

A second new *Tropidechis* Günther, 1863 from far north Queensland (Squamata: Serpentes: Elapidae).

RAYMOND T. HOSER

488 Park Road, Park Orchards, Victoria, 3134, Australia.

Phone: +61 3 9812 3322 Fax: 9812 3355 E-mail: snakeman (at) snakeman.com.au

Received 2 February 2016 Accepted 12 March 2016, Published 1 August 2016.

ABSTRACT

The Australian Rough-scaled Snakes *Tropidechis* Günther, 1863, were formally divided by Hoser (2003) into two divergent species. These were the long-recognized *T. carinatus* (Krefft, 1863) from northern New South Wales and south-east Queensland, and the population from the wet tropics of far north-east Queensland, formally named as *T. sadlieri* Hoser, 2003.

The two species are separated by a straight line distance of about 1,000 km at their closest points.

Inspection of further specimens from the wet tropics has yielded two morphologically distinct and geographically isolated populations in the area. The nominate form of *T. sadlieri* is from the southern wet tropics, this area being Mount Spec in the south to Bellenden Ker, just south of Cairns in the north. The as yet unnamed population is found in the northern wet tropics in the region from Julatten/Mount Lewis in the south to at least the Windsor Tableland/Thornton Peak area in the north.

It is herein formally named as *T. jessejacksoni* sp. nov. in honour of Jesse Louis Jackson, Sr. a well-known American civil rights activist, Baptist minister, and politician, in recognition of his lifetime's struggle for the basic human rights for non-white citizens of the United States of America.

The taxon is named in accordance with the provisions of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

Keywords: Taxonomy; Snakes; North Queensland; Queensland; Australia; wet tropics; northern wet tropics; Mount Lewis; Cairns; Julatten; Windsor Tableland; *Tropidechis*; *carinatus*; *sadlieri*; new species; *jessejacksoni*.

INTRODUCTION

Following some years of field research, inspection of numerous live specimens in captivity and inspection of *Tropidechis* holdings in the Melbourne, Sydney and Brisbane Museums, Hoser (2003) divided the two widely disjunct populations of the Rough-scaled Snake *Tropidechis carinatus* (Krefft, 1863) into two species. Until then, *Tropidechis* Günther, 1863 had been treated by all herpetologists as being monotypic for the one species.

The most obvious differences between the southern taxon from south-east Queensland and north-east New South Wales and the putative northern species from the wet tropics of north-east Queensland, were spelt out by Hoser (2003) in the formal description of *T. sadlieri* Hoser, 2003.

Notwithstanding the unscientific denials of the obvious by a band of thieves known as the Wüster gang, who as of end 2015 were still denying the existence of the taxon *T. sadlieri* as detailed on the website the gang control called the "Reptile Database" at <http://reptile-database.reptarium.cz/species?genus=Tropidechis&species=carinatus>, which as of 12 December 2015 stated "Synonymy: *Tropidechis sadlieri* is probably a synonym of *T. carinatus* (Wilson & Swan 2008, Wüster, pers. comm., 15 Dec 2010)."; the specific status of *T. sadlieri* has been near universally recognized by Australian herpetologists since the date of the original description.

By way of corroboration, I merely note that no other single rainforest obligate species has a distribution that includes and is restricted to south-east Queensland/Northern New South Wales rainforests and those of the north Queensland wet tropics. Those species long thought of as inhabiting both regions (e.g. *Phyllurus cornutus* Ogilby, 1892, a species more recently transferred to the genus *Saltuarius* Couper, Covacevich and Moritz, 1993), was split into several species some years back as detailed in Cogger (2014).

An audit of rainforest obligate species in the wet tropics of Australia, by myself in the period post-dating the 2003 description of *T. sadlieri*, has found many putative species from the region being actually composite. This has usually been a situation of two species, one in the southern wet tropics and another in the northern wet tropics, separated by a gap zone sited in the general area between Cairns in the south and Julatten/Mount Lewis in the north.

Some of these putative species as identified by Cogger *et al.* (1983) that I have found to be actually two and divided by this barrier include *Saltuarius cornutus* Ogilby, 1892 (the southern population being the nominate form), *Carphodactylus laevis* Günther, 1897 (the southern population being the nominate form) and *Gnypetoscincus queenslandiae* (De Vis, 1890) (the southern population being the nominate form) for all of which

molecular evidence is available and which confirms species level divergences.

With this in mind, putative *T. sadlieri* were revisited to see if A/ These snakes were divided by the same barrier and B/ If snakes on either side of the gap were the same or different.

These were the two questions asked (or hypotheses to be tested) and the answers were arrived at in the first instance by simple checking of the Museum databases to see where specimens had been found.

