

New snake taxa from Australasia, Asia and Africa.

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ABSTRACT

Following on from many years of field and laboratory study as well as a review of relevant publications, taxa of snakes from the Australasian region and Africa have their current classifications re-arranged to better reflect their morphological differences and phylogenies.

Where appropriate, new taxa are formally described according to the Zoological Code (Ride *et al.* 1999) for the first time.

Included within this paper are the following actions:

Two new species of the Australian genus *Cacophis* Günther, 1863, are formally described and named.

The genus *Cacophis* is also divided in two using available names, each group conservatively placed into subgenera, namely *Cacophis* and *Petrodymon* Krefft, 1866.

The genus *Cryptophis* Worrell, 1961 is also divided three ways into subgenera, two being formally named for the first time.

The Misima Island *Charlespiersonserpens*, until now assigned to the species *Charlespiersonserpens* (*Charlespiersonserpens*) *salomonis* (Günther, 1872) is herein formally described as a new species.

Species within the genus *Chrysopelea* Boie, 1826 are divided into obvious geographical groups; the result being one subspecies elevated to full species and five new subspecies formally named for the first time.

The Halmahera Islands Reticulated Python *Broghammerus reticulatus* (Schneider, 1801) is formally described as a new subspecies.

The genus *Aparallactus* Smith, 1849 as defined by Hoser in 2012 is further divided, with the transfer of the species *Aparallactus jacksonii* (Günther, 1888) to a genus formally named for the first time.

Keywords: Taxonomy; Australasia; Asia; Africa; *Cacophis*; *Petrodymon*; *Cryptophis*; *Chrysopelea*; *Aparallactus*; *Broghammerus*; *Malayopython*; *squamulosus*; *churchilli*; *krefftii*; *harriettae*; *jacksonii*; *reticulatus*; new genus; *Snowdonus*; new subgenera; *Macconchieus*; *Lukefabaus* new species; *scanloni*; *sheai*; *charlespiersoni*; new subspecies; *ghatsiensis*; *caerulea*; *johorensis*; *borniensis*; *tepedeleni*; *mandella*.

INTRODUCTION

In the period culminating end 2012, I did an audit of the world's snakes to identify unnamed genera, with an emphasis on those easily identified on the basis of existing published material and the strongest of scientific evidence. This evidence was usually both morphological and molecular. In some cases direct molecular evidence was unavailable, but easily inferred based on molecular studies of other reptiles constrained in distribution by the same habitats and geographical barriers within regions, allowing me to accurately infer divergence times.

Alternatively sound geological evidence allowed me to make similar accurate judgements.

While the audit was not exhaustive as such, I did with reasonable confidence, identify and name the majority of obvious unnamed snake genera on the planet, this being groups for which names were not available at the time according to the Zoological Code (Ride *et al.* 1999).

Some groups of snakes required further inspection and analysis and there is no doubt that there remain unnamed genera of

snakes that I have in fact missed, overlooked or bypassed in the absence of sound data.

I estimate between 10 and 30 unnamed genera of snakes left on the planet using currently recognized and used criteria for defining snake genera, for which there are not available names. There is a significantly greater number of unrecognized genera for which there are available names in accordance with the Zoological Code (Ride *et al.* 1999), many of which I identified in papers published in the period 2012, 2013 as listed on the Zoobank database (all within issues 10-21 of *Australasian Journal of Herpetology*).

At the same time numerous unnamed species were identified, of which some were formally identified and named and others were not.

Of those that weren't, these were usually not named on the basis that other herpetologists had indicated to me that they were seeking to name these taxa themselves.

A small number of taxa were not named on the basis I required

further evidence of proof that they were in fact taxonomically distinct and therefore in need of nomenclatural recognition.

The snake taxa described within this paper include some of those of which I was aware of in 2012 (or earlier) and held over naming for one or more of the reasons outlined above and have yet to be named.

Due to the ongoing need to catalogue biodiversity as soon as practicable, relevant taxa are described for the first time herein. In terms of placements of taxa within the zoological system of nomenclature, each taxonomic unit has been treated with conservatism in mind. That is, at the lowest level of recognition possible on the basis of available evidence.

I note also the following. In 2006 an online petition sponsored by a group of animal-hating pseudoscientists including Wolfgang Wüster, Mark O'Shea, David John Williams, Bryan Fry and others posted at: <http://www.aussiereptileclassifieds.com/phpPETITION> (Hunter *et al.* 2006) called for my successful wildlife education business and all my other herpetological activity to be shut down by the government of Victoria, Australia. These men were successful in that after a ruthless five-year campaign, on 17 August 2011, 11 heavily armed police and wildlife officers conducted a highly illegal and violent raid on our family home and research facility. Myself, my wife and two young daughters were arrested at gunpoint and held captive in the kitchen of the house for nine hours while the facility was ransacked. Besides the unspeakable acts of killing captive snakes and criminal damage to cages, household goods, the raiding officers illegally shut down our business and effectively placed myself under house arrest at gunpoint for some months after the raid.

An application by myself to the Supreme Court of Victoria led to the re-opening of our unlawfully shut down wildlife education business.

Of greater relevance here is that at the time of the raid, research files spanning more than 40 years were taken and never returned, including materials and records relevant to this paper.

Material taken included all the computers, disks, hard drives, backups, cameras, scientific literature and other forms of information storage at the facility. All were loaded into the back of a truck and trailer and carted off.

Faced with the dilemma of deciding whether to spend another forty years gathering data, by which time I may be dead from old age, being aged 52 as of 2014, or publishing the relevant paper/s with less than optimal data, I have opted to publish. Underlying this motivation has been an increasing concern that a delay to formally identify and name undescribed biodiversity may lead to its extinction before another scientist gets around to the matter.

