

Simon, P., R. Whittaker, and R. Shine. 1999. *Morelia spilota* (Australian carpet python) Caudal luring. *Herpetological Review* 30:102-103.

**MORELIA SPILOTA** (Australian Carpet Python) CAUDAL LURING. Snakes of several phylogenetic lineages utilize caudal

luring to attract prey. Caudal luring involves a snake waving its tail tip such that it resembles a live worm or insect, inducing the potential prey item to approach the snake (Heatwole and Davidson 1976. *Herpetologica* 32:332-336). Caudal luring appears to be most common in "ambush" predators, such as viperids, boids, and pythonids (Strimple 1995. *Litteratura Serpentina* 15:74-77). Caudal luring seems to be elicited more easily in juveniles than in conspecific adult snakes (Allen 1949. *Copeia* 1949:225-226; Rabatsky and Farrell 1996. *J. Herpetol.* 30:558-561).

Among pythons, caudal luring has been reported in two Australian species: the highly arboreal *Morelia viridis* (Greene and Campbell 1982. *Herpetologica* 28:32-34) and the semifossorial *Aspidites ramsayi* (Wilson and Knowles 1988. *Australia's Reptiles: A Photographic Reference to the Terrestrial Reptiles of Australia*. Collins, Sydney. 447 pp.). We can now add another species to this list. We observed and filmed caudal luring in a young (49-day-old) *Morelia spilota mcdowelli* (coastal carpet python) hatched in captivity. The snake's parents were collected near the town of Bellingen on the northern coast of New South Wales, in eastern Australia. While filming for a documentary on python biology on 2 March 1996, one of us (PS) placed a green tree frog (*Litoria caerulea*) in a hexagonal cage (90 cm across) that contained two hatchling pythons. One snake that was loosely coiled on branches several cm above the ground immediately oriented towards the frog and began twitching its tail-tip rapidly. The tail-tip was vibrated a total of 23 times over the course of the next several hours. The first 17 of these vibrations occurred with the tail held >2 cm above the head. The snake then raised its tail above the head and completed six more vibrations.

We used frame-by-frame analysis of the film to quantify several attributes of the tail-flicks exhibited. All of the tail-flicks initiated from beneath the snake's head were horizontal, whereas the tail-tip moved vertically in four of the six "above-head" tail-flicks. These proportions differed significantly ( $\chi^2 = 9.47$ , 1 df,  $P < 0.003$  with Yate's correction). "Above-head" versus "below-head" flicks did not differ significantly in terms of the arc over which the tail-tip travelled on each tail-flick (respective means  $\pm$  SD =  $91.3 \pm 62.5^\circ$  vs.  $77.9 \pm 33.4^\circ$ , ANOVA  $F_{1,21} = 0.39$ ,  $P = 0.54$ ), the total duration of the flick ( $1.09 \pm 0.32$  s vs.  $0.78 \pm 0.34$  s, ANOVA  $F_{1,21} = 2.90$ ,  $P = 0.10$ ) or the delay between successive flicks ( $2.08 \pm 2.32$  s vs.  $1.48 \pm 0.64$  s, ANOVA  $F_{1,21} = 0.87$ ,  $P = 0.37$ ). However, above-head flicks involved a much greater proportion of the total tail length ( $27.5 \pm 2.9\%$  versus  $15.3 \pm 8.1\%$ , ANOVA  $F_{1,21} = 8.24$ ,  $P < 0.01$ ). The frog showed no overt response to the snake's behavior, but was later seized and consumed by the snake. Part of this film sequence was included in the completed film ("Python, The Sly Strangler." Roger Whittaker Films Pty Ltd.).

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The caudal luring exhibited by this young carpet python was very similar to that seen in other snakes that exhibit caudal luring, including elapids (Carpenter et al. 1978. *J. Herpetol.* 12:574-577) and viperids (Heatwole and Davidson, *op. cit.*) as well as other pythonids (Rabatsky and Farrell, *op. cit.*). The potential selective advantage of this behavior to cryptic "sit-and-wait" predators is obvious: it may substantially increase the number of potential prey items that approach the snake closely enough to be seized. Juvenile carpet pythons have a diverse diet, although anurans appear to be taken only rarely (Shine and Slip 1990. *Herpetologica* 46:283-290; Shine and Fitzgerald 1996. *Biol. Conserv.* 76:113-122). The most surprising aspect of our report is that this distinctive behavior has not been reported previously, because the species involved is abundant, widely-distributed, well-studied in the field and commonly maintained and bred in captivity (Barker and Barker 1994. *Pythons of the World. Volume 1, Australia.* Advanced Vivarium Systems, Lakeside, California. 171 pp.).

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