

Predation on fairy penguin chick *Eudyptula minor* (Aves: Spheniscidae) by the Tiger Snake *Notechis scutatus* (Serpentes: Elapidae) in Southeast Tasmania

Brad Hall¹ & Simon Fearn²

¹115 Cilwen Road, Cambridge, 7170,

b_rad_hall@hotmail.com

²Natural sciences, Queen Victoria Museum and Art Gallery, PO box 403,
Launceston, Tasmania 7250, Simon.Fearn@launceston.tas.gov.au

Introduction

Recent years have seen the rapid and almost ubiquitous take up of mobile communication devices (mobile phones) by the public, many of which now allow people to take high resolution photos wherever they happen. In addition, relatively cheap digital cameras allow more people than ever before to capture field images of wildlife. In conjunction with this phenomenon is the appearance of increasing numbers of wildlife predator/prey interactions appearing in social media. Snakes generate a great deal of public interest and there has been an explosion in the last decade of sometimes fascinating photos of wild snakes engaged in all manner of behaviours. Many of these photos are of snakes discovered devouring prey, and in some cases they represent the only documentation of poorly known trophic interactions. Snakes are difficult creatures to study in the wild due to their generally cryptic habits and so some of these photographed

behaviours may be of great interest to professional herpetologists. Often the people taking such photos are unaware of the significance of their observations and so valuable supporting data can be lost. Several previous papers on Tasmanian snake trophic ecology have resulted from photographs arising from chance encounters in the field and made available to the second author (Oliver *et al.* 2010, Fearn and Tierney, 2014). This brief paper outlines another example where a chance encounter documents a previously unrecorded prey item for the tiger snake *Notechis scutatus*.

Tiger snake trophic ecology

The trophic ecology of the tiger snakes of the Tasmanian region is summarised by Fearn *et al.* 2012 and Fearn, 2014. *Notechis scutatus* can be described as a generalist carnivore, predating on a wide range of suitably sized mammals, birds, reptiles, amphibians and fish. Hatchlings and nestlings of a wide range of birds are

incorporated in the diet. These birds are predominately ground or near ground nesting species but tiger snakes have been recorded high in large trees or in the roofing of human dwellings raiding nests. Seabird chicks often hatch close together in space and time to increase their chances of survival by saturating the capacity of their predators on many offshore islands- the most well-known being the mutton bird or short tailed shearwater *Puffinus tenuirostris* (Schwaner, 1985, Schwaner & Sarre, 1988).

The fairy or little penguin *Endyptula minor* is common and widespread around the southern Australian coastline where much of its range overlaps broadly with that of *N. scutatus* (Simpson and Day, 2004, Wilson & Swan, 2013). Nesting typically takes place in vegetated dunes and rocky habitats beyond the high tide mark (Simpson & Day, 2004). It has long been suspected that adult tiger snakes would be capable of ingesting *E. minor* hatchlings but the behaviour has never been documented. In February 2017 a colleague alerted the second author to a series of photographs that appeared on Facebook depicting a large tiger snake ingesting a fairy penguin chick on Maria Island, south east Tasmania. The second author was subsequently able to make contact with the photographer (senior author) who readily agreed to publish the photographs as well as documenting the observed predator prey interaction.

Field Observations

On the 21st of November 2008 at 1625hrs, the senior author observed a large tiger snake, approximately 1.5m

in total length, in the act of swallowing an approximately 200mm *E. minor* chick between the historic cement silos and clinker storage building beside the Fossil Cliffs circuit walk, north east Maria Island (Plate 1). The chick was estimated at 4-5 weeks of age with a mass of 800-1000g (A. Chiaradia and P. Dann pers. comm.) The snake was completely exposed on short cropped lawn and appeared unconcerned by a group of tourists who had gathered to watch it. When first observed the snake had ingested the majority of the chick's body but was struggling with the bulbous posterior of the chick (Plate 2). The snake was observed and photographed for approximately 30 minutes as it attempted to ingest the chick, which was clearly at the upper limit of its ingestion capability. The senior author had to leave the scene before the snake had completely ingested its prey.



Plate 1. Location in north east Maria Island where the predation observations took place.

The following day the snake was observed in the same place basking full length with a large ingested prey bolus that conformed to the penguin chick (Plate 3).

Notechis scutatus is common on Maria Island and large mature specimens with home ranges that overlap with *E. minor*

rookeries would be expected to take advantage of such seasonally reliable prey items. The rapid development of sea bird chicks limits predation by snakes in southern Australia because the chicks quickly attain sizes beyond the ingestion capabilities of even the largest snakes (Schwaner, 1985). The only other large snake on Maria Island is the lowlands



Plate 2. Large adult *Notechis scutatus* on Maria Island swallowing 4-5 week old *Eudyptula minor* chick. Photograph: Brad Hall.



Plate 3. The same snake the following day basking with a large ingested prey bolus. Photograph: Brad Hall

copperhead *Austrelaps superbus* but this specialist amphibian feeder does not have the head size or gape to enable it to ingest *E. minor* chicks (Fearn *et. al.* 2012).

The authors encourage anyone who takes photos of wildlife predator-prey interactions to make the images available to experts in that particular field so that such observations and images can be placed in a scientific context and hopefully published.

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References

Fearn, S. (2014). *Snakes of Tasmania*. Queen Victoria Museum and Art Gallery. Launceston.

Fearn, S., Dowde, J. & Trembath, D. F. (2012). Body size and trophic divergence of two large sympatric elapid snakes (*Notechis scutatus* and *Austrelaps superbus*) (Serpentes; Elapidae) in Tasmania. *Australian Journal of Zoology* 60: 159-165.

Fearn, S. & Tierney, E. 2014. A second observation of predation on ringtail possums (*Pseudocheirus peregrinus*) by Tasmanian tiger snakes (*Notechis scutatus*). *The Tasmanian Naturalist* 136: 43-44.

Oliver, W., Searle, C. and Fearn, S. (2010). Predation on ring-tailed possums (*Pseudocheirus peregrinus*) by tiger snakes (*Notechis scutatus*) (Serpentes: Elapidae) in south west Tasmania. *Herpetofauna* 40(2): 119-122.

Schwaner, T. D. (1985). Population structure of black tiger snakes, *Notechis ater niger*, on offshore islands of South Australia. In 'Biology of Australasian frogs and reptiles'. (Eds. G. Grigg, R. Shine and H. Ehmann) pp. 35-46. Surrey Beatty. Sydney.

Schwaner, T.D. and Sarre, S.D. (1988). Body Size of Tiger Snakes in Southern Australia, with Particular Reference to *Notechis ater serventyi* (Elapidae) on Chappell Island. *Journal of Herpetology* 22(1) 24-33.

Simpson, K. & Day, N. (2004). *Field guide to the birds of Australia*. Penguin Books. Victoria.

Wilson, S. & Swan, G. (2013). *A complete guide to the reptiles of Australia. Fourth edition*. New Holland. Sydney.