venom than *A. antarcticus* venom (Wickramaratna and Hodgson 2001). *A. praelongus* venom has weak anticoagulant activity (van der Weyden *et al.* 2000), and also has anti-platelet activity (Sim 1998), as well as mild myotoxicity (Wickramaratna and Hodgson 2001; Wickramaratna *et al.* 2003). In 2010, Chaisakul *et al.* (2010) isolated a presynaptic neurotoxin from *A. praelongus* venom.

### Desert death adder *Acanthophis pyrrhus* Boulenger 1898

**Lethality:** Highly venomous.

**Distribution:** Extends from around Nemerluk on the WA coast into the Tanami desert WA, then through to the region of Anmatjere NT and on to around Haddon corner. It occurs in western SA and all of WA, with the exception of south-western and north-western areas.

**Description:** Similar appearance to the common death adder and northern death adder, but with a flatter head and more elongated body. Scales are strongly keeled dorsally, with very rugose head shields. Colour varies from bright reddish to brown, with lighter coloured bands containing scales that can be black-tipped on the posterior side of the band. Bands are in stark contrast to the body colour when the snake is agitated and flattened out. Tail can be cream, yellow or black. Ventral colour can be cream or reddish. Ventral scales number 136–160, subcaudals 45–60 (single anterior, divided posterior), mid body's 21 and the anal scale is-single.

**Fig. 5.17.** Desert death adder, *Acanthophis pyrrhus*.

**Fig. 5.18.** Head profile of the desert death adder, *Acanthophis pyrrhus*.

**Habits, habitat and natural history notes:** Little is known about its habits because it is found in remote areas. Occurs in dry areas, favouring porcupine grass clumps (Waite 1929), rocky outcrops, stony flats and sandy ridges. Has been found in abandoned burrows. Feeds mainly on lizards, particularly skinks (several genera) and dragons (*Pogona* spp.), and produces litters of up to 13 live-born young. Also an ambush feeder, lying in wait for potential food and wriggling its tail vigorously when the prey is sensed. Morphologically similar in appearance and habits to the other three members of the genus. Aborigines fear it and call it '*mythunda*' (Waite 1929).

**Conservation status:** IUCN – This taxon has not yet been assessed for the IUCN Red List. Little is known of the conservation status. Threats are likely to be cattle grazing and the competitive, as well as direct, impact of feral pests such as foxes and cats.

**Fig. 5.19.** Desert death adder, *Acanthophis pyrrhus*.

**Fig. 5.20.** Range of desert death adder, *Acanthophis pyrrhus*.

**Venom:** $LD_{50}$ is unknown. The venom is less toxic and some samples are more easily neutralised *in vitro* by Seqirus death adder antivenom than some venom samples of *Acanthophis antarcticus* (Wickramaratna and Hodgson 2001). Blacklow *et al.* (2010b) and Wickramaratna *et al.* (2003), found little evidence of myotoxicty in this venom. Seqirus death adder antivenom neutralises the *in-vitro* neurotoxicity of this venom (Fry *et al.* 2001a). *Acanthophis pyrrhus* venom had weak anticoagulant activity and weak phospholipase activity (van der Weyden *et al.* 2000).

## Pilbara death adder, *Acanthophis wellsi* Hoser 1989

**Lethality:** Highly venomous.

**Distribution:** *Acanthophis wellsi* occurs in scattered localities throughout the Pilbara region, from Robe River and Pannawonica at the western end of the Hamersley Range to the Burrup Peninsula in the north and east through the Chichester Ranges to Carawine Gorge on the Oakover River (Aplin and Donnellan 1999). An isolated population occurs on the Cape Range peninsula (Aplin and Donellan 1999).

**Fig. 5.21.** Pilbara death adder, *Acanthophis wellsi*.

**Description:** A relatively elongate, slender-bodied *Acanthophis* spp., usually with reddish ground colour, superficially similar to *A. pyrrhus* but differing in having prefrontals usually undivided (always divided in *A. pyrrhus*), less strongly keeled prefrontal scales, less rugose supraocular scales, smooth scales on flanks (keeled in *A. pyrrhus*) and more boldly patterned supralabial, infralabial and mental scales. Further differing from *A. pyrrhus* in having lower modal midbody scale count (19 cf. 21), significantly lower ventral (123–141 cf. 136–158) counts, and usually lacking any dark-tipped scales

**Fig. 5.22.** Head profile of the Pilbara death adder, *Acanthophis wellsi*, Pannawonnica, Western Australia (photo: Scott Eipper – 'Nature for You').

