

A new species of the Australian Bandy Bandy *Vermicella* Gray, 1841 (Serpentes: Elapidae) from north-west Australia.

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ABSTRACT

Hoser in 2019 reviewed the wide-ranging Bandy Bandy group of snakes, *Vermicella* Gray, 1841, as defined by Cogger (2014).

After inspection of specimens from all parts of their range in continental Australia, a greater diversity than indicated by the then current taxonomy was found.

As a result of that paper, five species and three subspecies were formally recognized.

This paper formally names a sixth valid species for the genus.

Vermicella sloppi sp. nov. has until now been treated as a northern population of *V. snelli* Storr (1967) as defined by Storr in that paper.

However genetic divergence across the known biogeographical barrier of the Fortescue River Valley combined with the morphological divergence of the population, is a compelling argument for recognition of this population as a separate species.

The new species is formally named *Vermicella sloppi* sp. nov. in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride et al. 1999).

Keywords: Taxonomy; nomenclature; snakes; Elapidae; Australia; Western Australia; New *Vermicella*; *snelli*; new species; *sloppi*.

INTRODUCTION

As part of a wide-ranging audit of the Australian snake fauna, specimens of the iconic Bandy Bandy Snakes (Genus *Vermicella*, Gray, 1841) of all recognized species from across the range of each were inspected by myself with a view to ascertaining if there were any hitherto unnamed forms.

The results of that audit were published by Hoser (2019c).

Resolution of the identity of the northern population of *V. snelli* (Storr, 1967) was deferred pending a planned field trip to the region in 2018.

However as a result of unexpected legal proceedings against trademark infringing, animal abusing thieves, attacking the Snakebusters and Reptile Party businesses which dragged on for some years, such a field trip was put off until these finalised, which appeared to be in early 2020.

However a Coronavirus (Covid-19) outbreak in Australia, being part of a global pandemic that had started in China, led the State of Western Australia closing its borders in April 2020 for an indefinite period (Laschon and Trigger 2020).

Notwithstanding this effective indefinite shelving of the proposed field trip, the evidence available in support of recognizing the north western population of putative *V. snelli* as a separate species is compelling and doing so is the purpose of this paper, even with limited data available.

Delay in recognition of this form as a new species could also have negative conservation outcomes as outlined by Hoser (2019a, 2019b) and hence the decision to publish this paper.

MATERIALS, METHODS AND RESULTS

These are effectively the same as for Hoser (2019c).

Besides inspecting live specimens, museum specimens and quality photos with accurate location data, I also reviewed all relevant available literature. This included the following: Boulenger (1896), Cogger (2014), Cogger et al. (1983), Couper and Covacevich (1996), Covacevich (1971), De Vis (1905), Derez et al. (2018), Duméril et al. (1851), Gray (1841), Hoser (1989), Keogh and Smith (1996), Krefft (1869), Longman (1915, 1916), Simpson (1973), Storr (1967) and Wells and Wellington (1984, 1985) including sources cited therein.

Material relevant to this and related papers was stolen during an illegal armed raid by government wildlife officers on our research facility on 17 Aug 2011 and this was not returned in spite of orders by courts to do so (Court of Appeal Victoria 2014, Victorian Civil and Administrative Tribunal 2015).

The destructive illegal armed raid was initiated by false complaints made by associates of the Wüster gang (see Hoser 2015a-f for details).

The actions of the raid and the numerous bogus criminal charges arising from it, all of which were defended in court and won by myself (i.e. all claims by the wildlife department were found to be false) (Court of Appeal Victoria 2014, Victorian Civil and Administrative Tribunal 2015), delayed the publication of this paper and others in any form indefinitely.

It also gave the Wüster gang of thieves the opportunity to scoop me in terms of describing a species now known as *V. parscauda*

Derez *et al.* (2018), named with full knowledge I had intended doing so.

Before dealing with the description of the new West Australian species in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* (1999)), I raise other relevant material below.

Storr (1967), highlighted differences within four populations of the subspecies he then identified as "*Vermicella annulata snelli subsp. nov.*". Keogh and Smith (1996) later formally named the two Northern Territory forms as new species, namely *V. intermedia* (from the top end of the Northern Territory) and *V. vermiformis* from central Australia.

Hoser (2019) relied on morphological evidence and the molecular evidence as published by Derez *et al.* (2018) to treat both *V. multifasciata* (Longman, 1915) and *V. intermedia* as conspecific, with the name *V. multifasciata* (Longman, 1915) having date priority in accordance with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

Derez *et al.* (2018) also produced in their genus-wide phylogeny, results for six specimens of putative *V. snelli*, which in turn formed two clades of moderate divergence, but not sufficient to warrant taxonomic recognition.