Engstrom *et al.* (2002) wrote: "The documentation of this diversity must be seen as an activity that is done not just for posterity but for immediate action and protection."

A number of authors including Kaiser (2012a, 2012b, 2013 and 2014), Kaiser *et al.* (2013), Naish (2013) and Wüster *et al.* (2014), all part of the group of people effectively controlled by Wüster, have been highly critical of the fact that I have assigned names to unnamed clades of snakes. Their unscientific and childish attacks, continued incessantly on social media such as Facebook and Twitter are rejected herein as destabilizing the nomenclature and impeding the progress of science.

Their ridiculous comments and false and defamatory statements are systematically rebutted by Hoser (2013).

I also note that many taxa formally named by myself for the first time in earlier publications (e.g. Hoser 2000a, 2000b) are in fact threatened species.

Therefore I note the sensible remarks of Engstrom *et al.* (2002) as a perfectly reasonable explanation for the publishing of taxon descriptions for such unnamed groups. This remains the case even if a sizeable amount of my original research, files, photos and data have been stolen and therefore cannot be relied upon

and incorporated into these contemporary publications.

CACOPHIS GÜNTHER, 1863.

One genus that should be divided, at least to subgenera is the Australian genus *Cacophis* Günther, 1863. The most divergent species in that genus, *Cacophis squamulosus* (Duméril, Bibron and Duméril, 1854), can be placed in the available genus (or subgenus) *Petrodymon* Krefft, 1866.

While there have been arguments against the use of monotypic genera, which incidentally I do not agree with, the description of a new species formerly confused with *Cacophis squamulosus* (Duméril, Bibron and Duméril, 1854), does in fact give this lineage (or clade) within the greater *Cacophis* two species.

Hence I use the subgeneric placement herein.

CACOPHIS (PETRODYMON) SCANLONI SP. NOV.

Holotype: Specimen number R115255 at the Australian Museum, Sydney, Australia. It was collected in the vicinity of the last 2.7 km of Chelmans Rd, Clarke Range, north of Eungella, Queensland, Australia, Lat: 21 deg 01 min S, 148 deg 33 min E. by Allen E. Greer on or about 4 October 1984.

The Australian Museum in Sydney, Australia is a government-owned facility that allows scientists access to its research collections.

Paratypes: Specimen numbers R47779 collected from Eungella, Queensland, Australia and R47915 collected from Mount William, Via Eungella, Queensland, Australia, respectively, both held at the Australian Museum in Sydney, Australia. The Australian Museum in Sydney, Australia is a government-owned facility that allows scientists access to its research collections.

Diagnosis: Until now this taxon has been treated as the Golden-Crowned Snake, *Cacophis squamulosus* (Duméril, Bibron and Duméril, 1854). However after more than 30 years of capturing and viewing many hundreds of specimens from all parts of the known range of *C. squamulosus* as defined until now, obvious north-south differences were apparent to me.

When these were quantified, the population from the Eungella Rainforests and immediately adjacent areas were seen to be different from those south of a dry zone known as the St. Lawrence Gap, that separates the northern populations from those further south.

The northern taxon, *Cacophis scanloni* sp. nov., is most readily separated from *C. squamulosus* by colour. In both species there is a large blackish patch below the eye and running to it from the suture of the mouth. That is across one or more upper labials.

The blackish patch varies in shape in specimens and is somewhat irregular in shape, also varying in size and shape geographically and by individual specimens. However in *C. squamulosus* this patch is consistently and distinctively wider than high. By contrast in *Cacophis scanloni* sp. nov. the patch is consistently and distinctively noticeably higher than wide.

Furthermore if one were to compare specimens of each taxon side by side, one finds the blackish patch considerably smaller in *Cacophis scanloni* sp. nov. than seen in *C. squamulosus*. In *C. squamulosus* there is considerable darkening on the lower margin of the upper labials posterior to the dark patch. This is not seen in *Cacophis scanloni* sp. nov..

A further consistent difference between the two species is in dorsal colouration. *Cacophis scanloni* sp. nov. is a medium to light brown in dorsal colouration, versus a dark to chocolate brown in *C. squamulosus*.

The orangeish venter is similar in intensity in both species.

The northern taxon, *Cacophis scanloni* sp. nov. is known only from the immediate vicinity of the Eungella and nearby rainforests and is separated from *C. squamulosus* by the dry zone known as the St. Lawrence Gap. *C. squamulosus* only occurs south of there and more-or-less continuously along the coast and nearby wet ranges into southern NSW, encompassing the region of the coastal strip and nearby ranges.

While there have been no molecular studies of the species *Cacophis scanloni* sp. nov. and *C. squamulosus* at the same time and place using mtDNA or nuclear DNA, the divergence times of the two forms is easily ascertained.

The study by Chapple *et al.* (2011) of the species complex *Allengreerus delicata* (identified by them as being within the genus *Lampropholis*) shows that the specimens from the Eungella bioregion diverged from the specimens south of the St. Lawrence Gap more than five million years ago.

Like snakes of the genus *Cacophis*, the skinks within *Allengreerus* are usually restricted to wet forests and similar (Hoser, 2009, 2012a), although they are not as heavily constrained to the wetter habitats as are *Cacophis* (Hoser 1989). This in effect means that the divergence time for the skinks must be taken as the minimum likely divergence estimate for the snakes.

With both north and south populations of what were until now known as *C. squamulosus* clearly being allopatric and widely separated, morphologically distinct and likely to be easily differentiated by molecular means, and there is no cross-breeding in the wild, they form two distinct species by any reasonable interpretation of the term.

Therefore I had no hesitation whatsoever in formally describing the northern population as *Cacophis scanloni* sp. nov..

As an aside, the same molecular data provides further support for the continued recognition of the species level taxon *Tropidechis sadleri* Hoser, 2003, a species formerly regarded as conspecific with *T. carinata* (Krefft, 1853) (Hoser 2003).

