Australasian Journal of Herpetology 36:24-27.
Published 30 March 2018.

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

Morelia cliffrosswellingtoni sp. nov., yet another new species of Carpet Python from Australia and other significant new information about Australian pythons, their taxonomy, nomenclature and distribution.

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Received 1 Dec 2017, Accepted 13 Dec 2017, Published 30 March 2018.

ABSTRACT

This paper provides updates to the taxonomy and nomenclature of Australian pythons, including in relation to the distribution of well-known forms and taxa to be current to 2018.

Some of the new information is contrary to widely published earlier material by numerous authors and so is significant for many herpetologists who work with Australian pythons.

The so-called intergrade between Diamond Pythons *Morelia spilota* (Lacepede, 1804) of coastal New South Wales and nearby north-east Victoria and Carpet Pythons *Morelia macdowelli* Wells and Wellington, 1984 from north-east New South Wales and Southern Queensland (as detailed by Hoser, 1989), has been studied at length over some decades and has been found to be a distinctive species level taxon.

It is therefore formally named according to the ICZN rules (Ride *et al.* 1999) for the first time.

Morelia cliffrosswellingtoni sp. nov. is the form of Diamond/Carpet Python found in a coastal region bounded by the Hunter Valley in the south and Bellinger River in the north, where at the northern boundary of its range it appears to occur sympatrically with *M. macdowelli.*

Published DNA evidence by Ciavaglia *et al.* (2014), also revealed the validity of the taxon described herein, including that it is not a hybrid or intergrade between the other two.

Ciavaglia *et al.* (2014) also confirmed the validity of the species level taxon *Morelia cheynei* Wells and Wellington 1984. However its range includes a wider region than stated by previous authors, including Wells and Wellington (1984) who thought the taxon was confined to the Atherton Tablelands, south-west of Cairns in Queensland. It does in fact include the Australian wet tropics and drier regions to the south in a zone ranging from at least Mackay in the south to Tully (Atherton Tableland) in the north.

This confirms that *M. cheynei* is a phenotypically diverse species.

The taxon *Morelia harrisoni* Hoser, 2000 from southern New Guinea was shown by Ciavaglia *et al.* (2014) to also occur in the dry zone of Cape York Peninsula, Queensland, Australia at least as far south as the northern wet tropics at Cape Tribulation, making it a newly recognized Australian taxon. The species *M. harrisoni* was also confirmed as separate to *M. variegata* (Gray, 1842) by the data of Ciavaglia *et al.* (2014).

The validity of *M. wellsi* Hoser, 2012 was also confirmed by the data of Ciavaglia *et al.* (2014).

Ciavaglia *et al.* (2014) also confirmed that there are two taxonomic groups of Scrub Python *Australiasis* Wells and Wellington, 1984 in Australia, these being *A. kinghorni* (Stull, 1933) from the southern wet tropics, and *A. amethistina* (Schneider, 1801) from the northern wet tropics to Torres Strait (and southern New Guinea), based on first available names.

The taxon name *A. clarki* (Barbour 1914) is a junior synonym of *A. amethistina.* This correction based on new evidence from 2014 renders previous use of the nomen *clarki* to describe any Scrub Pythons invalid.

Based on the DNA evidence provided by Ciavaglia *et al.* (2014), the taxon originally described as *Chondropython viridis adelynhoserae* Hoser, 2009 from South-eastern PNG, should be recognized as a full species.

Keywords: Python; taxonomy; nomenclature; Australia; snake; Hoser; Wells; Wellington; *Morelia*; *cheynei*; *spilota*; *variegata*; *wellsi*; *harrisoni*; *imbricata*; *bredli*; *metaclfei*; *macdowelli*; *mippughae*; Australiasis; *amethistina*; *clarki*; *Chondropython*; *viridis*; *adelynhoserae*; new species; *cliffrosswellingtoni*; New South Wales.

INTRODUCTION

For decades it has been taken as gospel by herpetologists that Diamond Pythons and Carpet Pythons hybridized in a zone where the ranges of both species allegedly abutted (e.g. Worrell 1970, Hoser 1989).

This has remained the position of most if not all herpetologists predating the publication of this paper.

