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Hitherto overlooked species of reptile from Northern Australia: A result of science, taxonomy, molecular biology, systematics, history and forensic herpetology.

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ABSTRACT

New reptile taxa are identified from Northern Australia.

Following earlier papers involving science, taxonomy, molecular biology and systematics, all involving the elapid species *Pseudonaja guttata* (Parker, 1926) as recognised to date, an audit was done for two large reptile species with identical distribution.

Both were similarly confined to the area known as the Mitchell Downs Grasslands. A habitat region more-or-less split between a large central Queensland section and the mainly Northern Territory section straddling the border with Queensland.

Both species were found to have significant and consistent differences between individuals within each section as opposed to one another. Combined with an audit of Museum records for each taxon as presently recognized yielding disjunct distribution consistent with a known biological barrier, likely to have in existence for about 2 million years, each is herein formally described and named as new species according to the *International Code of Zoological Nomenclature.*

The large varanid species *Pantherosaurus* (*Aspetosaurus*) *spenceri* (Lucas and Frost, 1903) as defined by Hoser (2013b) is herein restricted to the Northern Territory and immediately adjacent parts of Western Queensland west of the Selwyn and Waggoobunyah ranges, 86 km west of Mount Isa, Queensland.

The remainder of the specimens from central Queensland in the region generally south of Dajarra and Hughenden is herein described as a new species *Pantherosaurus* (*Aspetosaurus*) *maxhoseri sp. nov..*

The elapid species *Demansia rimicola* Scanlon, 2007, is herein confined to the Mitchell Grass Downs of central Queensland.

Populations from the Barkly Tableland in the region generally west of the Selwyn and Waggoobunyah Ranges in West Queensland, and across Northern Australia in suitable habitat are herein described as a new species *Demansia johnscanloni sp. nov..*

Audits of relevant related taxon groups yielded other undescribed taxa which are also formally named herein.

The westernmost population of *Worrellisaurus primordius* (Mertens, 1942) is described as a new subspecies, while the southern and eastern populations of the Perentie *Pantherosaurus* (*Titanzius*) *giganteus* (Gray, 1845), has two subspecies named for the first time.

The species *Demansia quaesitor* Shea, 2007 is divided into three subspecies and the westernmost population of *Demansia shinei* Shea, 2007 is also formally defined as a subspecies.

Keywords: Taxonomy; snake; lizard; new species; new subspecies; Queensland; Northern Territory; Western Australia; Whipsnake; Mitchell grass downs; Elapidae; *Pseudonaja guttata*; *Placidaserpens*; *Demansia*; *rimicola*; *johnscanloni*; *quaesitor*; *shinei*; *pelleyorum*; *starkeyi*; *garrodi*; *Varanus*; *spenceri*; *Pantherosaurus*; *Aspetosaurus*; *Worrellisaurus*; *Titanzius*; *primordius*; *maxhoseri.*

INTRODUCTION

In 2009, I published a paper describing new subspecies-level taxa of Brown Snakes (*Pseudonaja*) from various parts of Australia (Hoser, 2009). This was based on a thorough review of existing literature as well as the incorporation of data accumulated from more than 30 years of intensive fieldwork in all mainland Australian states and inspections of specimens in State museums in all mainland Australian states.

Of relevance here is that Hoser (2009) formally divided the taxon *Pseudonaja guttata* (Parker, 1926) as recognised to date into two subspecies, based mainly on the published results of Gillam (1979).

Skinner, *et al.* (2005) published a molecular phylogeny for the genus, finding a within clade sequence divergence of 0.132-4.370 for what he recognized as a single species-level taxon, *P. guttata*. A later paper (Skinner 2009) didn't consider the taxonomy of the species, considering it uncontroversial and settled.

However a year later, Gregory (2010) did consider this very matter. Following on from Hoser (2009), he revisited the idea that the eastern and western populations of *P. guttata* were sufficiently divergent to warrant taxonomic recognition as part of a wider analysis of the *Pseudonaja sensu lato* group.

He agreed with Hoser (2009) in recognizing various subspecies within *Pseudonaja sensu lato* as first named by Hoser and among these he declared *P. guttata whybrowi* Hoser 2009 (the mainly Northern Territory population) to be a valid subspecies.

Besides the morphological differences between the two populations as relied upon by Hoser (2009), Gregory also cited the sequence divergence reported by Skinner *et al*. (2005) in support of his contention.

Gregory (2010) also wrote: "It is likely the two populations are – or may be heading towards becoming – separate species."

Of peripheral relevance also is that Gregory produced significant evidence to support the placement of *P. guttata sensu lato* into the genus *Placidaserpens* Wells, 2002, treated as monotypic for *P. guttata sensu lato*, which is a position I also agree with.

In other words the relevant taxa should be known under that generic name.

With a divergence of over 4% between the populations cited by Skinner *et al*. (2005), the well-defined morphological differences between specimens of *whybrowi* (from the NT) and *guttata* (from Qld), based on a clear demarcation gap in distributions shown by all Australian museum accessions records (from the museums including Sydney, Brisbane and Darwin) for all "*Pseudonaja guttata*" my current view is that *whybrowi* should be given full species recognition.

