



Newsletter of the British Herpetological Society

Established 1947

Turtle Keeping Conference: Responsible Pet Ownership at Hadlow College



On the 30th of October 2021, the *Turtle Keeping Conference: Responsible Pet Ownership* was held at Hadlow College near Tonbridge, Kent. The conference aim was to inform keepers and the general public of the requirements of caring for these chelonians as pets and a particular focus was placed on the issues surrounding the release of non-native pet turtles into waterways.

The first speaker was Paul Eversfield, a long-term hobbyist keeper and expert with nearly 60 years of experi-

ence in turtle care. In his talk 'The History of Turtle Keeping,' he spoke about the significance of turtles throughout culture, lore, and history. He then discussed the development of the international commercial trade in turtles and the subsequent impacts of the growing trade. These included references to the salmonella scare in the 1970s, which led to a restriction in exportation of turtles with a shell of less than 10 centimetres in length, as well as the 1990s craze for keeping red eared sliders (*Trachemys Scripta Elegans*) often attributed to the

Teenage Mutant Ninja Turtle cartoon of that era. The trade explosion significantly increased the number of imported pet turtles released into the wild, resulting in an invasive alien population and leading to a number of national governments regulating and banning the trade of these species (EU import ban 1996).

The next speaker was Chris Newman, founder/director of the National Centre for Reptile Welfare at Hadlow College. In his talk, titled: 'The NCRW and turtles!' Chris covered the inception of the centre in 2018. He explained that NCRW operates in part to rehome and rescue unwanted pet reptiles and amphibians and shared the centre's yearly data on the animals that have been taken in, a significant portion of which were freshwater turtles.

Matt Clare then gave a talk entitled, 'Indoor Keeping and Husbandry' which covered the finer points of hobbyist turtle keeping and setups. Matt spoke extensively on the range of enclosures appropriate for freshwater turtles, sharing detailed images, proper feeding regi-

mens, and the suitability of keeping turtles with tank-mates.

He was followed by Richard Barfield, 'Outdoor Keeping,' who spoke about outdoor turtle keeping in the UK, particularly the challenges of hibernation and cohabitation. Richard's talk was enlivened by numerous images of his outdoor setups at his home in the Midlands where he keeps over one hundred turtles of varying species.

Following a break for lunch and refreshments, the afternoon began with a talk by Andy Ferguson, herpetologist and Zoo Manager at Lincolnshire Wildlife Park and the National Turtle Sanctuary. Andy's talk, titled 'The National Turtle Sanctuary at Lincolnshire Wildlife Park' discussed their ongoing project to alleviate the problem



of unwanted, released turtles found in UK waters. The project has grown exponentially since founding as it has been necessary to accommodate a vast number of turtles of multiple species. Some of these have been housed in

specially designed pods, within a huge polytunnel and in multiple open-air ponds. The project aims to provide accommodation for over one thousand turtles and terrapins. Andy also shared footage of the devised trapping of a small population of turtles in a large U.K lake.

After this, we heard about a similar project from turtle enthusiast Jeff Staines, in his talk titled 'For the love of turtles!', who has constructed a large lake on his own private land as well as indoor enclosures for quarantine and acclimatisation purposes. His project has the same aim as that of the National Turtle Sanctuary: the rescue of unwanted and invasive turtle species. The lake has now established itself as a natural functioning ecosystem containing an array of flora and fauna, including many plant and insect species. These provide both natural cover and food sources for the inhabitants. There are also plans for the introduction of a natural filtration system utilising reed beds. To prevent escape the perimeter of the lake is surrounded by a fence. The lake has been designed with a continual sloping bank to allow the turtles an easy exit from the water for basking purposes at any point in the photoperiod. Jeff estimates that the lake may have the capacity to support over three thousand turtles.

Lastly, we heard from Suzie Simpson, a lecturer and HE Programme Lead at Hadlow College. Suzie delivered a talk titled 'Turtle Tally U.K citizen science project'. The project, which she leads, aims to educate members of the public about the existence of released turtles in U.K. waterways and encourage them to report any sightings. These reports may then be collected and 'tallied' to determine the range of sightings as well as any potential hotspots. It is hoped that evaluation of this data will help to identify the scale of the environmental impact of release and will lead to a deeper understanding of the adaptability of these creatures. Suzie's talk included tips on searching for turtles in or near bodies of water as well as a list of basic equipment to bring along to aid the search. The data collected so far was displayed and showed an annual increase in reported sightings since the project launched in 2019.

