

## **Hungry for more: testing the effect of prey frequency on predation performance in snakes**

Zadok Self and David Penning

Missouri Southern State University

Behavioral plasticity is the ability of an organism to modify its behavior in response to differing situations and is an evolutionarily significant trait upon which natural selection can act. Many previous studies have shown that predatory and foraging behaviors tend to show high behavioral plasticity across a phylogenetically diverse number of organisms. Our study seeks to determine how altered prey frequencies affect predation behaviors and performance of kingsnakes (*Lampropeltis getula*). We used 16 kingsnakes of comparable size and subjected each of them randomly to 1, 3, and 6-week fasting periods. At the end of each fasting period, we fed each snake a pre-killed mouse (8-12% snake's mass) and recorded several variables to measure capture, handling, and ingestion performance. Examination of each performance variable using a repeated measures ANOVA shows that kingsnakes can and do modulate portions of their predation performance in response to hunger. Kingsnakes have significantly shorter latency periods (attack prey faster) and higher maximum constriction pressures (squeeze prey harder) when fasted for six weeks compared to one week. However, there is no significant difference in ingestion time across fasting periods. Kingsnakes are capable of modulating portions of their predation behavior in response to hunger while other aspects of their predation performance appear to remain constant with increasing hunger levels.