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Contents

Proablepharus Fuhn, 1969 *sensu lato* revisited. Underestimated species diversity in these tiny Australian skinks leads to resurrection of two old species names and the formal description of eight new species and three new subspecies (Squamata:Scincoidea).

... Raymond T. Hoser, 3-27.

The inevitable split up of the common Australian skink lizard *Allengreerus delicata* AKA *Lampropholis delicata* into resurrected and new species (Reptilia: Squamata: Scincidae).

... Raymond T. Hoser, 28-52.

The inevitable further break up of the skink genus *Saproscincus* Wells and Wellington (1984) into two genera, each split to subgenera and the formal description of a new species from North Queensland, Australia.

... Raymond T. Hoser, 53-64.

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***Proablepharus* Fuhn, 1969 *sensu lato* revisited. Underestimated species diversity in these tiny Australian skinks leads to resurrection of two old species names and the formal description of eight new species and three new subspecies (Squamata:Scincoidea).**

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ABSTRACT

The morphologically conservative genus of tiny Australian skink *Proablepharus* Fuhn, 1969 was split into two genera, by Couper *et al.* (2018), based on significant genetic divergence between the two main species groups. Based on their classification, representing the majority view of herpetologists in Australia at the time, Couper *et al.* (2018) recognized 5 species as had Cogger (2014).

These were *Proablepharus reginae* (Glauert, 1960), the type species (originally named as *Ablepharus reginae*) and *P. tenuis* (Broom, 1896); and in the newly erected genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018, were placed *Austroablepharus kinghorni* (Copland, 1947), the type species (originally named as *Ablepharus kinghorni*), *A. barrylyoni* (Couper *et al.*, 2010), and *P. naranjicaudus* Greer *et al.* (2004).

An audit of the relevant species across their known ranges found *P. reginae* and *P. tenuis* to be composite on the basis of divergent populations across biogeographical barriers of known antiquity.

As a result both are split, with *P. broomensis* (Lönnerberg and Anderson, 1913) resurrected from synonymy with *P. tenuis* and a number of new species named for the first time.

P. reginae is split into six species, five formally named for the first time.

P. tenuis is split into five species, three named for the first time with an additional two subspecies formally named as well.

In terms of the genus *Austroablepharus*, *A. kinghorni* is split three ways, with *A. barklyensis* Wells and Wellington, 1985 resurrected from synonymy and a divergent form from far western Queensland is formally named for the first time as a new subspecies *A. kinghorni elonginquo* *subsp. nov.*

Keywords: Taxonomy; nomenclature; Australia; lizards; *Proablepharus*; *Austroablepharus*; *Ablepharus*; *Morethia*; *Acritoscincus*; *reginae*; *tenuis*; *kinghorni*; *barrylyoni*; *naranjicaudus*; *barklyensis*; *broomensis*; subjective synonyms; *davisi*; *stephensoni*; new species; *martinekae*; *stevebennetti*; *igh*; *micra*; *eughr*; *jessicabriggsae*; *garystephensoni*; *alexanderdudleyi*; new subspecies; *insolitum*; *absconditus*; *elonginquo*.

INTRODUCTION

As part of an ongoing audit into Australian lizards, skink lizards within the putative genus *Proablepharus* Fuhn, 1969 were scrutinized by myself to ascertain whether or not generic and species-level taxonomy was correct.

Flagged for many years was that the recognized species in the genus coalesced into two main species groups.

First were the species mainly associated with rocky areas in the tropics and to a lesser extent dry rocky hills and associated microclimates further south.

The relevant species were *Proablepharus reginae* (Glauert, 1960), the type species for the genus (originally named as

Ablepharus reginae), being the taxon most commonly associated with dry rocky hills in central and western Australia and *P. tenuis* (Broom, 1896), similarly associated with hilly country, but more so in the dry tropics of northern Australia.

The second species group were the eastern Australian species which were invariably associated with black soil areas and floodplains along often intermittent watercourses in drier areas mainly in the eastern third of Australia and generally west of the Great Dividing Range.

While working on this paper, the three putative species in that group, were transferred to the newly erected genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz,

2018, created in accordance with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999 as amended online since) by those authors in 2018.

Those species were *Austroablepharus kinghorni* (Copland, 1947), the type species (originally named as *Ablepharus kinghorni*), *A. barrylyoni* (Couper *et al.*, 2010), and *P. naranjicaudus* Greer *et al.* (2004).

The basis of the transfer of these species was mainly the genetic data, which showed that neither group was closely related to one another.

In other words, similarities between species in the two groups were largely due to convergent evolution as much as, if not more so than closeness of their relationships or timeline of divergence. While Couper *et al.* (2010) did not give a specific date of divergence for the two genus-level groupings, results summarized by myself in a paper (also published in May 2022) relating to species within *Acritoscincus* Wells and Wellington, citing the evidence of Dubey and Shine (2010) showed a calibrated divergence between the main species groups in that genus to be in the vicinity of 10 MYA.

Austroablepharus, created in accordance with the rules of the *International Commission of Zoological Nomenclature* (ICZN) was found by Couper *et al.* (2010) to be most closely related to *Acritoscincus* and somewhat further, to *Morethia* Gray, 1845 than from the two putative species remaining in *Proablepharus*, giving a reasonable estimate of divergence of the two genera *Proablepharus* and *Austroablepharus* to be in the vicinity of 20 MYA.

That in itself confirms that the genus-level split of Couper *et al.* (2018) was wholly reasonable.

I had intended making this genus split myself and well prior to 2018, but in the past decade to the present date in 2022, I have had to deal with non-stop attacks on myself, my family and our wildlife conservation and education business by trademark infringing thieves, creating several sets of time consuming and costly legal proceedings, which have pushed back various herpetological projects including this one.

In any event, I am not going to invoke the so-called Kaiser veto (see Kaiser 2012a, 2012b, 2013, Kaiser *et al.* 2013, Rhodin *et al.* 2015, Hoser 2015a-f, 2019a-b, ICZN 2021 and Hawkeswood 2021) to illegally coin a second non-ICZN name for the genus.

The correct ICZN name for the genus is *Austroablepharus*. This is the name used within this paper and that which I urge others to also use.

Turning my attention to the species-level classification, it soon became clear that the various populations of putative species were often isolated from one another by well-defined biogeographical barriers of known antiquity, like for example that which has split rock-dwelling species between the east and west Kimberley district of Western Australia.

With this in mind, I decided to analyse each putative species forensically to see if there were other taxa not currently recognized and if so, which if any needed to be formally named as either species or subspecies.

MATERIALS AND METHODS

These are outlined in the introduction and are summarised as follows.

Inspection of live and dead specimens from the across the putative range of the genera *Proablepharus* Fuhn, 1969 and *Austroablepharus* Couper *et al.*, 2018 (those species all previously placed in the genus *Proablepharus*) was carried out, including inspection of museum specimens, live animals in the field, including specimens from across most parts of the range of both putative genera, noting that specimens in the relevant genera and species are generally not easy to locate or catch, as well as inspection of photographed animals with good locality information, including blowing up images to a large size on a computer screen to inspect details of scalation and the like, otherwise not easily viewed with the naked eye.

A sweep of the key references in terms of the putative

species in each genus was done to confirm the taxonomy and nomenclature current and that also available in terms of names for given populations currently subsumed within other putative species by way of synonymies.

Key references in terms of the relevant putative species, including the taxonomic and nomenclatural judgments herein include Augustine and Porter (2004), Beranek *et al.* (2021), Böhme and Denzer (2019), Broom (1896), Cogger (2014), Cogger *et al.* (1983), Copland (1947, 1952a, 1952b), Couper *et al.* (2006, 2010, 2018), Dubey and Shine (2010), Fuhn (1969a, 1969b), Glauert (1960), Gray (1845), Greer (1974, 1979, 1981, 1983, 1989), Greer *et al.* (2004), Hoser (2018a, 2018b), Lönnberg and Andersson (1913), Moro and MacAulay (2010), Pyron *et al.* (2013), Ride *et al.* (1999), Storr (1975), Storr *et al.* (1999), Wells and Wellington (1984, 1985), Wilson and Knowles (1988), Wilson and Swan (2010, 2017) and sources cited therein. Distributions of relevant species were scrutinized with respect of known biogeographical barriers affecting similarly constrained species, many of which have had DNA analysed, as well as morphological divergences to ascertain if the relevant populations were worthy of taxonomic recognition.

This was done specifically with respect of putative *Proablepharus reginae* (Glauert, 1960), *P. tenuis* (Broom, 1896) and *Austroablepharus kinghorni* (Copland, 1947), all of which have until now been treated as putative species with wide distributions across known biogeographical barriers of previously calibrated antiquity, where the relevant species appear to absent and for which there are no museum records accumulated over the last 200 years.

RESULTS

All putative species are morphologically conservative across their entire known ranges, but the minor physical differences between the wide-ranging species across vast distances and areas of absence is compelling evidence that these differences are worthy of species-level taxonomic recognition.

In coming to these conclusions, I note that previously cited diagnostic differences between putative species (e.g. as given in Cogger 2014, being a summary of these), is often inconsistent or incorrect in as much as specimens meant to key out as one species, do in fact have scalation properties allegedly diagnostic of another.

This is especially true of the fronto-parietals; whether or not they are fused with the interparietal or not and likewise for the first supraocular fusing with the first and second supraciliaries as well as mid-body scale row counts.

Colouration features cited by Wells and Wellington (1985) as being diagnostic between two related putative species are at times somewhat inconsistent, as they are also significantly impacted by both age and gender for their species pair, *Austroablepharus kinghorni* (Copland, 1947), given as *Proablepharus kinghorni* (type locality of Darling River, western New South Wales) and their newly named putative taxon, "*P. barklyensis*", from Brunette Downs Station Homestead on the Barkly Tableland in the Northern Territory, noting that Wells and Wellington did not identify age classes of specimens in their relevant description/s.

In terms of currently recognized forms (*sensu* Cogger 2014, or Couper *et al.* 2018, using the two-way generic split), all five relevant species are recognized herein.

These are as follows:

Proablepharus reginae (Glauert, 1960), the type species for the genus (originally named as *Ablepharus reginae*), with a type locality of Queen Victoria Spring, Western Australia, in the Goldfields Region of southern inland Western Australia, and with a putative distribution across arid Australia in the centre and west.

P. tenuis (Broom, 1896) originally named as *Ablepharus tenuis*, with a type locality of Muldiva, Queensland, situated on the base of Cape York, North Queensland, That putative taxon occurs across the tropics of northern Australia including the Northern

Territory and the Kimberley district of Western Australia.

