

# Global warming could kill off snails

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Ms Coraline Chapperon

(PhysOrg.com) -- Climate change models must be reworked in a bid to save some of the world's smallest and slimiest creatures from extinction, a Flinders University PhD candidate warns.

Biological Sciences postgraduate student Coraline Chapperon says any future policies for global warming must consider mobile organisms on rocky beaches – such as [snails](#) – and their capacity to survive the predicted rise in extreme conditions such as heatwaves.

She said the majority of current global warming research is mistakenly driven by air temperature which does not reflect the body temperature of most animals.

“A lot of current global warming research uses air temperature as a proxy for animal body temperature – so if it’s 31 degrees at the beach they’d say all the animals at the beach are 31 degrees but that’s not the case,” Ms Chapperon said.

“Even the same rock surface varies in temperature at a very small spatial scale at one time which is more pertinent to the biology and ecology of intertidal animals than [air temperature](#),” she said.

“As such, we need to consider factors like rock temperature and the individual physiology and behaviour of animals in our [climate change](#) models, and look at it on a much smaller scale.”

To prove how crucial individual animal body temperatures are to [global warming](#) policies, Ms Chapperon has spent the past three years investigating the temperature and behaviour of snails and their ability to cope in extreme conditions.

As part of her research she took a series of thermal images of marine snails and rocks in two topographically different habitats, a rock platform and a boulder field, over the course of a summer and autumn at Marino Rocks to quantify variances in body [temperature](#) and snail behaviour.

She found that temperatures between microhabitats separated by just a few centimetres, such as crevices and underneath rocks, actually varied more than habitats separated by up to 250 metres, and that rock and snail temperatures were strongly connected, suggesting snail [body temperatures](#) are largely determined by the temperatures of the rocks they are crawling on.

Ms Chapperon said that while snails have limited physiological abilities to adapt any further to climate as they have already reached the upper

limit of their “thermal tolerance window”, her research suggests they may be able to modify their actions in order to survive locally.

However, she said more research was needed to determine whether these “thermoregulatory behaviours” could actually buffer the warming climate.

“Despite their limited physiological abilities, snails have certain behavioural qualities that help them cool down when it is warm, such as aggregating or moving underneath rocks.

“But this is a relatively unknown area of research and that’s why further studies are needed to see whether their ability to find refuge in cooler microhabitats could compensate for their lack of physiological ability.”

Provided by Flinders University

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