Distribution: *Cacophis scanloni* sp. nov. is confined to the wet forests in the general vicinity of Eungella, Queensland, Australia.

Etymology: Named in honour of Australian herpetologist John D. Scanlon. While John has publicly made demonstrably false comments in terms of some of my earlier papers, he has also made significant contributions to our knowledge of Australian snakes in a herpetological career spanning many decades. His area of expertise includes snakes of the genus *Cacophis* and so it is fitting that a species within this genus be named in his honour.

CACOPHIS (CACOPHIS) SHEAI SP. NOV.

Holotype: A specimen in the Queensland Museum, number J14287, from Mackay, Queensland, Australia. The Queensland Museum in Brisbane, Australia is a government-owned facility that allows scientists access to its research collections.

Paratype: A specimen in the Queensland Museum, number J34031 from Mackay, Queensland, Australia. The Queensland Museum in Brisbane, Australia is a government-owned facility that allows scientists access to its research collections.

Diagnosis: Similar in most respects to the species *Cacophis krefftii* Günther, 1863, and the more recently described species *Cacophis churchilli* Wells and Wellington, 1985, the latter species being formerly grouped with *C. krefftii* until described by Wells and Wellington.

Until now the species *Cacophis sheai* sp. nov. has been identified by herpetologists as the northernmost population of *C. krefftii*.

In common with *C. krefftii* the ventral surfaces in *Cacophis sheai* sp. nov. are pale yellow with narrow dark bands. By contrast in *C. churchilli* the ventral surfaces are a dark grey colour.

In common with *C. churchilli*, in *Cacophis sheai* sp. nov. there is a large dark patch occupying most of the two labials immediately below the eye that runs into the eye. By contrast in *C. krefftii* the dark section below the eye is separated from it by a distinctive thin white line and/or there is a thin white line that extends from the lower front of the eye, downwards across the labials to the suture of the mouth. There is no such line in *Cacophis sheai* sp. nov.. By contrast in *Cacophis sheai* sp. nov. the whitish patch anterior to the dark pigment on the labials beneath the eye does not reach the front of the eye.

C. churchilli is separated from *Cacophis sheai* sp. nov. and *C. krefftii* by the fact that the whitish pigment anterior to the eyes, in the snout region is heavily peppered, as opposed to being marked with small brown blotches or immaculate in the other two species.

In contrast to both *C. krefftii* and *C. churchilli* the nape in *Cacophis sheai* sp. nov. sometimes extends forwards at the sides to be noticeably wider (up to 5 scales wide), versus three in the other two species.

At the centre of the nape, the width is 2.5-3 scales wide, versus 1.5-2.5 scales wide in *C. churchilli*, less than 2 scales wide in *C. krefftii* and four or more scales wide in *C. harriettae*.

The only other species within the genus *Cacophis* (as presently recognized) is/are *C. squamulosus* Duméril, Bibron and Duméril, 1854, and now *C. scanloni* sp. nov. readily separated from the other species by the orange ventrals, with a distinct mid-ventral line of brown blotches.

The holotype of *Cacophis sheai* sp. nov. was assigned to *C. krefftii* by Scanlon (2003).

Diagnostic of both *Cacophis sheai* sp. nov. and *C. krefftii* is smooth scales, 15 dorsal mid-body scale rows, 140-160 ventrals, divided anal, and 25-40 all divided subcaudals (Hoser, 1989).

Distribution: Known only from the region in the vicinity of Eungella and Mackay, Queensland, Australia.

Etymology: Named in honour of Australian herpetologist Glenn Shea. While Glenn has publicly criticized some of my earlier papers, he has also made significant contributions to our knowledge of Australian reptiles in a herpetological career spanning many decades, including as most recent editor of the Australian journal *Herpetofauna*. Therefore it is entirely appropriate that a species within this genus be named in his honour.

A THREE-WAY DIVISION OF CRYPTOPHIS WORRELL, 1961.

The genus *Cryptophis* has until now been treated largely as a "parking lot" for morphologically similar species, with some species within the genus (e.g. *Denisonia boschmai* Brongersma and Knaap-van Meeuwen 1961), being transferred between several genera previously and with little apparent regard to whether or not the similarities between species more properly reflect recent divergence or convergence in habits.

Noting the extreme morphological conservatism of small land-dwelling elapids, it is clear that *Cryptophis* as currently understood in Australian herpetology is composite when treated at the genus level and it is therefore broken up three ways along the most obvious morphological lines.

In order to maintain ongoing nomenclatural stability and in the absence of sound molecular data to corroborate the obvious physical evidence, each new group is herein defined as a subgenus only.

I had intended doing a similar division of the relatively large genus *Demansia* Günther, 1858, however was recently advised by Richard Wells of NSW that he had a pending publication naming a new division within this genus in honour of his friend Rob Valentic. It is not as important who names given taxa as opposed to that it is properly identified and named and therefore I have no issue to Richard Wells, a herpetologist of many decades standing, having naming rights in terms of unnamed taxa in that group.

A similar situation applies in terms of a southern Queensland species of *Antaioserpens* Wells and Wellington, 1985, a Queensland colubrid and some currently unnamed West Australian blindsnake taxa.

GENUS CRYPTOPHIS WORRELL, 1961.

Type species: *Hoplocephalus pallidiceps* Günther, 1862.