Austroablepharus kinghorni (Copland, 1947), originally named as *Ablepharus kinghorni*, with a type locality of Darling River, New South Wales, between Bourke and Wilcannia, Western New South Wales. The putative species occurs on black soil plains throughout the western division of New South Wales, Queensland, nearby South Australia and the eastern part of the Northern Territory, centred on the Barkly Tableland.

The two other widely recognized species in the genus are similar in most respects to *A. kinghorni*, and in many regards could be treated as outlier populations of this taxon, although I am of the view they are valid species on the basis that they differ slightly morphologically and occupy different bioregions (different drainage basis, to which they seem to be attached). Those two species are as follows:

A. barrylyoni (Couper *et al.* 2010), originally placed in the genus *Proablepharus* with a type locality Mount Surprise on lower Cape York, Queensland, (draining into the Gulf of Carpentaria) and:

A. naranjicaudus (Greer *et al.* 2004), originally placed in the genus *Proablepharus* with a type locality of Cattle Creek Homestead, Cattle Creek Station, Northern Territory, in the Victoria River region of the Northern Territory.

In terms of the conclusions I have made based on inspection of specimens as per the materials and methods above, I note that no changes are indicated for the last two range-restricted species.

In terms of the first three, the following is noted.

Proablepharus reginae is clearly a composite species. There are no available synonyms.

The type form is that from southern Western Australia. Unnamed forms formally named in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999 as amended online since) herein as new species are as follows:

- 1/ The population from Cape Range, Western Australia,
- 2/ Specimens from Barrow Island, Western Australia ,
- 3/ The north-central Pilbara region population.
- 4/ The population from the inland southern edge of the Kimberley District of Western Australia.
- 5/ The population from the central ranges of the Northern Territory, Australia.

P. tenuis is also a clearly composite species and besides the type form from north-east Queensland, there are three available synonym names. These are:

- 1/ *Ablepharus broomensis* Lönnberg and Anderson, 1913, from Broome Western Australia, formally resurrected from synonymy and treated as a separate species, identified herein as *P. broomensis* Lönnberg and Anderson, 1913.
- 2/ *Ablepharus davisii* Copland, 1952, with a type locality of Walcott Inlet, North-west Australia is herein treated as a subjective synonym of *P. broomensis* (see above).
- 3/ *Proablepharus stephensoni* Wells and Wellington, 1985, with a type locality of Greenvale, on lower Cape York, Queensland, is herein treated as a subjective synonym of *P. tenuis* which was collected nearby in the Cape York region of far north Queensland.

Newly named forms in this group are as follows:

- 1/ The populations from the East Kimberley District of Western Australia, with specimens from the nearby Victoria River drainage also formally named as a subspecies of the main East Kimberley population.
- 2/ The population from Arnhem Land in the Northern Territory is formally named as a new species, as well as the population from Groote Eylandt, which is formally named as a subspecies of the former.
- 3/ The population from near Mount Isa in Queensland is also formally named as a new species.

For the putative species, *Austroablepharus kinghorni* (Copland, 1947) with a type locality of the Darling River, between Bourke and Wilcannia, in western New South Wales, Australia, the

population from west of the Georgina River, Queensland, being mainly on the Barkly Tableland of the Northern Territory is herein regarded as a separate species. Wells and Wellington (1985), formally named it as "*Proablepharus barklyensis*" based on a holotype collected from Brunette Downs Station Homestead, in the Northern Territory.

That name was proposed according to the rules of the ICZN and I am not going to invoke the so-called Kaiser veto (see Kaiser 2012a, 2012b, 2013, Kaiser *et al.* 2013, Rhodin *et al.* 2015, Hoser 2015a-f, 2019a-b, ICZN 2021 and Hawkeswood 2021) to illegally coin a second non-ICZN name for the species.

The population from the Lake Eyre drainages in south-west Queensland appear to be morphologically divergent from both *A. kinghorni* (with which it appears most similar to) and *A. barklyensis*. It is therefore formally named as a subspecies of *A. kinghorni*.

In terms of the three subspecies formally named in this paper, I am confident that when molecular evidence relating to each becomes available, the two subspecies of *P. tenuis* are likely to be elevated to full species status.

I am not as certain this will be the case for the subspecies of *A. kinghorni* from the drainages of Lake Eyre, that subspecies being formally named herein as *A. kinghorni elonquino subsp. nov.*

INFORMATION RELEVANT TO THE FORMAL DESCRIPTIONS THAT FOLLOW

There is no conflict of interest in terms of this paper or the conclusions arrived at herein.

Several people including anonymous peer reviewers who revised the manuscript prior to publication are also thanked as are relevant staff at museums who made specimens and records available in line with international obligations.

In terms of the following formal descriptions, spellings should not be altered in any way for any purpose unless expressly and exclusively called for by the rules governing Zoological Nomenclature as administered by the International Commission of Zoological Nomenclature (ICZN).

This includes if gender assignment of suffixes seems incorrect, Latinisation is wrong, apparent spelling mistakes and so on (see Article 32.5.1 of the *International Code of Zoological Nomenclature*).

In the unlikely event two or more newly named taxa are deemed to be the same by a first reviser, then the name to be used and retained is that which first appears in this paper by way of page priority and as listed in the abstract keywords.

Some material in descriptions for taxa may be repeated for other taxa in this paper and this is necessary to ensure each fully complies with the provisions of the *International Code of Zoological Nomenclature* (fourth edition) (Ride *et al.* 1999) as amended online since.

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 21 April 2022 (including if also viewed prior), unless otherwise stated and was accurate in terms of the content cited herein as of that date.

Any online citations within this paper, including copied emails and the like, are not as a rule cited in the references part of this paper and have the same most recent viewing date as just given.

Unless otherwise stated explicitly, colour and other descriptions apply to living and **fully mature adult specimens** of generally good health, as seen by day, and not under any form of stress by means such as excessive cool, heat, dehydration, excessive ageing, abnormal skin or reaction to chemical or other input.

It should be noted that with all relevant species within this paper, juveniles tend to be of different colour pattern and markings to the adults, including for example with stripes that fade or disappear in adults. The characteristics of the juveniles are not relied upon as part of the formal diagnosis of each of the relevant taxa.

SVL or SV means snout-vent length, TL means tail length, preanal pores = preloacal pores, preanal = preloacal, tail

measurements and other information about tails refer to original tails, max. size refers to maximum known, sometimes approximated up to the nearest 10 mm if number of measured specimens is below 10.

In terms of colouration the relevant species as a rule are well marked when young and this declines with age. Males are usually, but not always more brilliantly marked than females and in the relevant species are often red or orange under the throat and nearby in mature adults.

While numerous texts and references were consulted prior to publication of this paper, the criteria used to separate the relevant genera, subgenera, species or subspecies has already been spelt out and/or is done so within each formal description and does not rely on material within publications not explicitly cited herein.

PROABLEPHARUS MARTINEKAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:844B3B72-F7F7-4DAA-83A1-3A6523D79D44

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R47299 collected from the south-west corner of Barrow Island, Western Australia, Australia, Latitude -20.866667 S., Longitude 115.333333 E.

This government-owned facility allows access to its holdings.

Paratypes: 22 preserved specimens in the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers 28001-2, 29035-9, 472300-314 all collected from Barrow Island, Western Australia.

Diagnosis: Until now, *Proablepharus reginae* (Glauert, 1960), type locality Queen Victoria Spring in the Goldfields Region of southern Western Australia has been treated as a single wide-ranging species from various mainly but not always, rocky parts of Western and central Australia.

However it is now split into six allopatric species as follows:

Proablepharus reginae (Glauert, 1960) herein restricted to the Goldfields Region of Southern Western Australia.

P. martinekae sp. nov. confined to Barrow Island and possibly nearby parts of the mainland in the Pilbara region south of the Fortescue River, in Western Australia.

P. stevebennetti sp. nov. herein restricted to the Cape Range of Western Australia.

P. igh sp. nov. from the Pilbara region of Western Australia, north of the Fortescue River, to the southern edge of the Great Sandy Desert and including hills within the southern part of this desert and potentially extending south of the Fortescue River in the mid-part of the main Pilbara region.

P. micra sp. nov. from the dry areas at the southern edge of the east Kimberley Ranges in Western Australia.

P. eughr sp. nov. from the ranges of Central Australia in the Northern Territory, extending west to the Northern Territory border and also potentially including nearby parts of north-west South Australia and adjacent Western Australia.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

Adult male *P. reginae* have a generally dark brown dorsum and tail, with the top of the flanks significantly lighter and becoming grey on the lower flanks. Red or orange is absent from the tail. There is a deep orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. The upper surfaces of the limbs are dark brown and without any obvious markings. The scales around the temples are prominently etched with black. The dorsum of the head is an even brown colour, being slightly lighter than the dorsum of the body.

Adult male *P. stevebennetti* sp. nov. have a strong orange-red flush both on the sides and top of the head, being strongest on the top of the head anterior to the eyes, while behind that point

being somewhat infused with dark brown. Otherwise the flush runs from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla.

The dorsum is medium to dark brown with each scale being etched with grey to a moderate extent. Flanks grade fairly evenly from a medium to dark brown colour, gradually to whitish at the lower flank and venter. Upper surfaces of limbs are generally dark brown but with scattered tiny orange flecks. Iris is yellowish-greenish-grey. There is no obvious red-flush or colour in the dark brown tail.

The scales around the temples are prominently etched with black, but there is no etching of scales on the upper part of the head, with the possible exception of the rear of the skull area.

P. martinekae sp. nov. from Barrow Island, Western Australia, is dark brown on the upper surface of the body without obvious etchings darker anywhere on the body or the temples. The distal three quarters of the tail is noticeably lighter than the body and anterior part of the tail.

In adult males there is an orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. In this species, in common with *P. igh* sp. nov. and *P. micra* sp. nov. the flush is noticeably faded in colour. The posterior part of the upper surface of the generally light coloured head is heavily peppered in patches of grey. Upper surfaces of the limbs are brown to light brown, with scattered indistinct yellowish markings.

Storr (1975) reported:

"Barrow Island specimens differ from mainland specimens in being smaller (mean SVL 30.3 vs 33.2) and darker and in having more subdigital lamellae (mean 23.6 vs 22.8)",

but as he did not state which mainland specimens he was comparing to and whether or not they were of different species (or even populations) as outlined in this paper, or the number of specimens involved, I could not draw any firm conclusions from this.