This divergence level (4%) being worthy of species recognition is common in herpetology as seen for example in Avila *et al*. (2008), who described a new species of *Liolaemus* based on a 4% sequence divergence. Harvey *et al.* (2000) subdivided the Scrub Pythons (genus *Australiasis*) based on sequence divergences as little as 2%, relying primarily on morphology and geographical isolation of populations..

In other words, *Pseudonaja guttata*, as most widely known to date, should be removed from the genus *Pseudonaja* Günther, 1858, and treated as two species, these being *Placidaserpens guttata* (Parker, 1926) and *Placidaserpens whybrowi* (Hoser, 2009), noting that Hoser(2009) did foreshadow the potential use of the generic name *Placidaserpens.*

These ultimate conclusions were tentatively reached by Gregory (2009), who if not constrained by the so-called politics of herpetology of the present, would have simply stated the obvious more bluntly.

Gregory however was constrained by the overt actions and in the ever-present shadow of a group of thieves and renegades seeking to suppress the works of myself and Wells (Kaiser 2012, Kaiser *et al.* 2012 and Kaiser *et al.* 2013), who have been operating with the same agenda since 2001 (see for example Wüster 2001 and Wüster *et al*. 2001) and actively harassing all other herpetologists who seek to use the names of authors whose work they seek to suppress and then steal (Hoser 2012, Hoser 2013a).

Numerous other authors have also discredited the views of Wüster, Kaiser and the gang, as outlined and listed in Hoser (2013a) and many times since (e.g. Cogger 2014).

However none of the preceding is the purpose of this paper, but is rather presented as a preamble to what follows.

With the final summary of the taxonomy of *Placidaserpens* yielding two well demarcated populations of related species, I sought to audit other species as presently recognized confined to the same bioregion, this being the Mitchell Grass Downs of the NT and Queensland to see if they too were divided into separate populations across the same approximate or other boundary and whether or not each should be accorded taxonomic status as either subspecies or species.

For the snakes, the only logical suspect was *Demansia rimicola* Scanlon, 2007 and a check of Australian museum records yielded a similar break in the populations as seen for *Placidaserpens*, across the same geographical barrier.

Inspection of dozens of live specimens also yielded consistent differences indicating taxonomic recognition of each population was warranted.

Within the lizards, I did in the first instance confine my audit to the monitors, with the only species confined to this habitat being *Pantherosaurus* (*Aspetosaurus*) *spenceri* (Lucas and Frost, 1903) as defined by Hoser (2013b) and sources cited therein. Australian museum accession records again yielded a similar break in the populations as seen for *Placidaserpens* and at the same geographical location.

Inspection of dozens of live specimens also yielded consistent differences indicating taxonomic recognition of each population was warranted.

It is significant in that as far as I am aware, no one else had previously sought to look at specimens of either above taxon (as currently recognized) with a view to potentially dividing well recognized and wide-ranging species with the initial prompt being a disjunct distribution in their known populations or as a result of similar being the case for an elapid within the same region.

While there is an inherent likelihood that the disjunct distributions for both *Demansia rimicola* and *Pantherosaurus spenceri* as recognized could be a result of non-collection in the relevant zones or sampling error, this was discounted. This was on the basis that the relevant area has in fact been heavily collected and the relevant museums have plenty of other species from the relevant areas, meaning the likelihood of either taxon being missed was remote.

As compensation for the relative impoverishment of reptile species inhabiting the Mitchell Downs Grasslands, the relative abundance and ease of finding those few species inhabiting the area is somewhat improved as compared to more speciose habitats.

This means that the two subject species, both relatively large and obvious reptiles, would be expected to be among the first species encountered in the area if they occurred there.

Also of relevance is that each population of the species as currently recognized does in fact have consistent differences warranting taxonomic recognition, even if the populations were apparently connected.

While it is possible to argue over the taxonomic significance of such features as dorsal mid body scale rows in snakes (as had been done by those arguing against recognition of *Placidaserpens whybrowi*), it is much harder to argue against the molecular evidence of time separation of populations.

With the east and west populations of each taxon apparently affected by the same barriers, it only makes sense to assume all were split by the same geological events and associated habitat

changes at the time (including being hampered in movements by competing species that do better in alternative habitats).

Hence, even without molecular evidence, it is reasonable to assume that the populations of *Pantherosaurus spenceri* (east and west populations) and *Demansia rimicola* (east and west populations) as currently recognized, diverged at around the same time (2 MYA).

However there are other ways to establish the timing of the creation of the barrier that separated the mainly NT populations from the central Queensland ones.

The soils in the plains in the intervening area have been dated at about 1.6 million years of age, indicating a significant change at about that time or earlier. This correlates roughly with the molecular evidence for the division of the two populations of *Placidaserpens*.

While many maps of the Mitchell Downs Grasslands show the two regions (one being mainly in the NT west of Camooweal, Qld, and the other in inland Qld south of Dajarra and Hughenden) connected by a broad swathe running south west of the Dajarra ranges, more detailed maps paint a different picture.

The zone between the two main areas is in fact disjunct and separated by areas of alternative habitat. While these breaks are small and may be thought of as not consisting a significant barrier, they do on the surface appear to be sufficient in their own right to keep the two main areas apart in terms of movement of habitat dependent taxa.

