

MEDIA RELEASE

NEWS FROM THE UNIVERSITY OF TASMANIA

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ATTENTION: Chiefs of Staff, News Directors



Tasmanian lizard reveals power of climate

A Tasmanian lizard has evolved different sex determining systems according to the location of its population, reports research published in *Nature* this week.

Dr Erik Wapstra and Dr Geoff While, Evolutionary Ecologists from the University of Tasmania, were members of an international collaboration that studied the snow skink (*Niveoscincus ocellatus*), a small lizard commonly found in Tasmania.

The team found that the sex of the snow skink offspring, when found at high altitudes, was determined by genetics (as it is with humans, birds etc). At low altitudes, temperature influenced sex determination (as is common in turtles and crocodiles) - cool thermal conditions produced more sons, and vice versa when sun basking opportunities are good.

“But what is so interesting about these skinks is that the populations have different sex-determining mechanisms at different altitudes, and therefore different climates,” Dr Wapstra said.

“The results suggest that the systems that determine the sex of reptile offspring are adaptable and responsive to climate.”

The findings suggest that in lowland populations, daughters benefit more than sons from being born early in the season because it allows them to reach the minimum size at maturity earlier than females that are born late. Large body size is less important for males. So natural selection would favour sea-level mothers that match the sex of their offspring to the timing of birth.

At higher altitudes, the activity season is short, reducing the birth spread within and between years. Birth date is therefore no longer an important predicate of age at maturity. So there is no selective pressure to match sex with birth date.

“One of the implications of our findings is that the results suggest that a warming climate will have different effects on population demographics,” Dr Wapstra said.

“At lowland warm areas, a series of warm years, as predicted under directional climate change, may result in the over-production of daughters, resulting in a female-biased population. In the cold alpine areas, climate will not affect sex ratios.”

To read the report published in *Nature* follow the link: <http://www.nature.com/nature/journal/v467/n7319/index.html>