However, several factors did over time lead me to doubt this proposition.

One was the width of the zone of alleged hybridization, which appeared to span a straight line distance in excess of 100 km, making it perhaps the widest known zone of reptile taxa hybridization in the world. Included in this zone was a relative homogeneity of colouration, with true Diamond Pythons *Morelia spilota* (Lacepede, 1804) taking over abruptly south of the Hunter Valley intrusion. The same applied in terms of true Coastal Queensland type Carpet Pythons *Morelia macdowelli* Wells and Wellington, 1984 from about Coffs Harbour and north of there.

Secondly, in the early 1980's Dr. David Sheumack at Macquarie University received three large Carpet Pythons from the Bellinger River in northern New South Wales, which I inspected and photographed.

As those images were stolen in an illegal armed raid by John Cook of the New South Wales National Parks and Wildlife Service (NPWS) in July 1983 and not returned in spite of an undertaking on National Television to do so by his superior officer, John Rex Giles (AK Jack Giles), these are not reproduced in this paper (Hoser 1993).

Two were of the true Carpet Python form *Morelia macdowelli* Wells and Wellington, 1984, while the third was of the so-called intergrade form. Other specimens from the same area were inspected over the following decade and all conformed to the true Carpet Python form *Morelia macdowelli* Wells and Wellington, 1984. There were never

any snakes that could have been described as intergrades of the intergrades.

Thirdly, in August 1993 I was the plenary speaker at the National Reptile Breeders Expo at Orlando Florida, USA which at the time was the largest ever gathering of herpetologists and reptile breeders in history.

There and at several breeder's facilities I visited in Florida, such as Tom Crutchfield enterprises, I saw numerous hybrid Diamond/Carpet Python crosses, these being direct crosses of Diamond Pythons *Morelia spilota* (Lacepede, 1804) and Carpet Pythons *Morelia macdowelli* Wells and Wellington, 1984 and none of them looked anything remotely like the wild so-called intergrades from northern New South Wales.

The Diamond/Carpet crosses in the USA, were invariably strongly banded, reminiscent of so-called Jungle Carpet Pythons *Morelia cheynei* Wells and Wellington, 1984, with many being improperly sold as these to maximize profits.

The so-called intergrades from northern New South Wales, are best described as a "high-yellow" form of Diamond Python, with a distinctive pattern of large yellow dorsal blotches of size and brightness never seen in specimens south of the Hunter Valley and no pattern on the body that in any way resembles the strongly marked plain coloured scale markings seen in *Morelia macdowelli.*

This implied that the so-called intergrades were not in fact hybrid snakes, but rather, they were something entirely different, as in a species level taxon.

Fourthly a perusal of museum ascension records for specimens at the Australian Museum in Sydney, showed a relative gap in specimens in an east-west area north of the Hunter Valley from the coast, stretching inland, with specimens in the region north of there (including ranges, such as Barrington Tops) being of the so-called intergrade form. There was simply no zone of intergradations between Diamond Pythons *Morelia spilota* (Lacepede, 1804) and this so-called intergrade form.

At the northern periphery of the range of the so-called intergrades, there is a fairly abrupt shift from this form to the so-called true *Morelia macdowelli* although as already noted, the two forms appear to co-exist in the region of the Bellinger River, based on specimens received at Macquarie University in the early 1980's.

This again implied that the so-called intergrades were in fact a separate species-level taxon.

Due to the geographical location of these so-called intergrades being between the ranges of *Morelia spilota* and *Morelia macdowelli* and a general perception that their colour is intermediate between the two, I was loathe to taxonomically recognize a form that may ultimately prove to be nothing more than a hybrid or cline between two other forms, which to many authors such as Cogger *et al.* (1983) or Wilson and Swan (2017) were all of one species.

Finally, the publication of a paper by Ciavaglia *et al.* (2014) convinced me that the so-called intergrades were in fact a species level taxon in need of being formally named.