The talks were followed by an opportunity for final questions and discussion and a tour of the adjoining National Centre for Reptile Welfare. Attendees were able to view rescue turtle enclosures, which included several indoor and one large outdoor setup.

The conference provided an excellent platform for hobbyist keepers and professional herpetologists to come together to share a great amount of knowledge and information about freshwater turtles, their welfare in captivity, and the impact of abandonment from an individual to



an overall environmental scale. Though the latter subject is sobering, it was countered by the fact that there are people striving to address the problems - both for the sake of the environment and for the benefit of the animals themselves. The profits from the attendance fees of the conference went to the National Centre for Reptile Welfare to fund their ongoing work.

You can make a donation to the centre to help their work by heading to the National Centre for Reptile Welfare website.

Written by James Allan (turtle keeper and runs a reptile advisory service in York).

How to set up heating, lighting, and UVb for bearded dragons (*Pogona vitticeps*) in a 4'x 2'x 2' vivarium (Part two)

By Ben Van Nest and Chris Phillips



Determining UVb Lamps

So how much UVb exposure do they need? Bearded Dragons are considered intermediate between Ferguson Zones 3&4, which means they've been recorded basking in the wild on average at a UVi of 2.9-7.4.

Since they will potentially be exposed to this UVi for 10-12 hours, a safe range is about 3.0-5.0 UVi with no access to greater than 7.0 UVi. According to some recent data from Dr. Jonathon Howard, wild dragons tend to prefer a UVi closer to 4.0-4.5. This should be considered an ideal to aim for, but anything within the 3.0-5.0 range is acceptable.

When you include things like substrate and decorations which offer elevated platforms to the reptile, all of these factors need to be considered and measured accurately. Based on various charts with UV measurements we can then give an accurate answer. Many times, you will hear people adamantly say that you need a 12% or a 10.0 lamp for Bearded Dragons. However, in many cases if you can choose to have higher climbing decoration and can use a 6% or a 5.0 lamp. Because dragons are actually semi arboreal, they love climbing. You

can provide the ability to climb higher towards the less powerful lamp and still achieve the proper UV index.

Attached is a chart created by John Binns to provide an estimated UVi with the various Arcadia products at a given distance. These values are unobstructed, meaning there's no screen or mesh between the lamp and the reading. These readings are also from the centre of the tube as that is where the UVi is strongest, however the coverage is evenly spread so that the dragon is receiving necessary exposure. When replicating these distances, keep in mind these are the distances from the lamp to the dragon's shoulders, NOT to the surface itself. (See next page)

If placing the UVb lamp over a screen or mesh, this will reduce the UVi at a given distance. With information pertaining to various screens and manufacturers of enclosures, we have many members that have provided information on how much UVb will be blocked and how you can overcome that by decreasing the distance from the lamp to the reptile. The average ExoTerra style mesh reduces UVi by about 35%. Thicker metal screens such as for the Zen Habitat will reduce UVi closer to 40-50%. By far the worst screen for UVb transmission is

