All presenting a united front on the correct way of going about getting a new animal as a pet. From the leaflets and handouts available at the FBH stands through to the enclosure displays at the Exo-Terra and Peregrine and the

Talks from Exo-Terra helped out by the clubs and societies with animals to help educate and dispel the myths surrounding them, plus promoting responsible keeping and putting emphasis on the correct procedure to getting a new exotic pet. We all stressed the need to:

1. **Research your desired animal including talking to keepers or joining a club for support.**
2. **Acquire the necessary equipment.**
3. **Responsibly buying you new animal from a reputable shop or breeder.**

Also extoling the benefits of joining a Club or Society and especially the access to the wealth of knowledge available from their members.

With the end of Saturday in sight and people leaving the show we all realised what a great event and what an amazing time we had all had on the 1<sup>st</sup> day and how much we were all looking forward to







could only be described as a roaring success especially for showing that reptiles and exotics as marvellous pets and that all of the misconstrued facts and wrongfully held fears and prejudices about these animals were nothing more than precisely that.

With at least 100 individuals cured of their irrational fears of snakes, lizards and other exotics and many 1000's of people who came to realise that they are not 'Slimy' or 'Disgusting' and going away realising that they are in fact 'soft and smooth' and that they posed no more danger or threat to them than any other animal that people keep as pets plus the many positives that reptiles and exotics offer as pets, We can say that it was a great event and show for our hobby and a

great show for people to interact and enjoy our amazing animals.



We also enrolled 11 new YH members on the day and by post the following week.

*Kim Le Breuilly & Richard Butler*



# Sand and Scales: Fieldwork in the Mojave Desert



Banded Gila Monster (*Heloderma suspectum cinctum*)

by Ben Stegenga from an article in [www.oriannesociety.org/news/](http://www.oriannesociety.org/news/)

Back in *August* of 2015, I accepted a job with the Great Basin Institute doing Mojave Desert Tortoise (*Gopherus agassizii*) telemetry and line-distance surveys. I was part of a 15 person crew, and we were stationed at various sites in southern Nevada and California. The surveyors stayed at our main field site and walked transects looking for tortoises to fit with temporary radio transmitters, while the three of us telemetry techs rotated between several sites tracking transmitted tortoises. Many of the tortoises on our sites were translocated individuals, so the ultimate goal of the project was to locate and track a large number of local and translocated tortoises until they underwent full health assessments.

The results of the health assessments would offer important insight on the success of the translocation efforts and would be considered in future efforts to create corridors connecting that population to a neighboring tortoise population. For most of three months, I lived in the Mojave Desert, tracking tortoises and sleeping on my foam Therm-a-Rest under the stars. It was physically demanding work, but I loved it. On a typical day, I would get up before sunrise (usually to the sound of coyotes) and track tortoises until late afternoon or evening, often walking 10-15 miles a day. I'd then return to camp, cook supper,

lay out my “bed”, and spend the rest of the night exploring the nearby desert by flashlight. Those were some of my favorite times in the desert. I would regularly see Giant Desert Hairy Scorpions (*Hadrurus arizonensis*), Desert Tarantulas (*Aphonopelma chalcodes*), Kangaroo Rats (*Dipodomys deserti*), and Desert Banded Geckos (*Coleonyx variegates variegates*) during my night-time forays. My favorite nighttime finds were a five foot Great Basin Gopher Snake (*Pituophis catenifer deserticola*) that I found crawling along a rocky hillside bordering our camp, and a Mojave Desert Sidewinder (*Crotalus cerastes cerastes*) crossing a dirt road.



