

## Predation on a Blotched Bluetongue Lizard (*Tiliqua nigrolutea*) by a Highlands Copperhead (*Austrelaps ramsayi*) in the Blue Mountains, Australia.

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The diet of elapid snakes in the genus *Austrelaps* consists mainly of frogs and skinks (Shine 1987; Wilson and Swan 2008). The Highlands Copperhead *A. ramsayi* (Krefft, 1864) is a medium-large elapid found in cool upland areas of eastern Victoria and New South Wales, Australia, where it occupies moist habitats including montane heaths, woodlands and creek edges (Wilson and Swan, 2008). They are terrestrial and diurnal (Wilson and Swan 2008).

At 1645 h (Australian Eastern Daylight Time) on 25 October 2010, I observed a Highlands Copperhead on a bush track at the Jemby-Rinjah Eco Lodge, at Blackheath in the Blue Mountains, Australia (33°38'38"S, 150°19'03"E). The track was located in dry eucalypt woodland which adjoins the 268,000 ha Blue Mountains National Park. The snake had caught and partly consumed a juvenile Blotched Bluetongue Lizard *Tiliqua nigrolutea* (Quoy and Gaimard, 1824) (approximately 15 cm snout-vent length – SVL, total length approximately 17-18 cm). At this stage the lizard's head had been ingested (Fig. 1), but during five minutes of observation, there was no attempt to ingest any more of the lizard, nor retreat from onlookers. The snake flattened its neck occasionally in a threat display (which is characteristic for this species; Wilson and Swan 2008) while the lizard was still in its mouth. Another onlooker who went back to the location approximately 20 minutes after our departure reported that while the snake was still there the lizard had been totally consumed. I returned at 1815 h and the snake could not be located. Being a relatively high altitude (1001 m asl) and late on a spring day, the temperature at the time was relatively cold (12.7 °C at 1500 h; Bureau

of Meteorology, 2010). Both species are diurnal and are active in relatively cold conditions (Cogger, 2000).

Within the confines of feeding mainly on small vertebrates, most larger Australian elapids have generalised diets (Shea, Shine and Covacevich, 1993). However, predation by Highlands Copperheads on Blotched Bluetongue Lizards, or other similarly large skinks, does not appear to be reported in the published literature. In an extensive review of the diet of the three *Austrelaps* species, Shine (1987) found that skinks comprised 76% of the 54 prey items for the Highlands Copperhead, while in an earlier study Shine (1977) found lizards comprised 33% of the 43 prey items for this species. Shine (1977) found the average length of lizard prey to be 4.2 cm (range 3-5 cm). The average size of adult Blotched Bluetongue Lizards is 25-30 cm SVL (Cogger, 2000; Wilson and Swan, 2008) with the tail about 40-50% of SVL (Cogger, 2000; although the tail of the individual in my observation appeared somewhat shorter), and they are amongst the largest skinks in the world. The juvenile Bluetongue Lizard taken in this observation is larger and considerably bulkier than other lizard species reported as prey by Shine (1977, 1987). Shine (1977) suggested that large lizards are only taken by the larger elapids (the Highlands Copperhead being considered medium-sized in this context), and also found that prey eaten by *Austrelaps* are small even in larger individual snakes (Shine, 1987). Shine (1987) postulated that this latter trend was due more to a scarcity of large prey than a preference for smaller prey items.

Thow, Thow and Fearn (2007) reported an incident of the closely-related Lowlands Copperhead *A. superbus* preying on juvenile Blotched Bluetongue Lizards in Tasmania. They considered that observation noteworthy because there was a lack of previous predation records, despite the significant overlap between the distribution and activity periods of these two conspicuous species. Predation on larger *Tiliqua* skinks appears not to be a common occurrence even for larger elapids (e.g. Eastern

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**Figure 1.** Highlands Copperhead consuming a Blotched Bluetongue Lizard, Blue Mountains, Australia.

Brown Snake *Pseudonaja textilis*; Shine, 1989; Roberts and Mirtschin, 1991; Valentic, 1996), despite significant overlap in range and high likelihood of encounters. A photograph by Griffiths (1999) of a *P. textilis* capturing an adult Eastern Bluetongue Lizard *Tiliqua scincoides* shows considerably greater use of the snake's body to subdue the prey than was evident in my observation.

Blotched Bluetongue Lizards and Highland Copperheads are considered to be distinctive reptile fauna of the higher elevation Blue Mountains region (DECC, 2007), and overlap throughout much of their range. Thus a lack of past predation records suggests that adults of the larger *Tiliqua* species may be too large for *Austrelaps* species to consume, and that juveniles of these larger *Tiliqua* are possibly approaching the larger end of consumable prey items for *Austrelaps*.

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## References

- Bureau of Meteorology (2010): Weather: Mount Boyce, New South Wales. Available: <http://www.bom.gov.au/climate/dwo/201010/html/IDCJDW2087.201010.shtml>. Accessed 18 November 2010.
- Cogger, H.G. (2000): Reptiles and Amphibians of Australia. 6<sup>th</sup> edition. Sydney, Reed New Holland.
- DECC (2007): Terrestrial Vertebrate Fauna of the Greater Southern Sydney Region. Volume 5 – The Fauna of the Blue Mountains Special Areas. Blackheath, Katoomba and Woodford Creek: Summary of findings and recommendations. Hurstville, Department of Environment and Climate Change.
- Griffiths, K. (1999): Nature Photography. Sydney, University of New South Wales Press.
- Roberts, J., Mirtschin, P. (1991): An uncommon prey record for the Common Brown Snake *Pseudonaja textilis*. Herpetofauna **21**(1): 36.
- Shea, G., Shine, R., Covacevich, J.C. (1993): Family Elapidae. In Fauna of Australia. Volume 2A Amphibia and Reptilia. Glasby, C.G., Ross, G.J.B., Beesley, P.L., eds., Canberra, Australian Government Printing Service.
- Shine, R. (1977): Habitats, diets, and sympatry in snakes: a study from Australia. Canadian J. Zool. **55**: 1118-1128.
- Shine, R. (1987): Ecological ramifications of prey size: Food habits and reproductive biology of Australian copperhead snakes (*Austrelaps*, Elapidae). J. Herpetol. **21**: 21-28.
- Shine, R. (1989): Constraints, allometry, and adaptation: Food habits and reproductive biology of Australian brown snakes (*Pseudonaja*: Elapidae). Herpetologica **45**: 195-207.
- Thow, J., Thow, M., Fearn, S. (2007): Predation on blotched blue tongues (*Tiliqua nigrolutea*) by a lowlands copperhead (*Austrelaps superbus*) in Tasmania. Herpetofauna **37**: 66-67.
- Valentic, R. (1996): A prey record of the Eastern Blue-tongue *Tiliqua scincoides* for the Common Brown Snake *Pseudonaja textilis*. Monitor **8**(2): 84.
- Wilson, S., Swan, G. (2008): A Complete Guide to Reptiles of Australia, 2<sup>nd</sup> edition. Sydney, New Holland Publishers.