**Fig. 5.23.** Range of Pilbara death adder, *Acanthophis wellsi.*

along the posterior margin of each transverse dark band (Aplin and Donellan 1999).

Differs from *A. antarcticus* in having a more slender build and having lower modal midbody scale count (19 cf. 21), greater number of ventral scales (110–130 in *antarcticus*; data from Storr 1981) and usually more subdued dorsal patterning (Aplin and Donellan 1999; authors' observations).

Differs from *A. praelongus* in lacking strong lateral flanges on the supraocular scales (weakly developed in Cape Range population of *A. wellsi*), and having lower midbody scale counts (modal count 19 cf. 23) and usually more subdued dorsal patterning (Aplin and Donellan 1999).

SVL 141–443 mm, TL 24–94 mm.

Ventrals 123–141, SC 43–63 (6–34 divided) male count higher than females, mid-body scales 19–21 rows and anal single.

Caudal lure not markedly compressed with presence of terminal spine. Tail tip white, dark or banded (71%, 26% or 3% of specimens). Upper central dorsal scales are more strongly keeled; keeling weakens laterally. Pear-shaped head. Snout relatively deep and foreshortened. Rugose head scales. Prefrontals generally undivided, one per side. Frontal and parietal scales with subdued, irregular sculpting. Single supraocular scale with subdued, irregular sculpting but lacking lateral flange. Preocular always single. Suboculars usually two, occasionally three. Postoculars usually two, occasionally one. Numerous temporal scales. Rostral scale relatively high and narrow. Upper labials always six.

These snakes have two main colour phases – 'typical' and 'melanistic' – but some other variants are known including rare 'weakly banded' individuals.

**Habits, habitat and natural history notes:** There are few data regarding the natural history of this taxon.

**Conservation status:** IUCN – This taxon has not yet been assessed for the IUCN Red List. Status unknown.

**Venom:** $LD_{50}$ is unknown. Blacklow *et al.* (2010a) found that the venom had high levels of phospholipase $A_2$ activity. The venom showed myotoxicity which was neutralised *in vitro* by Seqirus death adder antivenom Wickramaratna *et al.* (2003). The neurotoxins were incompletely neutralised *in vitro* by Seqirus death adder antivenom (Wickramaratna *et al.* 2001).

## The genus *Austrelaps* Worrell 1963

Our treatment of the genus *Austrelaps* follows Rawlinson (1991). *Austrelaps* is typified by upper and lower labial scales with dark and light shading giving the appearance of bars around the lips. *Austrelaps* is also typified by undivided subcaudals scales, an absence of suboculars, the presence of internasals, mid-body scales usually numbering 15 and an anal sale that is undivided. Copperheads are cool climate snakes, preferring habitats of higher altitudes or southern parts of Australia with either high rainfall or other sources of permanent water.

### Pygmy copperhead, *Austrelaps labialis* (Jan 1859)

**Lethality:** Highly venomous.

**Description:** Mainly grey but sometimes light brown, sometimes with a dark area about the nape. Labial scales brightly barred with diagonal yellow

**Fig. 5.24.** Pygmy copperhead, *Austrelaps labialis.*

and black stripes. Ventral surface can be grey to black, creamish to yellow, some specimens can have a reddish tinge on the edges of the ventrals (Bill Jenner *pers. comm.*). Ventrals 135–157. Mid-body scales in 15 rows.; anal scale is single. Subcaudal scales number 35–48. Average length is 487 mm and maximum length 751 mm (from preserved specimens, South Australian Museum, and living individuals kept at Venom Supplies Pt Ltd, Barossa, South Australia). Maximum male length 880 mm total (maximum SVL 740 mm, weight 210 g and mean SVL 484 mm); maximum female length 758 mm (maximum SVL 637 mm, weight 176 grams and mean SVL 443 mm) (Bill Jenner *pers. comm.*; Jenner 2004).