Notwithstanding the ability of snakes such as *Tropidechis* species to hitch rides from place to place and so be caught and recorded from locations that they do not originate from, the Museum databases for Australian holdings showed the well defined gap from Cairns to Julatten/Mount Lewis having an absence of specimens.

Not one single animal had been either lodged in a museum, or reported on other specimen databases by way of "human observation" or the like.

While this could be attributed to non-collection in this zone, this is thought unlikely due to the regular fieldwork in the area and significant human presence in the region, but not of such a degree as to exterminate such snakes if present.

Of relevance also is the active capture and removal of all local species of snakes by government licensed snake handlers from properties in the area, which again has failed to yield a single *Tropidechis* specimen.

Due to the nature of the job of snake catchers in a given area and that over time, all locally occurring species are found and caught by the snake catchers, the non-capture of *Tropidechis* in the relevant gap zone, implies in the strongest possible terms of a genuine absence.

As for the snakes themselves, while the number of specimens from the northern wet tropics was small (I was only able to inspect less than ten in total), versus about 30 from the southern wet tropics (still a small number), the differences between both groups was stark and consistent, as most readily evidenced in the configuration of the labial scales. With these being a conservative character in terms of morphological evolution, it is clear that the two populations have been separated for an extended geological period and not just the beginning of the most recent interglacial about 12,500 years ago.

Being aware of the fact that for most of the Pleistocene, the climate in the region has been drier and that *Tropidechis* is in the normal course of events a rainforest obligate species, it is likely that the range of these snakes in north Queensland has expanded in the recent past (last 12,500 years), rather than contracted and that the affected populations have been isolated over a time line similar to that indicated by the molecular evidence for the relevant Carphodactylidae species as outlined by Couper, Covacevich and Moritz (2000) or for putative *Gnypetoscincus queenslandiae* as detailed by Moritz *et al.* (1993).

For putative *Gnypetoscincus queenslandiae* Moritz *et al.* (1993) found the two populations diverged over 5 million years ago. Significantly and in spite of presumed Holocene expansion of the two *Tropidechis* populations in north Queensland, they have not yet met and so remain isolated from one another and continue to evolve as separate species.

On the basis of the obvious differences between the two populations of these snakes and continued isolation of each, I have absolutely no hesitation in naming the northern population as a new species.

Of peripheral relevance and noting the ability of snakes in general to traverse substantial distances, including others within the broader so-called "Notechis clade" as outlined by Sanders *et al.* (2008) and the four relevant sources cited therein, of which *Tropidechis* is part, the question I was not able to answer was why these snakes have been apparently unable to breach the

gap between the two populations.

I am presuming it is more likely to be a predator in the lowlands or drier habitats, as opposed to thermal or other properties of the intervening habitat itself. However the inability of *Tropidechis* to breach dry zones between habitats is evident also in the southern population from south-east Queensland and nearby New South Wales.

Many rainforest obligate species and genera of reptiles and frogs (e.g. *Adelynhosersaur* Hoser, 2013, *Mixophyes* Günther, 1864), were able to cross the dry zone of the Hunter Valley in New South Wales, to be able to inhabit rainforests, south of here, thus occupying both sides of this gap as indicated by the relevant distribution information in Hoser (1989) and/or Cogger (2014). However *Tropidechis* was unable to do so, only being found north of this gap and not in areas of suitable habitat to the south (Hoser 1989, Cogger, 2014).

Hence I have no doubt as to the effectiveness of the barrier between the southern wet tropics population and the northern wet tropics populations of *Tropidechis* in the recent geological past, including in the period preceding the most recent interglacial.

Also of relevance to this paper and the diagnosis of the new species, I must mention a significant error in my book *Australian Reptiles and Frogs* (Hoser, 1989).

On page 173 at the top right hand corner, I produced a photo captioned "Rough-scaled Snake *Tropidechis carinatus* (Jellaten, QLD)."

The town "Jellaten" is in fact spelt "Julatten", but that is not a serious error as the mistake is obvious and so no confusion is likely to have occurred.

The taxonomy used, reflected that at the time and as the book was not about changing taxonomy or nomenclature, the identification of the snake as "*Tropidechis carinatus*" was also in order.

More significantly the snake depicted is almost certainly NOT from Julatten as indicated. This I know as the head scalation does not conform with those from Julatten, but rather it conforms to the southern wet tropics form instead, defined herein as *T. sadlieri*. The northern wet tropics form from Julatten has different scalation as outlined in the formal description of the new species below.

As to how the errors occurred, an explanation is required.

