

**Two new species of Australian venomous snake, previously
identified as *Narophis bimaculata*
(Duméril, Bibron and Duméril, 1854) from Southern Australia.**

LSID URN:LSID:ZOOBANK.ORG:PUB:0663D230-D753-4431-AF6C-F3305CD09B12

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Received 10 February 2020, Accepted 1 March 2020, Published 25 April 2020.

ABSTRACT

As part of an ongoing audit of Australian reptiles, specimens of the little-known South-west Australian Snake species *Narophis bimaculata* (Duméril, Bibron and Duméril, 1854) from across the known range of the putative species were examined.

It was found to comprise three allopatric and geographically distinct forms, worthy of taxonomic recognition. The two unnamed forms are herein formally described as species in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended.

Narophis richardwellsei sp. nov. is the species from the Eyre Peninsula and nearby parts of South Australia.

Narophis cliffrosswellingtoni sp. nov. is the form found in most parts of southern Western Australia, except for the lower west coast and coastal plain from Green Head south to Bunbury (including Perth and environs), being the area inhabited by the nominate form *Narophis bimaculata*.

The genus *Narophis* was erected by Worrell in 1961 as monotypic for the species *Furina bimaculata* Duméril, Bibron and Duméril, 1854, however the name has not been used since in Australian herpetology on the basis that the original publication of Worrell was not peer reviewed (see Kaiser *et al.* 2013). However no edition of the *International Code of Zoological Nomenclature* (editions 1, 2, 3 and 4) as applicable have ever mandated that peer review is a requirement for a nomen to be used.

Therefore *Narophis* is used as the appropriate and correct name for this genus of snakes not closely related to any others in Australia on the basis it is the first available name. Any later name coined by Wolfgang Wüster and his gang of thieves (as sought in Kaiser *et al.* 2013 as amended frequently) should therefore be ignored as stated by Dubois *et al.* (2019).

Keywords: Snakes; taxonomy; nomenclature; Worrell; Wells; Wellington; Elapidae; Western Australia; South Australia; *Neelaps*; *Narophis*; *bimaculata*; new species; *richardwellsei*; *cliffrosswellingtoni*.

INTRODUCTION

As stated in the abstract, as part of an ongoing audit of Australian reptiles, specimens of the little-known South-west Australian Snake species *Narophis bimaculata* (Duméril, Bibron and Duméril, 1854) from across the known range of the putative species were examined.

The materials and methods of the examination also included a thorough review of the previously published literature and all other available information including photos of live specimens with good locality data.

MATERIALS AND METHODS

While this is self evident from both abstract and introduction, I mention that inspection of specimens of this species has been over a 30 year period.

Relevant references relevant to the taxonomy and nomenclature of the putative species *Narophis bimaculata* (Duméril, Bibron and Duméril, 1854) and the taxonomy and nomenclature presented in this paper include the following: Cogger (2014), Cogger *et al.* (1983), Duméril *et al.* (1854), Fry (1914), Günther (1863), Lee *et al.* (2016), Ride *et al.* (1999), Sanders *et al.* (2008), Schembri (2017), Storr (1967), Storr and Harold (1978), Storr *et al.* (2002), Strahan *et al.* (1998), Wells and Wellington (1984, 1985), Wilson and Swan (2017), Worrell (1961) and sources cited therein.

RESULTS

Narophis bimaculata (Duméril, Bibron and Duméril, 1854), was found to comprise three allopatric and geographically distinct forms, worthy of taxonomic recognition, as effectively noted by

Storr (1968), although he only identified two putative taxa.

The two unnamed forms are geographically disjunct from the other two forms (3 in total) and morphologically distinct from one another. They are easily identified in the field and also in the absence of known locality information.

They are herein formally described as species in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended.

Narophis richardwellsei sp. nov. is the species from the Eyre Peninsula and nearby parts of South Australia, and *Narophis cliffrosswellingtoni* sp. nov. is the form found in most parts of southern Western Australia, except for the lower west coast and coastal plain from Green Head south to Bunbury (including Perth and environs), being the area inhabited by the nominate form *Narophis bimaculata*.

The genus *Narophis* was erected by Worrell in 1961 as monotypic for the species *Furina bimaculata* Duméril, Bibron and Duméril, 1854.

