

## Venomous Snakes of Australia - A Review

### Part-1. Dangerous Ten Snakes of the Family Elapidae

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#### Abstract

Australia has many poisonous snakes that are found all around the country. They may be found in a variety of habitats including aquatic, semi-aquatic, grasslands, trees, woods, and plains. Every year, a substantial number of bites occur across the United States. This document describes ten of Australia's most deadly and venomous snakes from the Elapidae family. These are 1. Rough scaled snake *Tropidechis carinatus*; 2. Red-bellied black snake *Pseudechis porphyriacus*; 3. The greater black whip snake/Papuan Whip Snake *Demansia papuensis*; 4. The lesser black whipsnake *Demansia vestigiata*; 5. Coastal Taipan *Oxyuranus scutellatus*; 6. Central Ranges Taipan or Western Desert Taipan *Oxyuranus temporalis*; 7. Inland Taipan *Oxyuranus microlepidotus*; 8. Common death adder *Acanthophis antarcticus*; 9. Kimberley death adder *Acanthophis cryptamydros*; and 10. Barkly Tableland death adder *Acanthophis hawkei*. Classification, description, and image of the snakes are the content of this paper.

**Keywords:** Family Elapidae; Venom; *Acanthophis cryptamydros*; Snakes

#### Introduction

The wildlife of Australia is diverse, with many snakes inhabiting both terrestrial and aquatic habitats. The Elapidae is a poisonous snake family that is distinguished by its permanently erect fangs inside the mouth. The fang is small and connected to the front of the mouth's upper jaw. The Elapidae family includes most Australian snakes [1-5]. The venom of most of these snakes is quite strong [7,8].

Brown snakes, tiger snakes, mulga snakes, black snakes, taipans, and death adder snakes are among the several groups of Australian elapids [2,4,8-10]. Most elapids, if not all, are poisonous, and many are potentially fatal [11,12]. Elapid venom varies from viper venom in most cases. Elapid venom is a neurotoxic venom (nerve poison) that affects the central nervous system, altering heart function and respiration, whereas viper venom is predomi-

nantly hemotoxic and myotoxic, causing tissue necrosis at the bite site [8-10].

The threat behaviour of rearing upwards while expanding the neck-flap is also recognized by several members of this family. The elapids are only found in tropical and subtropical areas of the planet, with terrestrial versions found in Asia, Australia, Africa, and America.

Information about Australia's elapid snakes may be found in a variety of documents [2,4,5,8,9,11,12]. More than 200 of the world's 500 poisonous snakes are found in Australia, however there are no kraits, cobras, or coral snakes [6].

The goal of this research is to create a document that will be easily accessible to the general audience. The author of this study gathered information from several sources to create this document

about Australia's poisonous snakes. The primary sources for this research include published articles, books, popular essays on web-sites, and posters.

More than 40 venomous snakes from the Elapidae family were recognized as toxic during this investigation, and ten of them are detailed in this publication. The purpose of this page is to provide a classification, brief description, distribution, habitat, and photographs of these snakes.

## Materials and Methods

The published articles, books, popular essays, website articles, and news bulletins are the main material of this study.

## Results and Discussion

### Rough scaled snake: *Tropidechis carinatus*

#### Classification

Kingdom: Animalia

Phylum: Chordata

Class: Reptilia

Order: Squamata

Suborder: Serpentes

Family: Elapidae

Genus: *Tropidechis*

Species: *T. carinatus*

The rough-scaled snake (*Tropidechis carinatus*) is a dangerous Australian snake. The snake's name originates from the rough texture of its scales, which are elevated above the surrounding scales. "Keels" is the term for them [4,6,12].

*Tropidechis carinatus* has narrow, irregular cross-bands or blotches of deeper brown and is brown to olive in colour. The snakes' belly surfaces are greenish-grey or olive-cream in colour, with darker markings. The mid-body scales feature a raised keel or a carinated look. Because of the snake's scale structure and colour, it was mistaken for a non-venomous Keelback snake. It usually reaches a length of around 70 cm.

This snake enjoys rainforests, damp open-air woods, and streams to call home. This snake may be found in general from mid-eastern New South Wales to far-north Queensland.

*T. carinatus* is a day and night snake with the ability to climb trees in search of food. This snake is very poisonous, and if attacked or touched, it will bite.

Small vertebrates, such as frogs, lizards, small mammals, and birds, are among the snake's favourite meals. The snake forages mostly on the ground, although it may also ascend to get food.