Diagnosis: The genus (*sensu lato*) as defined herein is diagnosed and separated from all other Australian elapid genera by the following suite of characters: dorsal colour may or may

not be uniform, but when not uniform is of the form of a darker vertebral stripe, that may in some specimens extend to the lower flanks of the body; scalation is smooth with 15 dorsal mid-body rows; the frontal is longer than broad, more than one and a half times as broad as the supraocular; supranasals present; anal single; 20-70 all single subcaudals; no subocular scales; two to five small solid maxillary teeth follow the fang on each side. The eye is characteristically small to tiny in size, typically beady in appearance and is usually not, or scarcely wider than the distance of the eye from the margin of the upper lip. The head is more-or-less uniformly coloured and while more or less continuous with the body colour, may be somewhat darker and obviously so in juveniles and young specimens. This colouration is in notable contrast to the so-called hooded snakes of the genus *Parasuta* which are diagnosed by their dark head and brownish coloured neck and body.

The genus *Unechis* Worrell, 1961 is recognized in line with Hoser, 2012c, and notably Wells and Wellington, 1985.

Specimens in that genus are readily separated from *Cryptophis* by the fact that the nasal does not contact the preocular, as shown on page 873 of Cogger (2014). In *Cryptophis (sensu lato)* as defined herein the nasal contacts the preocular.

As a result of the proceeding definition, the only species assigned to *Unechis* Worrell, 1961 on the basis of the preceding is *Unechis boschmai* (Brongersma and Knaap van Meeuen, 1961).

This includes both Australian and New Guinea forms.

This is a different configuration for the genus as defined by Wells and Wellington (1985) and that of Cogger (2014) who only recognizes *Cryptophis* and has synonymised the genus *Unechis* within *Cryptophis*. Cogger's placement of the species *Hoplocephalus nigrostriatus* Krefft 1864 and *Unechis incredibilis* Wells and Wellington, 1985 within *Cryptophis sensu lato* is accepted herein, although both these species are herein placed within a newly named subgenus.

Wells and Wellington (1985) treated both *Hoplocephalus nigrostriatus* Krefft 1864 and *Unechis incredibilis* Wells and Wellington, 1985 as being within *Unechis* but did not formally define the genus within their paper.

This was copied by Hoser (2012c), but on the basis of the above, these two species are treated herein as being within a subgenus of *Cryptophis*.

As already indicated herein, neither taxon fit within the genus *Unechis* as defined herein.

Distribution: Wetter parts of eastern Australia, northern Australia and New Guinea.

Content: *Cryptophis pallidiceps* (Günther, 1858) (type for genus); *C. assimilis* (Macleay, 1885); *C. durhami* (Hoser, 2012); *Cryptophis edwardsi* Hoser, 2012; *C. incredibilis* (Wells and Wellington, 1985); *C. nigrescens* (Günther, 1862); *C. nigrostriatus* (Krefft, 1864).

MACCONCHIEUS SUBGEN. NOV.

Type species: *Hoplocephalus nigrostriatus* Krefft 1864

Diagnosis: The subgenus *Macconchieus subgen. nov.* is readily separated from other *Cryptophis* species (both other subgenera) by being predominantly pink or reddish above as opposed to being more-or-less uniformly dark black or dark brown above. When there is a distinct black, dark grey or brown vertebral stripe along the length of the body, this line does not extend so wide as to encroach the lower flanks of the sides (as seen in the subgenus *Cryptophis*).

The subgenus *Macconchieus subgen. nov.* is further diagnosed by the possession of 160-190 ventrals and 45-70 all single subcaudals, as opposed to less than 45 in *Lukefabaus subgen. nov.* formally named below.

The subgenus *Cryptophis* is further separated from the other subgenera by the presence of a distinct pale patch on the top of the head between the anterior edge of the frontal shield and the

posterior edge of the parietal shields. This is not seen in the other subgenera.

While all *Cryptophis* subgenera have small eyes, those within *Lukefabaus subgen. nov.* are noticeably the smallest, appearing pin-like in form and giving these snakes their common name "small-eyed snake".

Distribution: Eastern Queensland, most commonly found in drier forested and hilly areas, as well as nearby parts of southern New Guinea.

Etymology: Named in honour of Donvale, Melbourne, Victoria, Australia, based lawyer Lachlan McConchie for his services to wildlife conservation including in 2013 defending several people wrongly charged by corrupt government wildlife officials for rescuing supposedly protected wild ducks, illegally shot by fauna officers acting outside of the very rules they were supposed to be enforcing.

Lawyers as an occupational group, do have a terrible reputation, but Mr. McConchie is one of those who stands well outside of this stereotype.

Content: *Cryptophis (Macconchieus) nigrostriatus* (Krefft, 1864); *C. (Macconchieus) durhami* (Hoser, 2012); *C. (Macconchieus) incredibilis* (Wells and Wellington, 1985).

LUKEFABAUS SUBGEN. NOV.

Type species: *Hoplocephalus nigrescens* Günther, 1862.

Diagnosis: All species in the subgenus *Lukefabaus subgen. nov.* are readily separated from the other subgenera of *Cryptophis* and similar Australian elapid genera by the fact that the head and body is more-or-less a uniform black or dark grey above, including a head that is a uniform colour in line with the body colour. In newborn snakes and immature specimens, the head may appear blackish and the body slightly lighter in overall colour.

The subgenus *Macconchieus subgen. nov.* is readily separated from other *Cryptophis* species (both other subgenera) by being predominantly pink or reddish above as opposed to being more-or-less uniformly dark black or dark brown above. When there is a distinct black, dark grey or brown vertebral stripe along the length of the body, this line does not extend so wide as to encroach the lower flanks of the sides (as seen in the subgenus *Cryptophis*).

The subgenus *Macconchieus subgen. nov.* is further diagnosed by the possession of 160-190 ventrals and 45-70 all single subcaudals, as opposed to less than 45 in *Lukefabaus subgen. nov.* formally named here.

The subgenus *Cryptophis* is further separated from the other subgenera by the presence of a distinct pale patch on the top of the head between the anterior edge of the frontal shield and the posterior edge of the parietal shields.