The snake photographed was in a cage at the private home of a Mr. Michael Cermak, who at the time when the photo was taken in early 1983 lived at Manunda, Queensland.

He advised me of the alleged collection locality of the snake and wrote down the spelling of "Jellaten" on a piece of paper, both of which were later transcribed to the slide mounts and then into the book when it was published 6 years later.

It has since emerged that Mr. Cermak is at best described as unreliable, or perhaps better described as complete liar and crook. To this end, he has established a reputation for making false and unreliable statements for his own commercial purposes. In recent years (2010-2016) he has regularly made wild and ridiculous claims on social media (e.g. Facebook), meaning that any information that may now be volunteered by Cermak about the relevant snake would have to be dismissed as unreliable in any event.

While I could guess that the relevant snake came from a third party and hence Cermak may not have even known where it came from, this is speculation only. He may have caught it himself!

The only thing about the snake that is certain as of end 2015 is that it is 1/ A north Queensland *Tropidechis* and 2/ It is almost certainly NOT from Julatten in Queensland.

These facts need to be made known here as the relevant photo published in Hoser (1989) has also been published on the internet since and reposted widely. People should be made

aware of the error as they should not get the misguided idea that it is a typical example of the newly described species *T. jessejacksoni* sp. nov. when it is not.

I also note that, notwithstanding the theft of relevant materials from this author in an illegal armed raid on 17 August 2011, which were not returned in breach of undertakings to the court (Court of Appeal Victoria 2014 and VCAT 2015), I have made a decision to publish this paper.

This is even though significant data on specimens of all three relevant species gathered over some decades were unlawfully taken and never returned.

This is in view of the conservation significance attached to the formal recognition of unnamed taxa and on the basis that further delays may in fact put the new previously unnamed species at greater risk of extinction.

This comment is made noting the extensive increase in human population in Australia and the general environmental destruction across the continent as documented by Hoser (1991), including low density areas without a large permanent human population.

I also note the abysmal environmental record of Australian governments in the past 200 years as detailed by Hoser (1989, 1991, 1993 and 1996).

TROPIDECHIS JESSEJACKSONI SP. NOV.

Holotype: A preserved specimen in the Queensland Museum, Brisbane, Queensland, Australia, specimen number: J71451, collected at Picaninny Ck, Windsor Tableland, North Queensland, Australia, Latitude -16.20, Longitude 144.97. The Queensland Museum, Brisbane, Queensland, Australia, is a government-owned facility that allows access to its holdings.

Paratypes: Three preserved specimens in the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers: J41526 and J52857 collected at Mount Lewis, via Mount Molloy, North Queensland, Australia, Latitude -16.58, Longitude 145.28 and the third preserved specimen collected 16km from Mount Molloy on the Mount Lewis Road, North Queensland, Australia, Latitude -16.58, Longitude 145.22.

Diagnosis: The three species of *Tropidechis* Günther, 1863 are readily separated from one another on the basis of head scalation.

In the absence of reliable locality data, the simplest way to separate the three species (*carinatus* Günther, 1863 versus *sadlieri* Hoser, 2003 and *jessejacksoni* sp. nov.) is by a cursory look at the frontal scale. In *T. carinatus* this scale is always widest at the front point where it joins the supraoculars (on each side) at the point where the front border of the supraocular runs towards the sides of the head and borders the prefrontals. For *T. sadlieri* and *T. jessejacksoni* sp. nov. the frontal shield is widest where it joins the supraoculars at the point where the supraoculars join the parietal shields. Rarely, in *T. sadlieri* and *T. jessejacksoni* sp. nov., these two measurements are more-or-less the same, but still the front point is not distinctly wider as in *T. carinatus*.

The best way to see this (in the first instance) is by comparative observation of the relevant head shields of specimens of both species, or by looking at photos of the same.

T. carinatus is also separated from *T. sadlieri* and *T. jessejacksoni* sp. nov. by the nasal scale's properties. In *T. sadlieri* and *T. jessejacksoni* sp. nov. this scale is generally more circular in form and lacks a distinct bulging back as in *T. carinatus*. The nasal in *T. sadlieri* and *T. jessejacksoni* sp. nov. still has a raised surface posterior to the nostril.

Once again, the best way to see this (in the first instance) is by comparative observation of the relevant head shields of specimens of the three species, or by looking at photos of the same.

All three *Tropidechis* species can be readily separated from one another by the upper labial scales.

In all species in the normal situation there are seven on each

side, unless any are abnormally fused, this being obvious when it occurs by the scale being abnormally elongated (laterally) as compared to the others when viewed laterally.