*T. carinatus* is a very poisonous snake with rough scales. The venom is a strong presynaptic and postsynaptic neurotoxic that acts quickly. The venom contains both post-synaptic and pre-synaptic neurotoxins in high concentrations.

**Figure 1:** *Tropidechis carinatus*.

### Red-bellied black snake: *Pseudechis porphyriacus*

Order: Squamata

Suborder: Serpentes

Family: Elapidae

Genus: *Pseudechis*

Species: *Pseudechis porphyriacus*.

*Pseudechis porphyriacus* is a red-bellied black snake with a glossy black upper body, a light-grey nose, and a brown mouth, and a full black tail. It doesn't have a distinct neck, the head blends into

the body. It has brilliant red or orange flanks that fade to pink or dull red on the body's belly. The scales have a black border around them. Northern snakes have lighter, more cream or pink bellies than southern snakes [12-16]. The average length of a red-bellied black snake is 1.25 meters (4 feet 1 inch). The tallest snake measured 2.55 meters (8 ft 4 in). The males are somewhat bigger than their female counterparts. The weight of a 2 m (6 ft 7 in) specimen captured in Newcastle is reported to be around 10 kg (22 lb).

The number and arrangement of scales on the body are important factors in species identification. The dorsal scales of the red-bellied black snake's midbody are 17 rows long, while the ventral scales are 180 to 215 rows long [12,17,18].

The red-bellied black snake is one of the most frequent snakes on Australia's east coast. The red-bellied black snake lives in the Blue Mountains' urban forest, woodland, grasslands, and bushland environments. Australia's capital cities include Canberra, Brisbane, Sydney, Cairns, Melbourne, and Adelaide.

Dams, streams, billabongs, and other bodies of water are all good places to look for red-bellied black snakes. The red-bellied black snake prefers shallow water with tangles of water plants, logs, or trash.

**Figure 2:** *Pseudechis porphyriacus*.

### The greater black whip snake/Papuan Whip Snake: *Demansia papuensis*

Family: Elapidae

Genus: *Demansia*

Species: *Demansia papuensis* (Macleay, 1877).

The colour of the Papuan Whip Snake, *Demansia papuensis*, is consistent, ranging from light brown to dark brown to black. Tan with little black patches on the head. The stomach is generally dark in colour. This species may reach a height of 1.5 meters. Scale rows 15, ventral's 198-228, anal divided, and subcaudals split 78-107 on the midbody scale.

From the point of the Cape York Peninsula to the Clermont regions, they live in far north-eastern Western Australia, northern Territory, and northern Queensland. They are most seen in open woods and woodlands [12,14,19]. This snake is active throughout the day and is a potentially deadly Australian snake. Its venom qualities are unknown; however, it is most likely neurotoxic. This species most likely eats frogs and skinks. This species may lay up to 20 eggs at a time.

**Figure 3:** *Demansia papuensis*.

The Papuan Whip Snake (*Demansia papuensis*) is uniformly light to dark brown or black in colour. It has a brown head with little dark dots on it. The snake's belly is usually black in colour. *Demansia papuensis* can reach a height of 1.5 meters. The midbody scale is organized in 15 rows, with ventral's ranging from 198 to 228.

From the tip of Cape York Peninsula to the Clermont area, they may be found in the extreme north-eastern parts of Western Australia, the Northern Territory, and northern Queensland [6,7,19]. They enjoy wide woods and woodlands to dwell in. In Australia, this snake has the potential to be harmful. Its venom qualities are unknown; however, it is most likely neurotoxic in nature. If you are bitten by this snake, get immediate medical assistance. This species may lay up to 20 eggs at a time.

**The lesser black whipsnake: *Demansia vestigiata***

Family: Elapidae

Genus: *Demansia*Species: *Demansia vestigiata* (De Vis, 1884).

*Demansia vestigiata*, the smaller black whipsnake, has a thin body, a long delicately tapering tail, and huge prominent eyes. This snake's head contains dark brown patches and flecks, as well as a narrow pale margin around the eyes. The body colour ranges from dark brown to reddish brown to dark grey, with a reddish-brown flush towards the tail. Dark and light marks on individual scales form a pattern of black and white flecks or dots on the body. This snake has a greenish-grey belly [7,8,18]. The scales are smooth, with 15 rows of scales running down the middle of the body. From tip of the head to tail, the average length of the body is 1.2 meters.

