



Foto 1: De Yarra rivier die vanuit de heuvels ten oosten van Melbourne door de stad stroomt. Yarra river, which flows from the hills east of Melbourne, through the city. Foto R.T. Hoser.



Foto 2: *Austrelaps superbus*, koperkop (laagland vorm), copperhead (lowland form). Foto R.T. Hoser

MELBOURNE'S SNAKES, PART 1

By: Raymond T. Hoser, 41 Village Avenue,
Doncaster, Vic, 3108, Australia.

Contents: About Melbourne - An overview of
snakes - Copperhead - Small-eyed snake -

ABOUT MELBOURNE.

Melbourne is the second largest Australian city, and the state capital of Victoria. It has a population of between three and four million people, the exact number depending on which outer suburbs and nearby satellite cities are included in the population count. At the time of writing (1989), the population of Melbourne is increasing by about 60,000 people a year as a result of natural increase and immigration from elsewhere (mainly other countries). Melbourne is about 900 km (by road) to the south-south west of Sydney, Australia's largest city with a population about 600,000 more than Melbourne's. According to the 1982 YEAR BOOK AUSTRALIA, Melbourne was on average 35 m above sea level. The climate is by Australian standards cool, with more overcast weather than most other parts of the country. Melbourne city's rainfall is not high in terms of mm's that fall, but this hides the fact that a large portion of the rainfall is in the form of drizzle, and not heavy downpours like what dominates the rainfall of other parts of the country. The average annual rainfall is 659 mm, with a range between 331 and 939 mm. Although rainfall is fairly evenly spread throughout the year, slightly more falls in winter months, and that which falls in warmer months has a greater tendency to be of the heavy thunderstorm variety.

The year round average maximum temperature is 19.7°C with an average minimum of 9.9°C . The highest recorded temperature is 45.6°C whilst the lowest ever recorded is -2.8°C . The weather in Melbourne is highly erratic and changeable, not only on a seasonal basis, but also on a daily basis. The locals here have a saying 'If you don't like Melbourne's weather, wait five minutes and it will change. That's often true. Most of Melbourne is relatively flat, with few if any rugged hills in the near vicinity (within 50 km of the city centre). The Dandenong ranges some 30 km to the east of the city are easily the largest and steepest hills in the area. These hills represent the eastern edge of the urban sprawl, and are still mostly covered by dense forests, and gullies with tree ferns. As one moves, westwards towards the city and beyond, the countryside is relatively flat and undulating.

Along with a westwards decrease in rainfall, the natural vegetation gradually changes from dense forests to open grasslands with very few trees by the time one reaches the outer western suburbs about twenty km from the city. Directly south of the city is Port Phillip Bay, which opens into Bass Strait some 60 km further south. For about 10 km to the north of the city there is a general rise to open basalt plains which are found to the north and north west of the city. These plains run into the plenty river gorge in the north east and then into hillier more wooded country after that. Most native grasses have been eliminated and replaced by introduced varieties. Rainfall not only decreases in an east west direction, but also in a north-south direction to a lesser extent.

AN OVERVIEW OF THE SNAKES

Herpetologically, Melbourne is relatively devoid compared to other parts of Australia, principally due to it's relatively cool climate. Sydney has well over 20 species of snake found within 50 km of the city centre. Melbourne has only seven species found within 50 km of the city centre. All but one, the Little Whip Snake *Unechis flagellum* also occurs around Sydney. No Blind Snakes (Family: *Typhlopidae*), have been recorded within 50 km of Melbourne, but due to their cryptic nature they may occur in this area.

Some other snake species occur within 80 km of the city, typically north of the Great Divide, but they are not included in this paper. Legless lizards, (Family: *Pygopodidae*) occur around Melbourne, with *Delma* species the most common. These lizards and some small skinks with reduced limbs are sometimes killed by locals in mistake for snakes.

Conserving snakes is still regarded by most Victorians as a ridiculous idea. The seven species of snake found around Melbourne are all widespread throughout the south-eastern part Australia's and all belong to the family *Elapidae*. The seven species are:

- 1: Copperhead (lowland) *Austrelaps superbus*
- 2: Small-eyed Snake *Cryptophis nigrescens*
- 3: White-lipped Snake *Drysdalia coronoides*
- 4: Eastern Tiger Snake *Notechis scutatus*
- 5: Red-bellied Black Snake *Pseudechis porphyriacus*
- 6: Eastern Brown Snake *Pseudonaja textilis*
- 7: Little Whip Snake *Unechis flagellum*

All species are found in reasonable numbers

where habitats are suitable, although the least frequently caught species around Melbourne are the Small-eyed and Black snakes. Both of these types become more abundant in coastal areas of New South Wales.

The Copperhead, Eastern Tiger and Eastern Brown snakes are all deadly and claimed numerous lives before the advent of anti-venoms. Deaths are recorded from the bites of the Small-eyed and Red-bellied Black snakes, but in all cases have been in exceptional circumstances, (such as severe alcohol anaebriation of the victim), but should still be treated as potentially dangerous.