While all *Cryptophis* subgenera have small eyes, those within *Lukefabaus subgen. nov.* are noticeably the smallest, appearing pin-like in form and giving these snakes their common name "small-eyed snake".

Lukefabaus subgen. nov. have a venter that may range from immaculate white, through shades of pink, orange or red, with or without other flecks, lines or markings on the background. This character varies both between individual snakes, with age and between species.

Distribution: Wetter parts of eastern Queensland, commencing at Cape York and then running south through eastern NSW into Victoria. Not known from Tasmania or New Guinea. The three described species appear to be allopatric.

Etymology: Named in honour of Doncaster, Melbourne, Victoria, Australia, based lawyer Luke Faba for his services to wildlife conservation and public safety including in 2013 successfully taking action against serial police-protected criminals and trademark bootleggers who were ripping off the registered Snakebusters trademarks and putting innocent lives at risk with their reckless actions via their own unsafe wildlife displays.

It is those people who have no respect for IP laws, the rules of zoological nomenclature and ethics in general who pose a serious long-term threat, not just to herpetology, but wildlife conservation in general.

Content: *C. (Lukefabaus) nigrescens* (Günther, 1862) (type species); *C. (Lukefabaus) assimilis* (Macleay, 1885); *C. (Lukefabaus) edwardsi* Hoser, 2012.

A NEW CHARLESPIERSONSERPENS SPECIES

There is no doubt at all that a number of species of tree snakes within the genera *Dendrelaphis* Boulenger, 1890, and *Charlespiersonserpens* Hoser, 2012 await formal description.

One of the more obvious undescribed species is formally described below according to the Zoological Code (Ride *et al.* 1999).

CHARLESPIERSONSERPENS

(CHARLESPIERSONSERPENS) CHARLESPIERSONI SP. NOV.

Holotype: A male specimen, number AMNH 76691, from Misima Island, Milne Bay Province, Papua New Guinea, held at the American Museum of Natural History, New York, USA. The American Museum of Natural History, New York, USA is a government-owned facility that allows scientists access to its research collections.

Paratypes: Specimen numbers AMNH 76693 (a male), AMNH 76692 and AMNH 76694 (both females) from Misima Island, Milne Bay Province, Papua New Guinea, held at the American Museum of Natural History, New York, USA. The American Museum of Natural History, New York, USA is a government-owned facility that allows scientists access to its research collections.

Diagnosis: Previously this taxon was regarded as a variant of *Charlespiersonserpens* (*Charlespiersonserpens*) *salomonis* (Günther, 1872), listed in most recent literature as *Dendrelaphis salomonis* (Günther, 1872) (e.g. McDowell 1984).

In the normal course of events, the species *C. charlespiersoni* sp. nov. would key out as *C. salomonis*.

However *C. charlespiersoni* sp. nov. is most readily separated from *C. salomonis* in the field or as a corpse by its melanistic dorsal colouration, which is not a trait seen in *C. salomonis*.

C. charlespiersoni sp. nov. is diagnostically separated from *C. salomonis* by the presence of 28-29 maxillary teeth (longest posteriorly) in each maxilla, versus just 21 in the species *C. salomonis*.

C. charlespiersoni sp. nov. lacks the conspicuous sensory pits seen in the side of the head of *C. salomonis*.

C. charlespiersoni sp. nov. is characterized by 178-179 ventrals in males and 189-191 in females, a count similar to that for *C. salomonis*.

C. charlespiersoni sp. nov. and *C. salomonis* have similar hemipenial structure.

Distribution: *C. charlespiersoni* sp. nov. is known only from Misima Island, Milne Bay Province, Papua New Guinea. This is a known distribution mutually exclusive of the taxon *C. salomonis*.

Etymology: Named in honour of the esteemed Australian publisher Charles Pierson. See the detailed etymology in Hoser (2012b) for *Charlespiersonserpens* Hoser (2012).

CHRYSOPELEA BOIE, 1826.

Hoser (2013a), divided the genus as widely recognized into two. The subgenus *Wellsserpens* Hoser, 2013 was erected to accommodate the divergent taxon *Chrysopelea taprobanica* Smith, 1943, noting herein there is strong evidence presented by Hoser 2013a to consider the placement of *C. taprobanica* into its own genus.

The remaining species within the genus *Chrysopelea* have long been known to have regionally divergent forms (Boulenger, 1890) and it is with some surprise that some of the better known

ones have not yet been formally named.

Hence this is done herein.

Chrysopelea ornata (Shaw, 1802) is herein divided into two species. While the holotype for "*Coluber ornatus* Shaw, 1802" has been lost, it is clear from the written description that the taxon described is the form known as the race found from north-east India throughout south-east Asia in the region bound by China in the east and Peninsula Malaysia in the South. This also means that the taxon name *Chrysopelea ornata ornatissima* Werner, 1925 is a junior synonym for *C. ornata*, meaning it is no longer recognized by this author.

The better-known form of the species until now known as *Chrysopelea ornata* is that with the red dorsal markings in alternate light cross-bands that is found in Sri Lanka and the Western Ghats of India. The available name for this form is *Chrysopelea ornata sinhaleya* Deraniyagala, 1945 herein elevated to a full species.

The specimens from the Western Ghats of India, while morphologically similar, do have consistent phenotypic differences and are therefore named herein as a new subspecies of *C. sinhaleya* Deraniyagala, 1945.

The very distinct bluish form of *C. ornata* from the Con Dao Archipelago, Vietnam, is formally described herein as a new subspecies based on consistent colour and scalation differences to the nominate form.

The species *Chrysopelea paradisi* Boie, 1827 has long been known to be regionally variable. Three recognized forms have been described to date, these being those from Java (the nominate form), the Philippines form and another from Sulawesi. Herein are described the forms from Borneo, Sumatra and mainland South-east Asia, each named herein as subspecies.