Also significant is the likely extent of the Mitchell Downs Grasslands in the recent past.

While it is hard to read into the past, it is known that the current interglacial has resulted in a considerably warmer and wetter Australia than that of the ice-ages.

With Mitchell Downs Grasslands best suited to a rainfall of between 250-500 mm annually (mainly in summer) (Department of Agriculture, Fisheries and Forestry, Queensland 2014), it is clear that significant parts of this region would not have carried the same grasses when rainfall was lower. This is particularly the case for the narrow strips closest to extant desert, as seen in the zone generally south-west of Mount Isa in Queensland.

This fact, combined with the geographical reality of the Selwyn and Waggoobunyah ranges, 86 km west of Mount Isa, Queensland and part of the Mount Isa Inlier Biogeographical Region, means that an effective barrier between the two main areas would have been present in the glacial periods.

Of note is that a map of current distribution of the Mitchell Downs Grasslands published online by Department of Agriculture, Fisheries and Forestry, Queensland (2014) also shows a distinct gap in the region more-or-less due south of Mount Isa, which corresponds also with the distribution gaps in the relevant species as presently recognized, in effect partitioning the northern Australian Mitchell Downs Grasslands into two distinct sectors.

An added factor implying long-term separation of the relevant populations is the different soil and vegetation regimes in the intervening areas.

A dominant feature in the region south of Mount Isa are the limestone based soils, as opposed to the black cracking soils that typify the Mitchell grass plains elsewhere. Known as the Georgina Limestone sub-bioregion within the Mitchell Grass Downs, the soil type literally splits the two main regions as indicated already.

With surface soils in the area having been dated at around 1.6 MYA in age, it is again reasonable to infer this as being the relevant date of the population splits for the typical Mitchell grass plains taxa on either side of this zone that are apparently unable to cross this zone.

It is on that basis that I hereby treat the populations of *Pantherosaurus spenceri* and *Demansia rimicola* (as recognized to date) as being separated from most, if not all of the past 2 million years and therefore worthy of taxonomic recognition at the species level.

Also of note are two of the better-known reptile species restricted to Mitchell Grass Downs found in the central Queensland zone and not in the mainly Northern territory sector (beyond the Georgina Limestone sub-bioregion). These are the Collett's Snake *Panacedechis colletti* (Boulenger, 1902) and the Downs Bearded Dragon *Pogona henrylawsoni* Wells and Wellington, 1985.

Relevant molecular phylogenies including both taxa, including the supermatrix as published by Pyron *et al.* (2013) indicates that both are species of recent origin and divergence from other known forms, the former from the taxon *Pancedechis guttata* De Vis, 1905 (as defined by Wells and Wellington 1985) of southern Queensland and northern NSW (or alternatively *Panacedechis papuanus* Peters and Doria, 1878), or vice-versa and *Pogona henrylawsoni* from *Pogona vitticeps* (Ahl, 1926) a widespread Australian species as presently recognized.

While the recent past distribution for the precursor of *Pogona henrylawsoni* is hard to determine, and may in fact be from northwest of the current centre of distribution, it is self evident based on current distribution and known phylogenetic histories of other Australian snakes, that *Panacedechis colletti*, the closely related *Pancedechis guttata* (as identified by molecular data of Wüster *et al.* 2005), or *Panacedechis papuanus* Peters and Doria, 1878 (as identified by the molecular data of Pyron *et al.* 2013) or their immediate ancestors have almost certainly never inhabited the Mitchell Grass Downs of the Northern Territory, due to being stopped from getting there by the extant barrier zone (The Georgina Limestone sub-bioregion within the Mitchell Grass Downs) and quite likely in combination with the competitive advantage afforded to similar and competing species including *Pseudechis* (*Pailsus*) *pailsei* (Hoser, 1998).

In line with the preceding, if species status is to be accorded to *Placidaserpens whybrowi*, it would also make sense to do likewise for the as yet unnamed taxonomically distinct forms currently assigned to *Pantherosaurus spenceri* and *Demansia rimicola* from either side of the known barrier to movement of species (that being clearly shown in the Department of Agriculture, Fisheries and Forestry, Queensland (2014) map as published online and elsewhere.

In the extremely unlikely event that a molecular biologist or field zoologist is able to establish recent genetic interchange between the two populations (predating potential translocations post-dating European settlement), there is nothing to stop later herpetologists relegating the below named taxa to subspecies status.

However as the distinctiveness of the separate populations is not at issue and there are ongoing potential threats to them via the human population explosion in Australia and a stated government policy encouraging a "Big Australia", the taxonomic recognition of each should be done as a matter of urgency. This will enable government agencies and conservation bodies to better plan for and manage the relevant taxon gene pools and also highlight the need to conserve suitable areas within each of the major Mitchell Grass Downs zones.

Two other widely distributed *Demansia* species with regionally distinct subpopulations are formally divided into subspecies for the first time. The basis of this action is essentially an objective re-assessment of the data provided by Shea and Scanlon (2007).