Since original description of the species by Duméril and Bibron in 1854 the species has been assigned to various genera, but was placed in the genus *Neelaps* Günther, 1863 by Cogger *et al.* (1983), where it has been placed ever since by all publishing herpetologists, including notably Wells and Wellington (1985 and 1985) who chose not to remove the species from *Neelaps*. However the type species for that genus, *Furina calonotus* Duméril and Bibron in 1854 is in fact very different morphologically and genetically and must therefore be placed in a separate genus.

Morphological evidence for divergence of the relevant species can be seen in the diagnosis for each in Cogger (2014), largely repeated in the relevant descriptions herein and the molecular evidence for divergence can also be found in Sanders *et al.* 2008.

The name *Narophis* has not been used since in Australian herpetology, by a number of publishing herpetologists on the basis that the original publication of Worrell was not peer reviewed (see for example Kaiser *et al.* 2013 as amended and Kaiser (2012a, 2012b, 2013, 2014a, 2014b,)).

See the complete discrediting of the claims by Kaiser *et al.* (2013) and Kaiser (2012a, 2012b, 2013, 2014a, 2014b) in the publications of Dubois *et al.* (2019), Hoser (1989, 1991, 2007, 2009, 2012a, 2012b, 2013, 2015a-f, 2019a-b) and sources cited therein.

However of relevant importance here is the fact that no edition of the *International Code of Zoological Nomenclature* (editions 1, 2, 3 and 4) as applicable have ever mandated that peer review is a requirement for a nomen to be used.

Therefore *Narophis* is used as the appropriate and correct name for this genus of snakes not closely related to any others in Australia on the basis it is the first available name. Any later name coined by Wolfgang Wüster and his gang of thieves (as sought in Kaiser *et al.* 2013 as amended frequently) should therefore be ignored, as that document is not within the rules of the ICZN and the demands within it are therefore illegal in most places including Australia, the USA, European Union, UK and all other countries a party to the CITES Treaty.

In terms of the scientific descriptions below, the formal descriptions in accordance with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended is based on healthy adult specimens in life unless otherwise stated.

It should be noted that unless mandated by the *International Code of Zoological Nomenclature* (fourth edition) or relevant subsequent publication, the spelling of the new scientific names should not be altered.

The spellings within this paper are intentional and this includes for the species nomen *richardwellsei*, which in the absence of this statement may be subject of unwarranted emendation by fools to the nomen "*wellsi*", as was improperly done for the species *Acanthophis wellsei* Hoser, 1998, by the morons Mirtschin *et al.* 2017.

Material in each of the following descriptions is repeated in parts in order to ensure full compliance with the relevant fourth edition of the *International Code of Zoological Nomenclature*.

There are no conflicts of interest in the preparation of this paper. Relevant museum staff, including herpetology curators across Australia are thanked for their assistance's in this and other relevant scientific projects myself and colleagues have engaged in over the last 40 years, most of whom have done an excellent job in this regard.

The conservation significance of timely recognition of potentially threatened taxa is important and best explained via the papers of Hoser (2019a, 2019b) or books of Hoser (1989, 1991), which means I have absolutely no hesitation whatsoever in publishing the scientific descriptions within this paper.

NAROPHIS RICHARDWELLSEI SP. NOV.

LSID urn:lsid:zoobank.org:act:F1E2B499-F1F1-4617-9CD3-F2B8D11A6E47

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number: R 2302 collected at Kingoonya, South Australia, Australia, Latitude 30.9164° S., Longitude 135.3261° E

This government-owned facility allows access to its specimens.

Paratype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number: R 1791 collected at Ooldea South Australia, Australia, Latitude 30.2733° S., Longitude 131.5008° E?.

Diagnosis: The putative species *Narophis bimaculata* (Duméril, Bibron and Duméril, 1854), until now included the two species *N. richardwellsei* sp. nov. and *N. cliffrosswellingtoni* sp. nov..

The three species are all readily separated from all other Australian elapid snakes by the following suite of characters: No paddle shaped tail. No suboculars and no specialized curved spine on the end of the tail. Body has smooth scales. It is without cross-bands, except on head, nape or upper neck, belly being white or cream and immaculate, 15 mid-body rows, 175-235 ventrals, anal divided, 15-35 all divided subcaudals and the rostral is not wedge-shaped and sharp edged.

There is no solid maxillary tooth following the fang, a long slender body and it length is at least 30 times the diameter. No black longitudinal stripe along the body. The dorsal colour is pale reddish-brown, orangeish, purplish or pinkish above, each scale edged with dark-reddish brown. There is a dark, blackish head blotch from about the front edge of the frontal to the hind edge of the parietals, more-or-less forming a band, and behind an area of orange to yellow pigment, there is a black nuchal band about five scales long and starting about three to four scales behind the parietals (and front band).