UVI DISTANCE CHART*

Arcadia ProT5 UVB Kit Fixture 22" 24W

LAMP		LAMP		LAMP	
Distance	Distance	6% D3	Ferguson	12% D3+	Ferguson
Inch	Centimeter	UVI-Peak	Zone	UVI-Peak	Zone
4 inches	10.16 cm	13.4	DANGER	25.4	DANGER
5 inches	12.70 cm	10.6	DANGER	20.4	DANGER
6 inches	15.24 cm	9	DANGER	17.1	DANGER
7 inches	17.78 cm	7.4	ZONE 4	14.1	DANGER
8 inches	20.32 cm	6.2	ZONE 4	12.1	DANGER
9 inches	22.86 cm	5.2	ZONE 4	10.4	DANGER
10 inches	25.40 cm	4.6	ZONE 4	9.1	DANGER
11 inches	27.94 cm	4.1	ZONE 4	8	DANGER
12 inches	30.48 cm	3.7	ZONE 4	7	DANGER
13 inches	33.02 cm	3.2	ZONE 4	6.2	DANGER
14 inches	35.56 cm	2.9	ZONE 4	5.7	DANGER
15 inches	38.10 cm	2.6	ZONE 4	5.1	DANGER
16 inches	40.64 cm	2.3	ZONE 4	4.5	DANGER
17 inches	43.18 cm	2.2	ZONE 4	4.1	DANGER
18 inches	45.72 cm	1.9	ZONE 4	3.7	DANGER
19 inches	48.26 cm	1.7	ZONE 4	3.5	DANGER
20 inches	50.80 cm	1.6	ZONE 4	3.2	DANGER
21 inches	53.34 cm	1.5	ZONE 4	3	DANGER
22 inches	55.88 cm	1.3	ZONE 4	2.7	DANGER
23 inches	58.42 cm	1.2	ZONE 4	2.5	DANGER
24 inches	60.96 cm	1.2	ZONE 4	2.4	DANGER
25 inches	63.50 cm	1.1	ZONE 4	2.2	DANGER
26 inches	66.04 cm	1	ZONE 4	2	DANGER
27 inches	68.58 cm	1	ZONE 4	1.9	DANGER
28 inches	71.12 cm	0.9	ZONE 4	1.8	DANGER
29 inches	73.66 cm	0.8	ZONE 4	1.7	DANGER
30 inches	76.20 cm	0.8	ZONE 4	1.6	DANGER
31 inches	78.74 cm	0.8	ZONE 4	1.5	DANGER
32 inches	81.28 cm	0.7	ZONE 4	1.4	DANGER
33 inches	83.82 cm	0.7	ZONE 4	1.3	DANGER
34 inches	86.36 cm	0.6	ZONE 4	1.2	DANGER
35 inches	88.90 cm	0.6	ZONE 4	1.2	DANGER
36 inches	91.44 cm	0.6	ZONE 4	1.1	DANGER
37 inches	93.98 cm	0.5	ZONE 4	1.1	DANGER
38 inches	96.52 cm	0.5	ZONE 4	1	DANGER
39 inches	99.06 cm	0.5	ZONE 4	1	DANGER

Room ambient temperature during testing: 93 °F/33.8 °C

Chart by John Binns 19 May 2020

Ferguson Zoning: Distance equals UVI levels. Exposure levels should not exceed 8.0 UVI

ZONE	Reptile or shade dweller	UVI up to max
ZONE 1	Crepuscular or shade dweller LIKE "SHADE"	0.7 - 1
ZONE 2	Partial sun or occasional basker	1 - 3
ZONE 3	Open or partial sun; thermophilic LIKE "SUNLIGHT"	3 - 7
ZONE 4	Mid-day baskers; thermophilic	4.5 - 8

* Distance is measured from the bulb to the reptile. The reptile should not be able to reach higher UVI levels of exposure above its zone.



the one sold with the Thrive enclosure, blocking closer to 65% of the light! These UVI reductions must be factored in by closing the distance from dragon to lamp. To calculate the estimated UVi through a screen using this chart, take the measured UVi and multiply it by the % of light coming through. As an example, if one was using the 12% lamp over ExoTerra mesh at a distance of 12" (30cm), the unobstructed UVi is 7.0.

7.0×0.65 (65% transmission/effective) = 4.55.
Therefore, the reduced UVi at 12" is 4.5.

Using this chart we can determine the following desired distance ranges in the Arcadia ProT5:

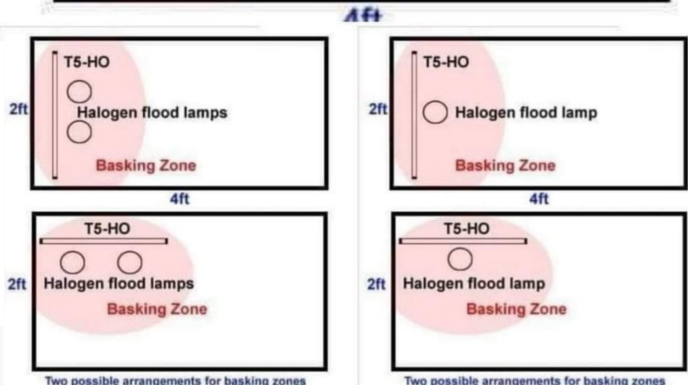
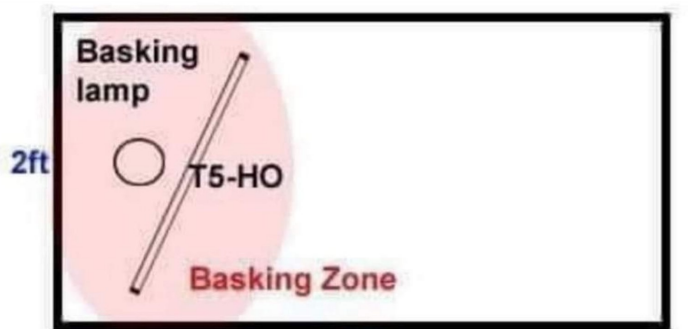
- ⇒ **5-6% Strength Lamp: 9-13" or 23-33cm (3.2-5.2 UVI)**
- ⇒ **10-12% Strength Lamp: 15-21" or 38-53cm (3.0-5.1 UVI)**
- ⇒ **14% Strength Lamp: 16-22" or 41-56cm (3.0-**

4.8 UVI)

Lamp Placement

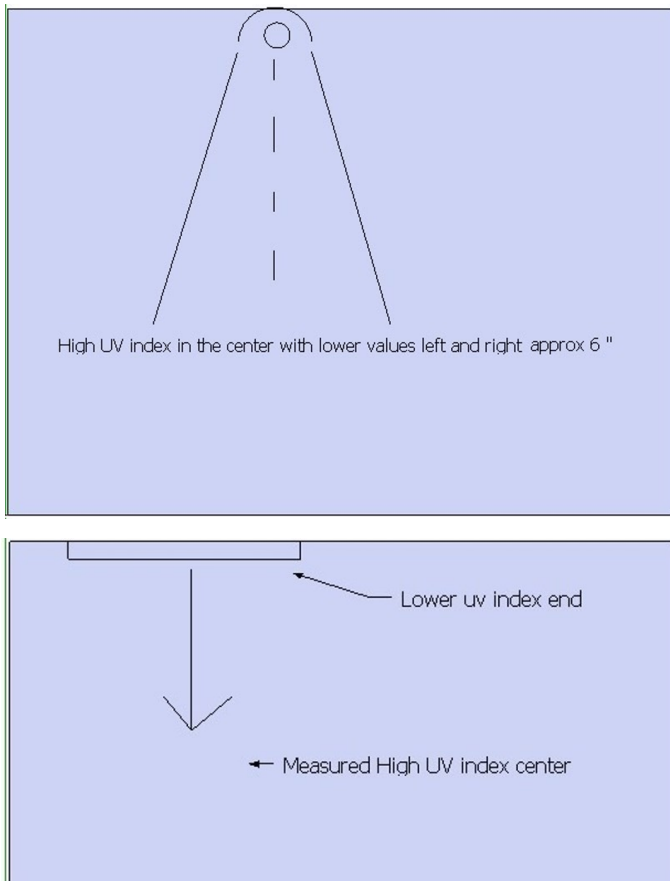
Once we have determined proper lamps and distances for UVb and basking lamps, we then need to construct the basking area. Since the purpose of basking is to absorb radiation from sunlight, we want to ensure all portions of sunlight are present while basking. This means we need to overlap the highest intensities of our UVb, Visible Light, and Infrared in the basking area to create a "patch of sunlight." The best way to accomplish this is to position the basking lamps next to the middle of the UVb lamp. We want to position these lamps to one side of the enclosure, leaving an equal area of shade on the other side to allow for proper self-regulation. Attached is a graphic created by Dr. Frances Baines (our head admin) to help illustrate this concept.