The other two species, though venomous, have venoms too mild to be more than a minor irritant if one is bitten.

When I quote average lengths and maximums for snakes, these figures are not based on specific museum or other specimens, and the lengths are estimated as a result of my experience with specimens (not necessarily measured) in the field, captivity and from other people's reported measurements.

COPPERHEAD, *Austrelaps superbus* (Gunther, 1858)

Colouration: see photo 3. Highly variable in dorsal colour, ranging from yellows, browns, reds, greys or black. Specimens may or may not have a different coloured nape region, (Hoser, 1989a). The nape is more common in smaller specimens (Rawlinson, 1965). Examples of four different colour variations of Copperhead are shown on page 148 of Hoser (1989a) (highland and lowland forms). Average Adult Maximum Length: 1.1



Foto 3: *Cryptophis nigrescens*. West Head (NSW).
Foto R.T. Hoser.

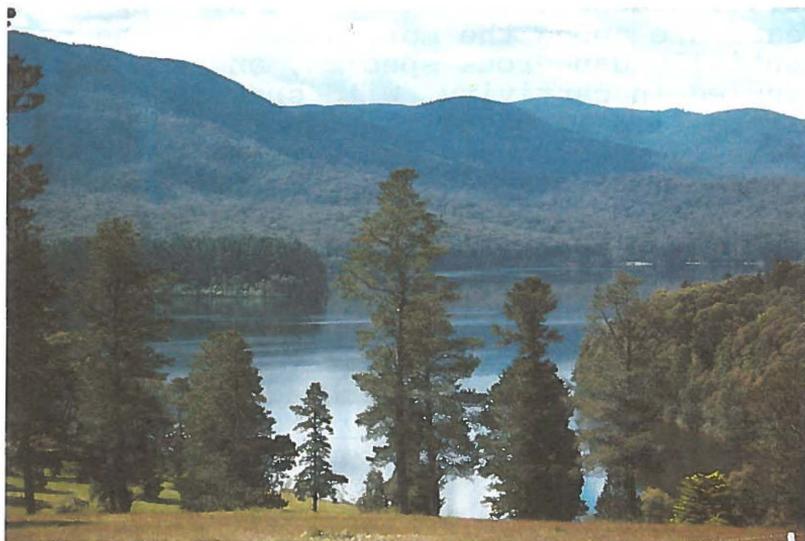


Foto 4: De heuvels ten oosten van Melbourne.
The hills east of Melbourne. Foto R.T. Hoser

m. Length of longest recorded specimens (approx. estimate) 1.9 m. Basic scalation: smooth with 15 mid body rows, 140-165 ventrals, single anal, and 40-55 single sub-caudals. Distribution (lowland form only): found in Victoria (most of the southern half only), Tasmania and South-eastern South Australia. Around Melbourne, this species is absent in a line stretching north from the city and nearby western suburbs, (the lower Yarra valley). Copperheads apparantly "fizzle out" to the west of Kinglake, before re-appearing further west as part of the second population. The South-North line of absence splits Victorian Copperheads into two distinct populations, probably no more than 30 km apart at the closest point. This division of populations probably pre-dates white settlement of the area. Copperheads are most common in the Dandenong ranges and nearby hills, where they are sometimes found in high population densities. Other notes: Copperheads are among the more docile of the potentially dangerous species, and are easily handled in captivity. Wild specimens will always flee if given the opportunity. Occasionally if cornered and agitated, a Copperhead will hiss and flatten the whole body before suddenly moving for cover. In some areas where there is no ground cover other than grass tussocks Copperheads will still occur in large numbers, but are often hard to locate.

Burn offs in these areas reveal huge numbers of specimens. Copperheads are most common where food (mainly frogs) are most common, and are not as common around Melbourne as they are in some of the upland farming country to the east of Victoria, where frogs are more numerous. Their cannibalistic behaviour and greater resistance

to cold than other snakes, usually leads to Copperheads eliminating most other snakes in areas where they are most common. Such areas are typically farming country with abnormally high populations of frogs. Over a period of time, the frog numbers increase as a result of the construction of small farm dams that provide drinking water for stock. The frogs breed in these dams, which are effectively new breeding sites. As the Copperhead numbers increase in line with their food supply, so they adversely effect the numbers of competing snakes. Mating occurs in early spring (I observed it in September/October in captive specimens) with an average of fourteen live young being born around January to March. The young average 18 cm at birth. Although Copperheads are mainly diurnal, they become crepuscular or nocturnal in hot weather. Male combat in the breeding season as been documented in this species, (Shine and Allen, 1980). In captive specimens held by myself, mating activity (dominantly) and birth of young both occurred during night hours. This was for two females which bred in 1975-76. Both snakes gave birth five days apart in the first week of March between midnight and 3 am (Eastern Summer Time), in identical weather conditions. Although kept in an indoor cage, the weather outside was cold and wet (post cold front), and would have been noticeable to the snakes inside. Peters (pers. comm.) a former reptile keeper at Sydney's Taronga Zoo, reported that the zoo had difficulty in keeping this species. Apparantly the zoo's reptile house was "too hot" for this species, and specimens kept became emaciated before later dying. Another Sydney herpetologist, Carey (pers. com.), reported a similar problem when keeping this species.

Both Carey and Peters, held numerous other types of snake, and did not report such problems with any. The specimens kept by the author in 1974-76 were housed (thrived) in a cool room under his parent's house without artificial heating. All other species kept in this room required some form of heating, at least in the winter months. Although I never experienced cannibalism or attempted cannibalism in this species, Weigal (1988) warns about problems of captive cannibalism in Copperheads. The highly neurotoxic venom of Copperheads is neutralised by Tiger Snake (*Notechis*) anti-venom, which is administered to bite victims.

SMALL-EYED SNAKE *Cryptophis nigrescens*
(Gunther, 1862)

Colouration: see photo 4. Average adult maximum length: 50 cm. Length of longest recorded specimens (Victoria only) (approximate estimate) 75-80 cm. Basic scalation: smooth with 15 mid body rows, 165-210 ventrals, single anal and 30-45 single sub-caudals. Distribution: found along the coast, ranges and nearby slopes, from Cape York, North Queensland to the vicinity of Melbourne, Victoria. Around Melbourne, Rawlinson (1965) reports this species as being restricted to some rocky areas to the north and east of the city, and not abundant in any locality. Turner (pers. comm.) reported this species as being common (abundant) in the Plenty River Gorge to the north east of the city. Specimens had also been caught in the Churchill National Park, near suburban Dandenong, and there were also a number of unconfirmed reports of specimens being caught in some hills to the south west of the city.

Other notes: although a nocturnal species, most specimens are found during the day when resting under cover; particularly in the colder months. Like many other snakes, this species won't hesitate to utilise man made cover in the form of sheets of tin and similar. When caught this snake will usually attempt to bite and may flatten its body while doing so. On one occasion I caught a specimen inside a termite mound that I had dismantled at Mount Kurringai, near Sydney. In the same mound I caught a half paralysed Copper-tailed skink *Ctenotus taeniolatus*, that had presumably been bitten by the snake and then fled. The skink died shortly after I had caught it. Small-eyed snakes are dominantly skink feeders, but captive specimens have also taken geckoes and mall frogs of the genera *Pseudophryne* and *Crinia*. During early May 1977, I located an aggregation of 29 Small-eyed Snakes at Darkes Forest (just south of Sydney). The snakes ranged in age from juvenile to adult, with most specimens being adult. They were found in a pile of sheets of corrugated iron (Hoser, 1980). Other aggregations of this species have also been recorded by Covacevich and Limpus (1973), Gow (1976). McPhee, (1979) documents a case of 28 specimens being found knotted together presumably hibernating in winter. Aggregation in this species is presumably fairly common. Mating occurs in late autumn, winter and spring with two to eight (average five) young being produced in late summer. Young measure 10-12 cm at birth. On 30 December 1981, Webb and Chapman, found two gravid females of this species and seven gravid Golden Crowned Snakes *Cacophis squamulosus* on a six km stretch of gravel road. It was between 9.00 pm and 10.30 pm (Eastern summer time), in a NSW state forest. No

males or other specimens were found on that night, and they concluded that these snakes were "nocturnal road basking" in order to facilitate the development of their embryos or eggs, (Webb and Chapman, 1983). At 9.00 pm, the ambient air temperature had been 20 degrees celcius, presumably warm enough for males to forage for food in the forest. The two Small-eyed Snakes had no food in their stomachs, indicating that this species probably doesn't feed in the latter stages of pregnancy. In relation to the above case involving the gravid snakes, my own experiences and conclusions differ slightly. Gravid snakes of various species including Death Adders *Acranthophis* become unusually restless in the month or so preceding paturition, and by this factor alone, are more likely to be found crossing roads. In cases noted by myself, road basking was not evident; the snakes found, merely crossing the roads. Also the ground temperature of the road (as measured) did not significantly differ from open (exposed) rock outcrops, and ground in the adjacent bush, (Principal studies in West Head, area, NSW, and Pilbara W.A.). Captive specimens of this species are hardy, provided one is able to maintain an adequate supply of skinks. Although it is hard to quantify the exact number of skinks required on a weekly basis for skink feeding snakes, due to a number of variable factors, I used to operate on the principal that any given snake would need to be supplied with in excess of three skinks per week on average and assuming that a small oversupply in food stocks is maintained). Rawlinson (1965) noted that the Small-eyed snake and the Little whip Snake *Unechis flagellum* emits a sharp "ant-like" odour when freshly caught.