



**STAR
QUESTION**

Young leopard gecko
hiding under a rock.

Q I am a beginner to keeping leopard geckos and want to provide the right lighting so that they get exposure to UVB (ultra violet B) light. Unfortunately, they don't like this light and when I have used a low UV (ultra violet) light, they also don't seem to respond well, as they stay in their hides when it is switched on. Is there a way to provide them with nocturnal lighting? Perhaps a low grade red heat lamp? What would you recommend?

A The leopard gecko (*Eublepharis macularius*) occurs in parts of Asia including Afghanistan and Pakistan, and these lizards are generally very easy to keep and breed, which helps to explain their

worldwide popularity. Up until very recently, they were thought to be nocturnal. Recent studies have proved that leopard geckos are actually crepuscular though, which means they become active at twilight or before sunrise, and will hide away in rocky crevices during the day.

Most leopard geckos bask under heat lamps at certain times of the day in vivarium surroundings, usually during the early morning or late evening. This is their natural pattern of behavior. In the wild, these lizards are most commonly seen basking at twilight on rocks that have absorbed heat throughout the day.

The very latest research has proved that leopard geckos can absorb large amounts of UVB through their skin in a very short

space of time and under conditions of low light. I read a paper earlier this month which shows the results of UVB absorption through the skin of a leopard gecko, comparing it with that of a bearded dragon (*Pogona vitticeps*). The results showed that leopard gecko skin can absorb 14 times more UVB than the skin of the bearded dragon. This is another amazing case revealing the ability of species to change and adapt to their particular surroundings. Just like house geckos (*Hemidactylus frenatus*), leopard geckos can absorb UVB and use it in the manufacture of vitamin D₃ in a very short time frame, under levels of low light.

UV meter readings taken at the mouth of the burrow of a leopard gecko in the

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Albino strains of leopard gecko, like this tangerine Tremper albino, benefit from more diffuse lighting.

“There is one exception to this advice. The genetics of the leopard gecko has been changed beyond all recognition in recent years.”

wild have revealed that UV penetrates in moderate levels into the burrow itself. If an animal is active during periods of the day when the light level is low, and it has thinner, more UV-absorbable skin, it stands to reason that it will benefit from the inclusion of UV in its quarters.

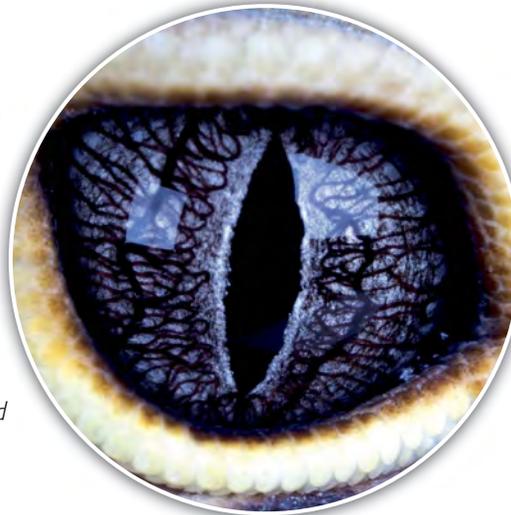
I get asked regularly about lighting arrangements for vivariums housing leopard geckos. It is true to say that most breeders have had great success without lighting or providing basking spots for these lizards. All I can say is that this new research has proved that leopard geckos are not truly nocturnal and do use UV. I am now seeing a general switch over to using UV by the majority of breeders in my work.

It is also the case that large numbers of leopard geckos suffer from metabolic bone disease (MBD). While this can be caused by a lack of calcium in their diet, or a dietary imbalance, another common cause is inadequate calcium absorption, which requires UVB. When MBD arises, and the geckos are being fed on gut-loaded invertebrates, the cause is almost certainly triggered by a lack of UVB. This is essential in the manufacture of Vitamin D₃ in the skin, which in turn promotes calcium uptake into the body, amongst other functions.

The eyes have it

It is also important to remember that reptiles can ‘see’ in UVA wavelengths. This is hard for us to appreciate as we have no real concept of UV light. It has been said that not providing the right levels of UVA for reptiles and birds would cut down their perception of colour and brightness. This would be like a human being in a dark room, although

this will obviously not apply in the case of truly nocturnal species. Even if you disagree that leopard geckos need UVB though, it is impossible to argue about UVA. In theory, an animal with access to the right lighting would be less stressed and more willing to breed, as tetrachromatic vision relying on UV plays a large part in a reptile’s ability to recognise sexual differences. The inclusion of a natural sunlight lamp therefore would



Unlike ourselves, leopard geckos can “see” UV light.

provide good levels of UVA to enable colour vision and can recreate sunlight at dusk.

What you need

I would advise using a 2% natural sunlight lamp in the enclosure. I would also provide extra tunnels and hides and ornaments, giving plenty of places where your geckos can hide away during the day. A leopard

gecko should normally be seen basking in the morning and evening. This lighting arrangement will provide the animal with a natural way to thermoregulate and bask. These lizards may only use the lighting for a few minutes but in this brief period, they can absorb enough UV to manufacture all the vitamin D₃ that they need. UVB also helps in hormone production. I would not advise the use of red or blue tungsten heat lamps as they have no health benefits and some studies have suggested that reptiles could find the colour red uncomfortable.

Mutations

There is one exception to this advice. The genetics of the leopard gecko has been changed beyond all recognition in recent years. Colour morphs look spectacular but any mutation along the albino genetic branch could be hypersensitive to ANY bright light. If your animal has reddish or pale eyes, I would seriously limit the time that you leave the lights on in the vivarium. I would still provide a good UV lamp though, but I would diffuse the light behind plants and ornaments so that the animal could chose where to bask without being uncomfortable.

Aim as far as possible to recreate the wild habit of these geckos (as in all cases), of which lighting is a significant part. The more we learn and the better we get at recreating natural surroundings, so our reptiles will benefit accordingly, and breeding results should also continue to improve.

John Courtney-Smith

*John works for Arcadia Products plc and is an expert on the lighting of vivariums and other animal housing.

Do you need a helping hand or advice?



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