Salamanders and UV, An Oxymoron

A layman's response to the http://www.solcomhouse.com/frogs.htm website.

First I would like to say that I take the destruction of our environment very seriously. The human race has been given a gift that we seem determined to destroy. Ozone depletion is a real concern and I won't make light of it. I fully agree that the demise of amphibians is a wake up call that there are serious problems that need to be addressed. I also believe that if left up to human the race alone, the world as we know it would in time be destroyed. My spiritual beliefs give me confidence that this will never happen.

Simple logic will often be enough to sift through the information we are given to weigh its stability in the view of fact. From the first time I read the post about Oregon study I knew that there were some deeply obvious problems. Steve's post indicated he felt the same. Fran was buried in work at the time or I'm sure she would have written more on this as well.

To be sure that I didn't open my mouth before I had enough facts I spent some time researching this topic and I found that this was certainly not a new thought on why amphibians are disappearing at alarming rates. I have read studies that have exposed toad eggs to sunlight and found that they had a zero hatch rate and then took them to the lab without UVB exposure and had a 90% hatch rate.

Its no secrete that UVR can and is destructive when used in ways or levels **not in the natural design**. If anyone went to the Oregon study site you will see the methods of the study and how the conclusions were made.

Before I do this I would like to relay how I was first introduced to reptiles and amphibians. Salamanders were my first "lizard". In first grade we had a large playground. In the mid 1950's Long Island NY was still mostly wet forest. I very much enjoyed going into the woods (when not caught doing so) and turning over rotting logs to find the largest "lizards" I could. The darker, the wetter, the bigger I could unearth. In time I found out that these were not real lizards but amphibians as were the toad that I came to love as well. The larger ones I caught (and let go) were Tiger salamanders and most of the smaller ones were Mole salamanders. (Although Long Islands has many species, these were very common.) The smaller ones were actually harder to find as they dug deeper into the ground. Never did you find one basking in the sun.

The bottom line is that "salamander" and "sun" with the exception of both starting with the letter "S", has nothing in common. The salamander in the Organ study is a "mole" species and is basically a nocturnal creature. Before it's metamorphous to an adult, the larvae generally spend their life in ponds that are heavily coated in leaves and are not exposed to severe levels of UV. In NY they hatch in the fall and spend there life with gills under the ice, never being exposed to UVR.

While ozone thinning does increase the levels of UVB levels, pollution, as Steve correctly pointed out, decreases the levels of UVB. This certainly is not as poplar as studies that declare the dangers of increasing UVB, but they are out there if one wants to look for them. In one study, it stated that there may be as much as a 30% decrease in UVB in some areas because or air borne pollution.

UVR has been here since the sun was formed. The question should NEVER have been is "UVB causing the decrease of amphibians?", but rather "Is an INCREASE in UVB causing a decline in amphibians?"

Logic tells me that if I were to conduct such a study to see if it was raising UVB levels "now found in sun light" (as the study states) that contributed to the demise of these amphibians in nature, I would have set up separation bins that had varying degrees of UV filtering material over the tops.

If it really is as simple as increasing UVB, just how much of an increase has caused this? It appears in the pictures on the web that the bins used in the Organ study are cleared of coverings exposing the larvae to much more UVR then they would be normally. It's not very surprising that the bins that were covered with a filter would have a better survival rate, is it?

It shouldn't surprise anyone that the toad eggs that I mentioned earlier that were exposed to UVB "now found in sunlight" caused a zero hatch rate as toad eggs are not exposed to direct sunlight naturally either. Why well educated and well paid people continue to spend time and energy pursuing the wind is beyond me. Is the decline of amphibians a real concern? You bet! Is it from increased UVB? Very doubtful as the increase in UVR is most likely off set by the air pollution! Is it from toxins that have now crept into every square cm of the earth? I believe this is a simple no brainer. A couple of nano-grams of toxins can have a devastating effect on the genetic development of all species but the sensitive ones will show it first..

Come on boys and girls, let's put on our logic thinking caps when we read different studies before we come to any conclusions.

Best regards,

BobMacCargar
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