Mojave Desert Tortoise (*Gopherus agassizii*)

During that project I learned a great deal about desert ecology and became familiar with tortoise behavior and an array of desert wildlife. I tracked adults and hatchling tortoises and witnessed them feeding, drinking rain, engaging in courtship, and breeding. Kit foxes (*Vulpes macrotis*), jackrabbits (*Lepus* spp), Burrowing Owls (*Athene cunicularia*), Cactus Wrens (*Campylorhynchus brunneicapillus*), Phainopepla (*Phainopepla nitens*), Southern Desert Horned Lizards (*Phrynosoma platyrhinos calidiarum*), Red Racers (*Coluber*



Giant Desert Hairy Scorpion (*Hadrurus arizonensis*)

*flagellum piceus*), and Northern Mojave Rattlesnakes (*Crotalus scutulatus scutulatus*)...these are just a sample of the fascinating wildlife I got to see on a regular basis. I saw evidence of mountain lion predation on desert tortoises, and I found a horned lizard skeleton skewered on a yucca by a Loggerhead Shrike. Plus I had a whole suite of desert plants to learn. The ecosystem was completely different from anything I was used to, and I wanted to learn as much as I could while I was there.

However, my term was soon over, and I left feeling like there was so much I had yet to see. I wasn't sure when, but I knew that one day I would return to the Mojave.

And I got that opportunity to return this May while visiting my girlfriend, Kelly Hunt.

Kelly has lived in southern Nevada for several years now and has worked seasonally and been a long-term volunteer for the Nevada Department of Wildlife (NDOW). One of her main responsibilities over the years has been tracking Banded Gila Monsters (*Heloderma suspectum cinctum*) via radio telemetry for NDOW's state herpetologist, Jason Jones. Gila Monsters are very poorly studied in Nevada, so Jason began this telemetry project back in 2013 to help gain a better understanding of their ecology in the state. Kelly introduced me to Jason, and he graciously





invited me to do some volunteer work while I was out there, including tracking “monsters” (as they affectionately refer to them)! This had all the makings for a dream vacation!

The day following my arrival, Kelly and I packed up the telemetry gear and headed out to one of their Gila Monster sites. My excitement was building by the second. I

knew that the days were getting hotter and that the chances of seeing a monster out during the day were decreasing, but I was still hopeful. We got an early start to try to beat the heat, and we hoped that our quarry would have the same strategy. We spoke to another



Ben Stegenga tracking Gila Monsters



Desert Night Lizard  
(Xantusia vigia)

volunteer who had regularly tracked the Gilas at this site, and he told us that just a few days prior, he had witnessed one digging up a tortoise nest and feeding on the eggs. This gave me hope that there were monsters on the surface. Kelly started out tracking the first one, and I followed about 5 meters to her left, scanning the terrain for any sign of large lizards. During the spring, Gila Monsters will come down out of the mountains into the bajadas and nearby

lowlands in search of mates and foraging opportunities. Although with summer fast approaching, the Gilas would soon return to their summer haunts high up the nearby rocky slopes. The signal from our first monster was strong and wasn't coming from the direction of the mountains. As the beeps from his transmitter got louder, my excitement was getting harder to contain. I knew we were getting close. We scanned the terrain around us, looking for any movement or that distinct orange and black banding. And suddenly I saw just that. About 30 feet away sat a beautiful Gila Monster, resting in the shade of a large creosote. I pointed and exclaimed in a loud whisper, “There's one!” I was overwhelmed with excitement. I felt my jaw drop almost to the dirt as I stared at the magnificent beast before me. It remained motionless, but alert with its head elevated. I was certain it was aware of our presence. I kept my distance and hurried through my backpack to retrieve my camera. As I began shooting, he slowly crawled up under the base of the creosote bush, seeking the security of the branches. I sat and watched him for a moment as Kelly recorded the necessary data. I didn't want to leave. I could've sat there all day watching him, but we had more monsters to track, so we moved on.

It was my turn to track the next one, so I donned the receiver and Yagi antenna. The signal from this individual was much softer, indicating it was further away. We struck out in its direction, but still paying attention to the habitat we were passing. There were a handful of



transmitted monsters in that area, and we knew that they too could be active. We also wanted to find new individuals that could be added to the study. We came to a large wash and series of large elongate rock formations. The signal was still a ways off, so I stuck to my course, while Kelly broke off to inspect some good looking habitat. Several hundred meters out, I began to ascend a gentle slope, riddled with large rocks. The signal was getting very strong, and I slowed my steps and scanned more meticulously. I walked around a large bush and glanced to my right, and there he is! This Gila was slowly lumbering down the rocky slope right towards me!