The mitochondrial DNA data presented in their Fig. 3. at page 301, shows a greater divergence between the so-called intergrades and Diamond Pythons *Morelia spilota* than between the intergrades and all of *Morelia metcalfi* Wells and Wellington, 1984, *M. macdowelli* Wells and Wellington, 1984, *M. wellsi* Hoser, 2014, *M. cheynei* Wells and Wellington, 1984, *M. harrisoni* Hoser, 2000 and *M. variegata* (Lacepede, 1804).

While the molecular evidence separating the so-called intergrades from Diamond Pythons *M. spilota* was irrefutable, significant is the fact that morphologically, they are clearly more like *M. spilota* than the other form they are meant to be a hybrid from, namely *M. macdowelli*.

In any event the molecular evidence of Ciavaglia *et al.* (2014) also showed *M. macdowelli* to be more closely related to all of *M. metcalfi*, *M. wellsi,* and *M. cheynei* than it was to the so-called intergrades.

If each of the preceding four taxa warrant species level recognition, it means that the so-called intergrades must also be afforded such recognition (based on their wider divergence), noting that they are not intergrades in any event!

Hence there is a formal description of this newly identified taxon below according to the rules as set out by the ICZN (Ride *et al.* 1999).

FURTHER IMPORTANT INFORMATION REVEALED BY THE DATA OF CIAVAGLIA *ET AL*. 2014.

The paper of Ciavaglia *et al.* (2014) was aimed at providing a molecular means to identify python species with a view to forensic law-enforcement. It was not aimed at resolving issues of taxonomy and nomenclature.

I have done this here based on the data presented in that paper, most notably being that from their table Fig. 3. In keeping with a general ban on using Wells and Wellington or Hoser names, being unlawfully enforced by the so-called Wolfgang Wüster gang, as detailed by Hoser (2007) and Hoser (2015a-f) and sources cited therein, Ciavaglia *et al.* (2014) simply identified their *Morelia* samples as a group under the heading "*M. spilota* complex".

However the resulting phylogeny is clear and identifiable both by stems, lengths of them and location data of specimens, matched with specimen voucher numbers. Hence each can be easily matched with the relevant putative taxa, as I have done here, but significantly was not done by Ciavaglia *et al.* (2014).

Besides convincingly identifying the so-called "intergrades" as a hitherto unnamed species level taxon, the phylogeny presented also validated all or most forms previously identified, recognized and named by Wells and Wellington (1984, 1985) and Hoser (2000, 2012).

From Fig 3. (a) of Ciavaglia *et al.* (2014) the following facts can be elucidated.

Ciavaglia *et al.* (2014) confirmed the validity of the species level taxon *Morelia cheynei* Wells and Wellington 1984. However its range includes a wider region than stated by previous authors, including Wells and Wellington (1984) who stated they thought the taxon was confined to the Atherton Tablelands, south-west of Cairns in Queensland. It does in fact include the Australian wet tropics in a zone ranging from Tully (Atherton Tableland) in the north to a drier region at least as far south as Mackay.

This confirms that *M. cheynei* is a phenotypically diverse species.

The taxon *Morelia harrisoni* Hoser, 2000 from southern New Guinea and at the time it was named (2000) thought to be confined to New Guinea, was shown by Ciavaglia *et al.* (2014) to also occur in the dry zone of Cape York Peninsula, Queensland, Australia at least as far south as the northern wet tropics at Cape Tribulation, making it a newly recognized taxon occurring in a large area within Australia.

The species *M. harrisoni* was also confirmed as separate to *M. variegata* (Gray, 1842) by the genetic data of Ciavaglia *et al.* (2014).

The validity of *M. wellsi* Hoser, 2012 of the Coopers Creek system, was also confirmed by the genetic data of Ciavaglia *et al.* (2014).

Because the results of Ciavaglia *et al.* (2014) have made a significant contribution to the resolution of the taxonomy and nomenclature of Australia's Carpet Pythons, the relevant part of their Fig 3 (a) is reproduced herein, with the insertion of the relevant taxon names alongside each phylogenetic grouping.

It is a phylogenetic tree constructed using the entire *cyt b* gene region.

