THE UV GUIDE UK – ENTHUSIASTS FURTHER SCIENTIFIC UNDERSTANDING OF THE ROLE OF UV LIGHT IN REPTILE HUSBANDRY

Frances Baines - fbaines@uvguide.co.uk

The first reptiles to become part of our family, about 14 years ago, were family pets - leopard geckos and bearded dragons. When our first much-loved bearded dragon, named Pog, developed metabolic bone disorder despite use of a supposedly high-quality UV lamp, I was devastated. I realised I knew almost nothing about ultraviolet light and I had relied entirely upon the product advertisements. We had just got the internet, back then. So I started researching in earnest. I was astonished to discover how little good information on UV lighting was available - indeed, how little was even known. Many vertebrates, including humans, utilise some of the shortest ultraviolet wavelengths found in sunlight to enable the natural synthesis of vitamin D3 from cholesterols in the skin. This is UVB – which, with slightly longer wavelength UVA, also gives humans a sun-tan. Photobiosynthesis is the way most vitamin D is obtained, although small amounts can also be absorbed from the diet. Reptiles kept indoors will not be exposed to any natural UVB and are therefore extremely vulnerable to vitamin D3 deficiency. In its severest form this manifests itself as metabolic bone disorder although low levels of vitamin D3, associated with hypocalcaemia, may also lead to poor reproductive ability, reduced immunity to infection and failure to thrive. It was early in 2004 when I came across a new internet mailing list being set up by hobbyists in the USA, http://pets.groups.yahoo.com/group/UVB_Meter_Owners There, I heard for the first time about an affordable hand-held UVB meter, the Solarmeter 6.2 UVB meter (www.Solarmeter.com) available in the USA; and I also read about a member of that list, in the USA, who rehabilitates unwanted pet green iguanas taken in by a reptile rescue group. This man, Bob MacCargar, had personally designed a new mercury vapour lamp for reptiles, because he was dissatisfied with the products commercially available at that time.

I emailed him about his lamp (called a ReptileUV MegaRay) and to my amazement he offered to send me a sample, free of charge. It duly arrived, and Bob had even included a UK-to-USA voltage transformer in the parcel! But I didn't have a UVB meter. I needed one! Fortunately, also on the mailing list were two chameleon keepers from the UK - Andy Beveridge and Rob Lane. After much discussion, and a series of adventures, Rob imported two Solarmeters - the very first two - into the UK... and we began testing UV lamps, along with fellow reptile keeper Rachel Hitch.

UV Guide UK was born.

We launched the website www.uvguide.co.uk on 26th July 2005. It has had well over 100,000 visitors in the 4 years since then, from 146 countries. Recent involvement with a number of zoos and research groups worldwide has greatly broadened the scope of the project. Contacts include veterinarians, zoo keepers, herpetologists, conservationists, most of the major reptile lighting manufacturers and distributors, and many enthusiastic amateur keepers and hobbyists who are working with us to improve the lives of reptiles in captivity. One of the most important areas of research is the measurement of UVB levels in the native habitat. Research suggests that some species actively regulate their UVB exposure in addition to thermoregulation. Some reptiles increase their exposure to UVB if they are vitamin D3 deficient. Most reptiles, on the other hand, shelter from high levels of UVB, avoiding mid-day sun. Meteorological data from their countries of origin is not particularly useful per se, since these recordings are taken from exposed sites. Several exciting new projects are under way, in Australia and the USA, for example, using the little Solarmeters to record data from microhabitats – recording UV levels from "where the reptile actually sits".

Over the years we've come a long way from that first MegaRay lamp and our first Solarmeter. We now have a range of meters as well as the spectrometers, and it's not just UVB I'm measuring, but the whole solar spectrum and its artificial equivalents. Reptiles are quite literally "solar powered", and it's very exciting to be learning so much about so many different aspects of their lives.

We're looking forward to hearing the results, and are keen to assist, wherever possible, in any similar ventures. For further information on the role of UV light in reptile husbandry please visit our website.

Fig 1 Author with aldabra tortoise and UV meters (© Francis Baines)

Fig 2 Leopard gecko with metabolic bone disorder (©Chris Lloyd)