

## HONOURS PROJECT

**Project Title:** Comparative ventilatory physiology of marsupials.

**Supervisor(s):** Dr Christine Cooper, Dr Philip Withers (UWA)



**Project:** Ventilatory parameters such as respiratory frequency, tidal volume and minute volume must accommodate the demands of metabolic rate (oxygen consumption and carbon dioxide production) for mammals and birds. There are strong allometric, phylogenetic and environmental determinates of metabolic rate for mammals and birds, including marsupials, and this project will explore how these variables impact on the ventilatory physiology of marsupials. The student will analyse a large collection of ventilatory data previously collected by the supervisory team, and then apply modern comparative techniques to account for body mass, evolutionary history and metabolic rate, and then examine the remaining variance for environmental determinates consistent with

**Funding:** ARC Discovery grant

**Special Requirements:** Nill. Data will be provided.

### References:

- Cooper C. E. and Withers P.C. (2004) Ventilatory physiology of the numbat (*Myrmecobius fasciatus*). *Journal of Comparative Physiology B* 174: 107-111.
- Withers P.C, Cooper C.E. and Larcombe A. (2006) Environmental correlates of physiological variables in marsupials. *Physiological and Biochemical Zoology* 79: 437-453.
- Cooper C.E. and Cruz-Neto, A.P (2009) Metabolic, hygric and ventilatory physiology of a hypermetabolic marsupial, the honey possum (*Tarsipes rostratus*). *Journal of Comparative Physiology B* 179: 773-781.
- Schmidt S., Withers P.C. and Cooper C.E. (2009) Metabolic, ventilatory and hygric physiology of the chuditch (*Dasyurus geoffroii*; Marsupialia, Dasyuridae). *Comparative Biochemistry and Physiology A* 154: 92-97.