Noteworthy is that the taxon *M. mippughae* Hoser, 2003 (redescribed by Hoser 2004) from the northern Flinders Ranges in South Australia was tested in Ciavaglia *et al.* (2014) as a specimen from Depot Springs in South Australia. In their Fig 3 (a) it was clearly grouped with *M. metcalfei*, whereas in a second phylogenetic tree constructed from the 278 bp fragment of bases 558-835 inclusive it grouped with *M. wellsi* Hoser, 2012.

In both trees the taxon *M. mippughae* was divergent from others in each group, indicating it should be recognized as a taxonomic unit (valid at the species level).

Morelia macburnei Hoser, 2003 from St. Francis Island, clearly shows as being a junior synonym of *M. imbricata* Smith, 1981 and unless compelling evidence to the contrary emerges, this form should be properly identified as nothing more than a variant of it (as in *M. imbricata* Smith, 1981). In other words *Morelia macburnei* Hoser, 2003 should not be used as a nomen to indentify Carpet Pythons from St. Francis Island, except perhaps as a very weakly defined subspecies.

In other words there are 11 obvious taxonomically recognized forms of Diamond/Carpet Snake in Australasia, all of which occur on continental Australia, with the distribution of just one of these also extending to New Guinea.

Ciavaglia *et al.* (2014) also confirmed that there are two taxonomic groups of Scrub Python *Australiasis* Wells and Wellington, 1984 in Australia, these being *A. kinghorni* (Stull, 1933) from the southern wet tropics, and *A. amethistina* (Schneider, 1801) from the northern wet tropics to Torres Strait (and southern New Guinea), based on first available names.

Significantly, the much maligned Wells and Wellington said exactly that in 1984 and 1985!

The taxon name *A. clarki* (Barbour 1914) is therefore a junior synonym of *A. amethistina*. This correction based on new evidence from 2014 renders previous use of the nomen *clarki* to describe any Scrub Pythons invalid.

Based on the DNA evidence provided by Ciavaglia *et al.* (2014) at Fig. 3, the taxon originally described as *Chondropython viridis adelynhoserae* Hoser, 2009, should be recognized as a full species.

Mitchondrial DNA divergence of this taxon from nominate *C. viridis* (Schlegel, 1872) is greater than between *Australiasis nauta* (Harvey, Barker, Ammerman and Chippindale, 2000), *A. kinghorni* (Stull, 1933) and *A. amethistina* (Schneider, 1801), which are all widely recognized as distinct species in the face of similar DNA evidence in the same paper.

In any event taxonomic recognition of *Chondropython viridis adelynhoserae* Hoser, 2009 conservatively as a subspecies was confirmed as justified by Ciavaglia *et al.* (2014).

Therefore claims of taxonomic vandalism by Kaiser *et al.* (2013) by Hoser (2009) are thoroughly refuted by the evidence of Ciavaglia *et al.* (2014).

MORELIA CLIFFROSSWELLINGTONI SP. NOV.

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number: R.174895, collected at 20km South of Port Macquarie, New South Wales, Australia at Bonny Hills, Latitude -31.57 S., Longitude 152.83 E.

This is a government-owned facility that allows access to its holdings.

Paratype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number: R.160443, collected on the Lake Cathie Road, immediately south of Port Macquarie, New South Wales, Australia, Latitude -31.48 S., Longitude 152.92 E.

Diagnosis: *Morelia cliffrosswellingtoni sp. nov.* has until now been viewed by herpetologists as an intergrade form between Diamond Pythons *Morelia spilota* (Lacepede, 1804) of coastal New South Wales and nearby north-east Victoria and Carpet Pythons *Morelia macdowelli* Wells and Wellington, 1984 from north-east New South Wales and Southern Queensland.

It would be identified in most contemporary texts as a Carpet and/or Diamond Python including as detailed in Hoser (1989) or Cogger (2014).

In colouration, *Morelia cliffrosswellingtoni sp. nov.* is readily separated from all within *Morelia* except *M. spilota* by its Diamond Python colouration, which is best described as follows. The dorsal surface is one of mainly black scales, in which the centre of each is bright yellow to white in colour, the exact colour of the bright spots varying with age and the stage of the shedding cycle. No species within *Morelia* have this trait except for *Morelia cliffrosswellingtoni sp. nov.* and *M. spilota.*

The size of these white or yellow spots is invariably larger and brighter in *Morelia cliffrosswellingtoni sp. nov.* than *M. spilota* except for aberrant or very aged specimens.