Once again I felt my heart starting to pound. I froze, and he seemed completely unaware of my presence. He moved his head from side to side, flicked his large fleshy tongue every couple seconds to taste the substrate along his route. About 3 meters out, he seemed to notice my presence and altered his trajectory slightly, but overall seemed unconcerned. I paralleled him for a while taking a few photos until he stopped in the shade cast by a large Ephedra. We took data while he rested, and then watched as he decided to meander off in the direction of some large rocks. The encounter left me with a permanent smile. That morning was going to be rather hard to top! We spent the rest of the day looking for a Gila whose signal had recently gone missing, but all we found were Great Basin Whiptails (*Aspidoscelis tigris tigris*), Common Side-blotched Lizards (*Uta stansburiana*), and a single Mojave Desert Tortoise in the opening of his burrow.

That night we conducted our first road cruising survey of the week. NDOW has designated five different road cruising routes that pass through habitat with a significant elevation gradient. This allows for sampling across multiple habitat types and the potential to detect all local snake species. The goal of this study is to have people cruising multiple roads across the Mojave at the same time and compare species and activity between routes, elevations, and habitat types.



Photo: Ben Stegen

The Mojave Desert



They also have a solid 15-year data set for one of the routes that they want to keep building on.

We began according to protocol, 30 minutes after sunset, and immediately we were seeing reptile activity. Desert Banded Geckos and Desert Night Lizards (*Xantusia vigilis*) were everywhere. Even though the main focus of the survey was snakes, we still noted all of them. Our first snake was a dead on road

(DOR) Desert Glossy Snake (*Arizona elegans eburnata*). It was a real bummer, especially since I had never seen one before, but we made up for it minutes later by cruising a small Northern Mojave Rattlesnake. Over the next two hours we continued to cruise scores of geckos, and then we capped off the night with my lifer Northern Desert Nightsnake (*Hypsiglena chlorophaea deserticola*). These harmless rear-fanged colubrids had been a target of mine during my last visit to Nevada, so it was a good note to end on.

The following day, Kelly took me to a different Gila Monster site. Jason wanted us to find and collect a female Gila whose transmitter battery was due to die later in the year. He wanted to remove the transmitter before that happened. On the drive in I spotted two Long-nosed Snakes (*Rhinocelius lecontei*) on the road. Curiously, one was DOR and the other was alive and appeared to be inspecting its deceased counterpart. We escorted him off the road and collected the DOR for Jason. The terrain at this site was much rockier and steep and that not only made the hike more strenuous, but it could also bounce the transmitter's signal, making an animal more difficult to track. However, Kelly's expertise and knowledge of this female, coupled with her last known location and her vicinity to a favorite overwintering



burrow, made locating the monster easy. Unfortunately, it was much hotter than the day before, so the monster was deep inside her refuge, and we could only take some data. But Kelly also found a nice gray phase Southwestern Speckled Rattlesnake (*Crotalus pyrrhus*) along the way! Only ever having previously glimpsed one deep inside a tortoise burrow, I was thrilled to see this snake on the surface. On the way back Kelly showed me some creosote flats where she has seen Northern Desert Iguanas (*Dipsosaurus dorsalis dorsalis*), Western Long-tailed Brush Lizards (*Urosaurus graciosus graciosus*), and Long-nosed Leopard Lizards (*Gambelia wislizenii*). With a lizard noose in hand, we walked the open sand, scanning the bases of the creosotes, and Kelly soon spotted several Desert Iguanas that ducked into Kangaroo Rat burrows. I finally got the search image down and spotted one that we were able to noose and inspect up close, before promptly returning it to the shade. That night we met up with Jason to cruise a different route. He had surveyed it the





Red-spotted Toad (*Anaxyrus punctatus*)

had seen before, so our anticipation was high. En route to the site, a large Southern Desert Horned Lizard scurried off the road in front of us, and we took that as a good sign. We started off on our first pass with a small Southwestern Speckled Rattlesnake. This was more of a red phase individual, and once again I turned into an ecstatic little kid at the sight. The variability in color displayed by this species is truly remarkable, ranging from blue-gray to red to almost pure white, and everything in between. It's one of the reasons why this species is one of my all time favorites. In the following passes, we cruised three more speckled rattlesnakes, including one large individual who we cruised twice.