Labial number 6 (heading in a posterior direction) in *T. jessejacksoni* sp. nov. either does not touch the jawline, being cut off by labials 5 and 7, or if it does, it does so only just and at a very narrow point. By contrast in both *T. sadlieri* and *T. carinatus*, labial 6 is more-or-less normal in that it is squarish and abuts the jawline by a normal wide boundary (as opposed to being diamond-shaped in *T. jessejacksoni* sp. nov.).

Limited numbers of *T. carinatus* from the Mount Glorious area in South East Queensland, do have labial 6 tending towards being diamond-shaped, but in these snakes, the lower boundary sits on the jawline by a wide section and so cannot be confused with *T. jessejacksoni* sp. nov..

The front upper labials, those being between the eye and the nasal are relatively short in *T. carinatus*. In that species, the result is that the suture line running along the top of these scales runs into the lower part of the nasal scale, running more-or-less continuous with the lower line, as opposed to joining midway between the upper and lower line of the nasal.

In both *T. sadlieri* and *T. jessejacksoni* sp. nov. the same upper labials are higher and as a result the suture line running along the top of these scales runs into mid part of the nasal scale, running more-or-less continuous with the middle of the scale and not with either the upper or lower line.

The shape of the preocular in *T. carinatus* is squarish, versus irregular in *T. sadlieri* and *T. jessejacksoni* sp. nov..

The nasal scale, past the nostril is heavily reduced in *T. jessejacksoni* sp. nov. being tiny in that section, versus being of similar size, both front and behind the nostril in both *T. sadlieri* and *T. carinatus*, although slightly smaller posteriorly than anteriorly.

The genus *Tropidechis* is defined as follows: A dangerously venomous genus of snakes (Gow 1983, Trinca, Craydon, Covacevich and Limpus 1971). The venom is not only strongly neurotoxic, but it also affects the blood and causes severe muscle damage (Gow 1983).

It is generally separated from all other Australian elapids by its strongly keeled scales along all or most of its body (Cogger 2000). Unlike Death Adders (Genus *Acanthophis*) which may sometimes have strongly keeled scales (particularly on the head and forebody) this species does not have a tail that terminates in a well-defined spine.

Attaining an average adult length (total) of between .75 and 1 metre, more than one death has been attributed to *Tropidechis*, including the case of a 59 year old man dying within 5 minutes after being bitten 3 times on the hand.

The natural history of the species is discussed by Beard (1979). Male combat has not been recorded in *Tropidechis* to date.

However based on the fact that adults are of similar size and that Shine (1991) reported a sample of males being on average a miniscule amount longer than a similar sample of females, the possibility of male combat in *Tropidechis* should not be discounted (Hoser 2003).

Distribution: The Northern Wet tropics of Queensland, Australia in an area bounded by Julatten/Mount Lewis in the south to at least the Windsor Tableland/Thornton Peak area in the north.

Tropidechis sadlieri Hoser, 2003 is confined to the Southern Wet Tropics of Queensland, Australia in the area from Mount Spec in the south to Bellenden Ker, just south of Cairns in the north and including the Atherton Tableland. *Tropidechis carinatus* is found in a broad zone stretching from the wet northern parts of the Sunshine Coast in Queensland, south through the wetter ranges and nearby areas to the dry zone of the Hunter Valley in the mid north coast of New South Wales and including Barrington Tops north-west of there.

Etymology: Named in honour of Jesse Louis Jackson, Sr. a well-known American civil rights activist, Baptist minister, and

politician, in recognition of his lifetime's struggle for the basic human rights for non white citizens of the United States of America, a battle he has unfortunately not come even close to winning, which is a fact that should make people of all racial backgrounds ashamed.