See below:



With this goal in mind, we place the heat lamp (s) directly centre of the tube of the UVb light fixture or as close as possible to maximize the UV exposure. When we measure the UVb output we typically measure in the centre of the tube to get the strongest reading. As you move left and right to the ends of the tube the number / output will decrease, at the very end of the tube you will notice a decrease of approximately 1.5 - 2.0 UV index.

So if we're aiming for a 4.5 UV index directly centre under the tube and fixture that means on the far ends of that tube you might see a measurement of 2.5 UV index. Not necessarily a bad thing in some cases. This is actually similar to sitting in direct sunshine and then slightly moving away to shady areas or areas with less intense UVb.



Visible Light

It is common for keepers to focus on the Infrared and UVb lighting as those concepts are more well known, but all portions of Sunlight must be given in species appropriate intensities for the proper keeping of our reptiles. Visible Light carries its own energy and in the wild The Visible Light content contributes to thermal gain. It is also a trigger for many photobiological functions in our reptiles. While the proper provision of Infrared and UVb are most important for immediate health, Visible Light and its importance must not be overlooked.

In addition to the basking area, background illumination can be added in the form of T5 daylight fluorescent lamps or white LEDs. A good LED would complement the UVb and Infrared illumination. Something like the Arcadia Jungle Dawn LED bar would work well. Any background illumination should overlap with the basking area, so that the basking area receives the same boost in Visible Light as the rest of the enclosure. This ensures that the basking area remains the brightest in the enclosure, helping the dragon to determine basking opportunities.

For diurnal heliothermic (sun basking, active during the day) reptiles such as Bearded Dragons, keepers are also experimenting with adding 35-40watt LED

spotlights to the basking area to further increase the brightness while basking.

All lighting should be on a 12-hour photoperiod, meaning 12 hours on and 12 off. As keepers become more experienced in their husbandry, they can begin to alter the photoperiod with the changing of the seasons. Keepers can also experiment with staggering on/off times for various lamps to create a desired sunrise/sunset effect. No additional heating elements should be needed at night so long as temps stay above about 60F (15C). If temps do drop below this, a CHE or DHP can be used on a thermostat to maintain safe night time temperatures.

This concludes our overview of heating and lighting for the Bearded Dragon in a standard 4'x2'x2' enclosure. Using these concepts, even the most novice keepers should be able to provide a sufficient photo and thermal gradient for their dragon to happily utilize. If there are any questions or concerns not covered here, or more specific help is still needed, please feel free to follow up with a member of our team!

Additional Reading and Information

For more information regarding Bearded Dragons and their lighting needs, please refer to the following peer-reviewed videos created by Joseph Brabin of JTB Reptiles:

https://youtu.be/Di-z03_9pbY

<https://youtu.be/bnVS NFVNMak>

For more information regarding UVb light, its importance, and application within keeping, please refer to:

[UV Guide UK - Ultraviolet Light for Reptiles - UVB reptile lighting on test](#)

For more information regarding Infrared Light, please refer to: <https://www.facebook.com/groups/ReptileLighting/permalink/1724180917716497/>

Post-graduate life during a pandemic: A herpetologist's perspective

Written by Steve Allain



When people tell you that a PhD is going to be a roller-coaster of a ride, I don't think they generally think that you're going to be unlucky enough to have a global pandemic thrown right in the middle of it. When everyone was sitting at home during the first national lockdown last year, I was waiting with my ear to the ground for the permission to start my fieldwork. I'm in a lucky position as unlike most of my colleagues, I have a domestic project based in Norfolk studying a population of barred grass snakes (*Natrix helvetica*). I don't have to rely on international travel, which would have caused even more headaches (and would probably continue to do so). Still, despite this it took three months for the decision to be made that it was safe for me to start undertaking my fieldwork, which also allowed me to continue collecting data to answer the questions I had in mind.

It's easy to become disillusioned by a wait that long and under the circumstances, nothing ever seems like it is going to be possible. However, you have to look for the light at the end of the tunnel or it's very easy to lose sight of why it is you're undertaking the research you are. For me, this meant a shifting of tasks to ones that I could complete from home. I spent a large portion of my time getting my head around modelling and trying to make sense of the data I already had, in preparation for future data and being able to explain it. From this, I also started drafting paragraphs of my work, I wasn't worried about what order things were in, as long as they were down on paper. It is a lot easier to cut and move text that is already there than to write it from scratch. Whilst my productivity may not have been what it was (or the level I felt it needed to be), progress was still slowly being made.

