

Socha, J.J. 1999. The take-off and landing kinematics of a flying snake, *Chrysopelea ornata*. *American Zoologist* 39(5):104A-105A.

In contrast to limbed vertebrate fliers, snakes that 'fly' must rely on movements of the axial column both to generate forward momentum during take-off and to prevent injury during landing. Digital video recording was used to observe these kinematic mechanisms in six specimens of *Chrysopelea ornata* during take-off from a horizontal branch and landing on the ground and other substrates. The positions, velocities, and accelerations of the head, body, and tail were quantified for each behavior. Typical take-offs involve the following kinematic sequence: with the head parallel with the ground, the anterior half of the body is lowered from the branch into a J-shaped loop. At this point the head is approximately one quarter the distance from the bottom of the loop. To begin the jump, the head is successively accelerated upwards and then horizontally away from the branch. The posterior half of the body remains approximately stationary on the branch until the body straightens out in the air, at which point the snake is parallel with the ground. The snake then dorsoventrally flattens and begins its airborne lateral undulation. Similar kinematics have been observed in individual specimens of *C. paradisi* and *C. pelias*, suggesting that this take-off behavior may characterize the genus. Video highlights will be shown.