The monitor species *Pantherosaurus* (*Titanzius*) *giganteus* (Gray, 1845), has a known distribution that is almost a mirror image of that of the Desert Death Adder *Acanthophis pyrrhus* Boulenger, 1898.

Hoser (2014) named two new subspecies, *Acanthophis pyrrhus maryani* from drier parts of Western Australia south of the Pilbara region and away from the southern margins of the state and *Acanthophis pyrrhus moorei* from an elevated site in the Channel Country of south-west Queensland, based on consistent morphological differences. Noting that within the

same geographical range, both species have a preference for the same habitat (hilly areas with rocks and Spinifex), specimens of *P. giganteus* were audited to see if there were consistent differences worthy of taxonomic recognition. These were identified and as a result, subspecies from the same general regions are named herein.

For some time there has been significant known variation in colour and scalation in specimens of *Worrellisaurus primordius* (Mertens, 1942) from various localities. An audit showed that in many cases there was as great as or greater variation within localities as opposed to between them. However it became apparent that those specimens found south-west of Darwin, differed significantly from those found near and east of Darwin. The nominate form is clearly that of the Alligator River type of animals based on the original description of Mertens, (Mertens, 1942, Storr 1966) and the holotype itself, meaning that the south-western specimens are taxonomically unrecognized.

They are therefore formally named as a subspecies herein based on consistent differences and an apparently allopatric distribution.

The molecular results of Fitch *et al.* (2006) corroborate these actions in showing apparent divergences in relevant taxa they inspected.

PANTHEROSAURUS* (*ASPETOSAURUS*) *MAXHOSERI SP. NOV.

Holotype: Specimen number J60056 at the Queensland Museum, Brisbane, Queensland, Australia. It was collected wild from just south of Longreach, Queensland on 5 September 1994 and retained as a preserved specimen. The Queensland Museum is a government facility that allows public access to its collection.

Paratype: Specimen number J73851 at the Queensland Museum, Brisbane, Queensland, Australia. It was collected wild from just south of Longreach, Queensland on 20 December 1997 and retained as a preserved specimen. The Queensland Museum is a government facility that allows public access to its collection.

Diagnosis: Both *Pantherosaurus* (*Aspetosaurus*) *maxhoseri sp. nov.* and *P. spenceri* (the entirety of the subgenus *Aspetosaurus* Wells and Wellington, 1985) are separated from all other Australian varanids by the following suite of characters:

The tail is strongly laterally compressed except at the base; there is a distinct double median keel dorsally along the posterior half of the tail; caudal scales are arranged in regular rings, occasionally incomplete on the sides of the tail; the tail is no more than 1.2 times as long as the head and body; the scales on upper side of basal portion of tail are rugose. A detailed description of the colour of both species is in Cogger (2014) who describes them as one.

P. spenceri are separated from *P. maxhoseri sp. nov.* by the following suite of characters: tending towards leucystic towards the snout (except in neonates), a lack of any striations in colouration on the back of upper neck (these being prominent in *P. maxhoseri sp. nov.*), with the markings here instead appearing as distinct broad bands; usually a darkish bluish iris, vs usually red (occasionally blue) in *P. maxhoseri sp. nov.* from Queensland; 8 or less bands between front and back legs (counted from level to the limbs), versus 9 or more in *P. maxhoseri sp. nov.*, meaning *P. spenceri* has noticeably broader bands; the upper labials in front of the eye are more light than dark versus more dark than light in *P. maxhoseri sp. nov.*, many specimens of *P. spenceri* have large black dots on the gular fold below the line of the ear (e.g. top of page 784 in Cogger, 2014).

Varanus ingrami Boulenger, 1906 is a junior synonym for *Pantherosaurus* (*Aspetosaurus*) *spenceri* Lucas and Frost, 1903 as recognized herein (type locality Alexandria, Northern Territory, Australia) and by virtue of its location of origin is therefore not an available name for the newly described taxon herein.

Distribution and habitat: The often treeless black soil plains of Western and central Queensland and immediately adjacent habitats at the boundaries or interfaces between the habitat zones in a region generally bounded by Boulia in the north-west, McKinlay and Hughenden in the north, Alpha and Tambo in the east, Adavale in the south and Bedourie in the south-west.

The species *Pantherosaurus* (*Aspetosaurus*) *spenceri* Lucas and Frost, 1903 is hereby restricted to the Barkly Tablelands in a region generally west of Camooweal in western Queensland and encompassing an area mainly within the Northern Territory.

Etymology: *Pantherosaurus* (*Aspetosaurus*) *maxhoseri sp. nov.* is named in honour of my cousin Max Hoser of Campbelltown, NSW in recognition for his contributions to herpetology and human services.

WORRELLISAURUS PRIMORDIUS DALYI SUBSP. NOV.

Holotype: A specimen at the Northern Territory Museum, number: NTM R17884 from Elizabeth Downs Station in the Northern Territory, Australia. The Northern Territory Museum is a government-owned facility that allows access to its holdings.

Diagnosis: The subspecies *W. primordius dalyi subsp. nov.* is most easily separated from other *W. primordius* by the presence of an unbroken semicircular ring of whitish yellow colour on the fold above the eye. In other *W. primordius* this ring is broken. In *W. primordius* there is significant speckling on the lower external mouth parts (the scales), particularly near the gular region. By comparison in *W. primordius dalyi subsp. nov.* the speckling is nearly absent or at least markedly reduced.