I've also had to be realistic about what I can achieve in the remaining time, meaning some elements of ecology that I wished to explore have now been severely reduced or dropped altogether. Despite all of this, I should hopefully end up with a well-rounded and meaningful project at the end of it. Things haven't been easy but if you can continue on working with things despite the challenges that a pandemic throws at you, it's probably a good sign that you're more than capable of tackling any other challenges that come your way afterwards. I think it's also important to take breaks and regular reflections of how far you have come, to prove to yourself why it makes sense to keep fighting. Whilst I couldn't get out and survey animals at my own site, I was able to explore some wildlife sites close to home that helped to provide that fix of being out and looking for reptiles and amphibians. Most people may disregard the natural world but in my mind, having that nature on my doorstep really helped me through the darkest hours of early 2020.

The BHS says thanks and goodbye to Sarah Berry after seven years as managing editor of both the Herp Bulletin and Herp Journal.

The production of two of the BHS's publications, *The Herpetological Bulletin* and *The Herpetological Journal* are under the control of a professional managing editor. The first appointee, Sarah Berry, has been with us since 2014 but leaves us at the end of December. Sarah, lives in France where she has her own publishing and website business as well as devoting some of her time to art work with mosaics.



Sarah Berry, retiring managing editor of the BHS's publications, with one of her mosaic creations, a sunflower made on a flexible mesh-backing that can be installed (glued and grouted) by her customers to a surface of their choice

We are very grateful to Sarah for her dedication to the BHS publications, she has brought a highly professional approach to the job and at the same time has not held back on her artistic skills. For example when taking over *The Bulletin* she brought the publication dates in line with official publication times and gave the format a major face lift, indeed the current attractive and very successful format of *The Bulletin* is her creation.

Sarah has now retired from *The Bulletin* to spend more time on her mosaic work. But we are glad to say a big hello to Julie Tee who will slip into Sarah's shoes. Julie also lives in France and has worked with Sarah previously preparing and editing 'The Deux-Sevres Monthly' an English language magazine, created by Sarah in 2011 and published in France. Julie has an acute awareness of publication schedules and hence is well qualified to be managing editor of *The Bulletin* and *The Journal* and will be a vital member of the editorial teams.

Rick Hodges & Roger Meek

Book your tickets here today!



AHH / BHS Conference 2022 at Drayton Manor Park
"Working Together"

Keynote speakers:
Dr. Jonathon G. Howard
Research veterinarian
aka "Beardie Vet"

Robert Mendyk,
Curator of Herpetology,
Audubon Zoo, New Orleans

After-dinner Speaker:
Tell Hicks
Artist and Herpetologist





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PROGRAMME

Day One: Saturday March 12th

Chris Mitchell, Drayton Manor Park
Dr. Peter Sound, DGHT Germany

Into the future together - working with our zoos
The Politics of Herpetological Husbandry

Coffee Break

Francis Cosquiere, AHH Founder Member
Dr. Siobhan Cox, M.R.C.V.S. Zoo Vet

My Life with Coachwhips
Keeping Safe: Biosecurity and Quarantine

Lunch Break

Tim Baker, Drayton Manor Park Zoo
Dr. Huw Gollege, Scientific Director, UFAW

The Lair of the Dragons: Smaug at Drayton Manor
The Welfare of Rodents used as Food for Reptiles

Coffee Break

KEYNOTE SPEAKER

Dr. Jonathon Howard, D.V.M. "Beardie Vet"

Seasons in the sun: Bearded Dragons in the wild

Conference Dinner

Tell Hicks, Herpetologist and Wildlife Artist

Our After-Dinner Speaker: "Inspirations"

Tickets include Lunch and Refreshments during breaks - Sponsors' Stalls open during all breaks - Guided Zoo Tours

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PROGRAMME

Day Two: Sunday March 13th

Oliver Witte, Legal Advisor, DGHT (Germany)

The Citizen Conservation Initiative
- Together against species extinction

Adam Radovanovic, Curator of Reptiles,
Birmingham Wildlife Conservation Park

The Husbandry & Reproduction of the Saharan
uromastix, *Uromastix geyri*

Coffee Break

Roman Astheimer, DGHT (Germany)
Dr. Krissy Nichols, M.R.C.V.S., Exotics Vet

Cohabitation - a Form of Enrichment?
Reptile mental health: Excessive anthropomorphism
or emerging welfare concern?