CHRYSOPELEA ORNATA CAERULEA SUBSP. NOV.

Holotype: A specimen at the United States National Museum, Vertebrate Zoology; Amphibians and Reptiles collection, specimen number: 165065 (one animal), collected at Little Hon Tre Island, Con son Islands. The United States National Museum is a public facility that allows inspection of specimens by scientists.

Diagnosis: This subspecies is readily differentiated in life from the nominate form (*C. ornata ornata*) by the overall bluish hue of specimens versus greenish or yellow in the nominate form. As well as being the only form of *C. ornata* found in its known range the Con Dao Archipelago, Vietnam, there is little possibility of either this form *C. ornata caerulea* subsp. nov. or *C. ornata ornata* being confused.

It is only the absence of molecular data that I hesitated in describing this form as a full species, the most obvious differences being in colour, but these differences being supported by consistent scalation differences as well.

C. ornata caerulea subsp. nov. is further separated from *C. ornata ornata* by having nine as opposed to ten upper labials, three post oculars as opposed to two, no yellow etching above the eye, instead being mainly black, with limited bluish flecks and mainly black in the upper parts of the first four upper labials, as opposed to only limited dark colour in the upper parts of the first four upper labials in *C. ornata ornata*.

In *C. ornata caerulea* subsp. nov. the light (bluish) patch in front of the eye is more than twice as long (high) as wide, versus less than twice as long (high) as wide for the light (yellowish or green) patch in front of the eye in the nominate form.

In *C. ornata caerulea* subsp. nov. the lower labials and underside of the head are immaculate white, versus yellowish or greenish in the nominate form, or where whitish, with a distinct colour tinge.

C. ornata caerulea subsp. nov. has an immaculate aqua blue belly, being most rich in hue at the rear end of the body. At the tail end, posterior to the venter, black markings from the flanks also appear on the venter.

By contrast *C. ornata ornata* has a yellowish or green venter. Dorsally *C. ornata caerulea subsp. nov.* presents as an aqua-coloured snake with blackish throughout.

Distribution: Known only from the type locality area of the Con Dao Archipelago, Vietnam.

Etymology: Named in reflection of the overall colour of specimens in life (blue).

CHRYSOPELEA SINHALEYA GHATSIENSIS SUBSP. NOV.

Holotype: A specimen at the California Academy of Science (CAS), specimen number: 17257 from Malabar, Kerala, India. The California Academy of Science is a facility that allows public access to its specimens.

Paratype: A specimen at the California Academy of Science (CAS), specimen number: 17256 from Malabar, Kerala, India. The California Academy of Science is a facility that allows public access to its specimens.

Diagnosis: *Chrysopelea sinhaleya ghatsiensis subsp. nov.* is in most respects identical to the nominate form *C. sinhaleya sinhaleya* from Sri Lanka (until now usually referred to as *C. ornata sinhaleya*). It is however separated from the latter both in the field and the laboratory by the following external characters: a slight darkening of the center of the upper labials (not so in the Sri Lanka form) and the fifth labial ends directly under eye as opposed to slightly anterior to the middle of the eye in the Sri Lanka form.

Distribution: Known from the Western Ghats of India only. Specimens reported from scattered locations in the Eastern Ghats are also likely to be of this subspecies.

Etymology: Named in reflection of the type locality and the region the subspecies comes from.

CHRYSOPELEA PARADISI BORNIIENSIS SUBSP. NOV.

Holotype: Specimen number: R-8440 at the Museum of Comparative Zoology (MCZ), Harvard University, USA, collected from Sadong district, Sarawak Borneo, Indonesia. This is a facility that allows access to specimens by scientists.

Paratypes: Specimen number: R-8439 and R-8441 at the Museum of Comparative Zoology (MCZ), Harvard University, USA, collected from Sadong district, Sarawak Borneo, Indonesia. This is a facility that allows access to specimens by scientists.

Diagnosis: This subspecies is readily separated from all previously described forms of *C. paradisi* and those described herein (this paper) by the following suite of characters: The first three unbroken dorsal crossbars behind the head are whitish in colour, and the two dorsal whitish cross-bars anterior to the eye-line are u-shaped.

Etymology: Named in reflection of the type locality.

CHRYSOPELEA PARADISI JOHORENSIS SUBSP. NOV.

Holotype: Specimen number ZRC.2.3604 at the Raffles Museum of Biodiversity Research, renamed the Lee Kong Chian Natural History Museum on 1 April 2014, Singapore, the specimen being from Johore, Johor, (Peninsula) Malaysia (SV 68.5 cm, TL 92.5 cm). This is a facility that allows access to specimens by scientists.

Paratype: Specimen number ZRC.2.3608 at the Raffles Museum of Biodiversity Research, renamed the Lee Kong Chian Natural History Museum on 1 April 2014, Singapore, the specimen being from Penang, (Peninsula) Malaysia (SV 48.0 cm, TL 64.5 cm). This is a facility that allows access to specimens by scientists.

Diagnosis: This subspecies is readily separated from all previously described forms of *C. paradisi* and those described herein (this paper) by the following suite of characters: The two dorsal whitish cross-bars anterior to the eye-line are not u-shaped, although the posterior of the two does angle forward in the midsection as compared to where it leaves the eyes. The characteristic dark anterior bars and markings are invariably

speckled with yellow or orange spots.

Distribution: Peninsula Malaysia, including Singapore and adjoining parts of countries immediately to the north, these being Thailand, Vietnam, and Burma, including immediately adjacent offshore islands.

Etymology: Named in reflection of the type locality.

CHRYSOPELEA PARADISI TEPEDELENI SUBSP. NOV.