After being coaxed off the road the first time, we found it on our next pass back stretched out along the white line, presumably soaking up heat from the asphalt. As a serious rattlesnake aficionado, I was in heaven. I was just as excited about the fourth one as I was the first. It would've never gotten old. Next, we came across a DOR Mojave Desert Sidewinder and an adorable Red-spotted Toad (*Anaxyrus punctatus*) which would be the only amphibian found that week. And then finally, we got one of our targets....a small, foot long snake

lying motionless in the road. We jumped out of the car and ran over, unsure of its identity. We stooped to inspect it and simultaneously erupted into celebration. It was our lifer Spotted Leaf-nosed Snake! We thought it was a great note to end on, so we decided to finish our last pass and head back home. But luck was on our side and we cruised a second Spotted Leaf-nosed Snake! After a short photo session, we happily called it a night. For our next two days of fieldwork we decided to change it up a bit. We joined NDOW's Joe Barnes to band some Peregrine Falcon chicks. Once again trying to beat the heat, our days started well before sunrise. The first day Joe took us by boat to a Peregrine Falcon eyrie on a plateau overlooking the shore of Lake Mead. We landed the boat and hiked up the plateau to the ledge just above the peregrine nest. From there, Joe rappelled down to the nest to collect the noisy little fuzz balls. The adult falcons scolded us the entire time and dove at Joe as he approached the nest. It was incredible seeing these raptors perform such high-velocity dives right in front of us. It really gave me a heightened appreciation for

night before with some good luck. Most notable were some Variable Ground snakes (*Sonora semiannulata semiannulata*), a "clarus" phase Long-nosed Snake, and a Sonoran Lyre Snake (*Trimorphodon lambda*). All of these were snakes I had hoped to see on this trip. This was also supposed to be a good route for Spotted Leaf-nosed Snakes (*Phyllorhynchus decurtatus*) which neither Kelly nor I



Spotted Leaf-nosed Snake (*Phyllorhynchus decurtatus*)



their hunting tactic of knocking unsuspecting birds right out of the sky. Once back on top, we assisted him in banding the chicks, taking measurements, and taking feather samples before he returned them to the nest. Joe collected the feather samples along with prey remains found in the nest, so he can test them for mercury and other contaminants that that may pose health risks to the falcons. Although I was looking for herps the entire time, we only saw a few black and white blurs of Western Zebra-tailed Lizards (*Callisaurus draconoides rhodostictus*) as they sped away from our path. The next day was very similar except the entire approach was on foot. After crossing about a mile of bajada we navigated a large wash and began ascending a steep mountain slope. It took us close to two hours to reach the eyrie, which was close to the mountain's summit. I was really hoping to see a Panamint Rattlesnake (*Crotalus stephensi*) on this outing, but I had to settle for a fantastic view and the mummified remains of a Common Chuckwalla (*Sauromalus ater*).

Fortunately, I didn't have to end on that note. I got to spend one more day doing Gila Monster telemetry and road cruising surveys before heading back home. All the monsters we tracked were underground that day, making me even more grateful for the two I had seen earlier in the week. I did, however, see a Great Basin Collard Lizard (*Crotaphytus bicinctores*) while searching for new monsters. We decided to return to the same route we had cruised two days prior in high hopes we would find a Sonoran Lyre Snake, however, it wasn't meant to be. It was still far from a bad night, as we cruised another Common Nightsnake, a Long-nosed Snake, and two more Spotted Leaf-nosed Snakes. It was a great way to end my trip, and it leaves me a handful of target species for next time, as I already know I will be coming back. And just as exciting as experiencing Nevada's wildlife was spending time with the biologists who work so hard to study and conserve them. I'd like to extend a huge thanks to Jason and Joe, who allowed me to tag along and hopefully make a small contribution to their work. For me, seeing their passion and getting to work alongside them, was just as exciting as seeing all those Speckled Rattlesnakes.