P. igh sp. nov. is similar in most respects to *P. martinekae* sp. nov., most notably in terms of colour configuration, but is readily separated from that species and all others in the complex by having an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like. Furthermore in this species, the tail has a strong light or whitish hue distally and temporal scales are strongly etched dark.

P. micra sp. nov. is readily separated from the preceding species (which it is otherwise similar to) by having a bluish-grey-brown dorsum, as opposed to brownish and a bluish-grey iris as opposed to with yellowish in the preceding species. In common with *P. igh* sp. nov. there is an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like.

P. eughr sp. nov. is generally a dark brown colour all over, including on the tail, which in adult males, is sometimes strongly reddish or orange in colour, if not all over or dorsally, at least on the lower flanks distally. Dark etching of dorsal scales is present, but not prominent. Flanks grade dark to light gradually. Iris is a dark bluey-grey colour. Upper surfaces of limbs are a dark blackish colour all over.

The white patch behind the eye seen in all of the preceding species is either reduced in this species (*P. eughr* sp. nov.) or otherwise pushed down to be below the eye instead.

Cogger (2014) separates putative *P. reginae* from putative *P. tenuis* (Broom, 1896), based on mid-body rows, with 28 for *P. reginae* (presumably based on Glauert's original description and other people repeating this detail) and 22-24 for *P. tenuis*. However my own inspection of specimens has shown considerable overlap in this character between both putative species and those as defined in this paper.

The preceding species (previously putative *P. reginae*) most commonly seem to have 24-26 mid-body rows, not 28 as is usually the case for some of the southern species *P. reginae sensu stricto*. All of *P. tenuis* and associated species are in a similar situation with 24 mid-body rows being the most commonly seen, but some specimens with as few as 22 or as many as 26. A detailed description of the scalation of *P. reginae* by Glauert in 1960 is modified slightly and provided here:

The preceding species (excluding *P. tenuis*) are all identified as follows:

Head narrow, tapering, snout rounded; rostral not projecting. Eye incompletely surrounded by granules; nasals small, widely separated by the frontonasal; no supranasals; frontonasal wider than long, about as large as the frontal, having a wide suture with the rostral and a narrow one with the frontal; prefrontals large; frontal kite-shaped, about as long as its distance from the rostral, almost as wide as the supraocular region, in contact with two of the four supraoculars; second supraocular largest; five supraciliaries, second largest; frontoparietals almost as long as the frontal; in contact with the frontal and three supraoculars; interparietal small, lozenge-shaped; parietals large, as long as the distance from the tip of the snout to the frontal, narrowly in contact with the fourth supraocular; one pair of band-like nuchals about four times as wide as long, in contact with the enlarged upper temporal. Ear opening roundish, much smaller than the pupil, without lobules. Scales smooth, the two vertebral series enlarged; 24-28 rows around the middle of the body, ventral scales smaller than the dorsals, laterals smallest; preanals enlarged. Tail, covered with scales larger than the dorsals and ventrals of the body. Limbs short, when adpressed they do not meet, toes long and slender, the fourth much the longest, as long as the distance between the nostril and the ear.

Colouration of each species individually is best seen by viewing colour images of specimens in life (see below).

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephensoni* sp. nov., *P. jessicabriggsae* sp. nov. and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are

all the *Proablepharus* species.

Type *P. reginae* from the type locality, Queen Victoria Springs, in the Goldfields area of Western Australia is depicted in life in Wilson and Swan (2017) on page 385 on bottom right.

P. stevebennetti sp. nov. from Cape Range, Western Australia is depicted in life in Beranek *et al.* 2021 and online at:

<https://www.flickr.com/photos/128497936@N03/51422818831/>

P. martinekae sp. nov. in life from Barrow Island, Western Australia is depicted in Moro and MacAulay (2010) on page 68.

P. igh sp. nov. from the northern part of the Pilbara region of Western Australia is depicted in life online at:

<https://www.flickr.com/photos/euprepiosaur/47193124681/>

and

<https://www.flickr.com/photos/reptileshots/33267622748/>

and

<https://www.flickr.com/photos/reptileshots/47090754992/>

and

<https://www.flickr.com/photos/124699310@N06/14462597065/>

P. eughr sp. nov. from central Australia is depicted in life in Cogger (2014) on page 672 at top left and online at:

<https://www.flickr.com/photos/reptileshots/51382934537/>

and

<https://www.flickr.com/photos/whawha88/9432265669/>

and

<https://www.flickr.com/photos/whawha88/9432265101/>

Distribution: *P. maryinekae* sp. nov. is confined to Barrow Island and possibly the adjacent Pilbara mainland of north-west Western Australia.

Etymology: The new species *P. martinekae* sp. nov. is named in honour of Maryann Martinek of Bendigo, Victoria, Australia in recognition of her critically important services to wildlife conservation in Australia and her similar efforts in exposing "fake news" stories peddled by corrupt and dishonest State Wildlife departments in the tabloid media. For details see Hoser (2010).

PROABLEPHARUS STEVEBENNETTI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:0F003F14-6D01-4857-B461-FE858802B535

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R165479 collected from Shothole Canyon, Cape Range National Park, Western Australia, Australia, Latitude -22.061367 S., Longitude 114.01358 E. at an elevation of 121 metres. This government-owned facility allows access to its holdings.

The holotype specimen is depicted in life in Beranek *et al.* (2021) on pages B and C in Figs 1-3, confirming the ID of the said animal.

Atlas of Living Australia, an online database records a specimen at the Australian Museum in Sydney, specimen number R.191897.001 with the same collection data as the holotype (above) and that may also be a duplicate record for the holotype.

Diagnosis: Until now, *Proablepharus reginae* (Glauert, 1960), type locality Queen Victoria Spring in the Goldfields Region of southern Western Australia has been treated as a single wide-ranging species from various mainly but not always, rocky parts of Western and central Australia.

However it is now split into six allopatric species as follows:

Proablepharus reginae (Glauert, 1960) herein restricted to the Goldfields Region of Southern Western Australia.

P. stevebennetti sp. nov. herein restricted to the Cape Range of Western Australia.

P. martinekae sp. nov. confined to Barrow Island and possibly nearby parts of the mainland in the Pilbara region south of the Fortescue River, in Western Australia.

P. igh sp. nov. from the Pilbara region of Western Australia, north of the Fortescue River, to the southern edge of the Great Sandy Desert and including hills within the southern part of this desert

and potentially extending south of the Fortescue River in the mid-part of the main Pilbara region.

P. micra sp. nov. from the dry areas at the southern edge of the east Kimberley Ranges in Western Australia.

P. eughr sp. nov. from the ranges of Central Australia in the Northern Territory, extending west to the Northern Territory border and also potentially including nearby parts of north-west South Australia and adjacent Western Australia.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

Adult male *P. reginae* have a generally dark brown dorsum and tail, with the top of the flanks significantly lighter and becoming grey on the lower flanks. Red or orange is absent from the tail. There is a deep orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. The upper surfaces of the limbs are dark brown and without any obvious markings. The scales around the temples are prominently etched with black. The dorsum of the head is an even brown colour, being slightly lighter than the dorsum of the body.

Adult male *P. stevebennetti* sp. nov. have a strong orange-red flush both on the sides and top of the head, being strongest on the top of the head anterior to the eyes, while behind that point being somewhat infused with dark brown. Otherwise the flush runs from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla.

The dorsum is medium to dark brown with each scale being etched with grey to a moderate extent. Flanks grade fairly evenly from a medium to dark brown colour, gradually to whitish at the lower flank and venter. Upper surfaces of limbs are generally dark brown but with scattered tiny orange flecks. Iris is yellowish-greenish-grey. There is no obvious red-flush or colour in the dark brown tail.

The scales around the temples are prominently etched with black, but there is no etching of scales on the upper part of the head, with the possible exception of the rear of the skull area.

P. martinekae sp. nov. from Barrow Island, Western Australia, is dark brown on the upper surface of the body without obvious etchings darker anywhere on the body or the temples. The distal three quarters of the tail is noticeably lighter than the body and anterior part of the tail.

In adult males there is an orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. In this species, in common with *P. igh* sp. nov. and *P. micra* sp. nov. the flush is noticeably faded in colour. The posterior part of the upper surface of the generally light coloured head is heavily peppered in patches of grey. Upper surfaces of the limbs are brown to light brown, with scattered indistinct yellowish markings.

Storr (1975) reported:

"Barrow Island specimens differ from mainland specimens in being smaller (mean SVL 30.3 us 33.2) and darker and in having more subdigital lamellae (mean 23.6 us 22.8)",

but as he did not state which mainland specimens he was comparing to and whether or not they were of different species (or even populations) as outlined in this paper, or the number of specimens involved, I could not draw any firm conclusions from this.

P. igh sp. nov. is similar in most respects to *P. martinekae* sp. nov., most notably in terms of colour configuration, but is readily separated from that species and all others in the complex by having an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like. Furthermore in this species, the tail has a strong light or whitish hue distally and

temporal scales are strongly etched dark.

P. micra sp. nov. is readily separated from the preceding species (which it is otherwise similar to) by having a bluish-grey-brown dorsum, as opposed to brownish and a bluish-grey iris as opposed to with yellowish in the preceding species. In common with *P. igh* sp. nov. there is an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like.

P. eughr sp. nov. is generally a dark brown colour all over, including on the tail, which in adult males, is sometimes strongly reddish or orange in colour, if not all over or dorsally, at least on the lower flanks distally. Dark etching of dorsal scales is present, but not prominent. Flanks grade dark to light gradually. Iris is a dark bluey-grey colour. Upper surfaces of limbs are a dark blackish colour all over.

The white patch behind the eye seen in all of the preceding species is either reduced in this species (*P. eughr* sp. nov.) or otherwise pushed down to be below the eye instead.

Cogger (2014) separates putative *P. reginae* from putative *P. tenuis* (Broom, 1896), based on mid-body rows, with 28 for *P. reginae* (presumably based on Glauert's original description and other people repeating this detail) and 22-24 for *P. tenuis*. However my own inspection of specimens has shown considerable overlap in this character between both putative species and those as defined in this paper.

