

Life, Earth & Environment Seminar Series

When: Friday 26th May, 11 am – 12 pm

Where: Natural Resources Building, Lecture Theatre 1 (EM1)

WATER AND ENERGY BALANCE OF THE THORNY DEVIL



Professor Philip Withers
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Water and energy balances are fundamental requirements for animals, and particularly desert animals. The thorny devil (*Moloch horridus*) is a highly specialised, myrmecophagous agamid (dragon) lizard

found in sandy Australian desert and semi-arid environments. The highly specialised diet of thorny devils, small ants, and their ability to survive for extended periods without drinking, means that there is a tight relationship between water and energy turnover. Despite being able to survive for extended periods without drinking, thorny devils will drink if given the opportunity, albeit in a highly unusual manner. Thorny devils do not drink water directly using their lips and tongue (as do many other lizards) but have “blotting paper” skin that absorbs water by contact (e.g. when standing in a puddle), and transfers it by a network of fine cutaneous channels to the corners of the mouth, where it is ingested by rhythmic jaw movements. The cutaneous channels have a complex structure that distribute water omni-directionally by capillary action; it appears that these channels must be filled with water before drinking can occur. The potential sources of drinking water have been examined for thorny devils, leading to the conclusion that moist sand is a likely ecologically-relevant source of water.

Biography

Professor Philip Withers’ research expertise is comparative animal and environmental physiology, in particular the hygric, thermal and metabolic physiology of desert amphibians, reptiles, birds and mammals. Professor Withers completed his undergraduate degree in Zoology at the University of Adelaide, and his PhD in Biology at the University of California, Los Angeles. He was a Postdoctoral Fellow in Zoology at the University of Cape Town, and has subsequently had academic appointments at Portland State University and currently the University of Western Australia.