Mojave Desert Sidewinder (*Crotalus cerastes cerastes*)





The San Diego Zoo has produced a beautiful informative booklet - front page shown above, that you can download from:

<http://institute.sandiegozoo.org/resources/saving-species>

Then select • **Saving Species 2017 Vol 2**





## Hadlow College Partners With Leading Animal Organisations for Degree Programme Enhancement

Posted on 28th July 2017 in [Animal Management, HE News, Higher Education](#)



Two exciting developments are taking place this summer within the Animal Management faculty at Hadlow College, which will directly benefit our undergraduate students starting this September.

In recognition of the ever-changing industry and the growth in the companion animal sector, Hadlow has partnered with the [Centre of Applied Pet Ethology \(COAPE\)](#). The partnership will see Dr Robert Falconer-Taylor and Professor Peter Neville, both recognised animal behaviour experts, contributing to the College's successful animal behaviour degree programmes with lectures and tutorial support.

Commenting on this, Professor Neville said "As a largely unregulated sector, successful animal behaviourists rely on high quality education and opportunities for further development. Since COAPE was established 25 years ago we have delivered a range of



accredited and regulated qualifications and training courses to degree level that have fulfilled this. To now be partnered with Hadlow, a recognised expert in land-based teaching with a proven track record in animal studies, will allow us to develop these qualifications even further and ensure those that operate within the sector are as professionally skilled as they can be."



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Additionally, the department will be launching a National Centre for Reptile Welfare in collaboration with [The Pet Charity](#), a national charity which promotes the benefits of pet ownership. The centre is being developed in partnership with the [Reptile & Exotic Pet Trade Association](#). A UK first, it will operate as a centre for welfare excellence and provide refuge and care for unwanted and vulnerable reptiles and amphibians, rehoming them through a national network of retailers and wholesalers.

Located at the College, close to its existing animal management facilities, it will also provide degree-level students with practical husbandry, care and non-invasive behavioural and husbandry research opportunities on a wide range of captive species, as well as access to recognised animal welfare and husbandry experts Tim Wass MBE and Chris Newman.

Tim Wass MBE, Chairman of The Pet Charity, said “Exotic animals are growing in popularity as pets within the UK, with legislation around their care and sale struggling to keep abreast of the changes. There are, for example, few formal educational opportunities and limited specialists. This centre will fill a gap in the sector, offer the highest standards of welfare for rescued animals and contribute to training the next generation of managers



Jessica Berry, Head of Faculty for Animal Management at Hadlow College, added “The developments which we are making to our undergraduate qualifications this summer will provide students with some amazing opportunities from September. With leading industry experts lecturing on the programmes, new facilities for practical handling and husbandry, and additional research opportunities, our programmes continue to provide real-life experiences and increase students’ career prospects.”

#### **About Professor Peter Neville**

Professor Peter Neville is an animal behaviourist who has been in practice for the referral and treatment of behaviour problems in cats and dogs for nearly 30 years. He established the first pet behaviour referral clinic at a UK Veterinary School at the Dept of Veterinary Medicine, Bristol in 1990, was subsequently appointed Clinical Professor in Animal Behaviour at the Dept of Veterinary Medicine, University of Miyazaki, Japan from 2008-11, and has been an Adjunct Full Professor in the Dept of Animal Sciences, The Ohio State University, USA from 2009 – present.