In *W. primordius dalyi subsp. nov.* there is limited lightening along the labial line, whereas in the nominate form, the lightening is so distinct as to appear to form a line.

Distribution: Known only from the Daly River region and nearby Litchfield National Park. Nominate *W. primordius* occupies the rest of the range for this species.

Etymology: Named in reference to the region the species is known from, that being the Daly River region of the Northern Territory.

PANTHEROSAURUS* (*TITANZIUS*) *GIGANTEUS QUEENSLANDENSIS SUBSP. NOV.

Holotype: Specimen number J88440 at the Queensland Museum, Brisbane, Australia, collected in the Barcoo Shire, Queensland, Australia. The Queensland Museum is a government-owned facility that allows access to its holdings.

Paratype: Specimen number J51749 at the Queensland Museum, Brisbane, Australia, collected in the Barcoo Shire, Queensland, Australia.

Diagnosis: The subspecies *Pantherosaurus* (*Titanzius*) *giganteus queenslandensis subsp. nov.* is most easily separated from the other two subspecies (the nominate form and *T. giganteus bulliardi subsp. nov.*) by colour.

P. giganteus queenslandensis subsp. nov. is characterised by a lack of distinct markings anterior to the eye as is the nominate subspecies. In *T. giganteus bulliardi subsp. nov.* from southern parts of Western Australia, the anterior snout has a well defined pattern of darker and lighter bars.

In both *T. giganteus bulliardi subsp. nov.* and *T. giganteus giganteus* markings on the back of the neck appear to form well-defined angled cross bands. This is especially the case in *T. giganteus bulliardi subsp. nov.*. However in *P. giganteus queenslandensis subsp. nov.* the markings on the back of the neck are more broken and/or of reticulated pattern, meaning that there are no defined crossbands visible on the neck.

P. giganteus queenslandensis subsp. nov. and *T. giganteus giganteus* are characterised by a pattern of 5-7 distinct black lines or reticulations running from the lower jaw. These are thin, being one scale wide. In *T. giganteus bulliardi subsp. nov.* these lines are two or more scales wide.

T. giganteus bulliardi subsp. nov. also has a well-defined dark line commencing anterior to the eye, running through it and along the temple.

In the other two subspecies the line is so thin and indistinct that it appears as mere etching of the scales to the rear of the eye, as opposed to being a thick line running across the scales. In *P. giganteus queenslandensis subsp. nov.* this line is indistinct anterior to the eye.

Distribution: An apparently isolated population in Western Queensland.

Etymology: Named in reflection of where these lizards are found.

PANTHEROSAURUS* (*TITANZIUS*) *GIGANTEUS BULLIARDI SUBSP. NOV.

Holotype: Specimen number R78177 at the Western Australian Museum, Perth, Australia, collected 15 km south of Menzies, Western Australia, 121°05' E, 29°49' S. The Western Australian Museum is a government-owned facility that allows access to its holdings.

Paratype: Specimen number R144588 at the Western Australian Museum, Perth, Australia, collected at Mount Jackson, Western Australia 119°15' E, 30°15 S'.

Diagnosis: The subspecies *Pantherosaurus* (*Titanzius*) *giganteus bulliardi subsp. nov.* is most easily separated from the other two subspecies (the nominate form and *T. giganteus queenslandensis subsp. nov.*) by colour.

P. giganteus queenslandensis subsp. nov. is characterised by a lack of distinct markings anterior to the eye as is the nominate subspecies. In *T. giganteus bulliardi subsp. nov*. from southern parts of Western Australia, the anterior snout has a well defined pattern of darker and lighter bars.

In both *T. giganteus bulliardi subsp. nov*. and *T. giganteus giganteus* markings on the back of the neck appear to form well-defined angled cross bands. This is especially the case in *T. giganteus bulliardi subsp. nov.*. However in *P. giganteus queenslandensis subsp. nov.* the markings on the back of the neck are more broken and/or of reticulated pattern (the dark lines being noticeably thinner), meaning that there are no defined crossbands visible on the neck.

P. giganteus queenslandensis subsp. nov. and *T. giganteus giganteus* are characterised by a pattern of 5-7 distinct black lines or reticulations running from the lower jaw. These are thin, being one scale wide. In *T. giganteus bulliardi subsp. nov*. these lines are two or more scales wide.

T. giganteus bulliardi subsp. nov. also has a well-defined dark line commencing anterior to the eye, running through it and along the temple.

In the other two subspecies the line is so thin and indistinct that it appears as mere etching of the scales to the rear of the eye, as opposed to being a thick line running across the scales. In *P. giganteus queenslandensis subsp. nov.* this line is indistinct anterior to the eye.

Distribution: Southern Western Australia, including the lower west coast of Western Australia.

Etymology: Named in honour of Perth based herpetologist, Kai Bulliard in recognition of his contributions to the science of herpetology over some decades.

DEMANSIA JOHNSCANLONI SP. NOV.

