HAROLD G. COGGER

Proc. R. Soc. Qd **87**: 29 - 32, pls. 1 - 2 (1976) ISSN 0080-469X

Recognition of *Parademansia microlepidotus* (McCoy) (Elapidae), a Dangerous Australian snake

J. COVACEVICH

Queensland Museum

and

J. WOMBEY

C.S.I.R.O. Darwin

SYNOPSIS

Parademansia microlepidotus, regarded since 1963 as a western form of the Taipan (*Oxyuranus scutellatus*), is demonstrated to be a distinct species. Data on identification and distribution of these two dangerous snakes are provided.

INTRODUCTION

The Taipan (*Oxyuranus scutellatus*) was described by Peters (1868) from a specimen collected at Rockhampton, mid-eastern Queensland. The Small-scaled Snake (*Diemenia microlepidota*) was described by McCoy (1879) from two specimens collected at the junction of the Murray and Darling Rivers in north-western Victoria. In 1882 Macleay described *Diemenia ferox* from a specimen (now lost) collected at 'Fort Bourke' (presumably Bourke, western New South Wales). Both *microlepidota* and *ferox* were recognised for many years (Boulenger, 1896; Waite, 1898; Kinghorn, 1929), occasionally as species of *Pseudechis*, the genus to which *O. scutellatus* was formerly referred. Subsequently Kinghorn (1955, 1956) examined specimens of *O. scutellatus* and the type specimens of *P. microlepidotus*, treated *ferox* as a synonym of *microlepidotus*, and erected *Parademansia* for it. He paid particular attention to skull characteristics. Worrell (1963a, 1963b) regarded *P. microlepidotus* and *O. scutellatus* conspecific, apparently because of external similarities between the two species.

MATERIAL EXAMINED

Specimens of *Parademansia microlepidotus* are housed in the following institutions: Australian Museum (AM); Northern Territory Museum (NTM); National Museum, Victoria (NMV); Queensland Museum (QM); South Australian Museum (SAM). The following museum specimens have been examined in addition to one unregistered specimen held by Mr. A. Compton.

QUEENSLAND

NTM R352, R308, R404; AM R48117; SAM R4719-21, R4284, R4303, R4285; QM J22514, J24436, J24391.

SOUTH AUSTRALIA

SAM R14649

VICTORIA

NMV D12354 (lectotype), D12353 (paralectotype).

IDENTIFICATION

Plate 1 shows a recently preserved specimen of *P. microlepidotus* (J24391) and a live specimen of *O. scutellatus* from Rollingstone, north-eastern Queensland. *P. microlepidotus* has not been photographed live. External features of four recently collected *P. microlepidotus* and a sample of ten *O. scutellatus* are compared in Table 1 along with the type descriptions and other published descriptions of both species.

Scale counts, headshape, and general appearance of the two species are very similar and this has undoubtedly led to some of the confusion about the identity of *P. microlepidotus*. Examination of the skulls of the three Queensland Museum *P. microlepidotus* confirms Kinghorn's (1955) opinion that the species was distinct from *O. scutellatus*, *Pseudechis* spp. and *Demansia* spp. (including *Pseudonaja* spp.). Plate 2 compares skulls of *P. microlepidotus* and *O. scutellatus*. Differences between the two species are summarised in Table 2. All species of *Pseudechis* and *Demansia* have more than 3 (usually 5 or 6) maxillary teeth behind the fang so these groups may be excluded from further consideration in comparing *P. microlepidotus* and other large elapid snakes. Colour and eye size are the only reliable external distinguishing features. All recently collected specimens of *P. microlepidotus* examined have glossy black heads and necks both dorsally and ventrally. This black merges into a medium brown dorsally. One specimen (J24391) bears short, fine, darker brown lines which give it a distinct pattern posteriorly. The ventral scales posterior to the neck region are basically off-white with faint grey-brown markings. A specimen held in the collection of Mr. A Compton is light brown dorsally, with a few black scales, and cream ventrally. Its head, neck, and throat are dark brown. The overall pattern of this specimen is the same as other darker specimens examined and its lighter colour may be due to fading. Thomson (1933) described *O. scutellatus* as 'Light olive-brown to dark chestnut or russet-brown, darkest on mid dorsal line, becoming grey-brown on large scales of sides. Rostral and supralabial region creamy-yellow. Ventral surface creamy-yellow anteriorly, white posteriorly, sometimes spotted or freckled . . . for about two-thirds of its length with reddish pink . . . .' All specimens of *O. scutellatus* in the Queensland Museum fall within this colour range.

Live specimens of *P. microlepidotus* have smaller eyes than similar sized specimens of *O. scutellatus* but this feature is not easily compared in preserved specimens because of distortion of the head shape and scales. With the exception of the small species, *D. guttata*, no species of *Demansia* or *Pseudechis* have 21 or 23 mid-body scales.

