

**YET ANOTHER NOCTURNAL LIZARD WITH A LOW COST OF TRANSPORT – IS THIS A GENERAL PATTERN?** K. Autumn\* and C. Farley. University of California, Berkeley.

Nocturnal lizards are often active at temperatures well below their thermal optima. This means that nocturnality can impose a thermal handicap that dramatically reduces the range of sustainable speeds. We test the hypothesis that nocturnal lizards have greater performance at low temperatures than do similar diurnal lizards. This study investigates two possible mechanisms for increased endurance at low temperatures in the Banded gecko, *Coleonyx variegatus*: 1) The minimum cost of transport ( $C_{\min}$ ) could be lower in *C. variegatus* than in a diurnal lizard of the same mass. A lower  $C_{\min}$  would increase the range of sustainable speeds by increasing the maximum aerobic speed (MAS) without increasing the maximal rate of oxygen consumption ( $V_{-O_2\max}$ ). 2)  $V_{-O_2\max}$  could be greater at low temperature in *C. variegatus* than in a diurnal lizard of the same mass. During exercise on a treadmill,  $C_{\min}$  in *C. variegatus* was less than half of the predicted  $C_{\min}$  for diurnal lizards, and is below the 95% confidence limits of the allometry for diurnal lizards. This low  $C_{\min}$  increases the MAS and allows greater endurance at low temperature.  $V_{-O_2\max}$  was not unusually high at 25\_C in *C. variegatus*. This is the same pattern found in *Teratoscincus przewalskii*, a nocturnal gecko that is active at very low temperatures (15\_C). The fact that two distantly related nocturnal geckos have unusually low  $C_{\min}$  may be indicative of a general phylogenetic pattern associated with the evolution of nocturnality in lizards.

Locomotion  
Lizard

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