Peter is a founding Partner of COAPE (founded in 1993), is a partner in COAPE South Africa and is a lecturer and speaker in high demand at veterinary, behaviour and training meetings around the world. He is the author of the internationally best-selling books 'Do Cats Need Shrinks?' and 'Do Dogs Need Shrinks?' and author/co-author of 15 other books, and writes every month in the leading UK pet magazines Dogs Today and Your Cat. Peter is a frequent media broadcaster; recent UK TV appearances have included three seasons on Channel 5 as the resident behaviour expert on the hugely and now internationally popular 'Cats/Dogs/ Puppies/Kittens/Birds/Wild Animals make you LOL'



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shows, which take a light hearted look at pet and wild animal behaviour film clips sourced from the internet.

Peter is a UK organiser and often the resident behaviourist on bespoke African safaris run throughout southern Africa with top naturalist, writer and tour guide Andrew Rae of Rae Safaris, based in Johannesburg.

#### **About Dr. Robert Falconer-Taylor BVetMed DipCABT MRCVS**

Robert is veterinary director and head of education of the Centre of Applied Pet Ethology (COAPE), the first organisation in the UK to develop government-regulated courses to degree level specifically in companion animal behaviour and training. COAPE also developed the renowned EMRA system used by behaviourists and trainers all over the world, now summarised in their book – EMRA Intelligence: The revolutionary new approach to treating behaviour problems in dogs.

Robert teaches and consults around the world along with writing for the veterinary and other professional press. He is also author of the informative COAPE Blog, published on their website, which has been taken up and endorsed by many training and behaviour organisations all over the world. He is also veterinary director of COAPE Poland.

Robert is an international consultant to the pet industry where he is engaged in the on-going development and risk assessment of pet 'toys' targeted specifically at promoting the welfare of pets and their relationships with their owners. He was also actively involved in the development of the 'The Puppy Plan', first launched in February 2012 and updated in 2014, a collaboration between Dogs Trust and the Kennel Club. He is also a member of the International Cat Care Behavioural Advisory Panel.

Robert's primary academic interests include companion animal cognitive science and emotionality, nutrition and its effects on behaviour, and applied neurophysiology, pharmacology and therapeutics in companion animal behaviour therapy. He promotes the idea wherever and whenever he can that "The key to better animal welfare is through education and better understanding of the rich emotional lives our pets share with us".

#### **About Tim Wass MBE**

Formerly Chief Officer Inspectorate, Royal Society for the Prevention of Cruelty to Animals (2008 - 2010).

Tim Wass joined the RSPCA from the RAF in 1988. As a field operative, he specialised in illegal dog fighting and related investigations before being promoted to lead the Inspectorate team in SE London.

Tim was promoted to Superintendent for East Anglia and the Midlands responsible for a large, geographically dispersed animal welfare team. He was responsible for the delivery of regional animal welfare services to the high standards set by the Society. This role entailed acting as the RSPCA's representative and spokesperson for the media and other groups.

In 2001, 2007 and 2008, Tim designed and led the RSPCA's response to the Foot and Mouth Disease, Avian Influenza and Seal Distemper Virus outbreaks. During each





outbreak Tim was seconded to Defra to represent the RSPCA within the National Disease Control Centre.

In 2004 Tim was awarded the MBE for services to animal health and welfare.

Whilst Superintendent, Tim specialised in Animal Welfare operations and delivery becoming the RSPCA's lead officer at tactical level for all national emergencies where the RSPCA was active. In addition to the outbreaks mentioned above, he managed the operational response to the floods in 2007 and 2009.

Tim's knowledge and experience of animal welfare together with his ability to articulate at all levels ensured that he became the RSPCA's national spokesperson in 2006. Responsibilities included the management of media matters on behalf of the Society and acting as a lobbyist at local and national government.

In 2007 he was seconded to the Hong Kong SPCA to review their structure and service delivery.

In 2008 Tim was appointed to the post of Chief Officer. He became the "face" of the RSPCA through the award winning fundraising initiative "the biggest animal rescue ever". He is an accomplished and effective communicator with many years' experience working with, and appearing in the national media.

Tim now works as an Independent Animal Welfare Consultant. His reputation for innovation, problem solving and initiative within the sector is well earned and respected.