DISCUSSION

P. microlepidotus is confined to arid regions of western Queensland, New South Wales, Victoria and north-eastern South Australia. No specimens have been collected in Victoria or New South Wales for many years and the main centre of distribution appears to be far south-western Queensland and north-eastern South Australia. Two of the Queensland Museum specimens (J22514, J24436) were collected on gibber plains and the third (J24391) was found in open downs country. Another specimen has recently been observed in the Windorah area (P. Slater, pers. comm.). This specimen was observed in an area when there was a plague of *Rattus villosissimus* and there were many rat burrows where such snakes could hide. No detailed habitat data are available on other museum specimens of *P. microlepidotus*. *O. scutellatus* occurs coastally in the Northern Territory, Queensland, and New South Wales as far south as the Grafton area. Queensland specimens have been collected in open grassland, open woodland, heath, and in dense forest adjoining closed forest. A subspecies (*O. scutellatus canni*) has been described from New Guinea (Slater 1956). Figure 1 shows the known distribution, based on state museum records, of *P. microlepidotus* and *O. scutellatus* in Australia.

Kinghorn (1956) regarded *P. microlepidotus* as 'deadly venomous', although only two specimens of *P. microlepidotus* were known and its venom had not been examined. He may have been influenced by its external similarity to *O. scutellatus* and its large size. Since 1963 it has been regarded conspecific with *O. scutellatus* and therefore has been omitted from most recent general literature dealing with dangerous Australian snakes (Werler and Keegan, 1963; Worrell, 1963b; Cogger, 1967; Garnett, 1968; Cogger, 1971; Trethewie, 1971; Trinca, 1974). Brown (1973) lists '*Pseudechis microlepidotus* (*ferox*)' as a venomous Australian snake but gives no other data on the species. Regarding *P. microlepidotus* conspecific with *O. scutellatus* has also led to the erroneous extension of range of *O. scutellatus* into western Queensland and western New South Wales.

Trinca (1969) reported a serious case of snakebite by a specimen of '*O. scutellatus*' in south-western Queensland. It occurred on Durrie Station, near Birdsville and the specimen responsible was identified by Worrell who regarded *P. microlepidotus* and *O. scutellatus* conspecific (1963a, b). This specimen had a long head, narrow neck, entire anal scale, divided sub-caudal scales and 23 mid-body scales, features *O. scutellatus* shares with *P. microlepidotus*. The specimen responsible for the bite is illustrated by Trinca (1969), and has been examined and included in the sample of *P. microlepidotus* used in the compilation of Table 1. This specimen has the typical colour pattern of *P. microlepidotus* and is undoubtedly this species despite its lighter colouring, which may be due to preservation.