The preceding species (previously putative *P. reginae*) most commonly seem to have 24-26 mid-body rows, not 28 as is usually the case for some of the southern species *P. reginae sensu stricto*. All of *P. tenuis* and associated species are in a similar situation with 24 mid-body rows being the most commonly seen, but some specimens with as few as 22 or as many as 26. A detailed description of the scalation of *P. reginae* by Glauert in 1960 is modified slightly and provided here:

The preceding species (excluding *P. tenuis*) are all identified as follows:

Head narrow, tapering, snout rounded; rostral not projecting. Eye incompletely surrounded by granules; nasals small, widely separated by the frontonasal; no supranasals; frontonasal wider than long, about as large as the frontal, having a wide suture with the rostral and a narrow one with the frontal; prefrontals large; frontal kite-shaped, about as long as its distance from the rostral, almost as wide as the supraocular region, in contact with two of the four supraoculars; second supraocular largest; five supraciliaries, second largest; frontoparietals almost as long as the frontal; in contact with the frontal and three supraoculars; interparietal small, lozenge-shaped; parietals large, as long as the distance from the tip of the snout to the frontal, narrowly in contact with the fourth supraocular; one pair of band-like nuchals about four times as wide as long, in contact with the enlarged upper temporal. Ear opening roundish, much smaller than the pupil, without lobules. Scales smooth, the two vertebral series enlarged; 24-28 rows around the middle of the body, ventral scales smaller than the dorsals, laterals smallest; preanals enlarged. Tail, covered with scales larger than the dorsals and ventrals of the body. Limbs short, when adpressed they do not meet, toes long and slender, the fourth much the longest, as long as the distance between the nostril and the ear. Colouration of each species individually is best seen by viewing colour images of specimens in life (see below).

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephensoni* sp. nov., *P. jessicabriggsae* sp. nov. and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and

three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Type *P. reginae* from the type locality, Queen Victoria Springs, in the Goldfields area of Western Australia is depicted in life in Wilson and Swan (2017) on page 385 on bottom right.

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P. igh sp. nov. from the northern part of the Pilbara region of Western Australia is depicted in life

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<https://www.flickr.com/photos/124699310@N06/14462597065/>

P. eughr sp. nov. from central Australia is depicted in life in Cogger (2014) on page 672 at top left and online at:

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and

<https://www.flickr.com/photos/whawha88/9432265669/>

and

<https://www.flickr.com/photos/whawha88/9432265101/>

Distribution: *P. stevebennetti* sp. nov. is confined to the Cape Range of Western Australia.

Comment: *P. stevebennetti* sp. nov. is not the first reptile species formally named as a taxon that is endemic to the Cape Range in Western Australia, an area separated from the main Pilbara massif by a zone of flat land that has been there for some millions of years.

Other species identified as endemic to the Cape Range and formally named include the snake *Acanthophis donnellani* Hoser, 2002, as well as the legless lizards *Crottyopus daveausteni* Hoser, 2018 and *Wellingtonopus matthingleyi* Hoser, 2018.

The gecko *Dactyloperus bulliardi* (Hoser, 2018), also endemic to the Cape Range was named a second time as *Gehyra capensis* Kealley et al., 2018.

This act of taxonomic vandalism by was done several weeks after the Hoser paper (Hoser 2018a) in anticipation of an ICZN ruling against Hoser (myself) to erase the relevant earlier

publications from the scientific record as proposed formally by Kaiser(2012a, 2012b, 2013), Kaiser et al. (2013) and Rhodin et al. (2015), the later document being stated by the authors as superseding all previous publications of the cohort.

That seriously dishonest and misguided application by Kaiser et al. (2013) and Rhodin et al. (2015) ultimately failed (ICZN 2021), being rejected by the ICZN in a near unanimous vote in 2020, meaning that the correct nomen for the taxon is *Dactyloperus bulliardi* Hoser, 2018 and the name *Gehyra capensis* is simply a junior synonym (Hawkeswood 2021).

The confusion and time wasted by the unscientific act of attempted name authority theft by Kealley et al. (2018) at the instigation of Wolfgang Wüster and his gang of thieves (see Hoser 2015a-f), noting it was was Wüster alone who wrote the document later identified as "Kaiser et al. (2013)" was a serious diversion from conservation activities by myself and others who then had to spend time correcting the deliberate error and others like it that the same gang of thieves caused.

There is little doubt that endemism in the Cape Range of Western Australia continues to be seriously underestimated and biologists should not be forced to waste time dealing with acts of taxonomic vandalism caused by unscientific incursions by non-scientists and dishonest people who are obviously anti-science (ICZN 2021, Hawkeswood 2021).

As time is wasted dealing with unwarranted acts of taxonomic vandalism, potentially overlooked species may ultimately face extinction.

Etymology: The new species *P. stevebennetti* sp. nov. is named in honour of Steve Bennett of Narre Warren, Victoria, Australia in recognition of his services to herpetology in Australia. Over some decades he has provided important logistical support to various wildlife conservation programs of several well-known herpetologists, usually not getting kudos for it, but at the same time doing essential work, without which, the various projects would never have come to fruition.

He also provided important services for the Victorian Association of Amateur Herpetologists Incorporated, a Geelong, Victoria, Australia based herpetological society, over many years.

PROABLEPHARUS IGH SP. NOV.

LSIDurn:lsid:zoobank.org:act:A86FE631-5852-4851-A202-DFC0F16FB048

Holotype: A preserved male specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R103996 collected from Woodstock station, Pilbara region, (near the Yule River), Western Australia, Australia, Latitude -21.609722 S., Longitude 119.021389 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R104041 (female), R99355 and R104167 all collected from Woodstock station, Pilbara region, (near the Yule River), Western Australia, Australia and a (fourth) preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R145687 collected from Abydos station, Pilbara region, Western Australia, Australia, Latitude -22.227778 S., Longitude 119.010556 E.

Diagnosis: Until now, *Proablepharus reginae* (Glauert, 1960), type locality Queen Victoria Spring in the Goldfields Region of southern Western Australia has been treated as a single wide-ranging species from various mainly but not always, rocky parts of Western and central Australia.

However it is now split into six allopatric species as follows:

Proablepharus reginae (Glauert, 1960) herein restricted to the Goldfields Region of Southern Western Australia.

P. martinekae sp. nov. confined to Barrow Island and possibly nearby parts of the mainland in the Pilbara region south of the Fortescue River, in Western Australia.

P. stevebennetti sp. nov. herein restricted to the Cape Range of Western Australia.

P. igh sp. nov. from the Pilbara region of Western Australia, north of the Fortescue River, to the southern edge of the Great Sandy Desert and including hills within the southern part of this desert and potentially extending south of the Fortescue River in the mid-part of the main Pilbara region.

P. micra sp. nov. from the dry areas at the southern edge of the east Kimberley Ranges in Western Australia.

P. eughr sp. nov. from the ranges of Central Australia in the Northern Territory, extending west to the Northern Territory border and also potentially including nearby parts of north-west South Australia and adjacent Western Australia.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

Adult male *P. reginae* have a generally dark brown dorsum and tail, with the top of the flanks significantly lighter and becoming grey on the lower flanks. Red or orange is absent from the tail. There is a deep orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. The upper surfaces of the limbs are dark brown and without any obvious markings. The scales around the temples are prominently etched with black. The dorsum of the head is an even brown colour, being slightly lighter than the dorsum of the body.

Adult male *P. stevebennetti sp. nov.* have a strong orange-red flush both on the sides and top of the head, being strongest on the top of the head anterior to the eyes, while behind that point being somewhat infused with dark brown. Otherwise the flush runs from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla.

The dorsum is medium to dark brown with each scale being etched with grey to a moderate extent. Flanks grade fairly evenly from a medium to dark brown colour, gradually to whitish at the lower flank and venter. Upper surfaces of limbs are generally dark brown but with scattered tiny orange flecks. Iris is yellowish-greenish-grey. There is no obvious red-flush or colour in the dark brown tail.

The scales around the temples are prominently etched with black, but there is no etching of scales on the upper part of the head, with the possible exception of the rear of the skull area.

P. martinekae sp. nov. from Barrow Island, Western Australia, is dark brown on the upper surface of the body without obvious etchings darker anywhere on the body or the temples. The distal three quarters of the tail is noticeably lighter than the body and anterior part of the tail.

In adult males there is an orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. In this species, in common with *P. igh sp. nov.* and *P. micra sp. nov.* the flush is noticeably faded in colour. The posterior part of the upper surface of the generally light coloured head is heavily peppered in patches of grey. Upper surfaces of the limbs are brown to light brown, with scattered indistinct yellowish markings.

Storr (1975) reported:

"Barrow Island specimens differ from mainland specimens in being smaller (mean SVL 30.3 vs 33.2) and darker and in having more subdigital lamellae (mean 23.6 vs 22.8)",

but as he did not state which mainland specimens he was comparing to and whether or not they were of different species (or even populations) as outlined in this paper, or the number of specimens involved, I could not draw any firm conclusions from this.

P. igh sp. nov. is similar in most respects to *P. martinekae sp. nov.*, most notably in terms of colour configuration, but is readily separated from that species and all others in the complex by having an expanded amount of black or dark grey pigment at

the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like. Furthermore in this species, the tail has a strong light or whitish hue distally and temporal scales are strongly etched dark.

P. micra sp. nov. is readily separated from the preceding species (which it is otherwise similar to) by having a bluish-grey-brown dorsum, as opposed to brownish and a bluish-grey iris as opposed to with yellowish in the preceding species. In common with *P. igh sp. nov.* there is an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like.

P. eughr sp. nov. is generally a dark brown colour all over, including on the tail, which in adult males, is sometimes strongly reddish or orange in colour, if not all over or dorsally, at least on the lower flanks distally. Dark etching of dorsal scales is present, but not prominent. Flanks grade dark to light gradually. Iris is a dark bluey-grey colour. Upper surfaces of limbs are a dark blackish colour all over.

The white patch behind the eye seen in all of the preceding species is either reduced in this species (*P. eughr sp. nov.*) or otherwise pushed down to be below the eye instead.

Cogger (2014) separates putative *P. reginae* from putative *P. tenuis* (Broom, 1896), based on mid-body rows, with 28 for *P. reginae* (presumably based on Glauert's original description and other people repeating this detail) and 22-24 for *P. tenuis*. However my own inspection of specimens has shown considerable overlap in this character between both putative species and those as defined in this paper.