REFERENCES CITED

- Beard, D. J. 1979. Rough-scaled snake, *Tropidechis carinatus*. *Herpetofauna* 10:26-28.
- Cogger, H. G. 2000. *Reptiles and Amphibians of Australia* (sixth edition), Reed/New Holland, Sydney, Australia:808 pp.
- Cogger, H. G. 2014. *Reptiles and Amphibians of Australia*, 7th ed. CSIRO Publishing, Australia:xxx+1033 pp.
- Cogger, H. G., Cameron, E. E. and Cogger, H. M. 1983. *Zoological Catalogue of Australia (1): Amphibia and Reptilia*. Australian Government Publishing Service, Canberra, ACT, Australia:313 pp.
- Couper, P. J., Schneider, C. J., Hoskin, C. J. and Covacevich, J. A. 2000. Australian leaf-tailed geckos: phylogeny, a new genus, two new species and other new data. *Memoirs of the Queensland Museum* 45(2):253-265.
- Court of Appeal Victoria. 2014. Hoser v Department of Sustainability and Environment [2014] VSCA 206 (5 Sept).
- de Vis, C. W. 1886. On certain geckos in the Queensland Museum. *Proceedings of the Linnean Society of New South Wales* (2)1(1):168-170.
- Gow, G. F. 1983. *Snakes of Australia* (revised edition), Angus and Robertson, Sydney, Australia:118 pp and 48 plates.
- Günther, A. 1864. Third contribution to our knowledge of batrachians from Australia. *Proceedings of the Zoological Society of London* 1864:46-49 [46, pl. 7 fig. 1].
- Günther, A. 1897. Descriptions of new species of lizards and of a treefrog from north-eastern Queensland. *Novitates Zoologicae, Zoological Museum, Tring*, 4:403-406.
- Hoser, R. T. 1989. *Australian Reptiles and Frogs*. Pierson and Co., Mosman, NSW, 2088, Australia:238 pp.
- Hoser, R. T. 1991. *Endangered Animals of Australia*. Pierson Publishing, Mosman, NSW, 2088, Australia:240 pp.
- Hoser, R. T. 1993. *Smuggled: The Underground Trade in Australia's Wildlife*. Apollo Publishing, Moss Vale, NSW, Australia:160 pp.
- Hoser, R. T. 1996. *Smuggled-2: Wildlife Trafficking, Crime and Corruption in Australia*. Kotabi Publishing, Doncaster, Victoria, Australia:280 pp.
- Hoser, R. T. 2003. The Rough-scaled Snakes, Genus: *Tropidechis* (Serpentes:Elapidae), including the description of a new species from far north Queensland, Australia. *Crocodylian - Journal of the Victorian Association of Amateur Herpetologists* 4(2):11-14. (August 2003).
- Hoser, R. T. 2013. A seven way division of the Amphibolurinae (Squamata: Sauria: Agamidae). *Australasian Journal of Herpetology* 21:33-36.
- Moritz, C., Joseph, L. and Adams, M. 1993. Cryptic diversity in an endemic rainforest skink (*Gnypetoscincus queenslandiae*). *Biodiversity and Conservation* 2:412-425.
- Ogilby, J. D. 1892. Descriptions of three new Australian lizards. *Records of the Australian Museum* 2:6-11.
- Ride, W. D. L. (ed.) et al. (on behalf of the International Commission on Zoological Nomenclature) 1999. *International code of Zoological Nomenclature* (Fourth edition). The Natural History Museum - Cromwell Road, London SW7 5BD, UK.
- Sanders, K. L., Lee, M. S. Y., Leys, R., Foster, R. and Scott Keogh, J. 2008. Molecular phylogeny and divergence dates for Australasian elapids and sea snakes (hydrophiinae): Evidence from seven genes for rapid evolutionary radiations. *Journal of Evolutionary Biology* 21:682-695.
- Trinca, J. C., Craydon, J. J., Covacevich, J. and Limpus, C. 1971. 'The rough-scaled snake (*Tropidechis carinatus*) a dangerously venomous Australian Snake', *Medical Journal of Australia*:801-809.
- Uetz, P. 2015. Webpage at: <http://reptile-database.reptarium.cz/species?genus=Tropidechis&species=carinatus> downloaded on 12 December 2015.
- Victorian Civil and Administrative Tribunal (VCAT). 2015. *Hoser v Department of Environment Land Water and Planning* (Review and Regulation) [2015] VCAT 1147 (30 July 2015, judgement and transcript).
- Wilson, S. and Swan, G. 2008. *A complete guide to reptiles of Australia*. New Holland Publishers, Sydney, Australia:512 pp.

CONFLICT OF INTEREST

The author has no known relevant conflicts of interest.

Australasian Journal of Herpetology ®

Publishes original research in printed form in relation to reptiles, other fauna and related matters, including the subjects of classification, ecology, public interest, captivity, "academic misconduct", etc. It is a peer reviewed printed journal published in hard copy for permanent public scientific record in accordance with the *International Code of Zoological Nomenclature* (Ride et al. 1999), with a sizeable print run and has a global audience.

Full details of acquiring copies, either printed or in identical form online, editorial policies, publication procedure, author submission guidelines, peer review guidelines, legal matters, advantages of publication in this journal and the like can be found by following links from:

<http://www.herp.net>

Published by Kotabi Pty Ltd
PO Box 599
Doncaster, Victoria, 3108.
Australia.

Copyright. All rights reserved.

Online journals (this issue) do not appear for a month after the actual and listed publication date of the printed journals. Minimum print run of first printings is always at least fifty hard copies.

ISSN 1836-5698 (Print)
ISSN 1836-5779 (Online)