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VIVIPAROUS LIZARDS FACING MASS EXTINCTION WITHIN 50 YEARS DUE TO CLIMATE CHANGE

March 7, 2013 - 11:01am by Julie Kent



According to new research published on Thursday, climate change could see dozens of lizard species become extinct within the next fifty years.

Around the world it has been observed that lizards with viviparous reproduction, which is the retention of embryos within the mother's body, are being threatened by changing weather patterns. This new study suggests that the evolution of this method of reproduction, which is thought to be a key successful adaptation, could ultimately be the species' downfall under global warming.

Dr. Daniel Fincheira-Donoso of the School of Life Sciences at the University of Lincoln in the U.K. is the lead author of the paper published today in the journal *Global Ecology and Biogeography* that details the astonishing predictions.

Dr. Fincheira-Donoso and his team, which included academics from the University of Exeter, investigated the hypothesis that historical invasions of cold climates by *Liolaemus* lizards have only been possible due to their evolution to viviparity (live birth) from oviparity (laying eggs). Once the species evolve viviparity, the process is mostly irreversible and they remain restricted to colder climates.

Looking at the evolutionary transition in the lizards' reproductive modes and projecting the future impact of climate change, the scientists found that increasing temperatures in the species' historically cold habitats would mean that their areas of distribution would be significantly reduced. Consequently, if global warming continues at the same rate, viviparous lizards may be facing extinction in the next few decades.

Dr Daniel Fincheira-Donoso said:

“Lizards' reproduction is largely linked to climatic temperatures and viviparous species are usually found in cold environments. When reptiles initially moved to colder areas they needed to evolve emergency measures to succeed in these harsh places, and we believe viviparity is one of these key measures. However, this transition is mostly one-directional and unlikely to be reversed. Rapid changes in the environment's temperature would demand rapid re-adaptations to secure the species' survival. Through the research we found that over the next 50 years nearly half of the area where these species occur may disappear, causing multiple extinctions due to climate change.”

The conclusion of the study is that while viviparity allowed lizards in the past to invade and adapt to live in cold climates, it will now lead to multiple events of extinction as global temperatures rise.

Dr Fincheira-Donoso added:

“These lizards are one of the most diverse groups of animals, and are able to adapt to remarkably diverse conditions. Unfortunately, a reduction in cold environments will reduce their areas of existence, which means that their successful evolutionary history may turn into a double-edged sword of adaptation. Their extinctions would be an atrocious loss to biodiversity.”



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