DO YOU NEED A HELPING HAND OR ADVICE?

Email your queries to 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.

Do I need lighting for my leopard geckos?

Can you confirm whether or not my leopard geckos need lighting? There seems a lot of confusing information about this topic.

Nearly five years ago now, I wrote what was then the first piece of formal advice on lighting for so-called crepuscular species such as the leopard gecko that become active at dusk. Since then, I have been able to update that advice, taking into account both the latest scientific information and subsequent advances in technology.

I have seen harrowing images of chronic metabolic bone disease (MBD) and yet some of these cases can improve with veterinary care and a UVB lighting system. From the sheer number of medical issues still reported though, the message simply is still not getting though. Also, some of the colour forms now being bred are probably light phobic, which is an added complication.

I am very vocal with my support for what can be termed "wild re-creation", in terms of reptile husbandry. Zoos and private collectors alike have been aiming to re-create wild environments in terms of thermal gradients and decoration in reptile accommodation for many years. Yet up until very recently, the available technology restricted what could be achieved with lighting. Wild re-creation is not a new theory nor is it "maverick" – I would argue that it is simply commonsense. You want to match the reptile's natural surroundings to those in the vivarium as closely as possible.

Back to basics

With regard to the leopard gecko, this crepuscular lizard originates from a very hot and arid environment with a huge solar index and massive temperature fluctuations, with its range extending from Afghanistan into Pakistan. We can see from field reports that they are found in rocky areas, in mud or sand dunes and in and around caves. Their eye shape is adapted to work well at low light levels and they have the addition of the vital fourth ocular cell.

Leopard geckos also have a very thin and therefore light penetrating skin and we can tell easily from blood tests that they have the ability to create and to use vitamin D3. Exposure to sunlight triggers this D3 pathway through the skin and into the plasma and so on, plus we know that the wild diet of the species lacks a readily accessible dietary source of this vitamin.

Invertebrates and plants (which insects consume) only contain Vitamin D2, and this chemical is not used in the assimilation or regulation of calcium stores in the body. Leopard geckos might find and prey on some small nestling birds or mammals that would provide some dietary Vitamin D3 but this is unlikely and could only be considered as supplementary in this context.

The areas where these geckos live naturally are full of predators, and this may well have shaped their crepuscular behaviour. But they will still be exposed to UVB when they emerge as the sun start to set, and likewise briefly when it rises in the morning.

Supplements

Nevertheless, leopard geckos can be kept on a diet of invertebrates and powders, providing background heat and no lighting. It has been done for years, so does this means that this is risk-free? In my mind, the answer has to be no. For example, we know that D3 produced inside of the body as part of the D3 cycle is regulated inside of the body and cannot be over produced, with calcium storage and use being balanced and regulated.

On the other hand, it is entirely possible to underdose or overdose any species using a powdered supplement. Too much dietary Vitamin D3 can create health issues, while on the other hand, to little calcium itself can be one of the causes of MBD. We still know very, very little about the diets that species eat in the wild, and we can only offer relatively few sources of live foods to them.

Vitamin and mineral powders are therefore essential to the health and well-being of all species especially when they are not kept in bioactive systems. A reptile will, by definition, ingest a very wide range of vitamins and minerals every time that it eats or drinks in the wild. These chemicals are in the soil that is ingested when prey is caught; they are in the gut flora of the invertebrates and whole animal sources that are eaten, plus they are in plants and water.

In our indoor systems, however, the choice and opportunities are much more restricted. We can take nutrition down to the macro level and we should, because it is not to do with what we feed our reptiles, but essentially what that prey item has been eating and then what that plant has been growing in and so on.

Different morphs

Our reliance on powders is long-term and essential, but, in most cases, I feel that it is better to provide an animal with the average wild conditions of that species in a safe and measured way and to then "top up" with supplements. This in effect mimics the natural feeding process. The chances of an oversupply of fat soluble vitamins such as D and A which can be oversupplied then reduces greatly and the possibility of under-provision vanishes if we provide a diet rich in beta-carotene and use corresponding levels of heat, light and humidity to which the species would be exposed in the wild.

We as keepers have been able to breed the leopard gecko in an amazing array of colours now, but many of these strains involve the albino line and many such morphs are decidedly averse to exposure to light. However, this does not change the biological needs of the species. If we are to perpetuate these morphs therefore, we will have to move away from natural re-creation in some cases and be totally dependent on dietary sources rather than using light.

Basking timespans

One question that I get asked every week is: "I put a lamp in with my leopard gecko and it still only comes out for between 10 and 20 minutes – should I be worried?" Well, to my mind that's great! The gecko has been able to regulate its exposure and is behaving in exactly the way that would be expected - that is short bursts of exposure to light when it decides to emerge into the open, and at low levels. It is worth providing the light for a couple of hours in the early and again for a similar period in the evening, and then letting your gecko chose when and where it wants to bask. Most dark-eyed animals will actually choose to bask for long periods of time.

So what is safe? The first and most important rule is that you should never expose a species to an UVB index than is higher than that which it would experience in the wild. Providing more intense lighting can cause skin and other issues. Use the published output of a lamp to adjust the decor so that your gecko can obtain the level of exposure that it requires but no more.

Provide light and heat in a safe way, ensuring that the animal cannot climb higher than the top of the basking platform and will be unable to come into contact with a hot heat source. We must always pair heat and light together, as in the wild, and be sure to match this with a drop off into cool and shade. A hide should be placed at both ends of the vivarium and rocks and branches can be used to create more areas of shade. We must provide water correctly as this is essential to the D3 cycle.

Water bowls and morning spray-downs re-create the mists that roll in every morning, and, for some species, provide most if not all of their daily water. It is important to gut-load insects well on a nutrient-rich formula and we should provide a variety of insect sources as well. This then allows the gecko to behave as it wants, in terms of foraging, basking and engaging in similar behaviour in its quarters.

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As mentioned, care must always be taken with light sensitive pale morphs. Be prepared to seek the advice of an experienced reptile veterinary surgeon in terms of specific health concerns, at an early stage. Always bear in mind that there is no perfect vivarium set-up, partly because individual animals differ to some extent. But we need to take lessons from nature and implement these into our enclosures, to keep the occupants in good health.

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Pale-coloured leopard geckos like this blizzard may avoid light.