The preceding species (previously putative *P. reginae*) most commonly seem to have 24-26 mid-body rows, not 28 as is usually the case for some of the southern species *P. reginae sensu stricto*. All of *P. tenuis* and associated species are in a similar situation with 24 mid-body rows being the most commonly seen, but some specimens with as few as 22 or as many as 26. A detailed description of the scalation of *P. reginae* by Glauert in 1960 is modified slightly and provided here:

The preceding species (excluding *P. tenuis*) are all identified as follows:

Head narrow, tapering, snout rounded; rostral not projecting. Eye incompletely surrounded by granules; nasals small, widely separated by the frontonasal; no supranasals; frontonasal wider than long, about as large as the frontal, having a wide suture with the rostral and a narrow one with the frontal; prefrontals large; frontal kite-shaped, about as long as its distance from the rostral, almost as wide as the supraocular region, in contact with two of the four supraoculars; second supraocular largest; five supraciliaries, second largest; frontoparietals almost as long as the frontal; in contact with the frontal and three supraoculars; interparietal small, lozenge-shaped; parietals large, as long as the distance from the tip of the snout to the frontal, narrowly in contact with the fourth supraocular; one pair of band-like nuchals about four times as wide as long, in contact with the enlarged upper temporal. Ear opening roundish, much smaller than the pupil, without lobules. Scales smooth, the two vertebral series enlarged; 24-28 rows around the middle of the body, ventral scales smaller than the dorsals, laterals smallest; preanals enlarged. Tail, covered with scales larger than the dorsals and ventrals of the body. Limbs short, when adpressed they do not meet, toes long and slender, the fourth much the longest, as long as the distance between the nostril and the ear.

Colouration of each species individually is best seen by viewing colour images of specimens in life (see below).

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti sp. nov.*, *P. martinekae sp. nov.*, *P. igh sp. nov.*, *P. micra sp. nov.* and *P. eughr sp. nov.* are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnberg and Andersson, 1913), *P. garystephensoni sp. nov.*, *P. jessicabriggsae sp. nov.* and *P. alexanderdudleyi sp. nov.* by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Type *P. reginae* from the type locality, Queen Victoria Springs, in the Goldfields area of Western Australia is depicted in life in Wilson and Swan (2017) on page 385 on bottom right.

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P. eughr sp. nov. from central Australia is depicted in life in Cogger (2014) on page 672 at top left and online at:

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and

<https://www.flickr.com/photos/whawha88/9432265669/>

and

<https://www.flickr.com/photos/whawha88/9432265101/>

Distribution: *P. igh* sp. nov. is confined to northern part of the Pilbara region of Western Australia, north of the Fortescue River, to the southern edge of the Great Sandy Desert and including hills within the southern part of this desert and potentially extending south of the Fortescue River in the mid-part of the main Pilbara region.

Etymology: The new species *P. igh* sp. nov. is named in reflection of the exclamation sound made by the Yindjibarndi people, being native Aboriginals of the Pilbara region of western Australia when they see a snake or small lizard scuttle away near their feet.

The are also referred to as “igh” when killed and sprinkled over items of food such as meat or fish.

PROABLEPHARUS MICRA SP. NOV.

LSIDurn:lsid:zoobank.org:act:C76447A4-9BF6-46CA-BDC0-F044D9251111

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R46114 collected from 13km east of the Margaret River Homestead, Kimberley District, Western Australia, Australia, Latitude -18.716667 S., Longitude 126.983333 E. This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen numbers R07271 and R07272 collected from 167 km east of Fitzroy Crossing, Western Australia, Australia, Latitude -18.8 S., Longitude 126.533 E.

Diagnosis: Until now, *Proablepharus reginae* (Glauert, 1960), type locality Queen Victoria Spring in the Goldfields Region of southern Western Australia has been treated as a single wide-ranging species from various mainly but not always, rocky parts of Western and central Australia.

However it is now split into six allopatric species as follows:

Proablepharus reginae (Glauert, 1960) herein restricted to the Goldfields Region of Southern Western Australia.

P. stevebennetti sp. nov. herein restricted to the Cape Range of Western Australia.

P. martinekae sp. nov. confined to Barrow Island and possibly nearby parts of the mainland in the Pilbara region south of the Fortescue River, in Western Australia.

P. igh sp. nov. from the Pilbara region of Western Australia, north of the Fortescue River, to the southern edge of the Great Sandy Desert and including hills within the southern part of this desert and potentially extending south of the Fortescue River in the mid-part of the main Pilbara region.

P. micra sp. nov. from the dry areas at the southern edge of the east Kimberley Ranges in Western Australia.

P. eughr sp. nov. from the ranges of Central Australia in the Northern Territory, extending west to the Northern Territory border and also potentially including nearby parts of north-west South Australia and adjacent Western Australia.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

Adult male *P. reginae* have a generally dark brown dorsum and tail, with the top of the flanks significantly lighter and becoming grey on the lower flanks. Red or orange is absent from the tail. There is a deep orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. The upper surfaces of the limbs are dark brown and without any obvious markings. The scales around the temples are prominently etched with black. The dorsum of the head is an even brown colour, being slightly lighter than the dorsum of the body.

Adult male *P. stevebennetti* sp. nov. have a strong orange-red flush both on the sides and top of the head, being strongest on the top of the head anterior to the eyes, while behind that point being somewhat infused with dark brown. Otherwise the flush runs from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla.

The dorsum is medium to dark brown with each scale being etched with grey to a moderate extent. Flanks grade fairly evenly from a medium to dark brown colour, gradually to whitish at the lower flank and venter. Upper surfaces of limbs are generally dark brown but with scattered tiny orange flecks. Iris is yellowish-greenish-grey. There is no obvious red-flush or colour in the dark brown tail.

The scales around the temples are prominently etched with black, but there is no etching of scales on the upper part of the

head, with the possible exception of the rear of the skull area. *P. martinekae* sp. nov. from Barrow Island, Western Australia, is dark brown on the upper surface of the body without obvious etchings darker anywhere on the body or the temples. The distal three quarters of the tail is noticeably lighter than the body and anterior part of the tail.

In adult males there is an orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. In this species, in common with *P. igh* sp. nov. and *P. micra* sp. nov. the flush is noticeably faded in colour. The posterior part of the upper surface of the generally light coloured head is heavily peppered in patches of grey. Upper surfaces of the limbs are brown to light brown, with scattered indistinct yellowish markings.

Storr (1975) reported:

"Barrow Island specimens differ from mainland specimens in being smaller (mean SVL 30.3 vs 33.2) and darker and in having more subdigital lamellae (mean 23.6 vs 22.8)",

but as he did not state which mainland specimens he was comparing to and whether or not they were of different species (or even populations) as outlined in this paper, or the number of specimens involved, I could not draw any firm conclusions from this.

P. igh sp. nov. is similar in most respects to *P. martinekae* sp. nov., most notably in terms of colour configuration, but is readily separated from that species and all others in the complex by having an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like. Furthermore in this species, the tail has a strong light or whitish hue distally and temporal scales are strongly etched dark.

P. micra sp. nov. is readily separated from the preceding species (which it is otherwise similar to) by having a bluish-grey-brown dorsum, as opposed to brownish and a bluish-grey iris as opposed to with yellowish in the preceding species. In common with *P. igh* sp. nov. there is an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like.

P. eughr sp. nov. is generally a dark brown colour all over, including on the tail, which in adult males, is sometimes strongly reddish or orange in colour, if not all over or dorsally, at least on the lower flanks distally. Dark etching of dorsal scales is present, but not prominent. Flanks grade dark to light gradually. Iris is a dark bluey-grey colour. Upper surfaces of limbs are a dark blackish colour all over.

The white patch behind the eye seen in all of the preceding species is either reduced in this species (*P. eughr* sp. nov.) or otherwise pushed down to be below the eye instead.

Cogger (2014) separates putative *P. reginae* from putative *P. tenuis* (Broom, 1896), based on mid-body rows, with 28 for *P. reginae* (presumably based on Glauert's original description and other people repeating this detail) and 22-24 for *P. tenuis*. However my own inspection of specimens has shown considerable overlap in this character between both putative species and those as defined in this paper.

The preceding species (previously putative *P. reginae*) most commonly seem to have 24-26 mid-body rows, not 28 as is usually the case for some of the southern species *P. reginae sensu stricto*. All of *P. tenuis* and associated species are in a similar situation with 24 mid-body rows being the most commonly seen, but some specimens with as few as 22 or as many as 26. A detailed description of the scalation of *P. reginae* by Glauert in 1960 is modified slightly and provided here:

The preceding species (excluding *P. tenuis*) are all identified as follows:

Head narrow, tapering, snout rounded; rostral not projecting. Eye incompletely surrounded by granules; nasals small, widely separated by the frontonasal; no supranasals; frontonasal wider than long, about as large as the frontal, having a wide suture

with the rostral and a narrow one with the frontal; prefrontals large; frontal kite-shaped, about as long as its distance from the rostral, almost as wide as the supraocular region, in contact with two of the four supraoculars; second supraocular largest; five supraciliaries, second largest; frontoparietals almost as long as the frontal; in contact with the frontal and three supraoculars; interparietal small, lozenge-shaped; parietals large, as long as the distance from the tip of the snout to the frontal, narrowly in contact with the fourth supraocular; one pair of band-like nuchals about four times as wide as long, in contact with the enlarged upper temporal. Ear opening roundish, much smaller than the pupil, without lobules. Scales smooth, the two vertebral series enlarged; 24-28 rows around the middle of the body, ventral scales smaller than the dorsals, laterals smallest; preanals enlarged. Tail, covered with scales larger than the dorsals and ventrals of the body. Limbs short, when adpressed they do not meet, toes long and slender, the fourth much the longest, as long as the distance between the nostril and the ear.

Colouration of each species individually is best seen by viewing colour images of specimens in life (see below).

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephensoni* sp. nov., *P. jessicabriggsae* sp. nov. and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Type *P. reginae* from the type locality, Queen Victoria Springs, in the Goldfields area of Western Australia is depicted in life in Wilson and Swan (2017) on page 385 on bottom right.

P. stevebennetti sp. nov. from Cape Range, Western Australia is depicted in life in Beranek *et al.* 2021 and online at:

<https://www.flickr.com/photos/128497936@N03/51422818831/>

P. martinekae sp. nov. in life from Barrow Island, Western Australia is depicted in Moro and MacAulay (2010) on page 68.

P. igh sp. nov. from the northern part of the Pilbara region of Western Australia is depicted in life

online at:

<https://www.flickr.com/photos/euprepiosaur/47193124681/>

and

<https://www.flickr.com/photos/reptileshots/33267622748/>
and
<https://www.flickr.com/photos/reptileshots/47090754992/>
and
<https://www.flickr.com/photos/124699310@N06/14462597065/>
P. eughr sp. nov. from central Australia is depicted in life in Cogger (2014) on page 672 at top left and online at:
<https://www.flickr.com/photos/reptileshots/51382934537/>
and
<https://www.flickr.com/photos/whawha88/9432265669/>
and
<https://www.flickr.com/photos/whawha88/9432265101/>

Distribution: *P. micra* sp. nov. is confined to the dry hilly areas at the southern edge of the east Kimberley Ranges in Western Australia.