#### **About Chris Newman**

Chris Newman is currently the Chair of the Federation of British Herpetologists and the European Union Association of Reptile Keepers and has been the chief executive for the Reptile & Exotic Pet Trade Association since 2005. Chris has vast experience with reptile keeping, with knowledge covering over 250 species - and also numerous non-reptilian species. His current work includes working to improve animal welfare and he is a passionate advocate that both humans and animals benefit from good animal husbandry and the keeping of animals as companions. Chris was involved with the drafting of the Animal Welfare Act, chairing the government working group on pet fairs and sitting on the working groups looking at pet vending and defining welfare. He is also directly involved with many other governmental working groups and legislative reviews, such as the Dangerous Wild Animals Act, CITES & Non-Native Species Strategy and sat on the working group producing the new Model Licence Conditions for Pet Shops.

He has also acted in an advisory capacity for HM Customs and Excise, the police and local authorities. He has had numerous articles and papers published in journals and magazines, as well as authoring several books on the subject of reptiles.

#### **About COAPE**

COAPE was established in 1993 to provide benchmark education courses, training, and professional development for anyone interested in studying companion animal behaviour and therapy, and has now grown to offer the finest professional study and career pathway for anyone wishing to practise as a pet behaviour therapist.



COAPE offers a range of state-of-the-art distance learning and residential courses taught by internationally recognised academic and practical tutors. Some COAPE courses lead to Regulated Qualifications. These qualifications are accredited through CERTA and are listed on the Qualification and Credit Framework, and regulated by Ofqual.

At COAPE we now offer the first dedicated, properly regulated and independently accredited study and professional training programme in companion animal behaviour and behaviour therapy. This will enable you to work towards a nationally recognised qualification and help prepare you properly to pursue a successful career in this highly rewarding field.

<http://www.coape.org>



## About the Pet Charity

The Pet Charity exists to spread awareness about the benefits of pet ownership and to increase pet welfare through education and research. The Charity runs campaigns such as Pets in Schools, encouraging children to learn about the responsibilities involved in pet care and helping teachers to fund a classroom pet through a voucher-based scheme. Alongside this, the organisation commissions research projects, which inform their campaigns and media work too.

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

## RELATED COURSES

- ♦ FdSc Applied Animal Behavioural Science and Welfare
- ♦ BSc (Hons) Applied Animal Behavioural Science and Welfare
- ♦ BSc (Hons) Animal Management
- ♦ Level 3 Diplomas In Animal Management
- ♦ Level 2 Diploma In Animal Care
- ♦ Level 2 Certificate in Practical Animal Care Skills
- ♦ Level 2 Certificate of Technical Competence in Animal Health, Husbandry and Handling



# BHS FIELD TRIP TO MADAGASCAR

In association with our partner, the Madagascar travel specialists **TAILORMADE AFRICA**, the BHS Conservation Officer Jan Clemons is organising a privately guided trip to Madagascar for the British Herpetological Society from

30th October 2018 to 11th November 2018

Maximum group size is 15

**There are still a few places left**

The itinerary can be found at:

<http://itinerary.tailormadeafrica.com/Itinerary/Landing/f1050b7b-a471-6c3f-d232-5ac63b9ea590>

In the first instance, please contact Jan on 07720 814414 or by email [janclemons2015@gmail.com](mailto:janclemons2015@gmail.com) to register your interest and for more information



## BHS Internet Presence



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***PLEASE SEND ANY ARTICLES YOU THINK WOULD BE OF INTEREST TO THE BHS MEMBERSHIP. THEY CAN BE SUMMARIES OF TRIPS YOU HAVE BEEN ON, ACCOUNTS OF YOUR LOCAL HERPETOLOGY OR ACTIVITIES OF YOUR LOCAL GROUP. IT DOESN'T HAVE TO BE ACADEMIC OR COMPLEX, JUST PASSIONATE, AND PICTURES ALWAYS HELP! E-MAIL AS A WORD FILE AND HIGH QUALITY .JPEG FILES to [education@thebhs.org](mailto:education@thebhs.org)***



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