The genus *Neelaps* Günther, 1863, type species, *Furina calonotus* Duméril and Bibron in 1854 and monotypic for this West Australian species is morphologically similar to the three species in the genus *Narophis* Worrell (1961). However they are readily separated by the following characters: There is a dark vertebral stripe in *Neelaps* (absent in *Narophis*), one maxillary tooth following the fang in *Neelaps* versus none in *Narophis*. The two species *Narophis richardwellsei* sp. nov. and *Narophis cliffrosswellingtoni* sp. nov. are readily separated from the species *Narophis bimaculata* (Duméril, Bibron and Duméril, 1854) by the following suite of characters:

- 1/ Males have 204-212 ventrals versus 176-192 in *N. bimaculata* and females have 218-228 ventrals versus 197-214 in *N. bimaculata*.
- 2/ An obvious black spot on the end of the snout in all specimens, versus either absent or tiny in *N. bimaculata*.
- 3/ The head blotch is large and begins before the frontal or the anterior line of it and finishes behind the parietals, or posterior line or them, versus beginning behind the anterior edge of the frontals and ending before the end of the parietals in *N. bimaculata*.

4/ Nuchal blotch is 3.5-5 scales long, versus 4-6.5 scales long in *N. bimaculata* and separated from the head blotch by 2.5-4 vertebrals versus 3-4.5 in *N. bimaculata*.

5/ Larger size in *N. richardwellsei* sp. nov. and *N. cliffrosswellingtoni* sp. nov. with a maximum length of males being 390 mm, versus 335 mm in *N. bimaculata* and 446 mm in females versus 422 in *N. bimaculata* (Storr 1967).

6/ Shorter tail in *N. richardwellsei* sp. nov. and *N. cliffrosswellingtoni* sp. nov. with it being 8.2-8.8% of total length in males, versus 8.4-10.3 in *N. bimaculata* and 5.6-6.2 % of total length in females, versus 6.2-7.4% in females.

7/ *N. richardwellsei* sp. nov. and *N. cliffrosswellingtoni* sp. nov. not having an increase of scale rows number on the neck, versus 16 or 17 in 85% of *N. bimaculata*.

Narophis cliffrosswellingtoni sp. nov. is separated from both *N. richardwellsei* sp. nov. and *N. bimaculata* by having a dark purplish dorsal colouration owing to wider darker scale margins on both dorsal and lateral scales.

Narophis richardwellsei sp. nov. is separated from both *N. cliffrosswellingtoni* sp. nov. and *N. bimaculata* by having dark anterior margins of each scale on the dorsum, in particular those of the lower flanks, but not along the mid dorsal line and with a well-defined demarcation between the flanks and the whitish-cream venter, with the cream of the venter entering the flanks, giving the appearance of a well defined dark orange (top), creamish white (bottom) line or boundary on the lower sides of the snake along the length of the body.

N. richardwellsei sp. nov. also commonly has an ill-defined or partially formed dark blotch on the dorsal surface of the neck, posterior to the other two anterior dark black or blackish blotches.

Distribution: *Narophis richardwellsei* sp. nov. is found in the arid zone of South Australia generally east of the Nullabor (from about Maralinga in the north-west) and west of the Eyre Peninsula, but including this area, thus having a south eastern range limit of near Whyalla. The species is found more-or-less in a line between these two points with a north-east limit of about Kingoonya, South Australia.

Narophis bimaculata is found in the coastal region of south-west Western Australia in a zone generally bounded by lower west coast and coastal plain from Green Head south to Bunbury and including Perth and environs.

Narophis cliffrosswellingtoni sp. nov. is generally found in the southern third of Western Australia outside of the far south-west and most of the wheat belt and not including the Nullabor region in the far east of the State.

A photo of *Narophis richardwellsei* sp. nov. in life can be found in Schembri (2017) (downloaded from the web on 7 February 2020).

A photo of *Narophis bimaculata* in life from Oakford (Perth), Western Australia in life can be found on page 130 (top) of Storr, Smith and Johnstone (2002), or from Burns Beach (near Perth), Western Australia in Wilson and Swan (2017) at page 565 bottom. Online a photo of this species from Yanchep, Western Australia can be found at: <https://images.auscape.com.au/photographer-galleries/rob-mclean/black-naped-snake-neelaps-bimaculatus-14605638.html>

(downloaded on 7 February 2020).