Dry open places, open woodland and grassland, and coastal heath are the preferred habitats for these snakes. This species can be found in sub-humid forests and heaths in Australia [20]. It can be found in altered environments, such as the fringes of cities. It has been seen foraging along the side of suburban paths in disturbed areas (e.g., in Townsville). This species is active throughout the day and feeds on scincid lizards and frogs. However, bigger predators of frogs, such as noctornula, may be active at night [19,20].

**Figure 4:** *P Demansia vestigiata*.**Coastal taipan: *Oxyuranus scutellatus***

Family: Elapidae

Genus: *Oxyuranus*Species: *Oxyuranus scutellatus* (Peters, 1867).

After the King Brown Snake *Pseudechis australis*, the *Oxyuranus scutellatus*, often known as coastal taipan, is Australia's second biggest poisonous snake. The head of this snake, *O. scutellatus*, is big and narrow, with an angular brow and a lighter-colored face. This snake's body is thin, and its coloration varies. Its colour is usually consistently light olive or reddish-brown, although some instances might be dark grey or black. On the sides of the body, the coloration is lighter. The belly has a creamy-white to soft light yellow colour on the ventral side of the body. Orange or pink specks are common on these snakes. Some change colour with the seasons, getting darker in the winter and fading in the summer. Their eyes are often wide and round, with large pupils and a light brown or even hazel colour [6,7,20].

The adult of this snake reaches sexual maturity when it reaches a total length of 1.2 m (3.9 ft) including the tail. Some specimens of this species can reach a height of 1.5 to 2.0 meters (4.9 and 6.6 ft). The longest documented coastal taipan is 2.9 meters (9.5 feet) long and weighs 6.5 kg (14 lb). Extremely huge specimens of more than 3.3 meters (11 feet) are said to exist in nature [2,9,21].

**Figure 5:** *Oxyuranus scutellatus*.**Central ranges taipan or western desert taipan: *Oxyuranus temporalis***

Family: Elapidae

Genus: *Oxyuranus temporalis*Species: *Oxyuranus temporalis*.

*Oxyuranus temporalis* is a dark tan taipan that varies in colour from a deep, black hue to a brownish light-green tint according on

the season. The snake's backside and tail may be various hues of brown and grey, with many scales having a broad blackish border [6,8,20,21]. This snake's dark-marked scales are organized in diagonal rows, forming broken chevrons of varying length that are sloped backwards and downward. An anterior yellow border may be found on the body's lowermost lateral scales. The body's dorsal scales are smooth and devoid of keels. The head has a round nose, and the neck is notably darker than the rest of the body (glossy black in winter, dark brown in summer). When exposing a little piece of the snake's body near the burrow entrance, the snake's dark colour allows it to heat itself. The eyes are medium in size, with a blackish brown iris and no colour ring around the pupil.

There are 23 rows of dorsal scales in the center of the snake's body, 55 to 70 split subcaudal scales, and one anal scale.

The typical overall length of a desert taipan is roughly 1.8 meters (5.9 feet), while bigger specimens can exceed 2.5 meters (8.2 ft). The fangs are shorter than those of the coastal taipan, ranging from 3.5 to 6.2 mm in length [2,4,18].

The western desert taipans, *Oxyuranus temporalis*, adapt to their surroundings by changing their body colour as the seasons change. During the summer, their body colour lightens, and during the winter, it darkens. This cyclical variation helps the snake regulate its body temperature by allowing it to absorb more light during the colder months.

**Figure 6:** *Oxyuranus temporalis*.

#### Inland taipan: *Oxyuranus microlepidotus*

Family: Elapidae

Genus: *Oxyuranus*

Species: *Oxyuranus microlepidotus*.

The inland taipan (*Oxyuranus microlepidotus*), also known as Western taipan, small-scaled snake, or terrible snake, is a highly deadly and toxic Elapidae snake. These snakes are native to central East Australia's semi-arid areas. The snake was known as dandarabilla by the aboriginal people who lived in these areas. Frederick McCoy described this species originally in 1879, while William John Macleay described it later in 1882. The inland taipan's venom is significantly more harmful to any animal, even more so than that of sea snakes. When tested on a human heart, it contains the most lethal venom of any reptile. The inland taipan's venom is specifically specialized to harm warm-blooded species. One bite is thought to contain enough venom to kill at least 100 fully grown people. The inland taipan is a swift and agile snake that can strike quickly and accurately, sometimes striking numerous times in a single assault.

Although it is exceedingly poisonous and a proficient striker, the inland taipan is normally a quiet, shy, and reclusive snake with a calm demeanour that wants to avoid conflict. If provoked, mistreated, or stopped from fleeing, it will defend itself and strike.