**Distribution:** Restricted to the Mount Lofty Ranges and Kangaroo Island, South Australia. On the mainland confined to higher altitude regions of the southern Mount Lofty Ranges within the 1000 mm isohyet, though records exist for scattered localities on Fleurieu Peninsula (Foster and Littlely 2000). On Kangaroo Island, it occurs in quite dry parts but not sand dunes (Bill Jenner *pers. comm.*).

**Fig. 5.25.** Pygmy copperhead, *Austrelaps labialis.*

**Fig. 5.26.** Range of pygmy copperhead, *Austrelaps labialis.*

Occurs from Mount Lofty along a rough line to Mount Crawford through Cox Scrub to Newland Head (Mark Hutchinson *pers. comm.*). Widespread on Kangaroo Island occurring in a range of habitats from coastal dunes, samphire flats, open grasslands, heath, closed sclerophyll woodland and agricultural areas (Read and Bedford 1991). Habitats, both natural and disturbed, include coastal rocks, farmland, grassland, woodland, vicinity of lagoons/ adjacent wetlands, coastal cliffs, coastal heath, mallee regrowth, urban gardens, adjacent samphire flats and adjacent beaches (Bill Jenner *pers. comm.*). Foster and Littlely (2000) suggest that the restricted range of *A. labialis* can be explained by climate-related factors in that the known range is buffered from high temperatures by altitude (mainland population) and latitude (Kangaroo Island population). The moderating effects of the ocean on Kangaroo Island's climate could be an explanation of the latter as well.

**Habits, habitat and natural history notes:** In the Mount Lofty Ranges mainly restricted to high altitude, high rainfall, stringy-bark Eucalypt forests near the tops of hills with dense understorey (Read and Bedford 1991). Habitat includes dry sclerophyll forest and woodland, usually in the vicinity of a fairly dense shrubby understorey (often heath with tussock grasses) close to watered areas such as seepage areas, watercourses and gullies.

Feeds mainly on skinks, and occasionally on geckoes, toadlets and mice. Main prey items are skinks and geckoes. Can be cannibalistic (Jenner 1995). Prey constriction has been noted by Morley (1987). Captive mating has been observed in mid-September. Gravid females will often bask in same spot for 6 weeks. Young and post-parturition females are evident in February and March. Males engage in ritual combat (Jenner 2004). There is a captive record of 11 live young weighing an average of 2.3 g (Bill Jenner *pers. comm*.). Litter sizes averaged 7.4 in number Shine (1987a). *A. labialis* is considered to be diurnal, but in hot weather is active at night. In captivity, they are active all year round, basking in winter during the middle of the day, during the warmer /sunnier days. In the summer, both wild and captive specimens were crepuscular or restricted to cloudy days from both wild and captive observations (Bill Jenner *pers. comm*.).

Like the other species of copperheads, *A. labialis* prefers cool climates.

Sometimes *Austrelaps labialis* occurs in aggregations (Jenner 1994).

*A. labialis* easily evades detection even under conditions where these snakes are without cover, and skill is required to spot them (Foster and Littlely 1979).

**Conservation status:** IUCN – Vulnerable. Threatened on the mainland. Read and Bedford (1991) cite one of the causal loss factors as predation and competition by common brown snakes (*Pseudonaja textilis*) and red-bellied black snakes (*Pseudechis porphyriacus*), both of which are able to colonise modified areas once dominated by the pygmy copperhead. However, we believe that both red-bellied black snakes and common brown snakes have always co-existed with *A. labialis* within its mainland range. Species appears safe on Kangaroo Island (Read and Bedford 1991).

**Venom:** $LD_{50}$ 1.3 mg/kg (Sutherland and Tibballs 2001) (route and laboratory animal unstated). Average yield 9 mg. Respective maximum and minimum yields, 17 mg and 4 mg ($n$ = 19; Nathan Dunstan *pers. comm*.).

Neurotoxicity has not previously been considered a significant potential complication of envenoming by this species. However, potent presynaptic and postsynaptic neurotoxicity has been demonstrated *in vitro* (in the chick biventer cervicis assay) by Marcon *et al.* (2012), although this may not be medically relevant. Monovalent tiger snake antivenom was effective if applied pre-mixed with the toxin, but could only partially reverse the experimental neurotoxicity after onset (Marcon and Nicholson 2011; Marcon *et al.* 2012).