M. cliffrosswellingtoni sp. nov. is readily separated from *M. spilota* by having a well defined dorsal pattern of three to five rows of large yellow spots formed by clusters of an average of 8-12 joined all yellow scales. Spots of this size formed by clusters of white or yellow scales do not occur in *M. spilota* which are found south of the Hunter Valley in NSW, or if so, only on one distinctive dorsal row and not 3-5 obvious rows along the body that are both dorsal and on the flanks.

Furthermore the clusters of white or yellow scales (blotches) on both top and flanks of *M. cliffrosswellingtoni sp. nov.* are always surrounded by distinctive black scales, lacking the characteristic yellow or white centres, whereas this is not the case for flank blotches on *M. spilota. M. cliffrosswellingtoni sp. nov.* are characterised by thick black bars of even thickness in the upper labials, formed by a dark etching of the scales, that are otherwise cream or white, versus thin or incomplete bars in *M. spilota.*

M. macdowelli either lack such labial bars (usually the case) or alternatively they are weak and indistinct or incomplete as seen in photo 343 on page 134 of Hoser (1989).
Hoser (1989) contains photos of *M. spilota* at pages 15 and 133.

Photos of *M. cliffrosswellingtoni sp. nov.* are on page 137 (photos 356 and 357) of Hoser (1989).

All conform to the diagnosis of each taxon as given above.

Distribution: This species is a New South Wales endemic. It is found along the coast and nearby wetter ranges in a zone stretching from near Myall Lakes in the south, extending inland to Barrington Tops, and north to about the Bellinger River, (Urunga), New South Wales.

Etymology: Named in honour of Cliff Ross Wellington of New South Wales, Australia, best known for his publications (Wells and Wellington, 1984, 1985), but who has also made other significant contributions to herpetology in numerous ways over some decades. It is fitting that such a magnificent serpent be named in his honour.

SUMMARY

This paper has for the first time ever, done the simple intellectual exercise of matching recently published phylogenetic trees for the Carpet Snakes with relevant described taxa to correctly ascertain the relevant ranges of each and confirm the taxonomic status of each.
The result is radically different to that in all recent book publications and scientific papers that have derived information from these standard texts (e.g. Wilson and Swan 2017, or Cogger 2014).
As a result of this paper, the known distributions for relevant previously described forms of Carpet Snakes must be significantly rewritten.

Based on a simple matching of the phylogentic trees presented by Ciavaglia *et al.* (2014) with the relevant taxonomic entities, treated herein as species, and as subspecies by other authors such as Wilson and Swan (2017) or Cogger (2014) it is clear in hindsight that all recent authors are in error as to exactly what are the diagnostic characters of each taxon and also their correct distributions.

By way of example and referring only to the so-called Carpet Pythons, both Wilson and Swan (2017) and Cogger (2014), the two most widely distributed and read texts on these snakes as of 2018, reflecting the consensus view of Australian herpetologists, have clearly got major parts of their information wrong.

Both texts allege the taxon *M. macdowelli* (treated by them as a subspecies of *M. spilota*) is found from northern New South Wales along the coast of Queensland to include Cape York Queensland. We now know this not to be the case. In fact the northern coastal limit of distribution for *M. macdowelli* is in fact somewhere south of Mackay in Queensland.

This effectively halves the range and distribution of this well-known taxon.

Similarly, *M. cheynei*, is not confined to the Atherton Tableland as long claimed by those who recognize the taxon as described by Wells and Wellington, but instead it inhabits a wide area from about this part of Queensland (near Cairns in the southern Wet Tropics), south to include Mackay.

This is an expansion in known range of at least four-fold and greatly increases the known colour variation in this taxon. The New Guinea taxon, *M. harrisoni*, is shown to be separate and distinct from *M. variegata*, contradicting an assertion by Wilson and Swan (2017) that *harrisoni* is probably synonymous with *M. variegata.*

It goes without saying that the outrageously ridiculous claim of Wolfgang Wüster and his gang of thieves via Kaiser *at el.* (2013), that *M. harrisoni* from New Guinea should be synonymised with *M. spilota* from New South Wales, Australia is purely fanciful!

