



## DO YOU NEED A HELPING HAND OR ADVICE?

Email your queries to [prk.ed@kelsey.co.uk](mailto:prk.ed@kelsey.co.uk) or write to the address on page 66. A selection of submitted questions will appear here every month, and a prize of Vetark products will be awarded to the writer of the Star Question. Regrettably, replies can only be given through this column, and if you are worried about the health of your animal, seek veterinary advice without delay.

# Lighting for tortoises



**Please advise me on lighting for tortoises. Do tortoises need an extra source of ultra-violet light (UVB) or can their time in the garden over the summer sustain them**

**throughout the year?**

Tortoises have been kept as pets in the UK for centuries. As time has progressed, so we have learned more and more about their care needs. These reptiles do require an extra source of UV throughout the year, but I fear that because of old-fashioned thinking and the use of even older technology, some tortoises are not still able to start and go on to complete the vitamin D3 cycle in the way that is required.

It is important to appreciate that many of the species that are commonly kept as pets have evolved to live in areas where there is a high UV Index, typically 6-9, over much of the year. (At this type of reading, we are recommended to wear a sunscreen with an SPF of 30+).

The few weeks of medium-strength sunlight that we typically experience here in the UK is simply not enough to allow a garden tortoise to build up the necessary reserves of vitamins and hormones that are required for brumation and hibernation, not to mention healthy bone and shell growth.

This year-on-year reduction and undersupply progressively starts to affect the internal biology of the animal, and so can create bone mass issues at a later stage. I recently attended a fascinating lecture on this very subject, given by a group of chelonian vets.

The presentation included x-ray examinations of a number of tortoises being kept in this country, and revealed some real long-term concerns. It is clear that weak bones and shell thinning are a common issue, although unfortunately, the extent of these hidden problems can really only be assessed by an examination of this type.

## Lighting issues

My main concern is the practice of simply providing a compact or combi-type lamp as the sole source of UVB. Reptiles need to have access to heat, light and UVB to start the D3 cycle. They must, however, be provided with a high enough UV index figure to trigger this reaction and then have access to cool and shade, leading into darkness, so as to complete the cycle successfully. In many cases, the sole use of compact or combination (combi) lamps simply cannot

Both of these lighting sources can be very useful in most systems but should only be used as a supplementary lighting source alongside a lamp with a bigger footprint. So what is the best method to ensure the tortoise's requirements are adequately met?

## A practical approach

Firstly, it is necessary to ascertain the average UV index that the species will be exposed to in the wild. You can then select a UVB system that mimics this level of exposure.

UVB output massively decreases in power the further from the lamp that the light has to travel, so be careful to position the lamps at the correct height above the tortoise, to correspond with the UV index that you are seeking to create. The second thing to do is to make sure that the photogradient is wide enough to allow the proper assimilation of light and completion of the D3 cycle.

Typically, providing upper index UV over two-thirds of the enclosure is the best method. This will then provide a graduated pattern of light that is wide enough for your tortoise to benefit from, while also providing an area of essential shade. Your photogradient should always match your thermogradient, so always direct your lighting as far into the hot end as possible.

Being tetrachromats, reptiles have the ability to see 100 million colours including UV and its power gradients. They are more than able to position themselves into the area of power that they require at that moment. Tortoises will happily move around to find the energy that they need - all we have to do is provide well-designed terrain for this purpose.

High spots and gullies, basking platforms and hides are all essential to generating a suitable UV photogradient.

Tortoises really benefit from exposure to natural sunlight throughout the warm months and this should be provided when and where it is safe to do so. Your UVB system is then able to take up the slack and top up their reserves to the levels that nature intended. Never forget - all of the secrets of care are hidden in the wild animal. All we have to do is look closely and take a lesson from nature! *John Courtney-Smith*



provide the animal with the area of emission required for this process.

Combi lamps are a great if not essential addition to an enclosure, but the physical area of UVB that they emit is very narrow. The tortoise would have to sit for long periods under the hottest part of the lamp to derive any significant benefit at all. Compact lamps are very difficult to reflect, concentrating the UV output downwards, and this means that care must also be taken with these as well. A suitably wide area reflector is essential.

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