Holotype: Specimen number R32363, at the Northern Territory Museum from Rockhampton Downs

Airstrip, NT. (listed in the online Australian Museums database as *Demansia torquata*). The Northern Territory Museum is a government facility that allows public access to its collection.

Paratypes: Specimens numbers R32390 and R32391 at the Northern Territory Museum from Rockhampton Downs Airstrip, NT. The Northern Territory Museum is a government facility that allows public access to its collection.

Diagnosis: *Demansia rimicola* Scanlon, 2007, is separated from *D. johnscanloni sp. nov.* by the following suite of characters: dorsal colouration is grayish olive dorsally, becoming yellowish grayish posteriorly; the white bar in front of the eye is more or less even in width, versus *D. johnscanloni sp. nov.* which is yellowish-grayish dorsally both anteriorly and posteriorly and with the white bar in front of the eye being noticeably wider at level with the center of the eye, then becoming narrower below.

Both *D. johnscanloni sp. nov.* and *D. rimicola* are separated from other *Demansia* by the following suite of characters: 178-203 ventrals; anterior ventrals lacking a dark median spot or streak, instead, the anterior ventrals each have a pair of dark spots, aligning to form a pair of posteriorly diverging broken dark lines. For further detail see Shea and Scanlon (2007).

Richard Wells has indicated an intention to divide the genus *Demansia* as presently recognized in Australia. Although I am not privy to his review and the ultimate decisions he makes, it is my considered opinion that a split of the genus is warranted at least to subgeneric level on the basis of morphological and available molecular evidence and an action I had intended taking.

Distribution: The black soil plains and immediately adjacent habitats in an area commencing about 90 km west of Mount Isa, Queensland and across the Northern Territory to the region of the West Australian border (including within Western Australia).

Demansia rimicola Scanlon, 2007 is hereby restricted to central Queensland and southern Queensland, including immediately adjacent parts of South Australia and far western New South Wales.

It is notable that the region of Western Queensland separating the populations of *D. johnscanloni sp. nov.* and *D. rimicola* is inhabited by *D. flagellatio* Wells and Wellington, 1985, which combined with the generally hilly habitat of the relevant region (known as the Mount Isa Inlier Bioregion) is presumably a significant factor in terms of division of the two similar species populations in recent geological times.

Another notable endemic of the region that may have some bearing on the distribution of *Demansia* species is *Pseudechis* (*pailsus*) *pailsei* Hoser, 1998, currently only known from this bioregion.

Etymology: Named in honour of John D. Scanlon, formerly of Northbridge (Sydney), Australia, and since resident of several widely spread locations, in recognition for his lifetime contributions to herpetology in Australia.

DEMANSIA QUAESITOR PELLEYORUM SUBSP. NOV.

Holotype: Specimen number: J52510, at the Queensland Museum, Brisbane, Australia, from an opal mine, 52 km West of Vergemont Station, Queensland, Australia, Lat 23.5° S Longitude:143.0° E. The Queensland Museum, Brisbane, Australia is a facility that allows public access to its holdings.

Paratype: Specimen number: J39472 at the Queensland Museum, Brisbane, Australia, from near Winton in Queensland, Lat. 22.4° S, Long. 143° E.

Diagnosis: The subspecies *Demansia quaesitor pelleyorum subsp. nov.* is essentially similar to the nominate species as described by Shea and Scanlon (2007), but is separated from it by the following: The nape band as seen in *D. quaesitor quaesitor* is absent, except in small juveniles, which usually show traces of it laterally. Further, there is variation in the position of the dark teardrop marking. In some individuals, apparently due to loss of the upper margin, the dark teardrop marking resembles that of *D. angusticeps*, a resemblance heightened by greater development of pale edges to the teardrop, reduction in the posterior extension of the dark transrostral streak to the orbit, coarser marbling of the anterior supralabials, and a strongly variegated and spotted gular region, as opposed to only weakly variegated and spotted in *D. quaesitor quaesitor*.

Demansia quaesitor pelleyorum subsp. nov. is separated from both *D. quaesitor garrodi subsp. nov.* (formally described below) and most *D. quaesitor quaesitor* by having a bluish head as opposed to orangeish.

Demansia quaesitor is defined and separated from other

Demansia species by Shea and Scanlon 2007.

Distribution: Generally drier parts of Northwestern Queensland, Australia, northwest of the type locality, Vergemont Station, Queensland, Australia, to the region surrounding Mount Isa.

Etymology: Named in honour of Doreen (Melbourne), Victoria based snake catcher Mark Pelley and his five daughters for their contributions to reptile awareness and public safety in Victoria.

DEMANSIA QUAESITOR GARRODI SUBSP. NOV.

Holotype: Specimen number R28071 from the Western Australian Museum, collected on Koolan Island, Western Australia, Australia, Lat. 16.1° S, Long. 123.7° E. The Western Australian Museum at Perth, Western Australia is a government owned facility that allows access to its holdings.

Paratypes: Specimen numbers: R47684, R82993, R83863, R83967 and R103730, from the Western Australian Museum, collected on Koolan Island, Western Australia, Australia.