The venom is probably similar to that of *A. superbus*, and the other properties described therein may be present in this venom.

## Alpine or highlands copperhead, *Austrelaps ramsayi* (Krefft 1864)

**Lethality:** Highly venomous.

**Description:** Dorsum shades of brown to black with often brighter redder flanks. Dark vertebral line, upper labials and chin shields whitish, marked with olive brown in upper corners. Strongly barred labial scales. Narrow dark band on neck, bordered posteriorly by a light band. Some dark lines along neck. Ventral surfaces light brown; anterior half of each ventral and subcaudal scale dark brown Mid body's 15 (rarely17) rows, ventrals 150–170, subcaudals 35–55; anal single (Rawlinson 1991; Cogger 2014).

**Distribution:** Occurs in the highlands of Victoria and New South Wales.

**Habits, habitat and natural history notes:** Occurs in the highlands of Victoria and NSW in

**Fig. 5.27.** Highland copperhead, *Austrelaps ramsayi*.

**Fig. 5.28.** Highland copperhead, *Austrelaps ramsayi*.

moist habitats of heaths, woodlands, creeks edges and marshes. *A. ramsayi* is viviparous; average litter size is 15.0 (Shine 1987).

*Austrelaps ramsayi* is similar in body size to *A. superbus* with a similar ecology. Males grow much larger than females, and are more numerous in museum collections. *A. ramsayi* is viviparous, with ovulation in spring and parturition in late summer. Only about two-thirds of adult-size females collected in summer were in ovulatory cycle, suggesting that individual females may not reproduce every year (Shine 1987).

**Conservation status:** IUCN – This taxon has not yet been assessed for the IUCN Red List.


**Fig. 5.29.** Range of highland copperhead, *Austrelaps ramsayi*.

**Venom:** Only two yield records are on file 36 mg and 60 mg (Nathan Dunstan *pers. comm.*).

$LD_{50}$ 0.6 mg/kg (route and laboratory animal not reported) (Sutherland and Tibballs 2001).

Both presynaptic and postsynaptic neurotoxicity has been demonstrated *in vitro* by Marcon *et al.* (2012), but it remains unclear if this is clinically relevant. Monovalent tiger snake antivenom was experimentally effective if applied pre-mixed with the toxin, but could only partially reverse paralysis after onset (Marcon and Nicholson 2011; Marcon *et al.* 2012).

The venom is probably very similar to that of *A. superbus* and probably shares properties with this venom.

## Lowland copperhead, *Austrelaps superbus* (Günther 1858)

**Lethality:** Highly venomous.

**Distribution:** Occurs in Southern Victoria and south-eastern South Australia, most of Tasmania, various Bass Strait islands including Flinders and King islands.

**Description:** Head is smaller and slightly distinct from the body. Attains a length of 1.7 m, but adults are normally about 0.9 m. Eye is large and has a round pupil. Dorsal colours range from black, brown, tan, coppery to light grey, sometimes having a dark vertebral stripe and dark band across the nape, especially in juveniles. Ventral surface is cream to grey, often with a red colour at the edges. Supralabial scales give a mildly barred appearance. Ventral scales number 140–165, subcaudals 35–55

**Fig. 5.30.** Lowland copperhead, *Austrelaps superbus*, coppery coloured specimen.

**Fig. 5.31.** Lowland copperhead, *Austrelaps superbus.* This melanistic specimen lacks barring of the labial scales.

(single), mid bodies 15 (rarely 13 or 17) rows and the anal scale is single.

**Habits, habitat and natural history notes:** Has the highest tolerance for cool temperatures of all the large Australian elapids. Active earlier in spring and later in autumn than most other snakes and has even been seen basking in a sunny spot in mid-winter. Becomes nocturnal in summer. Inoffensive, shy and retiring, and occurs in large colonies in woodlands, tussock grasslands, heaths, highlands and moist low-lying areas. Produces-up to 20 live young in a litter, with an average of 14.6 (Shine 1987). Attains sexual maturity at 2 years and mates in spring when males can occasionally be observed engaged in combat (Shine and Allen 1980). A skewed sex ratio appears to exist in favour of males. A forager that feeds mainly on frogs, tadpoles, small lizards (most prey items are small), and is closely associated with moisture or water. Capable of flattening the whole body as a deterrent when threatened. Copperheads are often sympatric with common tiger snakes (*Notechis scutatus*) in the south-east of South Australia (PJM unpublished),

**Fig. 5.32.** Lowland copperhead, *Austrelaps superbus*, brown coloured specimen.

**Fig. 5.33.** Range of the lowland copperhead, *Austrelaps superbus.*

but are rarely so in the highlands of Eastern Australia (Shine 1977).