Holotype: Specimen number 59918 at the University of Colorado Museum of Natural History (UCM), USA, collected from near Curup, Sumatra, Indonesia. This is a facility that allows access to specimens by scientists.

Diagnosis: This subspecies (*C. paradisi tepedeleni subsp. nov.*) is readily separated from all previously described forms of *C. paradisi* and those described herein (this paper) by the following suite of characters: The possession of a yellow head, and the dorsal yellow lines behind eye-line form a pair of distinct broken ocelli. Where such ocelli occur in *C. paradisi johorensis subsp. nov.*, they are invariably speckled with yellow or orange spots, which is not seen in this subspecies.

Distribution: Sumatra including immediately adjacent offshore islands.

Etymology: Named in honour of the collector of the type specimen of this subspecies, Kamuran Tepedelen in recognition of his many contributions to the herpetology of the south-east Asian region.

BROGHAMMERUS HOSER 2004.

When I first erected the genus *Brogammerus* in 2003/2004 for the morphologically divergent Reticulated Pythons, most sensible herpetologists agreed with my decision. This of course included the *Victorian Association of Amateur Herpetologists* who courageously published the relevant paper (Hoser, 2004) in spite of ongoing threats and harassment from criminals Wolfgang Wüster, Mark O'Shea and others (see Hoser 2013c for details).

Following publication of the paper (Hoser, 2004), Wüster *et al.* used various unethical methods to stop others using the name (as outlined in Hoser 2012e and 2013c). However I might add that none of these actions had any ethical or scientific basis.

In 2008, Leslie Rawlings and others used newly available technology in the form of mitochondrial DNA studies to affirm that *Brogammerus* was in fact generically distinct from the other python genera (confirmed by Pyron *et al.* 2013) and hence encouraged others to use the validly assigned name.

As a result of Rawlings *et al.* (2008), the name came into widespread usage.

More recently in 2012 and 2013, as the Wüster gang became increasingly desperate in their futile attempts to stop other scientists using correct taxonomy and nomenclature, they published a series of so-called papers encouraging others to violate the rules of Zoological Nomenclature and rename all Hoser-named taxa (Kaiser 2012a, 2012b, and Kaiser *et al.* 2013) as well as numerous internet hate posts as listed by Hoser (2013c).

At end 2013, Reynolds *et al.* published an online paper renaming the genus *Malayopython*. The name is not nomenclaturally valid because it is a junior synonym of *Brogammerus* (same type species) and therefore should not be used. Also their online paper appeared in three different online versions (Reynolds *et al.* 2013a, 2013b and 2014), meaning it didn't comply with Article 8:1:3 of the code in that it was not published in accordance with the code.

Article 8:1:3 reads as follows:

"8.1.3. it must have been produced in an edition containing simultaneously obtainable copies by a method that assures numerous identical and durable copies."

To justify their rule-breaking actions Reynolds *et al.* cited Kaiser *et al.* (2013), better known as Wüster *et al.*, which had called for

a mass breaking of the rules of Zoological Nomenclature with a view to creating taxonomic and nomenclatural chaos, an action condemned by Shea (2013a, 2013b, 2013c, 2013d), Cogger (2013, 2014) and others.

Reynolds *et al.* went further and also made a false claim that *Brogammerus* was a "*nomen nudem*".

However a read of the original paper Hoser (2004) finds that this was not the case.

Furthermore, "*nomen nudem*" is defined in the code as follows: "A Latin term referring to a name that, if published before 1931, fails to conform to Article 12; or, if published after 1930, fails to conform to Article 13."

Article 13 reads:

"Article 13. Names published after 1930.

13.1. Requirements. To be available, every new name published after 1930 must satisfy the provisions of Article 11 and must 13.1.1. be accompanied by a description or definition that states in words characters that are purported to differentiate the taxon".

As the diagnosis for *Brogammerus* in 2004 does this, the claim by Reynolds *et al.* is both fanciful and reckless.

In other words, the claims by Reynolds *et al.* are false and known by them to be and they have therefore been guilty of a case of extreme reckless taxonomic vandalism.

Hence the name *Brogammerus* is the appropriate genus name for the Reticulated Pythons and *Malayopython* is not to be used.

In terms of the other significant part of the paper (Hoser 2004), the Wüster gang have had great success in stopping others from using the subspecies names for regional variants of Reticulated Pythons as first formally proposed at the time.

As private hobbyists in particular have gained greater access to variants of known locality, the stopping of people using correct subspecies names to identify these animals is looking increasingly ridiculous as explained in Hoser (2013b).

One of the obvious subspecies not formally named by Hoser (2004) was that from Halmahera, which is morphologically similar in many respects to that form from Ambon and Ceram (namely *B. reticulatus dalegibbonsi*).

So as to stabilize the nomenclature sooner rather than later, that taxon is formally described below according to the Zoological Code (Ride *et al.* 1999).

BROGHAMMERUS RETICULATUS MANDELLA SUBSP. NOV.

Holotype: A specimen at the US National Museum (USNM), Washington, DC, specimen number 215933 from Halmahera, Indonesia. The USNM is a government-controlled facility that allows access to specimens by scientists.

Paratypes: Specimens at the US National Museum (USNM), Washington, DC, specimen numbers 237101, 237664, 215930, 215931, 215932, 215934, 215935, 215936 from Halmahera, Indonesia. The USNM is a government-controlled facility that allows access to specimens by scientists.

Diagnosis: *Brogammerus reticulatus mandella subsp. nov.* and *B. reticulatus dalegibbonsi* are separated from all other *B. reticulatus* by colouration of the head. In these two subspecies there is a distinct midline stripe on the head and neck, black in colour that is approximately 2/3 of a scale width, and the rest of the dorsal surface of the head is brownish in colour, with a darkening of the region of scales towards the snout. At the rear of the skull and dorsally are two well-spaced black dots about one scale wide, the first about one scale from the mid-dorsal line and the second about 4 scales further across the head. There are dark markings on the side of the head in the form of a stripe from the rear of the eye to the lower part of the head.

