

BACK BOX

The world's deadliest snake

South-western Queensland is not the place to suffer snakebite. Apart from its remoteness, it is home to the world's deadliest snake.

The small-scaled snake, *Parademansia microlepidota*, was first found in 1879 by a naturalist named Frederick McCoy. Although museum records list north-western Victoria as the place where this occurred, some doubt exists as to their accuracy, as today the snake is limited to an area much further north. Another was collected near Bourke in 1882, but the species was then 'lost' through a combination of its remote, limited range and scientific confusion over its identity.

It has variously been confused with brown snakes, with black snakes, and more recently with the taipan. Formal recognition that it was a distinct species of a new genus only came in 1976, when Ms Jeanette Covacevich of the Queensland Museum and Mr John Wombey of the CSIRO Division of Wildlife Research reviewed recently collected specimens and older specimens held by the Queensland and South Australian museums. Their review show that it differed from the taipan.

Among the specimens they studied was one killed after it bit a man who captured it in south-western Queensland in 1969. He survived with intensive medical treatment, after



The small-scaled snake, *Parademansia microlepidota*. It bears some resemblance to the taipan, but has a darker body and a black head.

antivenene for the eastern brown snake proved ineffective.

Mr Charles Tanner of Cooktown sent venom he had 'milked' from seven specimens of *P. microlepidota* for venom typing and toxicity tests by the Commonwealth Serum Laboratories in Melbourne. There, Mr Allen Broad and Dr Struan Sutherland confirmed that the venom differed from taipan venom, although taipan antivenene was effective against it.

The real surprise came when they tested potency. *P. microlepidota* venom proved even more toxic than those of the eastern brown snake, the taipan, and the tiger snake, previously believed to be the most toxic venoms of all the world's land snakes.

The lethality of a snake's bite, however, is also governed by the amount of venom it injects. The eastern brown injects only a small dose and is consequently not as dangerous as the taipan or Asia's king cobra, which has relatively low toxicity but the most copious venom output

of all snakes.

The hazards of being bitten by a particular snake can be determined by combining venom toxicity and dosage and expressing the combination in terms of its potential 'kill' of laboratory mice. The table compares some of Australia's deadliest snakes with the king cobra.

Today the small-scaled snake appears to be extinct in Victoria (if it ever lived there) and in New South Wales. In Queensland, it occurs in pockets in the region where the Diamantina River and Cooper's Creek drain towards the Lake Eyre basin.

Its specialized biology makes it worthy of further scientific study, and one particular aspect has already aroused interest. Its range is not continuous, yet the venoms of specimens from different 'pockets' isolated from one another have virtually identical composition. Studies overseas, and also with the taipan, have shown venom composition can vary considerably even between two individuals from the same area. How this snake maintains such tight genetic control between isolated populations is a mystery.

Graeme O'Neill

Electrophoretic, enzyme and preliminary toxicity studies of the venom of the small-scaled snake, *Parademansia microlepidota* (Serpentes: Elapidae) with additional data on its distribution. A. Broad, S. Sutherland, C. Tanner, and J. Covacevich. *Memoirs of the Queensland Museum*, 1979, 19, 319-29.

How the snakes compare

	potency	average dose (mg)	potential 'kill' of mice
Small-scaled snake	0.43	44.2	50 000+
Eastern brown snake	0.90	5	2 780
Taipan	1.52	120	39 500
Tiger snake	3.82	35	4 580
King cobra	34.5	420	6 100

The figures for potency represent the minimum weight, in micrograms (μg), of venom needed to kill 50% of a sample of mice.