

Thermal Ecology of the Southern Water Skink, *Eulamprus tympanum*

Jason Rossendall

Proximate environmental conditions may produce differences in the expression of thermal physiology or life history traits in reptiles. However, at the species level there is often limited flexibility in responding to such variation, as evidenced by changes in species distributions across environmental gradients. I examined the thermal biology of two populations of the Southern Water Skink (*Eulamprus tympanum*) separated by a steep altitudinal gradient.

Local temperature regimes differed between high and low altitude sites at the climatic scale, but there was little difference in environmental temperatures between sites at the microhabitat scale, i.e. at points of lizard capture. This was reflected in both field and laboratory results, as lizards from both populations had similar preferred body temperatures and field body temperatures.

While the high altitude site was cooler at climatic (by up to 10°C) and microhabitat (2°C) scales, lizards were active longer each day at high altitude than at low altitude. Capture records indicated that high altitude lizards were active for approximately 2 hours longer per day than at low altitude. Operative environmental temperatures in microhabitats at the two sites indicate that there is more potential time daily at high altitude for lizards to reach body temperatures important for normal functions. Despite cooler conditions, lizards at high altitude potentially have longer activity periods each day.

Temperature regimes at the two sites were very different at a climatic scale. However, at the microhabitat scale, which is presumably more important to a basking lizard, the sites were more similar. The different thermal regimes did not produce significant variation in life history or thermal ecology of these populations of *E. tympanum*.