**Conservation status:** IUCN – This taxon has not yet been assessed for the IUCN Red List. The decline of frogs, like with *Notechis scutatus*, has caused reductions in copperhead populations. Although there has been no specific studies carried out to quantify reductions, the impact of habitat destruction for alternative land use, degradation of habitats from grazing, drainage of swamps and watercourse degradation would all have a negative impact on these snakes.

**Venom:** Yield 22 mg (Mirtschin *et al.* 2006a).

Subcutaneous mouse $LD_{50}$ 0.560 mg/kg (saline) and 0.500 mg/kg (BSA) (Broad *et al.* 1979a) and mouse intraperitoneal lethal potency 0.48 mg/kg (Bernheimer *et al.* 1986).

Experimentally, the venom is strongly neurotoxic (Mebs *et al.* 1978; Hodgson *et al.* 2003), a weak anticoagulant (Subburaju and Kini 1997), myotoxic (Hodgson *et al.* 2003), directly haemolytic (Bernheimer *et al.* 1986) and is about the same toxicity as some samples of venom of the Indian cobra (Broad *et al.* 1979a). In animals, *A. superbus* venom causes an initial vasodepressant effect on blood vessels, but a second dose of similar size fails to produce any effect. Repeated administration of doses too small to cause a signifi-

cant fall of blood pressure appear to de-sensitise the animal so that a dose of venom, which as an initial dose would have caused a profound fall of blood pressure, is without effect (Kellaway and LeMessurier 1936). The venom produces a non-specific vasodilator response and may also contain a component that causes vasoconstriction at higher doses, thus antagonising the vasodilator effect (Carroll 1979). The venom also causes tachycardia (Carroll 1979). Copperhead venom contains potent inhibitors of platelet aggregation (Yuan *et al.* 1993; Singh *et al.* 2000). *Australaps superbus* venom contains two isoforms (AVF-1 and AVF-2) of CVF (cobra venom factor) -like complement activating proteins in the venom gland (Rehana and Kini 2007. 2008).

## The genus *Cryptophis* Worrell 1961

Represented by five modest-sized species, of which only *Cryptophis nigrescens* is considered dangerous because of probable medical significance. Smooth dorsals, a single anal scale and subcaudals are divided. No subocular scales and small bead-like eyes. *Cryptophis nigrescens* also has a rather large nostril opening in the nasal scale.

### Small-eyed snake, *Cryptophis nigrescens* (Gunther 1862)

**Lethality:** Venomous, possibly with life-threatening potential.

**Distribution:** Extends along the coastal fringe and highlands from the tip of Cape York Peninsula to the south coast of eastern and central Victoria.

**Fig. 5.34.** Small-eyed snake, *Cryptophis nigrescens*, Hinze Dam, Queensland (photo: Scott Eipper – 'Nature for You').

**Fig. 5.35.** Small-eyed snake ,*Cryptophis nigrescens*, Tenterfield, New South Wales (photo: Scott Eipper – 'Nature for You').

**Description:** Relative eye size is comparable to other elapids. Grows to 1.2 m in length and average is about 0.5 m. Has a robust body with a head distinct from the neck. Dorsum shiny blue-black and white, cream or pink ventrally, sometimes with darker blotches. Midbody scales are in 15 rows, ventrals 165–210, subcaudals 30–46 (single) and the anal scale is single. Nasal scale contacts the preocular scale.

**Habits, habitat and natural history notes:** Commonly found in sandstone, well-timbered and rocky areas (bark, logs and rocks), but a habitat generalist occupying a broad range of structures (Keogh *et al.* 2007).

Mainly nocturnal, and found during the day under rocks, in crevices, earth cracks or under the bark of fallen trees. Have been found in hibernating aggregates in large numbers. Bears up to five live young with a mean litter size of four (Shine 1984). Adult males are larger than females (Shine 1984). Feeds primarily on lizards and, occasionally, on snakes (blind snakes (*Anilios*), *Drysdalia*, *Furina*,

**Fig. 5.36.** Head profile of small-eyed snake, *Cryptophis nigrescens.* Note the large nostril opening in the nasal scale (photo: Scott Eipper – 'Nature for You').