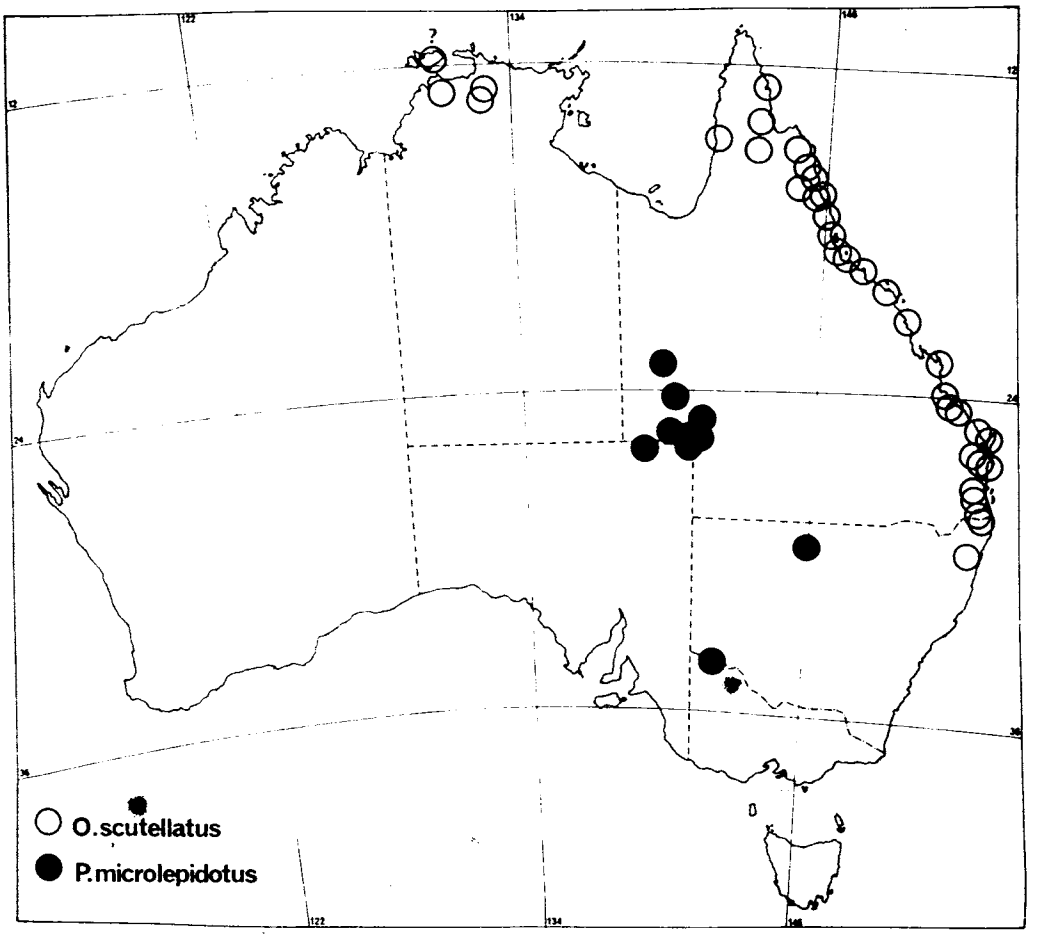


Fig. 1: Distribtuion of *Parademansia microlepidotus* and *Oxyuranus scutellatus*.

TABLE 1. Comparison of some external features of *P. microlepidotus* and *O. scutellatus*

	mid body scales	anal scales	ventral scales	subcaudal scales
P. microlepidotus				
7 museum specimens	23*	single	212-224*	54-62, paired
1 A. Compton specimen	23	single	211	58, most paired †
McCoy (1879)	23	single	232-237	61-66, paired
Kinghorn (1955)	23	single	230-237	61-66, paired
O. scutellatus				
10 Q M specimens	21(3)-23(7)	single	220-248	60-76, paired
Peters (1867)	23	single	231	48, paired
Kinghorn (1923)				
Thomson (1933)	21-23	single	234-234	61-74, paired

* Mid-body count available in only 4 specimens. † Numbers 3-5 undivided.

Cogger (1971) regarded thirteen species of seven genera of Australian snakes as dangerous - *Acanthophis antarcticus* (Death Adder), *Demansia spp.* (4 Brown Snakes), *Denisonia superba* (Copperhead), *Notechis scutatus* (Tiger Snake), *Oxyuranus scutellatus* (Taipan), *Pseudechis* spp. (4 Black Snakes), *Tropidechis carinatus* (Rough-scaled Snake). Recognition of *P. microlepidotus* as a distinct and dangerous species brings to fourteen the number of Australian snakes which have killed humans or which are believed capable of inflicting a serious bite.

TABLE 2: Comparison of skulls of *P. microlepidotus* and *O. scutellatus*

	P. microlepidotus J22514, J24391, J24436	*O. scutellatus* J8342, J22912
maxillary teeth	fang medium followed by diastema and then 3 teeth	fang long, followed by diastema and then 1-2 teeth
palatine	extends to centre of base of fang, fully toothed, not tapering*	extends to centre of base of fang; anterior 1/5 toothless, tapering. Kinghorn (1923) . . . "prolonged into a needlelike projection"
palatine teeth	9 (J24436 only)	6-9 (J22192; Kinghorn, 1923; Thomson 1933).
pterygoid teeth	22 (J24436 only)	17 (J22192) 15 (J8342)
post-orbital	medial margin L-shaped	medial margin very slightly curved
squamosal	relatively broad	relatively narrow

* Used in the definition of the genus *Parademansia* (Kinghorn, 1955).

ACKNOWLEDGEMENTS

Mr. C Cameron, Dr. H.G. Cogger, Mr. A. Compton, Mr. J. Coventry, Dr. T. Houston, Mr. A. Jeffries, Dr. D. Justins, Mr. D. Lindner, Mr. A. Nicholson, Mr. E. Ogilvie, Mr. H. Rabig, Mr. P. Slater, Dr. G. Storr, Mr. J. Shields, Mr. R. Stevensson, and Mr. E. Worrell have provided specimens, data or access to reference material in their care. Mr. A. Easton took the photographs. Dr. J. Pearn, Mr. C. Tanner, Dr. J. Trinca and Mr. M. Tyler have given helpful advice.

REFERENCES

BOULENGER, G.A., 1896. 'Catalogue of the Snakes in the British Museum (Natural History).' Vol. 3 (British Museum: London).

BROWN, J.H., 1973. 'Toxicology and Pharmacology of Venoms from Poisonous Snakes'. (Charles C. Thomas: Springfield, Illinois).

COGGER, H.G., 1967. 'Australian Reptiles in Colour'. (A.H. and A.W. Reed: Sydney).

1971. The Venomous Snakes of Australia and Melanesia. *in* BUCHERL, W., and BUCKLEY, E. (Eds.) 'Venomous Animals and their Venoms'. Vol. 2 (Academic Press: New York).

