

1056-92-114

**John G Alford\*** (jalford@shsu.edu), Box 2206, Huntsville, TX 77341, and **Bill Lutterschmidt**. *Modeling the Movements of a Thermoregulating Timber Rattlesnake*. Preliminary report.

Poikilothermic ectotherms are those animals whose body temperatures fluctuate with ambient environmental temperatures. However, some ectotherms have evolved the behavioral ability to thermoregulate their body temperature around a preferred or "set" temperature. Thermoregulatory behaviors may range from body positioning to shuttling within preferred microhabitats to find appropriate environmental temperatures. We have modeled the movement and shuttling behavior of the timber rattlesnake (*Crotalus horridus*) within a microhabitat. Movements depend on the temperature distribution within the microhabitat and the desire to precisely maintain a "set" temperature. Timber rattlesnakes use a sit-and-wait foraging strategy and passively thermoconform to their environment. We quantify the movements required and the potential energetic cost for timber rattlesnakes to actively thermoregulate. The model will be used to study and evaluate the behavioral life history strategies of sit-and-wait versus active foraging behaviors and the metabolic energy budgets associated with snakes that thermoconform versus actively thermoregulate within a habitat. (Received July 28, 2009)