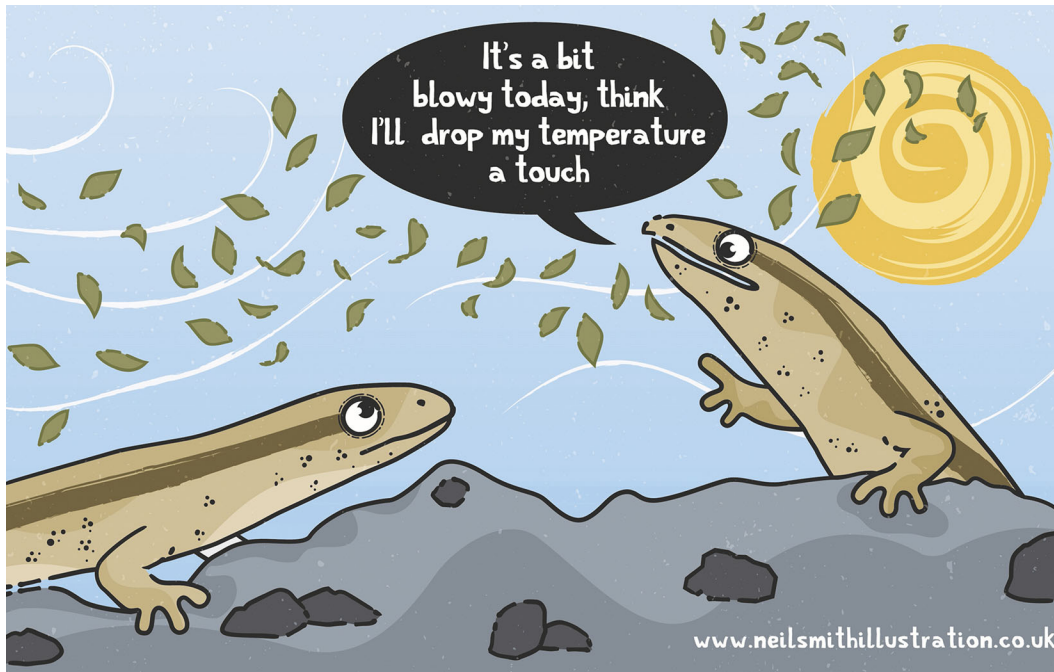


INSIDE JEB

Warm skinks choose to keep cooler in the wind



A gust of wind can really take the edge off the sun. Step out of a sunny room and a stiff breeze can drop the warmth of your skin by several degrees. But for so-called cold blooded (ectothermic) animals such as reptiles that depend on the environment to maintain a warm body temperature, wind could dramatically affect their ability to remain warm. Yet no one had tested how small lizards manage their body temperature on a blowy day. So, Evelyn Virens and Alison Cree from the University of Otago, New Zealand, collected thirty 3.3 g McCann's skinks (*Oligosoma maccanni*) from nearby pastureland to test how the reptiles reacted to wind in the lab.

The researchers built a tiny wind tunnel with a heat lamp at one end, which was adjusted continually so that the animals could achieve a maximum skin temperature of 35°C, allowing the skinks to decide either to recharge their warmth in the breeze or leave the wind tunnel and cool down to air temperature. The duo then measured each animal's skin

temperature as the small reptiles basked either in the still air or in winds of 2 or 6 m s⁻¹. Surprisingly, almost all of the lizards in the windy tunnel (23/28 at 2 m s⁻¹ and 23/27 at 6 m s⁻¹) chose to weather the blustery conditions to maintain a warm skin temperature, whereas when the air in the tunnel was still, only 17 out of 28 lizards maintained a warmer body temperature.

However, ectothermic animals that maintain a higher body temperature don't maintain a single constant skin temperature: instead, it oscillates between an upper and lower set point temperature. The duo noticed that these two temperature set points were lower when the lizards were in the breeze – with the lizards' upper skin temperatures reaching only ~28°C in the fastest breeze, compared with ~35°C in the still air. Their lower set points were also cooler, ~22°C in the 6 m s⁻¹ wind compared with ~30°C in still air. Being in the wind altered the upper and lower oscillating temperatures that the lizards chose when running warm.

But why were the lab lizards in the wind choosing lower cycling skin temperatures while skinks in the wild generally prefer to stay out of the wind? Virens and Cree suspect that it has something to do with saving themselves from dehydration. The duo suggests that the risk of dehydration in the wind in the wild, where the water supply is not dependable, may make heading out to raise their body temperature unfeasible when it's blustery. However, the skinks in the lab were provided with moist moss, reducing their risk of desiccation, allowing them to risk basking in the wind to raise their body temperature. So, wind is yet another factor that needs to be considered as we struggle to predict the winners and losers in the climate change game.

10.1242/jeb.244193

Virens, E. and Cree, A. (2022). Wind of change: A diurnal skink thermoregulates between cooler set-points and for an increased amount of time in the presence of wind. *J. Exp. Biol.* **225**, jeb244038. doi:10.1242/jeb.244038.

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