**Fig. 5.37.** Range of small-eyed snake, *Cryptophis nigrescens*.

*Notechis* and *Vermicella* spp. all have been recorded), and rarely takes frogs.

Adult female small-eyed snakes were sedentary, whereas adult males were highly mobile; on average, males travelled twice as far as females, and dispersal is male biased (Keogh *et al.* 2007). Small-eyed snakes engage in male combat with the victor apparently determined by body size. Thus, larger males gain exclusive access to females (Keogh *et al.* 2007). Females remain close to their diurnal shelters each year during the reproductive season. Most females reproduce annually (Keogh *et al.* 2007).

**Conservation status:** IUCN – This taxon has not yet been assessed for the IUCN Red List. Status unknown.

**Venom:** Subcutaneous mouse $LD_{50}$ 2.67 mg/kg (Broad *et al.* 1979a).

Some samples of *C. nigrescens* venom are about 21% as toxic as some venom samples from the Indian cobra, *Naja naja*. One death has resulted from presumed envenoming by this species (Furtado and Lester 1968; Pollitt 1981; see Chapter 8), although the fatal outcome may have been due to venom anaphylaxis, rather than any specific effect of the venom.

The venom contains myotoxins (Pollitt 1981).

## The genus *Demansia* Gray 1842

There are so far two species of the 14 Australian *Demansia* spp. that are known to be potentially dangerous. These two species are long and slender with smooth scales and large eyes. Both are fast moving and generally feed primarily on lizards. There are 15 mid body scales rows.

### Greater black whip snake, *Demansia papuensis* (Macleay 1877).

**Lethality:** Potentially dangerous.

**Description:** A long and slender snake. The paler head may cause it to be mistaken for a taipan. There are darker spots on the side of the head. Dorsum dark brown to almost black. Ventral surface a lighter grey colour. Mid body scales 15, ventrals 198–220, anal divided, subcaudals 75–110. Grows to an average length of 1.8 m.

**Habits, habitat and natural history notes:** An unsettled ('nervous'), fast moving snake. Occurs in dry to moist areas throughout its range, and is oviparous.

**Distribution:** Occurs in Arnhem Land, north-eastern part of Western Australia and Cape York Peninsula.

**Conservation status:** IUCN – This taxon has not yet been assessed for the IUCN Red List . Common.

Subspecies *melaena* occurs in Australia (*Demansia papuensis melaena* Storr 1978).

**Fig. 5.38.** Greater black whip snake, *Demansia papuensis*, North Kimberley, Western Australia (photo: Brendan Schembri).

**Fig. 5.39.** Head profile of greater black whip snake, *Demansia papuensis*, North Kimberley, Western Australia (photo: Brendan Schembri).

*Demansia p. melaena* differs in appearance from *D. p. papuensis* by becoming redder posteriorly and reddish underneath. Eye may be margined with yellow or white. Ventral surface is grey and paler toward head. Ventrals 192–220, subcaudals 78–105, anal is divided, 15 mid body scale rows.

**Venom:** Kuruppu *et al.* (2006) examined the *in-vitro* neurotoxic effects of the venom, which was found to be postsynaptic in origin, and weak in comparison with that of most other Australian elapids. With prior addition of both polyvalent or tiger snake antivenoms, the experimental neurotoxic effect was prevented, but added later polyvalent antivenom failed to prevent neurotoxicity. It remains unclear if these findings have any clinically relevance. Kuruppu *et al.* (2006) also described myotoxicity of *D. papuensis* venom.

**Fig. 5.40.** Range of greater black whip snake, *Demansia papuensis*.

**Fig. 5.41.** Lesser black whip snake, *Demansia vestigiata*, Saibai Island.

## Lesser black whip snake, *Demansia vestigiata* (De Vis 1884)

**Lethality:** Potentially dangerous.

**Description:** Light to dark brown to black dorsal scales. Lateral scales are lighter with dark edging ,which are lighter in the centre forming an impressive net-like pattern, especially around the neck. Light coloured post- and pre-ocular scales. Iris is red and pupil is black. Lighter around the margin of the mouth on supralabial scales, and on the whole surface of the infralabials. Mid body scales in 15 rows; ventrals 160–220, anal is divided, subcaudals 70–95 all divided (Cogger 2014).