Etymology: The new species *P. micra* sp. nov. is named in reflection of the diminutive size of the species, with an adult snout-vent length of about 35-40 mm.

PROABLEPHARUS EUGHR SP. NOV.

LSIDurn:lsid:zoobank.org:act:1B0F6C59-7146-4059-B735-476C130242A5

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.118546 collected from Ellery Gorge, Northern Territory, Australia, Latitude -23.783 S., Longitude 133.066 E. This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen number :R20661, collected from Finke Gorge National Park, Northern Territory, Australia, Latitude -24.067 S., Longitude 132.623 E.

Diagnosis: Until now, *Proablepharus reginae* (Glauert, 1960), type locality Queen Victoria Spring in the Goldfields Region of southern Western Australia has been treated as a single wide-ranging species from various mainly but not always, rocky parts of Western and central Australia.

However it is now split into six allopatric species as follows:

Proablepharus reginae (Glauert, 1960) herein restricted to the Goldfields Region of Southern Western Australia.

P. eughr sp. nov. from the ranges of Central Australia in the Northern Territory, extending west to the Northern Territory border and also potentially including nearby parts of north-west South Australia and adjacent Western Australia.

P. micra sp. nov. from the dry areas at the southern edge of the east Kimberley Ranges in Western Australia.

P. stevebennetti sp. nov. herein restricted to the Cape Range of Western Australia.

P. martinekae sp. nov. confined to Barrow Island and possibly nearby parts of the mainland in the Pilbara region south of the Fortescue River, in Western Australia.

P. igh sp. nov. from the Pilbara region of Western Australia, north of the Fortescue River, to the southern edge of the Great Sandy Desert and including hills within the southern part of this desert and potentially extending south of the Fortescue River in the mid-part of the main Pilbara region.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

Adult male *P. reginae* have a generally dark brown dorsum and tail, with the top of the flanks significantly lighter and becoming grey on the lower flanks. Red or orange is absent from the tail. There is a deep orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. The upper surfaces of the limbs are dark brown and without any obvious markings. The scales around the temples are prominently etched with black. The dorsum of the head is an even brown colour,

being slightly lighter than the dorsum of the body.

Adult male *P. stevebennetti* sp. nov. have a strong orange-red flush both on the sides and top of the head, being strongest on the top of the head anterior to the eyes, while behind that point being somewhat infused with dark brown. Otherwise the flush runs from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla.

The dorsum is medium to dark brown with each scale being etched with grey to a moderate extent. Flanks grade fairly evenly from a medium to dark brown colour, gradually to whitish at the lower flank and venter. Upper surfaces of limbs are generally dark brown but with scattered tiny orange flecks. Iris is yellowish-greenish-grey. There is no obvious red-flush or colour in the dark brown tail.

The scales around the temples are prominently etched with black, but there is no etching of scales on the upper part of the head, with the possible exception of the rear of the skull area.

P. martinekae sp. nov. from Barrow Island, Western Australia, is dark brown on the upper surface of the body without obvious etchings darker anywhere on the body or the temples. The distal three quarters of the tail is noticeably lighter than the body and anterior part of the tail.

In adult males there is an orangeish-red flush running from the snout, across the side of the head on each side onto the anterior neck, posterior to the ear, which abruptly stops well before the axilla of the forelimb and closer to the ear than the axilla. In this species, in common with *P. igh* sp. nov. and *P. micra* sp. nov. the flush is noticeably faded in colour. The posterior part of the upper surface of the generally light coloured head is heavily peppered in patches of grey. Upper surfaces of the limbs are brown to light brown, with scattered indistinct yellowish markings.

Storr (1975) reported:

"Barrow Island specimens differ from mainland specimens in being smaller (mean SVL 30.3 vs 33.2) and darker and in having more subdigital lamellae (mean 23.6 vs 22.8)", but as he did not state which mainland specimens he was comparing to and whether or not they were of different species (or even populations) as outlined in this paper, or the number of specimens involved, I could not draw any firm conclusions from this.

P. igh sp. nov. is similar in most respects to *P. martinekae* sp. nov., most notably in terms of colour configuration, but is readily separated from that species and all others in the complex by having an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like. Furthermore in this species, the tail has a strong light or whitish hue distally and temporal scales are strongly etched dark.

P. micra sp. nov. is readily separated from the preceding species (which it is otherwise similar to) by having a bluish-grey-brown dorsum, as opposed to brownish and a bluish-grey iris as opposed to with yellowish in the preceding species. In common with *P. igh* sp. nov. there is an expanded amount of black or dark grey pigment at the outer edge of each scale, giving an etching that makes the scales on the dorsum seem more fish-like.

P. eughr sp. nov. is generally a dark brown colour all over, including on the tail, which in adult males, is sometimes strongly reddish or orange in colour, if not all over or dorsally, at least on the lower flanks distally. Dark etching of dorsal scales is present, but not prominent. Flanks grade dark to light gradually. Iris is a dark bluey-grey colour. Upper surfaces of limbs are a dark blackish colour all over.

The white patch behind the eye seen in all of the preceding species is either reduced in this species (*P. eughr* sp. nov.) or otherwise pushed down to be below the eye instead.

Cogger (2014) separates putative *P. reginae* from putative *P. tenuis* (Broom, 1896), based on mid-body rows, with 28 for *P. reginae* (presumably based on Glauert's original description

and other people repeating this detail) and 22-24 for *P. tenuis*. However my own inspection of specimens has shown considerable overlap in this character between both putative species and those as defined in this paper.

The preceding species (previously putative *P. reginae*) most commonly seem to have 24-26 mid-body rows, not 28 as is usually the case for some of the southern species *P. reginae sensu stricto*. All of *P. tenuis* and associated species are in a similar situation with 24 mid-body rows being the most commonly seen, but some specimens with as few as 22 or as many as 26. A detailed description of the scalation of *P. reginae* by Glauert in 1960 is modified slightly and provided here:

The preceding species (excluding *P. tenuis*) are all identified as follows:

Head narrow, tapering, snout rounded; rostral not projecting. Eye incompletely surrounded by granules; nasals small, widely separated by the frontonasal; no supranasals; frontonasal wider than long, about as large as the frontal, having a wide suture with the rostral and a narrow one with the frontal; prefrontals large; frontal kite-shaped, about as long as its distance from the rostral, almost as wide as the supraocular region, in contact with two of the four supraoculars; second supraocular largest; five supraciliaries, second largest; frontoparietals almost as long as the frontal; in contact with the frontal and three supraoculars; interparietal small, lozenge-shaped; parietals large, as long as the distance from the tip of the snout to the frontal, narrowly in contact with the fourth supraocular; one pair of band-like nuchals about four times as wide as long, in contact with the enlarged upper temporal. Ear opening roundish, much smaller than the pupil, without lobules. Scales smooth, the two vertebral series enlarged; 24-28 rows around the middle of the body, ventral scales smaller than the dorsals, laterals smallest; preanals enlarged. Tail, covered with scales larger than the dorsals and ventrals of the body. Limbs short, when adpressed they do not meet, toes long and slender, the fourth much the longest, as long as the distance between the nostril and the ear.

Colouration of each species individually is best seen by viewing colour images of specimens in life (see below).

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephensoni* sp. nov., *P. jessicabriggsae* sp. nov. and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular

evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Type *P. reginae* from the type locality, Queen Victoria Springs, in the Goldfields area of Western Australia is depicted in life in Wilson and Swan (2017) on page 385 on bottom right.

P. stevebennetti sp. nov. from Cape Range, Western Australia is depicted in life in Beranek *et al.* 2021 and online at:

<https://www.flickr.com/photos/128497936@N03/51422818831/>

P. martinekae sp. nov. in life from Barrow Island, Western Australia is depicted in Moro and MacAulay (2010) on page 68.

P. igh sp. nov. from the northern part of the Pilbara region of Western Australia is depicted in life

online at:

<https://www.flickr.com/photos/euprepiosaur/47193124681/> and

<https://www.flickr.com/photos/reptileshots/33267622748/> and

<https://www.flickr.com/photos/reptileshots/47090754992/> and

<https://www.flickr.com/photos/124699310@N06/14462597065/>

P. eughr sp. nov. from central Australia is depicted in life in Cogger (2014) on page 672 at top left and online at:

<https://www.flickr.com/photos/reptileshots/51382934537/>

and

<https://www.flickr.com/photos/whawha88/9432265669/>

and

<https://www.flickr.com/photos/whawha88/9432265101/>

Distribution: *P. eughr* sp. nov. is found in the ranges of Central Australia in the Northern Territory, extending west to the Northern Territory border and also potentially including nearby parts of north-west South Australia and immediately adjacent Western Australia.

Etymology: The new species *P. eughr* sp. nov. is named in reflection of the exclamation sound made by the Aboriginal Arrernte (pronounced Arrunda) people, being native Aboriginals of the Alice Springs area in central Australia (Northern Territory) when they see a snake or small lizard scuttle away near their feet. It also reflects the sound made by people when they try to eat them.

PROABLEPHARUS JESSICABRIGGSÆ SP. NOV.

LSIDDurn:lsid:zoobank.org:act:C4C00AA2-C14A-4BD0-BDD3-74B23E8E2B04

Holotype: A preserved specimen at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen number R06720 collected from 5 km west of Ivanhoe Crossing, East Kimberley District, Western Australia, Australia, Latitude -15.75 S., Longitude 128.7 E. This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen numbers R06721 and R06867 both collected from 5 km west of Ivanhoe Crossing, East Kimberley District, Western Australia, Australia, Latitude -15.75 S., Longitude 128.7 E.

Diagnosis: Until now, *Proablepharus tenuis* (Broom, 1896), type locality Muldiva on Cape York, north Queensland has been treated as a single wide-ranging species from various mainly but not always, rocky parts of tropical northern Australia including, Queensland in the east, across the hilly country south of the Gulf of Carpentaria, through the top end of the Northern Territory and across the Kimberley district of Western Australia to the vicinity of Broome in the south-west Kimberley.

However it is now split into five allopatric species as follows:

Proablepharus tenuis (Broom, 1896), herein restricted to north Queensland, Australia, generally east of Hughenden and

including the lower parts of Cape York and nearby parts of the Gulf of Carpentaria.