However all specimens tested were of the population to the north of the Fortescue River and therefore of the same general group and population.

The nominate form of *V. snelli* is from south of this biogeographic barrier and as shown by Storr (1967) is radically different in form to this more northern population.

On this basis alone, a convincing case for taxonomic recognition at the species level is made.

This is further shown to be the case when one reconciles other dominantly saxacoline hill dwelling reptile forms also separated by the same biogeographical barrier of the Fortescue River and now recognized as northern and southern species based on morphological and genetic divergence.

Examples include *Worrellisaurus acanthurus* (Boulenger, 1885) north of the river and *W. dannybrowni* Hoser, 2018 south of the river, *Pilbaravaranus pilbarensis* (Storr, 1980) north of the river and *P. hamersleyensis* (Maryan *et al.* 2014) south of the river, or *Wellsopus elegans* (Kluge, 1974) to the south of the river and *W. rowatsoni* (Hoser, 2017) to the north.

In terms of the formal description below, the spelling of the new name should not be changed unless absolutely mandated by the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended, or superseding publication.

There is no conflict of interest in terms of this paper and assistances of many people including Museum curators and the like are acknowledged, as are the assistance's of peer reviewers in this and all other papers I have published of a taxonomic or nomenclatural nature.

VERMICELLA SLOPPI SP. NOV.

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Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number: WAM R 6745, collected from Tambrey, Western Australia, Australia, Latitude 21.6333 S., Longitude 117.6 E. This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number: WAM R 20238 collected from Mount Herbert, 40 miles (64 km) south of Roebourne, Western Australia, Australia, Latitude - 21.3333 S., Longitude 117.2166 E.

Diagnosis: *Vermicella sloppi sp. nov.* has until now been treated as an aberrant population of *V. snelli* (Storr, 1967). It is readily separated from *V. snelli* by having 52 to 66 body bands, versus 33-41 for *V. snelli*.

The radically different number of bands is seen by comparison of photos of *Vermicella sloppi sp. nov.* in life as depicted in

Cogger (2014) on page 939 at bottom and the holotype specimen of *V. snelli* downloaded from the internet at: http://museum.wa.gov.au/catalogues/sites/default/files/vermicella_snelli_dors_holotype_wamr19203.jpg

on 3 February 2020.

These images clearly show that the difference in number of body bands is wholly due to the greater width of the black bands on the body in the species *V. snelli*. In that species at the widest point, the black bands are more than three times wider than the adjacent white ones, whereas in *V. sloppi sp. nov.* this is never the case.

Both *V. sloppi sp. nov.* and *V. snelli* are separated from all other species of *Vermicella* Günther, 1858 by the presence of internasals and 285-320 ventrals.

Snakes in the genus *Vermicella* are readily separated from all other Australian elapid genera by having a body pattern consisting of distinctive black and white rings across the body, short tails with less than 35 divided subcaudals, smooth scales with 15 mid-body rows and no suboculars.

Distribution: *V. sloppi sp. nov.* is believed to be confined to the immediate region of the vicinity of the locations of the collection of the holotype and paratype, being north of the Fortescue River in the Pilbara Region of Western Australia and generally near to the coast, extending as far east as Bonney Downs Station, Western Australia.

The species *V. snelli* is found in all other hilly parts of the Pilbara region, not including where *V. sloppi sp. nov.* occurs.

Conservation status: No known threats exist at present, save for the fact that wildlife laws in Western Australia prevent private individuals from keeping, breeding, or studying this taxon, as noted in Hoser (1989, 1991, 1993, 1996, 2019a, 2019b). The dysfunctional government-owned Zoo in Perth or any others in Australia, have zero interest in this species or its long-term survival and so there is no captive population to ensure against calamity in the wild.

If the Australian government persists with its "Big Australia Policy", (see for example Saunders 2019 or Zaczek 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.

V. sloppi sp. nov. is a restricted range species as compared to many other Australian elapid species and due to this I recommend further research on the taxon 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 the author's pet Great Dane named Slopp, who in 2020 was nearly 8 years of age and in ailing health with Cardiomyopathy. With his life nearing an end, it is fitting he be honoured for his valuable work in protecting the wildlife conservation and research facility of this author and our team of dedicated co-workers.

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CONFLICT OF INTEREST

There are no conflicts of interest in terms of this paper.