

TIGER SNAKES IN TASMANIA

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Contents: Introduction - Distribution and habitat - size range - growth and maturation - reproduction - prey.

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INTRODUCTION

Apart from a few exceptions, the tiger snakes occurring on the main island of Tasmania have been poorly described in the literature and many popular herpetological books have been guilty of over generalisation and at times, complete untruths.

The morphology of Tasmanian species is extremely variable. It is a commonly held misconception amongst mainland herpetologists that typical specimens are black with some having feint bands. The fact is that melanotic specimens are the exception rather than the rule and while they occur in all parts of the state they are mainly encountered in the cooler west, south-west and highland areas of the state. For the majority of lowlands populations in the eastern half of the state, dorsal colours are extremely diverse and it is my belief that no other region of tiger snake distribution in Australia displays such an enormous variation in colouration. Specimens can range from black with or without yellow, orange, brown or cream bands, grey, chocolate brown, khaki, tan with or without darker or lighter bands, greenish, yellow, oatmeal or whitish with or without bands. A similar range of dorsal colours can be observed amongst the Bass Strait Island specimens.

Ventral colour can range from all white, cream, yellow orange or reddish usually fading to greyish towards the vent. Specimens with all grey or black ventrals are also found.

The most unusual tiger snakes in Tasmania are found in the states central highlands. These populations are commonly melanotic but also have very large scales which on maximal size specimens can be as large as a mans fingernails. Such large scales result in very low mid-body scale counts, often 15 and as low as 13 and probably reflect an adaptation to more efficient basking in the very cool climate of Tasmanias high country.

The enormous range of variation found throughout Tasmania and the Bass Strait Islands is not consistent with the currently accepted splitting of tiger snakes into two separate species and four subspecies. After personally examining several thousand tiger snakes it is clear that the taxonomic divisions are insupportable with overlap of all characteristics with no features being constant for a single population. It is my belief that all tiger snakes should be referred to as *Notechis scutatus*.

DISTRIBUTION AND HABITAT

Tiger snakes occur all over Tasmania from coastal dunes at sea level to highland lakes and forests above 1000 metres. Because of low human population, good forest cover and

because tiger snakes adapt remarkably well to rural habitats tiger snakes are extremely common and can be encountered in large numbers in most districts and even occurring in good numbers all around the outlying suburbs of Hobart.

Tiger snakes occur on a large number of Tasmanias offshore islands. Habitat varies from island to island and may consist entirely of low shrubs, grasses and a variety of introduced weeds such as on Chappell Island to largely heavily timbered islands like Bruny.

Homesites are typical as for other large elapids and are usually occupied for no more than about five days before the snake moves on. Searching for prey and sexually receptive females (for males) results in individual snakes covering large areas during the course of a summer. Gravid females are less likely to move around and one such female I had under observation remained at the same homesite for 50 days. The cold Tasmanian winters necessitate tiger snakes seeking secure hibernacula, often as much as 1.2 metres below ground level.

SIZE RANGE

Contrary to much that has been written, which usually gives maximum lengths for Tasmanian specimens at 1.5 metres, they will grow to lengths in excess of 1.8 metres. The longest wild caught specimen I have encountered was 1.8 metres long and weighed 2 kilos. The heaviest was 1.78 metres long and weighed 2.2 kilos. Both of the snakes were males. Tasmanian herpetoculturist, Philip Goss, has examined a 1.86 metre male.

Females do not grow as large, with the biggest non-gravid female I have encountered being 1.5 metres long and 1.4 kilos in weight.

Well maintained captive specimens will grow to sizes in excess of known maximums for wild specimens and reach body weights of 3 kilos.

Average length of tiger snakes encountered in Tasmania is difficult to quantify as it varies with locality and typically specimens range from 1.1 to 1.5 metres. Specimens from rural and semi-rural habitats are consistently longer and heavier than those from undisturbed habitats which reflects a diet comprised chiefly of introduced rodents and rabbits (Table 1).

GROWTH AND MATURATION

A group of six Tasmanian neonates I reared under controlled conditions (Figure 1) increased from 4-5 grams at birth to 400-600 grams at 12 months of age. Body lengths increased from 215-220 mm to between 900-1000 mm. In the eleventh month a male 950 mm long and 450 grams in weight exhibited courtship and sexual behaviour with a female 900 mm in length and weighing 500 grams.

Increases in length were highest in the first six months with weight increasing faster relative to length in the last six months.

The rapid increase in weight between the tenth and eleventh month indicates the onset of sexual maturity with the female reaching sexual maturity earlier than the male.

The smallest gravid caught wild female I have examined were 850 mm in body length. Tasmanian tiger snakes attain sexual maturity in the wild at around 3 years of age.