P. broomensis (Lönnerberg and Andersson, 1913), from the West Kimberley of Western Australia.

P. jessicabriggsae sp. nov. from the northern part of the East Kimberley of Western Australia, with the subspecies *P. jessicabriggsae insolitum* subsp. nov. found around the Keep and Victoria River systems in the far north-west of the Northern Territory.

P. garystephensoni sp. nov. from the West Arnhem Land escarpment and immediately adjacent hilly areas at the top end of the Northern Territory, south-west to the Daly River, including the Tiwi Islands to the north and extending south-east towards the south-west part of the Gulf of Carpentaria.

The subspecies *P. garystephensoni absconditus* subsp. nov. is found on Groote Eylandt, Northern Territory. Specimens from the immediately adjacent areas of the Northern Territory mainland and along the coast north to the Gove Peninsula in East Arnhem Land are tentatively assigned to this subspecies, due to morphological convergence.

P. alexanderdudleyi sp. nov. occurs in the Selwyn Ranges near Cloncurry and Mount Isa in Queensland, extending north-west to about Lawn Hill, Queensland.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

P. broomensis (Lönnerberg and Andersson, 1913) has a beige iris, dark chocolate brownish dorsum, becoming light brown on the area between the dorsum and the upper flank. Tail is heavily infused with greyish flecks, making it appear greyish, especially at the distal end. Posterior to the hind legs there may be two sets of about 4-5 black tipped scales running posteriorly down the tail on either side of the tail. Otherwise there is no indication of spotting or striping on the tail, which is essentially brown anteriorly becoming grey posteriorly. Rarely there are very faint whitish flecks on the sides of the tail mid-way between the base and the tip, but not at either end of the tail. Upper labials are immaculate. Upper surface of the head has indistinct mottling to a limited extent and this is mainly behind the eyes. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae sp. nov. has a bluish-grey iris and a chocolate brown dorsum, which becomes greyish on the lower flanks, which is similar on the anterior part of the tail. There are semi-distinct black lines on the dorsum from the pelvic girdle down onto the tail on the upper surface and sides, ending within the first fifth of the tail. The rest of the tail is infused with numerous semi-distinct evenly spaced white flecks. Upper labials with darker mottling, as is the back of the dorsal surface of the head from between the eyes and posterior to this. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae insolitum subsp. nov. has a greyish-brown iris; medium brown dorsum and flanks, not becoming grey on the lower surfaces. On the tail from the anterior end to about one third of the way down are about 6-8 well-defined blackish stripes, formed by enlarged spots in longitudinal rows of scales that have the spots expanded in size to nearly fill each scale, meaning that in combination they form nearly unbroken lines on the tail. Lower tail is peppered darker and lighter brown, but does not become greyish. Upper labials are immaculate. Rest of the upper surface of head including the snout region anterior to the eyes is peppered greyish on an otherwise brown surface. Upper surfaces of limbs are dark brown and without any obvious

markings. Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout.

P. garystephensoni sp. nov. has a dark greyish-brown iris. Dorsum is medium brown, with heavy chocolate brown on the lower flanks. Upper surfaces of limbs are dark brown to black and without markings of any sort. There is a well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. Running behind the eye to the ear is a well defined blackish bar, this feature not being prominent in any of the other species or subspecies, where it is either absent, so faded as to be barely noticeable or merely groups of mottled or peppered scales.

Tail is brown along its entire length and sides, sometimes being slightly darker on the sides and rarely having a dusting of barely distinct lighter flecks.

There is no evidence of stripes or spots configured as stripes either on the tail or where the dorsum merges with the anterior tail.

Original tail (both sexes) is usually about 1.2 times the length of the body, versus 1.3-1.5 times in the other species.

Breeding males have a medium orange throat and labials, including at the anterior end of the dorsal surface of the snout, but the orange is not as deep or dark in colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov.

P. garystephensoni absconditus subsp. nov. from Groote Eylandt, Northern Territory (and possibly the adjacent mainland of the Northern Territory) is similar in most respects to *P. garystephensoni* sp. nov. as just described above, but differs from that nominate form and all other species in the complex, by having dark spots on the scales of the flanks, uniformly arranged to give the appearance of stripes, upper surfaces of limbs with light brown interspaces on otherwise dark surfaces; dark spotting and peppering on the sides of the anterior tail, not forming any appearance of stripes; a brown tail (top and sides), that lightens slightly at the distal end.

There is no well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. There is no well defined blackish bar running behind the eye to the ear.

Original tail (both sexes) is usually about 1.3-1.4 times the length of the body, versus 1.3-1.5 times in the other species in the complex, except for nominate *P. garystephensoni garystephensoni* subsp. nov. (type locality Jabiluka area, Northern Territory) for which the original tail (both sexes) is usually about 1.2 times the length of the body.

P. alexanderdudleyi sp. nov. has an iris that is beige with a light grey tinge. Dorsum is light to medium brown, becoming light grey on the lower flanks. Grey or whitish scales on the lower flanks are tipped dark grey, giving an appearance of broken lines on the lower flanks. Dorsum of tail is all or mainly brown at the anterior end and similar along most of the length, although grey speckling on the sides moves more to the top surface at the posterior end. The sides of the tail are light grey, heavily infused with black flecks formed from black spots within scales, but these are somewhat irregular and do not form obvious stripes down the tail as seen for example in *P. jessicabriggsae insolitum* subsp. nov. Upper surfaces of limbs are dark brown with numerous well-defined orangeish spots that are evenly spaced.

Breeding males have an orange throat and labials, including at the anterior end of the dorsal surface of the snout, but it is not a dark or deep reddish or orange colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov.

P. tenuis (Broom, 1896) has a brown iris. The dorsum is brown on top and on the flanks, but noticeably lightens at the interface of the dorsal surface and the flanks on the body and the anterior end of the tail, sometimes giving an appearance of two stripes running down the dorso-lateral lines. There are

three thin, but well defined grey lines running from the anterior end of the tail down for about the first third of the tail length. The sides of the tail are whitish brown with dark grey flecks, which while arranged linearly, do not give the appearance of striping. Posterior end of the tail is lighter and tending reddish-orange. Upper labials are white in non-breeding females and light orange in breeding males, but always immaculate. Markings on the head are mottled, rather than peppered. Upper surfaces of limbs are purplish brown with semi-distinct regularly spaced lighter markings. The significant amount of dark peppering or mottling between the eye and the ear characteristic of this species, does not form any well-defined stripe as seen in *P. garystephensoni* sp. nov..

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephensoni* sp. nov. (including the subspecies *P. garystephensoni absconditus* subsp. nov.), *P. jessicabriggsae* sp. nov. (including the subspecies *P. jessicabriggsae insolitum* subsp. nov.) and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Proablepharus broomensis (Lönnerberg and Andersson, 1913) from the West Kimberley in Western Australia is depicted in life online at:

<https://www.flickr.com/photos/stephenmahony/14010727961/> and

<https://www.flickr.com/photos/stephenmahony/13990787266/> *P. jessicabriggsae* sp. nov. from the northern East Kimberley in Western Australia is depicted in life in Storr, Smith and Johnstone (1981) on plate 17, photo 1, at top left, Wilson and Knowles (1988) on page 308 middle right and Wilson and Swan (2017) on page 387 at top.

P. jessicabriggsae insolitum subsp. nov. from the Keep River / Victoria River districts in the north-west Northern Territory is depicted in life online at:

<https://www.flickr.com/photos/reptileshots/38275966486/>

P. garystephensoni sp. nov. from Arnhem Land, Northern Territory is depicted online at:

<https://www.flickr.com/photos/58349528@N02/52012502120/>

and <https://www.flickr.com/photos/126237772@N07/51989138792/> *P. alexanderdudleyi* sp. nov. from Mount Isa, Queensland is depicted online at:

<https://www.flickr.com/photos/ryanfrancis/16923727106/> and

<https://www.flickr.com/photos/ryanfrancis/7806419530/> and

<https://www.flickr.com/photos/ryanfrancis/16762025798/> and

<https://www.flickr.com/photos/ryanfrancis/16762016358/> *P. tenuis* (Broom, 1896) from Cape York, north Queensland is depicted in life online at:

https://www.flickr.com/photos/zimny_anders/43741856850/ and

<https://www.flickr.com/photos/euprepiosaur/31174257476/>

Distribution: The species *P. jessicabriggsae* sp. nov. occurs in the northern part of the East Kimberley of Western Australia, with the subspecies *P. jessicabriggsae insolitum* subsp. nov. found around the Keep and Victoria River systems in the far north-west Northern Territory.

Etymology: *P. jessicabriggsae* sp. nov. is named in honour of Jessica Briggs of Woori Yallock, Upper Yarra Valley, Victoria, Australia, who is a well-known snake catcher and reptile handler, in recognition of her services to reptile education and public safety in her home state of Victoria, Australia.

PROABLEPHARUS JESSICABRIGGSAE INSOLITUM SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:FFD7266A-AE36-4DD1-A2AD-4740BC3A04F5

Holotype: A preserved specimen at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen number R24110 collected from North Kollendong Swamp, Bradshaw Station, Northern Territory, Australia, Latitude -15.004 S., Longitude 130.052 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen numbers R.24168 and R18661 both collected from Bradshaw Station, Northern Territory, Australia.

Diagnosis: Until now, *Proablepharus tenuis* (Broom, 1896), type locality Muldiva on Cape York, north Queensland has been treated as a single wide-ranging species from various mainly but not always, rocky parts of tropical northern Australia including, Queensland in the east, across the hilly country south of the Gulf of Carpentaria, through the top end of the Northern Territory and across the Kimberley district of Western Australia to the vicinity of Broome in the south-west Kimberley.

However it is now split into five allopatric species as follows:

Proablepharus tenuis (Broom, 1896), herein restricted to north Queensland, Australia, generally east of Hughenden and including the lower parts of Cape York and nearby parts of the Gulf of Carpentaria.

P. broomensis (Lönnerberg and Andersson, 1913), from the West Kimberley of Western Australia.

P. jessicabriggsae sp. nov. from the northern part of the East Kimberley of Western Australia, with the subspecies *P. jessicabriggsae insolitum* subsp. nov. found around the Keep and Victoria River systems in the far north-west of the Northern Territory.

P. garystephensoni sp. nov. from the West Arnhem Land escarpment and immediately adjacent hilly areas at the top end of the Northern Territory, south-west to the Daly River, including the Tiwi Islands to the north and extending south-east towards the south-west part of the Gulf of Carpentaria.

