**YEAR: 2013/14**

**SUPERVISOR: PROFESSOR SUSAN EVANS**

**STUDENT: MR JAMES TURBETT**

**PROJECT TITLE: A GEOMETRIC MORPHOMETRIC ANALYSIS OF INNER EAR MORPHOLOGY IN REPTILES**

*Brief Resume of your Project’s outcomes for the Society’s Website: (no more than 200-250 words).*

*The title of your project and a brief 200-250 word description of the proposed/completed project. The description should include sufficient detail to be of general interest to a broad readership including scientists and non-specialists. Please also try to include 1-2 graphical images (minimum 75dpi). NB: Authors should NOT include sensitive material or data that they do not want disclosed at this time.*

The inner ear is the sensory organ responsible for detecting movement, balance and sound. This tiny structure is housed inside the skull, in a cavity called the bony labyrinth. The labyrinth, characterised by three ‘semicircular’ canals, can be imaged using micro-CT and reconstructed in three dimensions. In lizards and snakes (collectively known as squamates) the bony labyrinth is at the back of the skull (**see graphic**). As the inner ear is involved in balance and movement, and limbless locomotion involves radically different posture and movement, we hypothesised that there would be a difference in the morphology of the inner ear between quadrupedal and limbless squamates (including snakes and other limbless lizards). Our morphometric analyses of the bony labyrinth reveal that this is indeed the case, and that there are also differences in the morphology of the bony labyrinth between phylogenetic groups. These differences could be useful for interpreting fossil squamates lacking postcranial elements.

END

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