More significantly, *M. harrisoni*, is shown herein for the first time to be an Australian taxon as well as from New Guinea, with a range stretching from the north of Cape York, south to the northern Wet Tropics, at least as far south as Cape Tribulation in Queensland, being a straight line distance of about 600 km on the Australian mainland.

The range of the Diamond Python *M. spilota* is reduced by about 100 km in a straight line measurement at the northern end of its previously recognized distribution.

Significantly, the new species *M. cliffrosswellingtoni sp. nov*. is more divergent from both Diamond Pythons *M. spilota* and (Coastal NSW/ Qld) Carpet Pythons *M. macdowelli*, than all of *Australiasis nauta* (Harvey, Barker, Ammerman and Chippindale, 2000), *A. kinghorni* (Stull, 1933) and *A. amethistina* (Schneider, 1801) are from one another based on the DNA sequence evidence now lodged at Genbank as used by Ciavaglia *et al.* (2014).

Significantly, all relevant taxa identified within this paper can be easily identified with certainty from analysis of the mitochondrial DNA as outlined by Ciavaglia *et al.* (2014) as detailed by those authors in that paper, referrable to the taxa identified in this paper.

REFERENCES CITED

Ciavaglia, S. A., Donnellan, S. C., Henry, J. M. and Linacre, A. 2014. Species identification of protected carpet pythons suitable for degraded forensic samples. *Forensic Science, Medicine and Pathology*, June, 10:295-305.

Cogger, H. G. 2014. *Reptiles and amphibians of Australia*. 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.

Hoser, R. T. 1989. *Australian Reptiles and Frogs*. Pierson and Co., Mosman, NSW, 2088, Australia:238 pp.

Hoser, R. T. 1993. *Smuggled: The Underground Trade in Australia's Wildlife*. Apollo Publishing, Moss Vale, NSW, Australia:160 pp.

Hoser, R. T. 2000. A revision of the Australasian Pythons. *Ophidia Review* 1:7-27.

Hoser, R. T. 2003. Five new Australian Pythons. *Newsletter of the Macarthur Herpetological Society* Issue 40, August 2003:4-9.

Hoser, R. T. 2004. A reclassification of the pythoninae including the descriptions of two new genera, two new species and nine new subspecies. *Crocodilian* 4(3):(November 2003):31-37 and 4(4):(June 2004):21-40.

Hoser, R. T. 2007. Wells and Wellington - It's time to bury the hatchet! *Calodema* (Supplementary Paper No. 1):1-9 on 5 April.

Hoser, R. T. 2009. Creationism and contrived science: A review of recent python systematics papers and the resolution of issues of taxonomy and nomenclature. *Australasian Journ. of Herp.* 2 :1-34.

Hoser, R. T. 2012. An updated review of the pythons including resolution of issues of taxonomy and nomenclature. *Australasian Journal of Herpetology* 10: 2-32.

Hoser, R. T. 2015a. Dealing with the "truth haters" ... a summary! Introduction to Issues 25 and 26 of *Australasian Journal of Herpetology*. Including "A timeline of relevant key publishing and other events relevant to Wolfgang Wüster and his gang of thieves." and a "Synonyms list". *Australasian Journal of Herpetology* 25:3-13.

Hoser, R. T. 2015b. The Wüster gang and their proposed "Taxon Filter": How they are knowingly publishing false information, recklessly engaging in taxonomic vandalism and directly attacking the rules and stability of zoological nomenclature. *Australasian Journal of Herpetology* 25:14-38.

Hoser, R. T. 2015c. Best Practices in herpetology: Hinrich Kaiser's claims are unsubstantiated. *Australasian Journal of Herpetology* 25:39-52.

Hoser, R. T, 2015d. Comments on *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, ELAPIDAE): request for confirmation of the availability of the generic name and for the nomenclatural validation of the journal in which it was published (Case 3601; see *BZN* 70: 234-237; comments *BZN* 71:30-38, 133-135). (unedited version) *Australasian Journal of Herpetology* 27:37-42.