Lunch Break

Dr. Gerardo Garcia, Curator, Chester Zoo
Adam Davis, Senior Keeper, Bristol Zoo Gardens

Komodo dragons: an open letter to you.
The Husbandry & Reproduction of Tree Monitors

Coffee Break

KEYNOTE SPEAKER

Robert Mendyk, Curator of Herpetology,
Audubon Zoo, New Orleans. Editor of BIAWAK.

It Takes A Village: Building Bridges and Working
Together to Advance Herpetological Husbandry

Tickets include Lunch and Refreshments during breaks - Sponsors' Stalls open during all breaks - Guided Zoo Tours



Have you seen turtles in the UK?



Take part in our research on the distribution of released pet turtles in UK waterbodies. Submit your sightings of turtles to our survey and find out more on our website: www.turtletally.co.uk

Turtle Tally UK Citizen Science Project



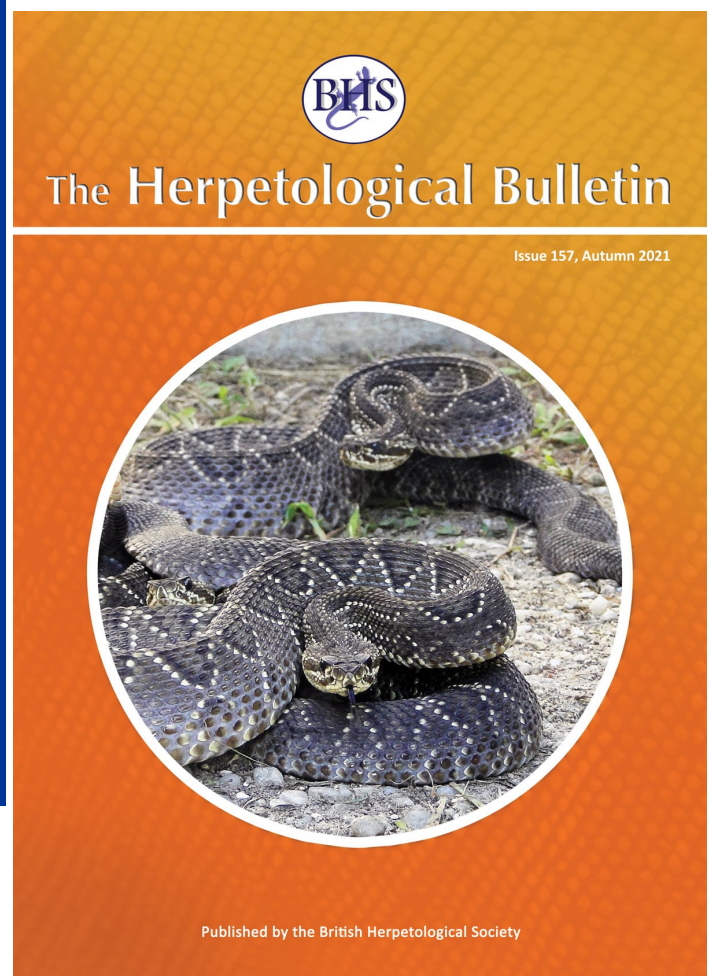
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Contact us: turtletallyuk@gmail.com

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Why not take a look at our other publications?



Membership with the British Herpetological Society
gives access to all three publications for just
£25 a year (student members, £18).



To our BHS members,

We are always interested in hearing from you. Please feel free to contact me if you would like to share anything regarding herps. We would love to hear about your animals, your experiences, their care and husbandry, ideas, training, research and more.

It is important to us that you have that opportunity to share with the wider community, as we all benefit from sharing knowledge and experience.

Kind regards,

Suzie Simpson

Email: natterjack@thebhs.org

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on our website at:**

<https://thebhs.org/>

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