

A new species of *Denisonia* from North-west Queensland, Australia (Serpentes: Elapidae).

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ABSTRACT

A new species of elapid snake of the genus *Denisonia* Krefft, 1869 from North West Queensland is formally described according to the rules of the *International Code of Zoological Nomenclature*.

The species has for many years been treated as a population of the species *Denisonia devisi* Waite and Longman, 1920 or occasionally as aberrant *D. maculata* (Steindachner, 1867). Distributionally and physically, these snakes sit more-or-less between the two.

Denisonia devisi is primarily an inhabitant of black soil river flats associated with the Darling River and Northern Lake Eyre basins in inland Eastern Australia. *D. maculatus* is an inhabitant of Eastward flowing drainages in the dry zone between the south-east and North east Queensland wet zones, principally the Fitzroy and Burdekin River systems.

This newly described taxon, *Denisonia gedyei* sp. nov. is primarily an inhabitant of the Flinders River system, draining into the Gulf of Carpentaria and may be more widely distributed than current museum records indicate.

Keywords: Taxonomy; *Denisonia*; new species; *gedyei*; Queensland; Australia; elapid; snake; *devisi maculatus*; Flinders River; Gulf of Carpentaria.

INTRODUCTION

As part of a study of Australian snakes spanning more than 40 years, the genus *Denisonia* Krefft, 1869 was scrutinized in detail. In the 1970's I became the first person known to have bred them in captivity, this being the breeding of a pair of *D. devisi* originally caught from north-west of Nevertire in western New South Wales.

Capture of specimens of both recognized species of *Denisonia*, namely *D. devisi* Waite and Longman, 1920 and *D. maculatus* (Steindachner, 1867) by myself and others indicated regional variation. This appeared to be mainly of a clinal nature.

However specimens from the region between Mount Isa and Charters Towers in Queensland appeared to be intermediate between the two recognized species and no clines between these and the other two recognized taxa were known.

D. devisi is found south of this area, while *D. maculatus* is found to the east and south-east.

As recently as 2014, Cogger (2014) stated that the only obvious difference between the two species was the presence or absence of bands on the body of either taxon, although the bands on aged specimens of *D. devisi* are sometimes hard to detect, but appear to always be present. Scalation and other characteristics were identical for both species, although Cogger (2014) reported average maximum size of the species being marginally different, but of no diagnostic help in separating the taxa.

As mentioned in the abstract, *Denisonia devisi* is primarily an inhabitant of black soil river flats associated with the Darling River and Northern Lake Eyre basins in inland Eastern Australia. *D. maculatus* is an inhabitant of Eastward flowing drainages in

the dry zone between the south-east and North east Queensland wet zones, principally the Fitzroy and Burdekin River systems.

This newly described taxon, *Denisonia gedyei* sp. nov. described below is primarily an inhabitant of the Flinders River system, draining into the Gulf of Carpentaria and may be more widely distributed than current museum records indicate.

Names applied to the other two species of *Denisonia* as listed in Cogger *et al.* (1983) are not available for this newly described taxon. These unavailable names are, "*Hoplocephalus ornatus*" De Vis (1884), "*Denisonia ornata*" Krefft (1869) and "*Hoplocephalus muelleri*" Fischer (1885).

Were it not for the distributional differences between the known populations (in separated drainage basins) and the knowledge that *Denisonia* is a uniquely distinctive genus of snake, both morphologically, as seen by the account in Cogger (2014), or by phylogeny e.g. Pyron *et al.* (2013), a strong case could be mounted to treat all *Denisonia* as belonging to a single and variable species, with the three relevant populations being treated as geographical subspecies.

While it is possible that a molecular study of population samples from across the range of the genus may yield cryptic species, these being most likely in populations of *D. devisi*, it is clear that a third form from North-west Queensland is sufficiently distinct as to warrant being treated as its own taxonomic entity.

Being distributionally and reproductively isolated from the other two recognized species and easily diagnosed and separated from the others on the basis of colouration and patterning, with no known intermediates, in spite of inspection of specimens from close localities on the relevant boundaries for each form, I have no hesitation in formally naming this taxon as a new

species, namely *Denisonia gedyei* sp. nov.

The formal description follows.

As a passing note, I should add that further survey work will almost certainly yield further populations of *D. devisi* in parts of the Lake Eyre drainage basin, in areas where to date none have been seen or collected, as well as parts of the Murray Darling basin, that have yet to see specimens collected.

DENISONIA GEDYEI SP. NOV.

Holotype: A preserved specimen at the Museum and Art Gallery of the Northern Territory, Reptile Collection, catalogue number R36392, from Julia Creek in north-west Queensland, Latitude - 20.667, Longitude 141.633.

The Museum and Art Gallery of the Northern Territory is a publicly owned facility that allows access to specimens.