Hoser, R. T. 2015e. PRINO (Peer reviewed in name only) journals: When quality control in scientific publication fails. *Australasian Journal of Herpetology* 26:3-64.

Hoser, R. T. 2015f. Rhodin *et al.* 2015, Yet more lies, misrepresentations and falsehoods by a band of thieves intent on stealing credit for the scientific works of others. *Australasian Journal of Herpetology* 27:3-36.

Kaiser, H., Crother, B. L., Kelly, C. M. R., Luiselli, L., O'Shea, M., Ota, H., Passos, P., Schleip, W. D. and Wüster, W. 2013. Best practices: In the 21st Century, Taxonomic Decisions in Herpetology are Acceptable Only When supported by a body of Evidence and Published via Peer-Review. *Herpetological Review* 44(1):8-23.

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.

Wells, R. W. and Wellington, C. R. 1984. A synopsis of the Class Reptilia in Australia. *Australian Journal of Herpetology* 1 (3-4):73-129.

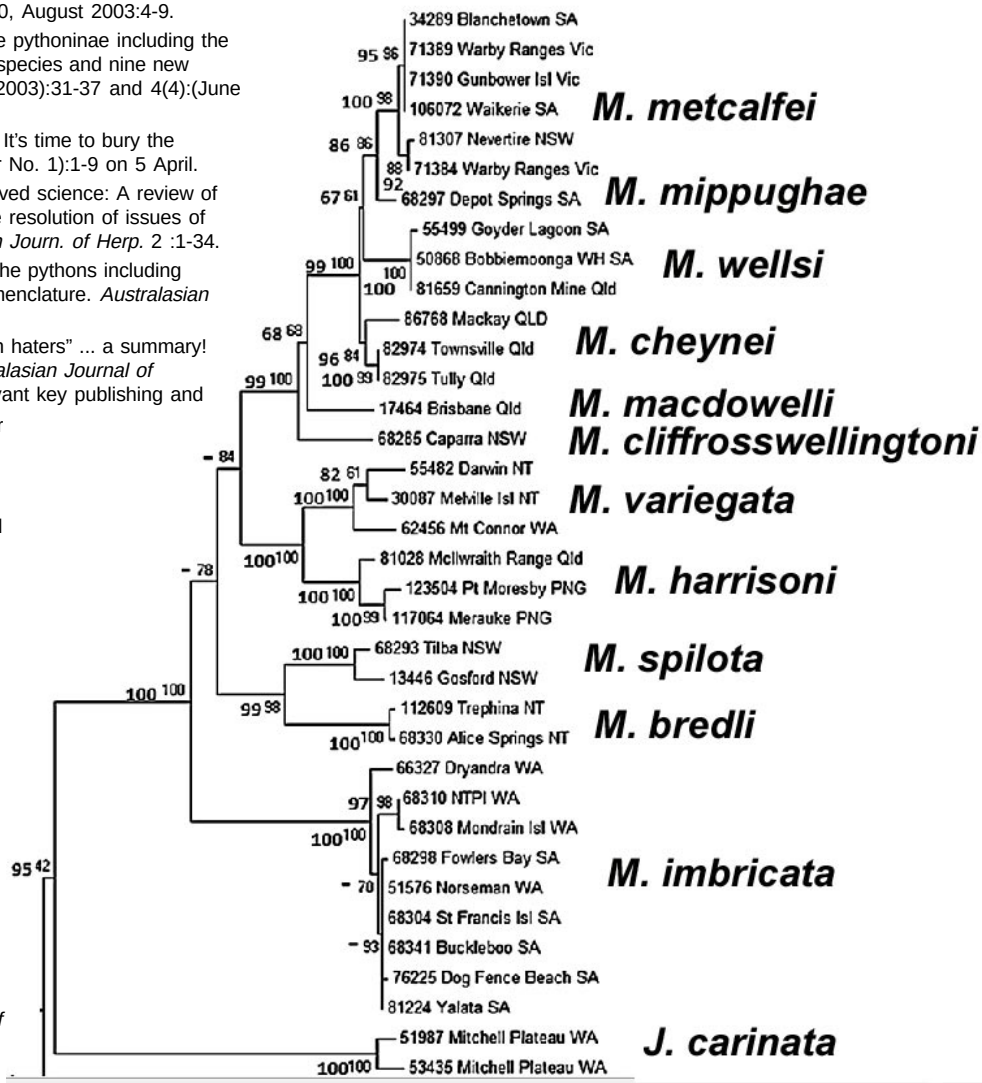
Wells, R. W. and Wellington, C. R. 1985. A classification of the Amphibia and Reptilia of Australia. *Australian Journal of Herpetology Supplementary Series* 1:1-61.

