

Light and shade

Q&A | QUESTIONS & ANSWERS



I have seen so much recently online about the "light and shade" method. Please can you explain it for me?

Historically, keepers have been advised to buy a lamp corresponding to the length of the enclosure. More often than not, these lamps were used with no reflector and even worse, hung close to eye level in an attempt to get them closer to the animal.

The advice was to buy a 6% UVB lamp for forest animals and a 12% lamp for desert animals. No real thought was given to the reduction in power throughout the vivarium, or the distance between the lamp and the animal in the living area. Few people thought about re-creating the average UVI that would be experienced in the wild.

New findings

Last year, Arcadia Reptile undertook to re-write the general lighting advice that was being given. We used science when doing so rather than just generalisations. Now, for the first time ever, keepers are able to use the published outputs of lamps to re-create the UV levels (UVI) of species

in the wild. We studied the wild UVI in the environments of common species and we looked at the habitats of popular species with the aim of understanding how each species used light.

We discovered what is now known as leaf or rock scatter illumination. These are the terms used to describe light that travels down from the forest canopy or passes through holes and gaps in rocks. We then looked at skin thickness in each species and checked this with tetrachromacy (the reptile's ability to see UV light), aiming to find how much light would be available per species.

Practical implications

This research revealed that most commonly kept reptile species are able to self regulate in extremely high UV indexes, from 5-9. They may not spend all day basking, but they are able to use the sun's power as and when they require.

It became apparent that reptiles also have tunnels and areas of almost complete shade in the wild as retreats, and we discovered that they benefit from areas of cool and shade. In fact, a gradient extending into cool and shady areas is as important to the D3 cycle as light, heat and UV.

So with the invention of high output (HO) lamps that can be focused on to a targeted area, and armed with the knowledge of the indexes

that wild animals would experience, we started to advise on creating areas of light and shade in the vivarium environment. This is the system now known as the light and shade method. It refers to the practise of selecting a lamp that produces an upper index over a targeted area.

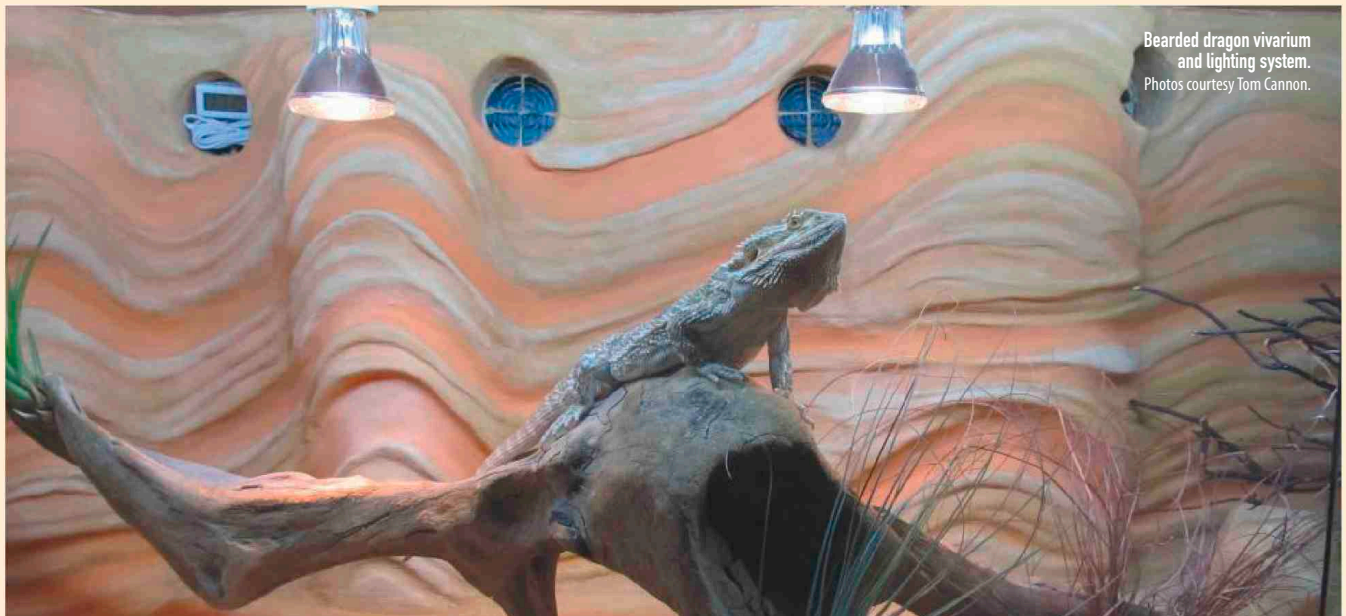
Reptile keepers are well-aware of the need to create a thermal gradient. This is maintaining a higher temperature at one end of the vivarium and a lower temperature at the other. The light and shade method copies this approach, but with regard to light rather than heat.

A lamp and reflector need to be chosen that replicate the upper UV index at the basking point, and measure roughly half to two-thirds the length of the enclosure. This lamp is fitted to the roof, starting at the hot end. This area of the vivarium is then bathed in light. It drops off in power towards the cool end.

The reptile can then self regulate its own exposure as it would in the wild. All we need to do is to include suitable decor in the hot end so that the animal can move upwards towards the lamp if required and increase its own exposure, while providing caves and hides in the cool side where it can rest, out of the light.

The correct application of the light and shade method will ensure that your reptiles not only benefit from a similar amount of UVB to what they would receive in the wild, but that they can regulate this exposure themselves though the environment that you have provided for them.

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Bearded dragon vivarium and lighting system. Photos courtesy Tom Cannon.

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