The subspecies *P. garystephensoni absconditus* subsp. nov. is found on Groote Eylandt, Northern Territory. Specimens from the immediately adjacent areas of the Northern Territory mainland

and along the coast north to the Gove Peninsula in East Arnhem Land are tentatively assigned to this subspecies, due to morphological convergence.

P. alexanderdudleyi sp. nov. occurs in the Selwyn Ranges near Cloncurry and Mount Isa in Queensland, extending north-west to about Lawn Hill, Queensland.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

P. broomensis (Lönnberg and Andersson, 1913) has a beige iris, dark chocolate brownish dorsum, becoming light brown on the area between the dorsum and the upper flank. Tail is heavily infused with greyish flecks, making it appear greyish, especially at the distal end. Posterior to the hind legs there may be two sets of about 4-5 black tipped scales running posteriorly down the tail on either side of the tail. Otherwise there is no indication of spotting or striping on the tail, which is essentially brown anteriorly becoming grey posteriorly. Rarely there are very faint whitish flecks on the sides of the tail mid-way between the base and the tip, but not at either end of the tail. Upper labials are immaculate. Upper surface of the head has indistinct mottling to a limited extent and this is mainly behind the eyes. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae sp. nov. has a bluish-grey iris and a chocolate brown dorsum, which becomes greyish on the lower flanks, which is similar on the anterior part of the tail. There are semi-distinct black lines on the dorsum from the pelvic girdle down onto the tail on the upper surface and sides, ending within the first fifth of the tail. The rest of the tail is infused with numerous semi-distinct evenly spaced white flecks. Upper labials with darker mottling, as is the back of the dorsal surface of the head from between the eyes and posterior to this. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae insolitum subsp. nov. has a greyish-brown iris; medium brown dorsum and flanks, not becoming grey on the lower surfaces. On the tail from the anterior end to about one third of the way down are about 6-8 well-defined blackish stripes, formed by enlarged spots in longitudinal rows of scales that have the spots expanded in size to nearly fill each scale, meaning that in combination they form nearly unbroken lines on the tail. Lower tail is peppered darker and lighter brown, but does not become greyish. Upper labials are immaculate. Rest of the upper surface of head including the snout region anterior to the eyes is peppered greyish on an otherwise brown surface. Upper surfaces of limbs are dark brown and without any obvious markings. Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout.

P. garystephenoni sp. nov. has a dark greyish-brown iris. Dorsum is medium brown, with heavy chocolate brown on the lower flanks. Upper surfaces of limbs are dark brown to black and without markings of any sort. There is a well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. Running behind the eye to the ear is a well defined blackish bar, this feature not being prominent in any of the other species or subspecies, where it is either absent, so faded as to be barely noticeable or merely groups of mottled or peppered scales.

Tail is brown along its entire length and sides, sometimes being slightly darker on the sides and rarely having a dusting of barely distinct lighter flecks.

There is no evidence of stripes or spots configured as stripes either on the tail or where the dorsum merges with the anterior

tail.

Original tail (both sexes) is usually about 1.2 times the length of the body, versus 1.3-1.5 times in the other species.

Breeding males have a medium orange throat and labials, including at the anterior end of the dorsal surface of the snout, but the orange is not as deep or dark in colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov..

P. garystephenoni absconditus subsp. nov. from Groote Eylandt, Northern Territory (and possibly the adjacent mainland of the Northern Territory) is similar in most respects to *P. garystephenoni* sp. nov. as just described above, but differs from that nominate form and all other species in the complex, by having dark spots on the scales of the flanks, uniformly arranged to give the appearance of stripes, upper surfaces of limbs with light brown interspaces on otherwise dark surfaces; dark spotting and peppering on the sides of the anterior tail, not forming any appearance of stripes; a brown tail (top and sides), that lightens slightly at the distal end.

There is no well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. There is no well defined blackish bar running behind the eye to the ear.

Original tail (both sexes) is usually about 1.3-1.4 times the length of the body, versus 1.3-1.5 times in the other species in the complex, except for nominate *P. garystephenoni garystephenoni* subsp. nov. (type locality Jabiluka area, Northern Territory) for which the original tail (both sexes) is usually about 1.2 times the length of the body.

P. alexanderdudleyi sp. nov. has an iris that is beige with a light grey tinge. Dorsum is light to medium brown, becoming light grey on the lower flanks. Grey or whitish scales on the lower flanks are tipped dark grey, giving an appearance of broken lines on the lower flanks. Dorsum of tail is all or mainly brown at the anterior end and similar along most of the length, although grey speckling on the sides moves more to the top surface at the posterior end. The sides of the tail are light grey, heavily infused with black flecks formed from black spots within scales, but these are somewhat irregular and do not form obvious stripes down the tail as seen for example in *P. jessicabriggsae insolitum* subsp. nov.. Upper surfaces of limbs are dark brown with numerous well-defined orangeish spots that are evenly spaced.

Breeding males have an orange throat and labials, including at the anterior end of the dorsal surface of the snout, but it is not a dark or deep reddish or orange colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov..

P. tenuis (Broom, 1896) has a brown iris. The dorsum is brown on top and on the flanks, but noticeably lightens at the interface of the dorsal surface and the flanks on the body and the anterior end of the tail, sometimes giving an appearance of two stripes running down the dorso-lateral lines. There are three thin, but well defined grey lines running from the anterior end of the tail down for about the first third of the tail length. The sides of the tail are whitish brown with dark grey flecks, which while arranged linearly, do not give the appearance of striping. Posterior end of the tail is lighter and tending reddish-orange. Upper labials are white in non-breeding females and light orange in breeding males, but always immaculate. Markings on the head are mottled, rather than peppered. Upper surfaces of limbs are purplish brown with semi-distinct regularly spaced lighter markings. The significant amount of dark peppering or mottling between the eye and the ear characteristic of this species, does not form any well-defined stripe as seen in *P. garystephenoni* sp. nov..

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom,

1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephensoni* sp. nov. (including the subspecies *P. garystephensoni absconditus* subsp. nov.), *P. jessicabriggsae* sp. nov. (including the subspecies *P. jessicabriggsae insolitum* subsp. nov.) and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Proablepharus broomensis (Lönnerberg and Andersson, 1913) from the West Kimberley in Western Australia is depicted in life online at:

<https://www.flickr.com/photos/stephenmahony/14010727961/>
and

<https://www.flickr.com/photos/stephenmahony/13990787266/>
P. jessicabriggsae sp. nov. from the northern East Kimberley in Western Australia is depicted in life in Storr, Smith and Johnstone (1981) on plate 17, photo 1, at top left, Wilson and Knowles (1988) on page 308 middle right and Wilson and Swan (2017) on page 387 at top.

P. jessicabriggsae insolitum subsp. nov. from the Keep River / Victoria River districts in the north-west Northern Territory is depicted in life online at:

<https://www.flickr.com/photos/reptileshots/38275966486/>

P. garystephensoni sp. nov. from Arnhem Land, Northern Territory is depicted online at:

<https://www.flickr.com/photos/58349528@N02/52012502120/>
and

<https://www.flickr.com/photos/126237772@N07/51989138792/>

P. alexanderdudleyi sp. nov. from Mount Isa, Queensland is depicted online at:

<https://www.flickr.com/photos/ryanfrancis/16923727106/>
and

<https://www.flickr.com/photos/ryanfrancis/7806419530/>
and

<https://www.flickr.com/photos/ryanfrancis/16762025798/>
and

<https://www.flickr.com/photos/ryanfrancis/16762016358/>

P. tenuis (Broom, 1896) from Cape York, north Queensland is depicted in life online at:

https://www.flickr.com/photos/zimny_anders/43741856850/
and

<https://www.flickr.com/photos/euprepiosaur/31174257476/>

Distribution: The species *P. jessicabriggsae* sp. nov. occurs in the northern part of the East Kimberley of Western Australia, with the subspecies *P. jessicabriggsae insolitum* subsp. nov. found around the Keep and Victoria River systems in the far north-west Northern Territory.

Etymology: The subspecies *P. jessicabriggsae insolitum* subsp. nov. is named in reflection of it being morphologically unusual as compared to the nominate and geographically proximate form *P. jessicabriggsae* sp. nov.. In Latin “*insolitum*” means unusual.

PROABLEPHARUS GARYSTEPHENSONI SP. NOV.

LSIDurn:lsid:zoobank.org:act:5D0E4D3C-91FB-433A-8EF6-AA84673AA4C3

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.88597 collected from the Jabiluka Project Area, Northern Territory, Australia, Latitude -12.566 S., Longitude 132.916 E. This government-owned facility allows access to its holdings.

Paratypes: Five preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.88642, R.88643, R.88953, R.117097 and R.117098 all collected from the Jabiluka Project Area, Northern Territory, Australia.

Diagnosis: Until now, *Proablepharus tenuis* (Broom, 1896), type locality Muldiva on Cape York, north Queensland has been treated as a single wide-ranging species from various mainly but not always, rocky parts of tropical northern Australia including, Queensland in the east, across the hilly country south of the Gulf of Carpentaria, through the top end of the Northern Territory and across the Kimberley district of Western Australia to the vicinity of Broome in the south-west Kimberley.

However it is now split into five allopatric species as follows:

Proablepharus tenuis (Broom, 1896), herein restricted to north Queensland, Australia, generally east of Hughenden and including the lower parts of Cape York and nearby parts of the Gulf of Carpentaria.

P. broomensis (Lönnerberg and Andersson, 1913), from the West Kimberley of Western Australia.

P. jessicabriggsae sp. nov. from the northern part of the East Kimberley of Western Australia, with the subspecies *P. jessicabriggsae insolitum* subsp. nov. found around the Keep and Victoria River systems in the far north-west of the Northern Territory.

P. garystephensoni sp. nov. from the West Arnhem Land escarpment and immediately adjacent hilly areas at the top end of the Northern Territory, south-west to the Daly River, including the Tiwi Islands to the north and extending south-east towards the south-west part of the Gulf of Carpentaria.

The subspecies *P. garystephensoni absconditus* subsp. nov. is found on Groote Eylandt, Northern Territory. Specimens from the immediately adjacent areas of the Northern Territory mainland and along the coast north to the Gove Peninsula in East Arnhem Land are tentatively assigned to this subspecies, due to morphological convergence.

P. alexanderdudleyi sp. nov. occurs in the Selwyn Ranges near Cloncurry and Mount Isa in Queensland, extending north-west to about Lawn Hill, