
MELBOURNE'S SNAKES. PART 2

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WHITE-LIPPED SNAKE, *Drysdalia coronoides*
(Gunther, 1858)

Colouration: Highly variable in dorsal
colour, ranging from greys, greens, reds,
browns or even black.

Average Adult Maximum Length: 40 cm. Length
of longest recorded specimens (approx.
estimate): 70 cm.

Basic scalation: Smooth, with 15 mid body
rows, 120-160 ventrals, single anal and 35-
70 single subcaudals.

Distribution: Found in colder parts of New
South Wales, Victoria (East and West) and
all of Tasmania. Around Melbourne, this
species is absent from the drier and more
open western suburbs. It is very common in
the Dandenongs, and forested hilly parts of
the nearby Mornington Peninsula area.

Other notes: This mainly diurnal snake is
usually found sheltering under ground
litter, including well embedded rocks, when
inactive. Active specimens are found during
favourable weather conditions. Where this
snake occurs, it is not unusual to be able
to catch several specimens in a single
afternoon's hunting. A skink feeder, (Shi-
ne, 1981), it actively stalks it's prey.
About six young are produced from January
to early March and unlike most kinds of

snake, White-lipped Snakes continue to feed throughout pregnancy. Newborns measure about 10 cm. A favoured hibernation site is inside water soaked logs in water soaked areas (Bartell and Jenkins 1980).

EASTERN TIGER SNAKE, *Notechis scutatus*
(Peters, 1861)

Colouration: Highly variable in dorsal colour ranging through olives, yellows browns, reddish, greys or even black, with or without cross bands of varying intensity.

Numerous examples of variation in colouration of this species are provided by Cogger (1986), Gow (1989a), Griffiths (1987), Hoser (1989a), Mirtschin and Davis (1982). Mirtschin and Davis (1982), page 42, have a photograph of a leucystic (white) specimen from Warnambool, some two and a half hours drive west-south-west of Melbourne. Anecdotal evidence provided by Rawlinson (1965), indicates that banding (or non-banding) in Tiger Snakes is genetically dictated by simple dominant or recessive genes. Although the degree to which bands are visible on Eastern Tiger Snakes varies, Chappell Island Tiger Snakes *Notechis ater serventyi* from Bass Strait, only seem to come in two highly distinct morphs: Banded and unbanded, with no intermediates. Mertens (pers. com.) who provided specimens of both morphs of Chappell Island Tiger Snakes photographed in Hoser (1989a) stated that breeding adults produced one or both morphs in their offspring, indicating that they too have their bands or lack thereof dictated by simple dominant or recessive genes. Further investigation is required. Average adult maximum length: 1.3 metre.

Length of longest recorded specimens (approx. estimate; this form of Tiger Snake only): 2.2 metre.

Basic scalation: Smooth with 15-19 mid body rows, 146-185 ventrals, single anal and 39-65 single subcaudals.

Distribution: Throughout mainland south-eastern Australia, except for the most arid parts, which it only penetrates along the river valleys.

In parts of South-east South Australia where the Western or Black Tiger Snake *Notechis ater* occurs, the Eastern Tiger Snake *Notechis scutatus* is absent.

Although found throughout Melbourne, this snake occurs in largest numbers in the lower Yarra Valley, where it is still common (Studley Park), and the low lying swamp lands to the west and south-west of the city between Altona and Geelong.

Other notes: More white Australians have died as a result of bites from this snake than any other. This is due to it's presence in large numbers in heavily populated areas, and of course it's deadly neurotoxic venom.

Typically the Eastern Tiger Snake *Notechis scutatus* will flee if approached. When cornered it will flatten it's neck and body, lunging forward in various directions, and striking when the opportunity arises. Despite the wide range of habitats occupied by this snake, preferred habitats are those with large numbers of frogs, such as river flats, and grassy areas adjacent to beaches, including those around Port Phillip Bay.

Tiger snakes are usually diurnal, but become crepuscular or nocturnal in hot weather, particularly juveniles (Hoser, 1989a).

Frogs are the dominant component of their vertebrate diet. Worrell (1970) plate 57,

shows an Eastern Tiger Snake swallowing an eel, tail first. Barnett, (pers. comm.) reports captive Tiger Snakes, Death Adders *Acranthophis* spp. and other Australian elapids readily feeding on goldfish dropped in front of them when hungry.

Tiger snakes in Queensland are rapidly disappearing as a result of the predations and poisonings of the Cane Toad *Bufo marinus*, (Hoser 1989a, Rook and Charles, (pers. comm.)). I believe that it is probable that the Melbourne environment could support permanent and viable populations of Cane Toads, and so Cane Toads pose a long term threat to Melbourne's Tiger Snakes, if the Toads continue to spread southwards along the New South Wales Coast. If the 'Greenhouse effect' takes place as predicted and Melbourne's average temperature rises by between two and four degrees celcius, then *Bufo marinus* would have an even better chance of becoming established in Melbourne. Withstanding the above, it is unlikely that *Bufo marinus* pose a threat to Melbourne's Tiger Snakes in the next fifty years. Mating of Tiger Snakes is usually in early spring (September to November), and a pair of copulating Tiger Snakes from Melbourne's outskirts is shown on page 192 of Hoser (1989a).

17-109 (average 35) young are produced in late summer (late January-April). Newborns measure about 18 cm, often having distinct bands that fade in later life.

Captive Tiger snakes are 'durable' and tend to thrive, even in conditons considered unsuitable for most other snakes, (e.g. too dirty or too moist cage). They tend to become fairly docile and this is their danger. Experienced snake handlers who keep this species fall into the trap of trusting this snake, and get bitten when it decides



Foto 1: *Drysdalia coronoides*, witlipslang, white-lipped snake. Lithgow (NSW). Foto R.T. Hoser.



Foto 2: *Notechis scutatus*, oosterlijke tijgerslang, eastern tiger snake. Lake George (NSW). Foto R.T. Hoser.

to bite it's keeper. This unpredictable streak in the Tiger Snake's nature leads to a disproportionately large number of experienced snake handlers falling victim to this snake's bite.

RED-BELLIED BLACK SNAKE, *Pseudechis porphyriacus* (Shaw, 1794)

Colouration: See photo. Changes little with age, sex or other factors. Belly colour ranges from whitish to red, and is usually most red at the edges of the ventral scales. Average adult maximum length: 1.5 m. Length of longest recorded specimens (approx. estimate): 2.5 m. Basic scalation: Smooth, with 17 mid body rows, 180-210 ventrals, divided anal, 40-65 single and divided subcaudals.

Distribution: Found in coastal areas of South-eastern Australia and wetter parts of the Queensland coast. Also found in inland areas along the Murray-Darling river system.

Around Melbourne, this species is absent from drier parts of the northern and western areas, and patchily distributed elsewhere. Near Melbourne, this species is most common along the Plenty River Gorge, an area now under threat from urban development.

Like the Small-eyed snake, the Red-bellied Black Snake becomes more common further north in New South Wales.

Other notes: Although the Red-bellied Black Snake has killed people, it's venom is not as potent as most Australians seem to think. Average venom yields kill about five hundred laboratory mice, (compared to 23,529 for a Taipan (*Oxyuranus scutella-*

tus), 833 for Copperhead (*Austrelaps superbus*), 5,832 for a Tiger Snake (*Notechis scutatus*), or 2,285 for a Death Adder (*Acranthophis antarcticus*) (Worrell, 1972). This snake is not however a pleasant one to be bitten by. Typical bite symptoms are severe local pain and swelling, nausea and general sickness. The Red-bellied Black Snake is however very inoffensive and rarely bites, even if trodden on. (On one occasion I stood on a 1.2 m. specimen at Govevett's Leap, NSW, and the snake tried to squirm away from me, without attempting to bite my foot).

When agitated and cornered, this snake may flatten it's neck and raise it's head in a Cobra Naja-like fashion. This snake is diurnal, even in warm weather, when it restricts it's activity to early mornings and dusk. Most specimens are caught in the vicinity of water, which it may frequently enter in search of food, or to hide from potential predators. Roberts (1983), documents a case where a Red-bellied Black Snake hid from a potential predator in a cool creek. The 'specific heat' of the water ensured that the snake's body temperature dropped rapidly when it entered the water. This enabled the snake's metabolic rate to slow sufficiently to allow it's breathing rate to slow down enough to let the snake remain totally submerged for extended periods.

When searching for food, this species won't hesitate to climb small trees and shrubs. Diet is varied, but frogs tend to dominate, meaning that Cane Toads are exterminating this snake in northern areas (Qld and NSW). Worrell (1970), plate 59, shows a Red-bellied Black snake consuming an eel head first. I once had a 1.3 m. captive male specimen attempt to consume a 1 m. male

Keelback *Amphiesma mairii*, who shared the same cage. The Black Snake was unable to completely swallow the Keelback, and after a period, the now dead Keelback was regurgitated.

Also on plate 59, Worrell (1970), is a photo of two male Red-bellied Black Snakes fighting. The snakes engage in these spectacular 'wrestling' displays in spring, by biting one another and twineing their bodies around each another. Rarely do the opponents hurt one another. When fighting one another the snakes become oblivious to all that may go on around them, and they may make a substantial amount of noise as they crash over dry leaves. Springtime breeding aggregations of this species do occur. At late afternoon on a mild and clear sunny day, during October 1976, when driving along a bitumen road near Macquarie Marshes, NSW, I found a pair of Red-bellied Black Snakes copulating in the middle of the road. As I approached them on foot, after alighting from the car, the two snakes broke off and fled. The two snakes measured about 1.5 m. each and the ambient air temperature at the time was about 20 degrees celcius. In summer from eight to thirty live young are produced in membranous sacs, from which they emerge minutes after birth. Newborns measure about 18 cm. Captive specimens are easy to maintain, being voracious feeders and resistant to most ailments.

EASTERN BROWN SNAKE, *Pseudonaja textilis*
(Dumeril, Bibron and Dumeril, 1854)

Colouration: Typically brown dorsally, but may range from near white, through various shades of brown to jet black. Some Black specimens result from a specific allele (type of gene), and black and non-black specimens may result from a single clutch of eggs. Juveniles from Melbourne and nearby areas have black bands on the head which fade with age (Usually within three years). Coastal NSW specimens are banded as juveniles. In some areas banded and non-banded juveniles occur, and both forms are known to have emerged from a single clutch of eggs. Obviously one variant gene is dominant over the other. However which one is dominant, hasn't been ascertained yet.

Average Adult Maximum Length: 1.5 metre.

Length of Longest Recorded Specimens

(approx. estimate): 2.4 m. Basic scalation: Smooth with 17 mid body rows, 185-235 ventrals, divided anal, and 45-75 divided sub-caudals.

Distribution: Found throughout the eastern half of Australia, its distribution becoming patchier as one moves westwards. To date only one specimen has been recorded from Western Australia. That specimen was caught in the South-east Kimberley, at Gordon Downs (Storr, Smith and Johnstone, 1986). Found in all areas around Melbourne, and very common everywhere except for the wetter parts of the Dandenong Ranges.

Other notes: Brown Snake venom is extremely toxic, but fortunately this snake has a relatively poorly developed biting apparatus (small fangs and venom glands). However this snake can be easily agitated, is fast moving and must be regarded as highly dan-

gerous. When aroused, the Brown Snake will hold its neck high, slightly flattened in an S-shape, and strike at it's aggressor at every opportunity. It will even chase off a person who has aroused it. This diurnal snake is found in all types of habitat, but is most common in open grassy habitats and open woodlands. It is active at relatively high temperatures, compared to other snakes.

Large numbers are found in agricultural areas. When resting Brown Snakes are commonly found under man made rubbish such as sheets of metal.

The varied diet includes introduced pest rodents. As well as relying on it's venom to kill it's prey the Brown Snake constricts and holds it's prey while it is repeatedly biting it. The coils are wrapped around the prey as soon as it bites at it. A typical Brown Snake feeding sequence is documented on page 187 of Hoser (1989a). The feeding of this snake is very rapid, with the mouse eating sequence shown by Hoser (1989a) taking only about 60 seconds. After biting it's prey towards the rear of it's body, and it dying almost immediately, the Brown Snake released it's prey and then proceeded to eat it head first, (a typical feeding pattern). Large winter aggregations are known, with Gary Webb, finding one consisting of thirty individuals in Sydney's outer western suburbs. These aggregations are maintained in spring for mating purposes.

Please, change the captions of the photographs 5 and 3 and 6 and 4 on the next 2 pages.



Foto 5: Melanistic *Pseudonaja textilis*.
Green Valley (NSW). Foto R.T. Hoser.



Foto 6: *Pseudonaja textilis*, juvenile, let op kop-
tekening, note the head markings. Foto R.T. Hoser.



Foto 3: *Pseudechis porphyriacus*, roodbuik zwarte slang, red-bellied black snake. Seaforth (NSW). Foto R.T. Hoser.



Foto 4: *Pseudonaja textilis*, oosterlijke bruine slang, eastern brown snake. Cobar (NSW). Foto R.T. Hoser.

Males, which also tend to be the larger sex, engage in combat. The ten to thirty eggs produced in early summer hatch about eighty days later. Hatchlings measure about 27 cm.

LITTLE WHIP SNAKE, *Unechis flagellum*
(McCoy, 1878)

Colouration: See photo. Little variation known.

Average adult maximum length: 40 cm.

Length of longest recorded specimens (approx. estimate): 65 cm.

Basic scalation: Smooth, with 17 (or rarely 15) mid body rows, 125-150 ventrals, single anal, 20-40 single subcaudals.

Distribution: South-eastern New South Wales, most of Victoria and far south-east South Australia, (Gow, 1989b). A near identical species, *Unechis spectabilis* is found in adjoining areas of Victoria, New South Wales (most of that state), southern South Australia and southern inland Queensland. Around Melbourne, the Little Whip Snake (*Unechis flagellum*) is most common in rocky localities to the north and west of the city, particularly on and adjacent to the basalt plains, (James, 1979; Fyfe and Booth, 1984).

Other notes: The relationship between the Little Whip Snake *Unechis flagellum* and *Unechis spectabilis* is uncertain. They may turn out to be races of the same species (sub-species) rather than differing species.

Unechis spectabilis typically has 15 mid body rows, whereas the Little Whip Snake usually has 17 mid body rows. I have inspected a number of specimens of both snake types, and on external inspection have no-

ticed little difference. Certainly their biological habits don't appear to differ either. If they turn out to be the same species, then the name used will be *Unechis flagellum*, as it was described first. The Little Whip Snake *Unechis flagellum* was the only type of snake to be originally described from Melbourne. Like a number of other *Unechis* sp. that possess black markings on their head, the Little Whip Snake *Unechis flagellum*, is often mistaken for juvenile Brown Snakes *Pseudonaja* spp. (Some *Pygopodids* also have these types of markings on their head). Believed to be nocturnal, most specimens are caught during the day hiding under cover, or in loose soil under cover. Not a very fast moving species; when discovered it adopts a defensive pose, then moves off seeking cover (Rawlinson, 1965). Turner (1984), describes three distinct categories of defence mode employed by this species.