A photo of *Narophis cliffrosswellingtoni* sp. nov. in life from Lake Cronin, Western Australia can be seen at:

<http://reptile-database.reptarium.cz/species?genus=Simoselaps&species=bimaculatus>

(downloaded on 7 February 2020).

Conservation threats: None known at present, but if the Australian government persists with its "Big Australia Policy", (see for example Saunders 2019), that being a long-term aim to increase the human population in Australia to over 100 million people by year 2150 (from the present 25 million as of 2019), all

sorts of unforeseen threats to the survival of this species may emerge.

Narophis Worrell, 1961 is a divergent lineage as compared to other Australian elapid genera and due to the restricted range of the entire genus I recommend further research on the genus and potential future conservation threats in line with the previous paragraph, including by direct human activities as well as potential threats caused by changed vegetation regimes, introduced pests and potential pathogens, including those introduced via the legal importation of foreign reptiles by government-owned zoos and associated entities.

Etymology: Named in honour of esteemed Australian herpetologist, Richard W. Wells of Lismore in New South Wales, Australia previously of various locations in New South Wales, including Wilberforce and Cowra, in recognition of a lifetime's work in herpetology and notably taxonomy and nomenclature. While his detractors, Wolfgang Wüster and his gang of thieves, have falsely accused Wells and publishing colleague, Cliff Ross Wellington of numerous crimes against humanity, the fact is that the vast majority of the taxonomic and nomenclatural judgements of Wells (and Wellington) have stood the test of time and been largely correct. See Hoser (2007) for more details.

Richard Wells is also often referred to as Wellsey or Wellsei, by his mates, hence the scientific name being spelt "*richardwellsei*", this being a deliberate spelling and not an error in need of unjustified emendation.

NAROPHIS CLIFFROSSWELLINGTONI SP. NOV.

LSID urn:lsid:zoobank.org:act:5ADDF0E6-4C44-4D03-BA55-3A86C3B75743

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R 5210 collected at Boolong, Western Australia, Australia, Latitude 30.6878° S., Longitude 121.8249° E. This government-owned facility allows access to its specimens.

Paratypes: 1/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R 4722 collected from Kurrawang, 8 miles South-west of Kalgoorlie, Western Australia, Australia, Latitude 30.8153° S., Longitude 121.3323° E.

2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R 4921 collected from Menzies, Western Australia, Australia, Latitude 29.6915° S., Longitude 121.0289° E.

Diagnosis: The putative species *Narophis bimaculata* (Duméril, Bibron and Duméril, 1854), until now included the two species *N. richardwellsei* sp. nov. and *N. cliffrosswellingtoni* sp. nov..

The three species are all readily separated from all other Australian elapid snakes by the following suite of characters: No paddle shaped tail. No suboculars and no specialized curved spine on the end of the tail. Body has smooth scales. It is without cross-bands, except on head, nape or upper neck, belly being white or cream and immaculate, 15 mid-body rows, 175-235 ventrals, anal divided, 15-35 all divided subcaudals and the rostral is not wedge-shaped and sharp edged.

There is no solid maxillary tooth following the fang, a long slender body and its length is at least 30 times the diameter. No black longitudinal stripe along the body. The dorsal colour is pale reddish-brown, orangeish, purplish or pinkish above, each scale edged with dark-reddish brown. There is a dark, blackish head blotch from about the front edge of the frontal to the hind edge of the parietals, more-or-less forming a band, and behind an area of orange to yellow pigment, there is a black nuchal band about five scales long and starting about three to four scales behind the parietals (and front band).

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Conservation threats: None known at present, but if the Australian government persists with its "Big Australia Policy", (see for example Saunders 2019), that being a long-term aim to increase the human population in Australia to over 100 million people by year 2150 (from the present 25 million as of 2019), all sorts of unforeseen threats to the survival of this species may emerge.

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Etymology: Named in honour of esteemed Australian herpetologist, Cliff Ross Wellington, better known as Ross Wellington, of near Grafton in New South Wales, Australia previously of various locations in New South Wales, including Woy Woy, in recognition of a lifetime's work in herpetology and notably taxonomy and nomenclature. While his detractors, Wolfgang Wüster and his gang of thieves, have falsely accused Cliff Ross Wellington and publishing colleague Richard W. Wells of numerous crimes against humanity, the fact is that the vast majority of the taxonomic and nomenclatural judgements of Wellington and Wells have stood the test of time and been largely correct. See Hoser (2007) for more details.

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CONFLICTS OF INTEREST

None.