Diagnosis: *Demansia quaesitor garrodi subsp. nov.* is similar in most respects to nominate *D. quaesitor quaesitor*, from which it is separated from it by having a darkish dorsal body colouration, meaning that the nape band is consequently not as pronounced as seen in the nominate form. *Demansia quaesitor pelleyorum subsp. nov*. is separated from both *D. quaesitor garrodi subsp. nov.* and most *D. quaesitor quaesitor* by having a bluish head as opposed to orangeish.

Demansia quaesitor is defined and separated from other *Demansia* species by Shea and Scanlon 2007.

Distribution: Known only from Koolan Island, Western Australia.

Etymology: Named in honour of Nathan Garrod for services to herpetology. His occupation was as a licensed reptile demonstrator in Queensland, Australia.

Garrod was harassed by business rivals, notably Tony Harrison of the Gold Coast, Queensland, who attacked him ruthlessly online and by making threatening phone calls. Furthermore, Harrison orchestrated an armed raid on Garrod's facility by wildlife officers, this being a tactic Harrison has employed a number of times, including on our business here in Melbourne.

This sequence of events led to Garrod being in fear of facing criminal charges for hybridising python species he held and a potential jail term.

The stress of this and a relationship break up arising from the business harassment by Harrison led to Garrod taking his own life in early 2015.

DEMANSIA SHINEI STARKEYI SUBSP. NOV.

Holotype: Specimen number: R102712 at the Western Australian Museum, collected at Site Savoury 2, in 23°53'S 120°36'E, Little Sandy Desert, Western Australia, Australia.

Paratype: Specimen number: R127178, at the Western Australian Museum, collected at Nifty Mine, Western Australia, Australia, Lat. 21.65°S Long. 121.57°E.

Diagnosis: *Demansia shinei starkeyi subsp. nov.* are readily separated from nominate *D. shinei* by the presence of a weak dark nuchal collar, as opposed to one that is well-defined, and in the character state of having a narrow pale postocular bar, which does not extend to the temporal scales, versus one that is moderately wide that extends to the temporal scales.

Demansia shinei is defined and separated from other *Demansia* species by Shea and Scanlon 2007.

Distribution: Known only from the type localities in region east of the Pilbara in Western Australia. The nominate form of *Demansia shinei* is known only from drier parts of the Northern Territory and immediately adjacent parts of northern Western Australia.

Etymology: Named in honour of Brian Starkey of Ravenshoe North Queensland, Australia, previously of New South Wales, Australia, in recognition of a lifetime's work with reptiles, often in difficult circumstances.

FIRST REVISOR'S INSTRUCTIONS

Unless mandatory under the rules of zoological nomenclature of the time, no new scientific names formally defined herein are to have spellings altered in any way.

CONFLICT OF INTEREST

This author reports no conflict of interest in terms of any material within this paper.

REFERENCES CITED

Ahl, E. 1926. Neue Eidechsen und Amphibien. *Zool. Anz*. 67:186-192.

Avila, L. J., Morando, M. and Sites, J. W. 2008. New Species of the Iguanian Lizard Genus *Liolaemus* (Squamata, Iguania, Liolaemini) from Central Patagonia, Argentina. *Journal of Herpetology* 42(1):186-196.

Boulenger, G. A. 1902. Description of a new snake of the genus *Pseudechis* from Queensland. *Ann. Mag. Nat Hist.* (7)10:494-495.

Boulenger, G. A. 1906. Description of a new lizard and a new snake from Australia. *Ann. Mag. Nat. Hist.* (7)18:440-441.

Cogger, H. G. 2014, *Reptiles and Amphibians of Australia.* CSIRO, Australia.

Department of Agriculture, Fisheries and Forestry, Queensland (DAFF) 2014. Australia's own grass. Website at: https://www.daff.qld.gov.au/plants/field-crops-and-pastures/pastures/enhancing-post-drought-recovery/australias-own-grass (downloaded on 20 August 2014).

De Vis, C. W. 1905. A new genus of lizard. *Ann. Queensland Museum* (Brisbane) 6:46-52.

Fitch, A. J., Goodman, A. E. and Donnellan, S. C. 2006. A molecular phylogeny of the Australian monitor lizards (Squamata:Varanidae) inferred from mitochondrial DNA sequences. *Australian Journal of Zoology*, 54:253-269.

Gillam, M. W. 1979 The genus *Pseudonaja* (Serpentes: Elapidae) in the Northern Territory. *Territory Parks and Wildlife Commission* [Alice Springs], *Research Bulletin*, No 1:1-28.

Gregory, C. J. 2010. A systematic review of two Australo-Pacific Snake Genera (*Oxyuranus* and *Pseudonaja*). PdD Thesis, Griffth University, 2010.

Günther, A. 1858. *Catalogue of the colubrine snakes in the British Museum.* British Museum, London, UK:281 pp.

Harvey, M. B., Barker, D. G., Ammerman, L. K. and Chippindale, P. T. 2000. Systematics of Pythons of the *Morelia Amethistina* Complex (Serpentes: Boidae) with the Description of Three New Species. *Herpetological Monographs* 14(2000):139-185.

Hoser, R. T. 1998. A new snake from Queensland, Australia (Serpentes: Elapidae). *Monitor* 10(1):5-9,31.