1: The snake will attempt to frighten off the aggressor. It raises the forepart of it's body, expands it's head and neck, and thrashes it's body about in a whip-like fashion (hence the name *flagellum*). The snake may also hiss in a low but audible sound, increasing in volume when the snake moves. Lunging forward in an apparent attempt to strike is usually bluff.

2: Usually triggered by handling, this snake will emit an 'ant-like' odour from the anus (Rawlinson, 1965; Turner, 1984). The smell may be in the form of a milky liquid, or as a penetrating gas. Both are effective and rely on the sensitivity of the predator's olfactory senses. Defecation may also occur in these circumstances, and this second method of defence is often used in conjunction with the third.

3: Tight coiling, twisting or knotting of

the body is a posture assumed when *Unechis flagellum* is prodded or overturned. The ribs are expanded to assist in attaining a rigid pose and the snake superficially resembles a shallow cone (Bartell and Jenkins, 1980). The head may or may not be hidden, but by my experiences is more likely to be concealed. The snake remains motionless when in this position, feigning death, probably to appear non-edible, and minimise the risk of being eaten by a predator.

Some individuals of this species consistently utilise the same defence method while others will make use of any of the three methods on different occasions (Turner, 1984). Fyfe and Booth (1984), note that females are more likely to bite a captor than a male, although both sexes may do so.

Like some other types of elapid, there is a readily observable sexual dimorphism which may be observed, in terms of size and shape of the tail. Females have an evenly tapering tail with 20 to 29 subcaudal scales, while males have a bulging tail with 29 to 40 subcaudal scales, (Rawlinson, 1965). This dimorphism is even apparant in newborns, where males have tails 50 per cent longer than females.

The most detailed captive breeding records on this species have apparantly been made by Turner, of Bundoora, Vic, although Fyfe and Booth have also kept very detailed records of captive breeding.

The breeding activity of Turner's Little Whip Snakes, was not neccessarily in line with wild specimens as he apparantly manipulated cage temperatures and photoperiods, not strictly in line with outside (natural) variations. Mating in long term captives

was consistently recorded in October, and young were born in February (Turner, 1985). Fyfe and Booth (1984) had a captive mating in May with young born in September. Connection in mating was estimated to have lasted between four and six hours, (as observed - Turner, 1985); in excess of one hour with pre-copulation and breaking not observed (Fyfe and Booth, 1984).

Turner recorded two females giving birth to young 151, and 148 days after mating/copulation was observed. Fyfe (1980), reported a 108 day gestation period for a single specimen of this species, and Fyfe and Booth (1984), reported a 121 day gestation period for another specimen.

Turner (1985) attributed the time difference in gestation to temperature factors affecting the females, however I suspect that whilst temperature factors no doubt played an important role, the possibility of unrecorded matings by either Fyfe, Booth, or Turner could explain the huge variation in reported gestation period.

Turner (1985), noted that prior to giving birth the females had a distinct affinity for warmth, basking during daylight hours directly under the heat source. This behaviour continued throughout gestation, ending abruptly with the birth of the young. Feeding by females during gestation, whilst it may occur, is minimal.

Fyfe and Booth (1984), Turner, (pers. comm.), report never finding a wild specimen in the open during daylight hours in spite of their collection of a large number of specimens.

Typically 2-4 live young are produced (Fyfe and Booth, 1984), although Turner (1987) records at least one case of a fe-