In these subspecies and the Timor subspecies (*B. reticulatus patrickcouper*), this stripe is noticeably irregular in thickness. *Brogammerus reticulatus mandella subsp. nov.* is separated from *B. reticulatus dalegibbonsi* by the size and shape of the white lateral blotches. In *Brogammerus reticulatus mandella subsp. nov.* these are long and thin and penetrate beyond the

dark brown patterning on the side of the snake to end within the light grey pigment. By contrast in *B. reticulatus dalegibbonsi* the same white lateral blotches end within the dark brown patterning on the sides of the snake. Specimens from Obi and Bisa are attributable to the taxon *B. reticulatus dalegibbonsi*.

Distribution: *B. reticulatus mandella subsp. nov.* is known only from the island of Halmahera, Indonesia and immediately adjacent outliers.

Etymology: Named in honour of the late Nelson Mandella, former prisoner then first "Black" President of the Republic of South Africa, in recognition for his efforts in averting the widely forecast "bloodbath" expected when the Apartheid regime was toppled.

APARALLACTUS SMITH, 1849 SENSU LATO

Hoser (2012d) divided the genus *Aparallactus* Smith, 1849 three ways. The species *Aparallactus jacksonii* (Günther, 1888), was also believed to be sufficiently distinct to warrant subspecific recognition at the time, but action to do so was deferred pending further examination of relevant material. The differences between this species and others within *Aparallactus* Smith, 1849 as defined by Hoser (2012d) are in fact worthy of full generic-level differentiation. As there is no available name for the monotypic group within the Zoological Code (Ride *et al.* 1999), a new genus is defined below for this taxon.

SNOWDONUS GEN. NOV.

Type species: *Uriechis jacksonii* Günther, 1888.

Most commonly known as *Aparallactus jacksonii* (Günther, 1888).

Diagnosis: Externally the monotypic genus *Snowdonus gen. nov.* is similar in appearance to other species within *Aparallactus* Smith, 1849, the genus in which this species has been placed until now.

However in many aspects of biology this species differs sharply from all other species of *Aparallactus* and also *Elapops* Günther, 1859 and *Plumridgeus* Hoser, 2012, the latter two genera removed from *Aparallactus* by Hoser (2012d), noting that most current texts treat all species within these genera as being within *Aparallactus*.

Snowdonus gen. nov. is readily separated from all other species of *Aparallactus*, *Elapops* and *Plumridgeus* by the following unique suite of characters: 138-166 ventrals, single anal, 33-52 single subcaudals, 15 mid-body scale rows, no loreal, 6 upper labials, the second separated from the prefrontal, third and fourth labials entering the orbit; preocular, two postoculars, 1+1 temporals; rostral is much broader than deep, being visible from above; internasals are much shorter, narrower and smaller than the prefrontals; preocular contacts the nasal; frontal is longer than broad, much broader than the supraocular, long as or slightly shorter than large parietals; postoculars contact anterior temporal; temporals separate parietals from the upper labials; 6 lower labials, first contacts below behind the mental; 3 lower labials contact the anterior chin shields, about as long as or slightly longer than posterior; dorsally nut brown to sandy or sometimes pinkish brown; white venter; there is a black transverse nuchal collar edged yellow on either side (anteriorly and posteriorly); there is a pair of yellow spots behind the parietal shields. The sides of the head are yellow, with the shields bordering the eye black.

This is a small species with a maximum length under 30 cm total (about one fifth of this being tail in males and one sixth in females). Females have higher ventral and lower subcaudal counts than males.

Snowdonus gen. nov. are live-bearing snakes, the young born being between a third and half the total length of the adult snake.

All species of *Aparallactus*, *Elapops* and *Plumridgeus* are live bearers.

Snowdonus gen. nov. have been recorded as feeding on

centipedes, including from within hours of birth (Pitman, 1974).

The differences between *Snowdonus gen. nov.* and other species assigned to the genera *Aparallactus*, *Elapops* and *Plumridgeus* are well known and documented (Pitman 1974, Spawls *et al.* 2001, Largen and Spawls 2010).

Distribution: Restricted to sub-Saharan East Africa, including, Ethiopia, North Tanzania, South Sudan, Kenya, Somalia and Uganda.

Etymology: Named in honour of Edward Joseph Snowden (born June 21, 1983) an American computer specialist, a former Central Intelligence Agency (CIA) employee, and former National Security Agency (NSA) contractor who disclosed top secret NSA documents to several media outlets, initiating the NSA leaks in May 2013, which revealed operational details of a global surveillance apparatus run by the NSA and other members of the Five Eyes alliance, along with numerous commercial and international partners.

Having been a victim of illegal long-term surveillance by corrupt government officials myself and the criminal attacks on my family arising from the information so obtained, I view the ongoing mass surveillance of law-abiding citizens by corrupt government employees as a serious crime and at the same sort of level as mass killings of Jews by dictators in years past as well as other acts of mass genocide and attacks on decent people.

Hence it is entirely appropriate that a genus of snakes be named in honour of this corruption whistleblower.

Content: *Snowdonus jacksonii* Günther, 1888 (monotypic).

NOMENCLATURAL STATEMENT IN TERMS OF THE DESCRIPTIONS WITHIN THIS PAPER

Unless mandated by the zoological code, no names proposed within this paper should be amended in any way for the purposes of correction, gender change or the like. In terms of priority of names in the event of conflict, where more than one newly named taxon is deemed conspecific or within a single taxon group by a later author, the priority to be taken is by page priority, this meaning the first taxon described in full is the one to take precedent.

CONFLICT OF INTEREST

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

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