

FUNNY-COLOURED FROGS

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Albino, orange and other odd-coloured frogs received rather a lot of publicity in 1997. Much of this interest arose because of efforts to link an apparent increase in numbers of these curious animals with environmental causes, especially climate change. The story goes that as the weather gets warmer, frogs no longer need dark-coloured eggs (or tadpoles) to soak up the early spring sunshine and thus can afford to dispense with pigment production.

I find this a very unconvincing proposal, which seems to be based solely on an increased number of records mainly from southern and central England over recent years. If increasing temperatures do relax a need for pigment production, we would of course expect this to be manifest along the southern edge of the Common Frog's range in Europe. To the best of my knowledge, this is not the case. It also presupposes that losing pigment has no drawbacks. This seems very improbable; pale tadpoles and bizarrely-coloured frogs are highly conspicuous, and are very likely to suffer enhanced predation rates. If so, losing pigment would have very little benefit (presumably just saving the small metabolic cost of synthesising it) but would constitute a significant survival risk. Such a change would never spread under selection.

However, it may be no coincidence that most records of unusual colour varieties in frogs hail from garden habitats. Our studies on the genetics of garden and countryside frog populations in the Brighton area have shown that the former have become very isolated and somewhat inbred, with genes apparently undergoing rapid fixation by drift rather than selection. This fine-scale isolation of frog populations is presumably caused by intersecting roads and other inhospitable terrain in the urban environment. In these gardens we sometimes find populations with numerous pale or orange individuals, together with the distinctive unpigmented spawn they produce. We don't, however, see them in the larger and more genetically diverse rural frog populations. To me this suggests that curious colour morphs, and quite probably vulnerability to frog disease (another primarily garden phenomenon), occur because "bad" genes become fixed locally due to drift (essentially chance) in small isolated populations. These are plenty of examples of this kind of thing in populations of other organisms all over the world.

Apart from the biological questions involved here, there is surely a matter of principle about the associated publicity. It seems to me quite wrong to launch an idea about possible effects of climate change into the national press without any substantive scientific support, and without the benefit (or otherwise) of any kind of peer review. As a result, the climate change explanation was put across on national TV almost as established fact rather than the speculation that it really is. No other possible causes were considered. All this is rather reminiscent of the "cold fusion" fiasco, in which prominent scientists made important claims via the media rather than after the normal scientific scrutiny processes - and were subsequently discredited to the embarrassment of all concerned. Climate change is an important and controversial matter, and those involved in establishing its significance (or otherwise) are poorly served by red herrings.