GARNETT, J.R., (Ed.) 1968. 'Venomous Australian Animals Dangerous to Man'. (Commonwealth Serum Laboratories: Parkville).

KINGHORN, J.R., 1923. A new genus of elapine snake from north Australia *Rec. Aust. Mus.* **14**(1): 42 - 45, pl. 7.

1929. 'Snakes of Australia'. (Angus and Robertson: Sydney).

1955. Herpetological notes no. 5. *Rec. Aust. Mus.* **23**: 283 - 286.

1956. 'The Snakes of Australia'. (Angus and Robertson: Sydney).

MACLEAY, W., 1882. Description of two new species of snakes. *Proc. Linn. Soc. N.S.W.* **6**:811 - 813.

MCCOY, F., 1879. *Diemenia microlepidota*, Small-scaled Snake. *In* 'Prodromus of the Zoology of Victoria'. (Government Printer: Melbourne).

PETERS, W., 1868. Sitzung der physikalisch-matematischen Klasse. *Mber. K. preuss. Akad. Wiss.* **28**:703 - 712.

SLATER, K.R., 1956. On the New Guinea Taipan. *Mem. Nat. Mus. Vict.*, **20**:1 - 5.

THOMSON, D.F., 1933. Notes on Australian Snakes of the genera *Pseudechis* and *Oxyuranus*. *Proc. Zool. Soc. Lond.*, **4**:855 - 860, pls 1 - 3.

TRETHEWIE, E.R., 1971. The Pharmacology and Taxicology of the Venoms of the Snakes of Australia and Oceania. *in* BUCHERL, W., and BUCKLEY, B.(Eds.) 'Venomous Animals and their Venoms'. Vol. 2 (Academic Press: New York).

TRINCA, J.C., 1969. Report of Recovery from Taipan Bite. *Med. J. Aust.* **1**:514 - 516.

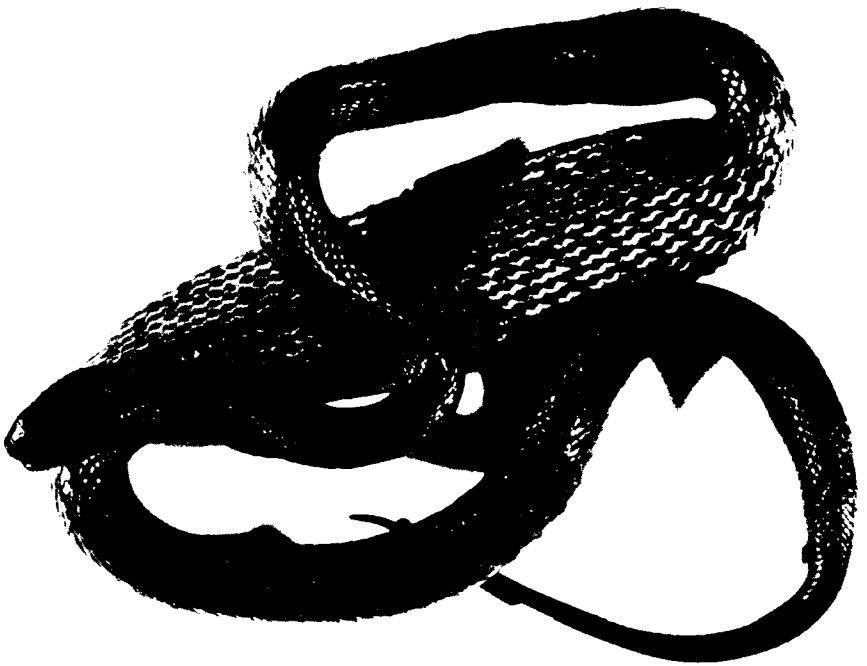
(Ed.) 1974. 'C.S.L. Medical Handbook' (Commonwealth Serum Laboratories: Parkville).

WAITE, E.R., 1898. 'A popular account of Australian Snakes.' (Thomas Shire: Sydney).

WERLER, J.E., and KEEGAN, H.L., 1963. Venomous Snakes of the Pacific Area. *in* KEEGAN., and MACFARLANE, W.V. (Eds.) 'Venomous and Poisonous Animals and Noxious Plants of the Pacific Region'. (Pergamon Press: Oxford).

WORRELL, E., 1963a. 'Reptiles of Australia'. (Angus and Robertson: Sydney).

1963b. 'Dangerous Snakes of Australia and New Guinea'. (Angus and Robertson: Sydney).



1 J24391

2

PLATE 1

Fig. 1 *Parademansia microlepidotus* Fig. 2 *Oxyuranus scutellatus*

PLATE 2

Fig. 1: Skull of *Parademansia microlepidotus*
Fig. 2: Skull of *Oxyuranus scutellatus*


1
2