male giving birth to six young. Newborns at birth measure between 12 and 14 cm in total length, 10.6-12.5 cm snout-vent (Turner, 1985). Fyfe and Booth (1984), record mating in the wild for this species as occurring in Autumn and Winter (as based on location of aggregations of mated pairs and later birth of young), and newborns were found from July to early November. An aggregation of seven specimens was found under a single large flat rock, on 12th September 1980 (Fyfe and Booth, 1984). It consisted of four newborns, a thin 'hollow' female (obviously the parent of the young), a heavy still gravid female, and a large adult male. Interestingly, during winter months, it was usual to this species in groups of two or more snakes, (average three), with both sexes usually present (Fyfe and Booth, 1984). These snakes were either found under the same rock or under nearby rocks (within 3 m). I found similar aggregations in *Unechis monachus* near Dubbo, NSW, in early September 1986. On sunny days the Little Whip Snakes found under cover weren't torpid, in fact they were quite active, so Fyfe and Booth (1984), concluded that these snakes actively mate under cover during daylight hours. The small groups of these snakes found in the wild, were maintained all year, (average of two specimens in summer). This 'pairing' behaviour probably acts to minimise the risk of snakes being ambushed by predators when in the open looking for a mate. Captive and wild specimens forage about as soon as night falls. This is in line with most other small nocturnal elapids including Small Eyed Snake *Cryptophis nigrescens* and Golden-crowned Snake *Cacophis squamulosus*.

The only record that I could find of this

species being caught at night was, Fyfe and Booth (1984), who caught four specimens at night in mid March, on a 'typical good snake night', (that included seasonally warm air temperature, falling air pressure, no moon).

Diet consists almost exclusively of skinks, (Shine, pers. comm.), including species of *Lampropholis*, *Leiopisma*, *Hemiergus*, *Ctenotus*, *Morethia*, and *Lerista*, but in exceptional (captive) circumstances has been known to include frogs (Gow, 1976), new born mouse (Fyfe and Booth, 1984), and even a member of it's own species (Turner, 1987).

Cannibalism in wild specimens of this species is probably unknown, and definitely not a normal occurrence (Fyfe and Booth, 1984). Turner (1987), reported an unusual



Foto 7: *Unechis flagellum*, kleine zweepslang, little whip snake. Whittlesea (Vict). Foto R.T. Hoser

case of cannibalism in this species. In March, 1983, after giving birth to six young, a captive female consumed, head first, a male cage mate some 8 cm shorter. The female was no doubt very hungry after her long gestation, during which feeding had been minimal. For the following fifty plus hours that the female had the male snake inside her, the cage temperature was maintained at 27-32 degrees to aid digestion. The female was observed to wriggle her body apparently involuntarily, and also to yawn for several minutes at a time. Three days later the male snake was regurgitated and still alive. Apart from superficial and minor damage to some scales, the snake was still in good health, (unharmed). This is the first such case known to Turner (pers. comm), myself and others of a snake managing to survive such an ordeal. Typically regurgitated snakes are dead. It was assumed that the male snake had somehow been able to breath when inside the female's body, and that for some reason her digestive enzymes were insufficiently powerful enough to adversely affect the male snake. The mouth gaping (yawning) by the female may have assisted the male snake in breathing.

CONSERVATION.

Fortunately at this stage none of the seven species of snake found around Melbourne are seriously at risk from collecting, habitat destruction, commercial exploitation or from introduced pests. The worst conceivable threat to any Melbourne snake species is localised extinctions of populations most likely resulting from the spread of Melbourne's urban sprawl.

The Victorian wildlife authorities have enacted so-called protective legislation that effectively prevents most people from being able to legally keep specimens for any reason. People are still apparently allowed to kill snakes on sight should they so desire. The 'prohibition' on keeping the seven Melbourne snakes is counterproductive to the herpetological cause, as it discourages 'new' people from taking an interest in our native wildlife. The administering of licences, central registers and similar, for most snake keepers in Victoria, represents a gross mis-direction of our 'conservation dollar', with the money being better spent elsewhere. It can be argued that the money spent by the Victorian wildlife authorities in relation to 'policing' herpetologists, should be re-directed to allow further herpetological research, in the form of grants (hand outs of money to the relevant people) and similar.

The general thrust of the conservation argument, also involves removing government corruption, mis-information including lies, etc, and is covered elsewhere, including Cumming, (1981); Hoser, (1988, 1989b); Whitton (1987).

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