**Figure 7:** *Oxyuranus microlepidotus*.

#### Common death adder: *Acanthophis antarcticus*

Family: Elapidae

Genus: *Acanthophis*

Species: *Acanthophis antarcticus*.

The head of the common death adder, *Acanthophis antarcticus*, is wide and triangular [21-24]. Red bands run across the thick body, which is complemented with a brown, black, grey, cream, or

pink belly. The body can grow to a maximum size of 70-100 cm (2.3 - 3.3 feet). The fangs of the Death adder snake are the longest of any Australian snake [24,25].

The common death adder *Acanthophis antarcticus* may be found in much of Queensland's eastern and coastal region, as well as parts of New South Wales, Victoria, and South Australia. The eastern coast of Australia has forests, woods, grasslands, and heaths where the common death adder may be found. The death adder is a master of camouflage, and because to its band stripes, it can readily blend in with loose leaf litter and detritus in Australian forest, shrubland, and grassland.

**Figure 8:** *Acanthophis antarcticus*.

#### Kimberley death adder: *Acanthophis cryptamydros*

Family: Elapidae

Genus: *Acanthophis*

Species: *Acanthophis cryptamydros*

The Kimberley death adder, *Acanthophis cryptamydros*, is a deadly snake that is endemic to northwestern Australia and belongs to the Elapidae family. In a 1985 monograph, Richard Wells and Ross Wellington named the Kimberley death adder *Acanthophis Lancaster* in honor of Burt Lancaster. Official Australian sources list Lancaster as the correct name, whereas the Integrated Taxonomic Information System (ITIS) listed *cryptamydros* as the correct name [6,24,25].

The Kimberley death adder (*Acanthophis cryptamydros*) is a stocky snake with a 64.5 cm (25.5 in) long pear-shaped head. The snake's back and sides have a bright orange, brown colour, with

dark brown cross-bands and darker edges. Its body also has a characteristic creamy white underside. The number of scales on the body of the *Acanthophis cryptamydros* distinguishes it from other Australian death adders. With 125 - 139 Central's, this species has 22 or 23 rows of midbody scales. The undivided prefrontal scales, as well as the back edge of its frontal scales, do not extend beyond the supraoculars' back edge. The supraoculars expanded laterally, with the lower secondary temporal scale area equaling or less than the sixth supra labial. The large keels on the anterior dorsal scales. These snakes may be found in northern Australia from Wotjulum to Kununurra.

**Figure 9:** *Acanthophis cryptamydros*.

#### Barkly table and death adder: *Acanthophis hawkei*

Family: Elapidae

Genus: *Acanthophis*

Species: *Acanthophis hawkei*

The *Acanthophis hawkei* or Barkly Tableland death adder, is a poisonous snake belonging to the Elapidae family. Flat, treeless, cracking-soil, and riverine floodplains are ideal habitat for these death adders. The possible geographic range of this species, based on the existence of appropriate habitat, spans from Western Queensland to the north of the Northern Territory and north-east Western Australia. The Mitchell Grass Downs in western Queensland, the Barkly Tableland in the Northern Territory, and east of Darwin in the Northern Territory are all known to have populations of the death adder.

The death adder of the plains, the species *A. hawkei* relates to the environment of cracking black earth plains. The body of a death

adder is short, stout, and banded, as it is for all death adders. The tail is slim and topped with a spine that is utilized to lure animals within striking reach. From head to tail, they may reach a total length of 600 mm.

The distribution of the plain's death adder is fragmented. It has been found on the cracking soils of the Adelaide, Mary, and Alligator Rivers' floodplains, as well as the cracking black soils of the Barkly Tableland on the NT/QLD boundary and the Mitchell Grass Downs in western QLD. It's most likely found in floodplains and cracked soil plains across northern Australia's mainland [24,25].

**Figure 10:** *Acanthophis hawkei*.

## Conclusion

From this review it can be concluded that large number of venomous snakes are inhabitants of Australia. Among the venomous snakes only 10 have been described in this paper. It can also be concluded that out of World recorded 500 venomous snakes near about half are inhabitant of Australia. But doesn't have any kraits, cobras or coral snake. The Elapidae is a family of venomous snakes characterized by their permanently erect fangs inside the mouth. Most or all elapids are venomous and many are potentially deadly. The elapid venom is a neurotoxic venom (nerve poison) that acts on the central nervous system, affecting heart function and breathing, while vipers venom primarily have hemotoxic and myotoxic venom that produces damage at the bite site, including necrosis of the tissue.

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