**Habits, habitat and natural history notes:** Diurnal and fast moving. Highly 'nervous' and very quick to retreat when approached. Very diffi-

**Fig. 5.42.** Male combat in the lesser black whip snake, *Demansia vestigiata*, Cooktown, Queensland (photo: Lyall Naylor).

**Fig. 5.43.** Head profile of the lesser black whip snake, *Demansia vestigiata*.

cult to catch even early in the morning when it is more lethargic and first comes out to bask. Occurs throughout Saibai Island, and appears to exploit the native vegetation that has formed a hedge adjacent the airport where it can quickly retreat when threatened. Oviparous.

**Distribution:** Occurs along coastal verges and slightly inland of Northern Territory and Queensland and includes Cape York Peninsula. Also occurs in the most north eastern region of Western Australia adjacent the Northern Territory border and in Papua New Guinea.

**Venom:** The venom contains factor X-like prothrombin activators, neurotoxins, phospholipases,

**Fig. 5.44.** Range of lesser black whip snake, *Demansia vestigiata*.

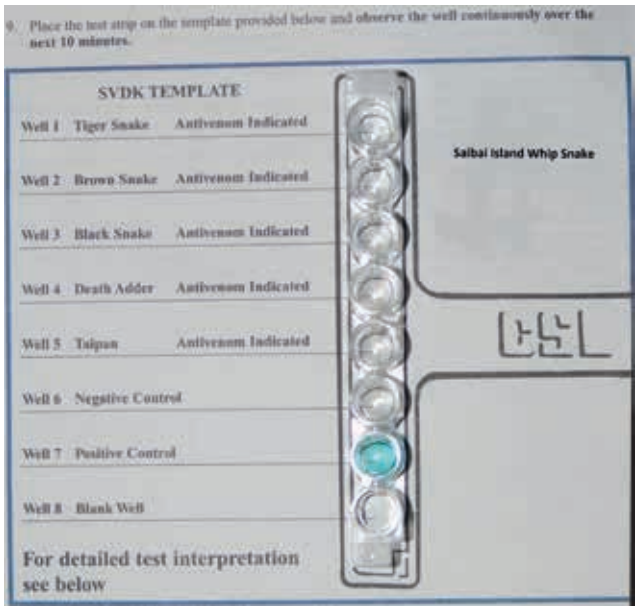


**Fig. 5.45.** Saibai Island field test of *Demansia vestigiata* venom with Seqirus Venom Detection Kit, which suggests an absence of antigenic identity between the antibodies in the detection kit and *D. vestigata* venom antigens (photo: David Williams).

cysteine-rich secretory proteins, textilinin-like molecules, nerve growth factors, L-amino acid oxidases, vespryns, 5' nucleotidases, metalloproteinases and C-type lectins, as well as a novel family of dipeptidyl peptidases (St Pierre *et al.* 2007).

Snake venom detection kit Seqirus field tests of venom of *D. vestigiata* from Saibai Island failed to detect this venom, suggesting that it had dissimilar immunotypes/antigens from those used in the kit (David Williams *pers. comm.*). This was contrasted by venom from Papua New Guinea, which did react, albeit weakly, with antibodies against brown snake (*Pseudonaja* spp.) venom, thus suggesting geographically defined antigenic distances between venoms of the two populations.

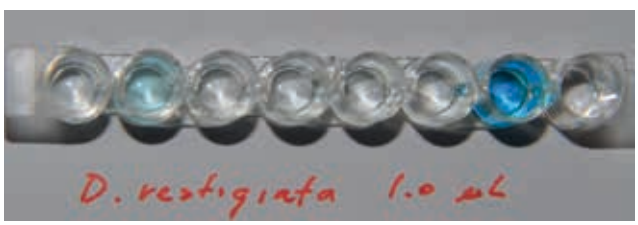


**Fig. 5.46.** Pooled *Demansia vestigiata* venom from Papua New Guinea specimens reacted weakly with antibody against *Pseudonaja* spp. venom (photo: David Williams).