Diagnosis: *Denisonia gedyei* sp. nov. is most similar to the two currently recognized species of *Denisonia* as defined by Cogger (2014) and matches the genus diagnosis in that text.

Denisonia gedyei sp. nov. is separated from both other species in that genus (*Denisonia*) by the following characters:

There is banding or similar on the neck and/or forebody, and well past the nape, but not on the majority of the body or tail which is clearly unmarked. In *D. maculata* there is no banding or similar at all on the neck or body beyond the nape. In *D. devisi*, there is banding or similar along the length of the entire body, which may or may not include the tail, noting that the tail will invariably have at least a few patches of dark pigment on the dorsal surface, which is not seen in *D. gedyei* sp. nov. or *D. maculata*.

Within the constraints of the above, the three relevant species are characterised and separated from one another as follows:

D. gedyei sp. nov. has from 2 to 12 distinctive bands on the upper neck region, which fade to merge into a dorsal body pattern of one colour, characterised by being a brownish colour, with each scale containing a distinctive dark brown or black patch in the anterior section. The tail is distinctly lighter.

D. maculata does not have 2-12 distinctive bands on the upper neck and while scales may be darker anteriorly than posteriorly, this is neither obvious or distinctive, in that the body appears at a glance to be of one colour only.

D. devisi has a dorsal body pattern consisting of fairly distinct bands or broken bands along the entire length of the body. In some specimens, the bands become skewed to give another form of pattern, but the distinctive body pattern, as opposed to the one colour body scheme of the other two species remains. This remains the case even in faded and older specimens (e.g. as seen on page 85 of Emmott and Wilson 2009).

D. gedyei sp. nov. has distinctive white barring of the upper labials, a trait sometimes, but not always seen in the other two species.

D. gedyei sp. nov. and *D. maculata* both possess a tail that dorsally is distinctly lighter in colour than the adjacent body. While this sometimes occurs in *D. devisi*, the latter taxon is separated from the other two by patches of dark pigment on a lighter background, versus a one colour tail in the other two (see typical *D. devisi* at top of page 145 of Hoser 1989).

Distribution: Known only from the vicinity of Julia Creek, Richmond and Hughenden in mid-north-west Queensland, Australia in the upper reaches of the Flinders River system where it is found immediately in or adjacent to watercourses either under cover by day or active at night. This system drains into the Gulf of Carpentaria and there is a lot of potentially suitable habitat for this taxon north of where it is currently known from. I recommend that fieldwork be conducted in the relevant areas to determine the presence or absence of the taxon here.

That *Denisonia gedyei* sp. nov. appears to be confined to drainages associated with the Flinders River system was confirmed via inspection of specimens from nearby major drainages, these being the upper Darling system, upper lake Eyre drainages and the Burdekin/Fitzroy River systems. Specimens from near Winton appear to conform with typical *D.*

devisi, while those from the Burdekin system appear to conform with typical *D. maculata*.

ETYMOLOGY AND RELEVANT NOMENCLATURE COMMENTS

Named in honour of Andrew Gedye, in recognition of his excellent work with reptiles spanning many decades. His main activity has been in the captive breeding of many rare and potentially threatened species as well as many months of extensive fieldwork in all parts of mainland Australia.

He currently lives in a suburb of Cairns, Queensland.

The subgenus *Geddykukrius* Hoser, 2012 was also named after Andrew Gedye, and herein as first reviser and original author, I note the following: The spelling of Andrew's surname Gedye was incorrect in that paper. Notwithstanding this and in order to maintain stability of nomenclature, the nomen *Geddykukrius* Hoser, 2012 should retain the original spelling as in the original paper.

Similarly in 2014, I named a taxon *Broghammerus reticulatus mandella* subsp. nov., repeatedly mis-spelling the name Nelson Mandela and/or as a result the patronym *mandella*.

I thank the taxonomic vandal, thief and law-breaker Mark O'Shea for pointing out this error on numerous online forums and while much of what Mr. O'Shea has done is beneath contempt and most of what he has written and said about me has been totally untrue, he was within his rights to point out my error in this case and I thank him for this.

Post publication peer (and non-peer) review is as important as that which occurs prior to publication and accuracy of publications and noting of any errors are both paramount goals which should not be subsumed or ignored on the basis of ego, or an author foolishly refusing to admit error when one has been committed.

Notwithstanding the above, and while acknowledging the spelling errors in the first instance, for the same reasons as given for *Geddykukrius* Hoser, 2012, and invoking the same rights as per the International Code of Zoological Nomenclature, the nomen spelling *Broghammerus reticulatus mandella* Hoser, 2014 should not have the original spelling changed.

This paper may be cited as the basis for retention of spelling in both cases.

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CONFLICT OF INTEREST

The author has no relevant conflicts of interest.