Hoser, R. T. 2009. Eight new taxa in the genera *Pseudonaja* Gunther, 1858, *Oxyuranus* Kinghorn, 1923 and *Panacedechis* Wells and Wellington 1985 (Serpentes:Elapidae). *Australasian Journal of Herpetology* 4:1-27.

Hoser, R. T. 2012. Robust taxonomy and nomenclature based on good science escapes harsh fact-based criticism, but remains unable to escape an attack of lies and deception. *Australasian Journal of Herpetology* 14:37-64.

Hoser, R. T. 2013a. The science of herpetology is built on evidence, ethics, quality publications and strict compliance with the rules of nomenclature. *Australasian Journal of Herpetology* 18:1-80.

Hoser, R. T. 2013b. Monitor Lizards reclassified with some common sense (Squamata: Sauria: Varanidae). *Australasian Journal of Herpetology* 21:41-58.

Hoser, R. T. 2014. Tidying up Death Adder taxonomy (Serpentes: Elapidae: *Acanthophis*): including descriptions of new subspecies and the first ever key to identify all recognized species and subspecies within the genus. *Australasian Journal of Herpetology* 23:22-34.

Kaiser, H. 2012a. SPAM email sent out to numerous recipients on 5 June 2012.

Kaiser, H. 2012b. Point of view. Hate article sent as attachment with SPAM email sent out on 5 June 2012.

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.

Lucas, A. H. S., and Frost, C.1903. Description of two new Australian lizards, *Varanus spenceri* and *Diplodactylus bilineatus. Proceedings of the Royal Society of Victoria*, 15:145-147.

Mertens, R. 1942. Ein weiterer neuer waran aus Australien. *Zoologischer Anzeiger,* 137:41-44.

Parker, H. W. 1926. New reptiles and a new frog from Queensland. *Annals and Magazine of Natural History* 9(17):665-670.

Peters, W. C. H. and Doria, G. 1878. Catalogo dei retilli e dei batraci raccolti da O. Beccari, L. M. D'Alberts e A. A. Bruijn. nella sotto-regione Austro-Malese. *Annali del Museo Civico de Storia Naturale di Genova*. (1)13:323-450.

Pyron, R. A., Burbrink, F. T. and Wiens, J. J. 2013. A phylogeny and revised classification of Squamata, including 4151 species of lizards and snakes. *BMC Evolutionary Biology* 13:93. [doi:10.1186/1471-2148-13-93].

Ride, W. D. L. (ed.) *et al.* (on behalf of the International Commission on Zoological Nomenclature) 1999. *International code of Zoological Nomenclature*. The Natural History Museum, Cromwell Road - London SW7 5BD, UK (also commonly cited as "ICZN 1999").

Shea, G. M. and Scanlon, J. D. 2007. Revision of the Small Tropical Whipsnakes Previously Referred to *Demansia olivacea* (Gray, 1842) and *Demansia torquata* (Günther, 1862) (Squamata: Elapidae). *Records of the Australian Museum* 59:117-142.

Skinner, A. 2009. A multivariate morphometric analysis and systematic review of *Pseudonaja* (Serpentes, Elapidae, Hydrophiinae). *Zoological Journal of the Linnean Society* 155(1):171-197.

Skinner, A., Donnellan, S. C., Hutchinson, M. N. and Hutchinson, R. G. 2005. A phylogenetic analysis of *Pseudonaja* (Hydrophiinae, Elapidae, Serpentes) based on mitochondrial DNA sequences. *Molecular Phylogenetics and Evolution* 37(2):558-571.

Storr, G. M. 1966. Rcdiscovery and taxonomic status of the Australian lizard *Varanus primordius. Copeia*, 1966:583-584.

Wells, R. W. 2002. 'Taxonomy of the Genus *Pseudonaja* (Reptilia: Elapidae) in Australia. *Australian Biodiversity Record* (7):1-48, as reposted on the internet in six parts at: http://forum.kingsnake.com/tax/messages/1035.html, http://forum.kingsnake.com/tax/messages/1036.html, http://forum.kingsnake.com/tax/messages/1037.html, http://forum.kingsnake.com/tax/messages/1038.html, http://forum.kingsnake.com/tax/messages/1039.html, and http://forum.kingsnake.com/tax/messages/1040.html.

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.

Wüster, W. 2001a. Post on Kingsnake.com at: January 22, 2001 at 11:29:07 (same document as Wüster, W., Bush, B., Scott Keogh, J., O'Shea, M. and Shine, R. 2001. Cited below except Wüster was listed here as the sole author).

Wüster, W., Bush, B., Scott Keogh, J., O'Shea, M. and Shine, R. 2001. Taxonomic contributions in the "amateur" literature: comments on recent descriptions of new genera and species by Raymond Hoser. *Litteratura Serpentium* 21(3):67-91.

Wüster, W. Dumbrell, A. J., Hay, C., Pook, C. E., Williams, D. J. and Fry, B. G. 2005. Snakes across the Strait: trans-Torresian phylogeographic relationships in three genera of Australasian snakes (Serpentes: Elapidae: *Acanthophis*, *Oxyuranus*, and *Pseudechis*). *Molecular Phylogenetics and Evolution* 34:1-14.

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