Male Tasmanian tiger snakes grow longer and heavier than females and also have longer broader heads. Sex difference do not become obvious however until lengths approaching maximal size are attained.

REPRODUCTION

Sexual activity in Tasmanian tiger snakes occurs sporadically throughout the summer but reaches a peak in late January and February. Males are attracted to females by a powerful pheromone. On one occasion I discovered a young female that had become entangled in plastic netting around a garden and had died. Two males were entangled with her (one dead) and two more were excitedly moving along the base of the netting.

Courtship and sexual behaviour has been described by other authors many times so I will concentrate on less well known sexual behaviour. Sexually active males in the wild will share homesites with females. One female under observation was living in a cavity under a boulder and was later accompanied by a male for three days. The same female was later accompanied by two males for two days. Sexual activity was taking place whenever the snakes were seen outside the homesite together but actual copulation was not observed. My captive studies in both outdoor and indoor enclosures have shown that actual copulation always took place under cover.

When snakes are sexually active they will refuse all food that is offered to them and unless breeding is specifically required in captivity, males and females should be housed separately at all times. In the wild, capture and digestion of prey impedes movement and also requires extended periods of basking, limiting the time the male can spend seeking receptive females.

Gravid females generally refuse food three or four weeks before giving birth.

Tasmanian tiger snakes mate in the summer, sperm is stored through winter torpor, ovulation takes place in spring with birth taking place at the end of the following summer.

Clutch size is typically 10-30 with maximal size females giving birth to fewer larger young with clutch sizes rarely exceeding 30. Tasmanian neonates are typically 4-5-grams at birth and between 250 and 270 mm in length.

PREY

Tasmanian tiger snakes are foraging, opportunistic feeders, unselective in respect to prey type or size. I have kept records of prey items removed from road and human killed snakes and by palpation of living specimens for a number of years and these items are presented in Table 1.

Tiger snakes on the mainland are commonly concentrated around water bodies such as swamps and river flood plains and so frogs play a major role in their diet. In Tasmania frogs are not present in large enough numbers in most habitats to play a major role in the diet of adult snakes. Many small native mammals that are extinct or extremely rare on the mainland (such as the eastern barred bandicoots) are still common in Tasmania and are often eaten by large adults. In addition, introduced rodents and rabbits are extremely plentiful in rural habitats and these are very common prey items.

Bird nestlings and fledglings are also common eaten and Tasmanian tiger snakes commonly climb high into trees and shrubs to raid nests. Reptiles are rarely eaten by adults but juveniles subsist largely on skinks. Tasmanian tiger snakes also enter streams and capture fish by probing about under submerged rocks. Fish as large as 20 cm are captured and eaten.



Foto 1: Een licht gekleurde variant gevonden in de oostelijke helft van Tasmanië. A light colour morph, found in the eastern half of Tasmania.
Foto: Bruce Munday.



Foto 2: Deze tijgerslang van Christmas Island lijkt opmerkelijk veel op de oosterse tijgerslang. This Christmas Island snake looks remarkably like an eastern tiger snake. Foto: Bruce Munday.

Prey	No. of records	Age/size of prey
MAMMALS		
black rat <i>Rattus rattus</i>	18	juveniles, adults adults up to 300g
swamp rat <i>Rattus lutreolus</i>	6	subadults
house mouse <i>Mus musculus</i>	27	juveniles,(sub)adults
new Holland mouse <i>Pseudomys novaehollandiae</i>	1	adults
brown bandicoot <i>Isodon obesulus</i>	2	juveniles 50-60g
eastern barred bandicoot <i>Perameles gunnii</i>	1	juvenile 60g
rabbit <i>Oryctolagus cuniculus</i>	7	juveniles, subadults
unidentified mammals	3	
	total:65	
BIRDS		
domestic duck	1	hatchlings
brown thornbill <i>Acanthiza pusilla</i>	2	fledglings
spotted pardalote <i>Pardalopus punctatus</i>	1	nestlings
house sparrow <i>Passer domesticus</i>	2	fledglings
common starling <i>Sturnus vulgaris</i>	1	fledglings
superblue wren <i>Malurus cyaneus</i>	6	fledglings
black bird <i>Turdus merula</i>	1	fledgling 53g
Tasmanian native hen <i>Gallinula mortierii</i>	2	nestlings
passerine eggs	1	
unidentified Passerine remains	9	
	total:26	
REPTILES		
skinks <i>Niveoscincus sp.</i>	5	adults
Bluetongue <i>Tiliqua nigrolutea</i>	1	adults 200mm
	total:6	
AMPHIBIANS		
brown tree frog <i>Litoria ewingi</i>	8	adults
brown froglet <i>Crinia signifera</i>	2	adults
	total:10	

Table 1: Prey records for Tasmanian tiger snakes