

Global warming kills gut bacteria in lizards

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Goldteju *Tupinambis teguixin*. Credit: Wikipedia/CC BY-SA 3.0

Climate change could threaten reptiles by reducing the number of bacteria living in their guts, new research suggests.

Scientists from the University of Exeter and the University of Toulouse found that warming of 2-3°C caused a 34% loss of microorganism

diversity in the guts of common lizards (also known as viviparous lizards).

In the experiments, lizards were put in temperature-controlled enclosures and samples of their [gut bacteria](#) were tested to identify which bacteria were present.

The diversity of bacteria was lower for lizards living in warmed conditions, and the researchers found this had an impact on their survival chances.

By raising the temperature by 2-3°C in their experiment, the researchers reflected warming predicted by current [climate change](#) models.

"Our research shows that a relatively small rise in temperature can have a major impact on the gut bacteria in common [lizards](#)," said Dr Elvire Bestion, of the Environment and Sustainability Institute on the University of Exeter's Penryn Campus in Cornwall.

"More testing is now needed, and it is highly possible that we will see similar effects in other ectotherms (cold-blooded animals such as reptiles and amphibians which depend on external sources of body heat).

"Given the importance of bacteria to digestion, it is crucial that more research is now carried out to investigate this overlooked effect of climate change."

Climate change is now considered as the greatest threat to biodiversity and ecological networks, but Dr Bestion said its impacts on the bacteria associated with plants and animals remain largely unknown.

"We are only now starting to understand the importance of gut microbiota in the physiology of all species, including humans," she said.

"These [bacteria](#) are linked to everything from digestion to immunity and obesity.

"The gut is the latest health craze in humans - with everything from probiotic yoghurts to faecal transplants being marketed - but almost no studies have been done on how the changing [climate](#) will affect these microbes."

The paper, published in the journal *Nature Ecology and Evolution*, is entitled: "Climate warming reduces gut microbiota diversity in a vertebrate ectotherm."

More information: Climate warming reduces gut microbiota diversity in a vertebrate ectotherm, *Nature Ecology and Evolution* (2017).
[nature.com/articles/doi:10.1038/s41559-017-0161](https://doi.org/10.1038/s41559-017-0161)

Provided by University of Exeter

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