Wilson, S. and Swan, G. 2017. *A complete guide to Reptiles of Australia*. New Holland, Australia: 647 pp.

Worrell, E. 1970, *Reptiles of Australia,* Angus and Robertson, Sydney.

CONFLICT OF INTEREST

The author has no known conflicts of interest.



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In addition, species level taxonomy has been much confused and debated within Locustella and Bradypterus, and it has been suggested that several taxa previously regarded as subspecies of polytypic species are better treated as separate species (e.g. Dickinson et al. 2000; Drovetski et al. 2004; AlstrÃ¶m et al.Â Henceforth in this text, Locustella (or L.) mandelli and other names that include generic names refer to species, whereas mandelli and other names without generic names represent the least-inclusive taxon, i.e. monotypic species or subspecies of polytypic species.Â For clarity, we refer to the new species as Sichuan Bush Warbler because it is widespread in Sichuan and this is where we first observed it. Morphology. "We saw something new. Something that was not expected in this area, something that doesn't match, either visually or acoustically, anything that is known to exist," he said. 'The joy of science'. "The fact that they were looking for a very rare whale, and that they happen to find something completely different, is remarkable and wonderful, and just the joy of doing science," marine biologist Andrew Read said.Â Such a sample would open up opportunities to analyze their find in the lab. Watch video 05:03. Share.Â Researchers are already planning a new trip next year, although now with the aim of finding both the new species as well as the elusive Perrin's beaked whale. ab/rc (Reuters, AP). DW recommends. Morelia cliffrosswellingtoni sp. nov., yet another new species of Carpet Python from Australia and other significant new information about Australian pythons, their taxonomy, nomenclature and distribution. Article. Mar 2018. Raymond Hoser.Â Morelia cliffrosswellingtoni sp. nov. is the form of Diamond/Carpet Python found in a coastal region bounded by the Hunter Valley in the south and Bellinger River in the north, where at the northern boundary of its range it appears to occur sympatrically with M. macdowelli. Published DNA evidence by Ciavaglia et al. (2014), also revealed the validity of the taxon described herein, including that it is not a hybrid or intergrade between the other two. Ciavaglia et al. Neosiluroides, new genus, differs from all other plotosid genera by the possession of two, apparently derived, characters, namely a thick epidermal covering around the posterior nostril, which forms an outer chamber, and a peculiar skin structure, consisting of a dense covering of minute papillae. In addition, it is separable from nearly all other Australian and New Guinean freshwater catfishes by its high vertebral count.Â Both resemble N. ater of northern Australia and southern New Guinea, but differ in having lower gill raker counts and soft, flexible dorsal and pectoral fin spines. N. pseudospinosus differs from N. mollespiculum primarily in having a greater average number of procurrent caudal rays, a slightly shorter dorsal-caudal fin base, and a longer nasal barbel. Full Text | PDF (184 KB). Other ways of defining species include their karyotype, DNA sequence, morphology, behaviour or ecological niche. In addition, paleontologists use the concept of the chronospecies since fossil reproduction cannot be examined. The total number of species is estimated to be between 8 and 8.7 million.[1][2][3] However, only about 14% of these had been described by 2011.[3].Â species if the amount of hybridization is insufficient to completely mix their respective gene pools.[18] A further development of the recognition concept is provided by the biosemiotic concept of species.[19].Â An evolutionarily significant unit (ESU) or "wildlife species"[48] is a population of organisms considered distinct for purposes of conservation.[49]. Chronospecies[edit].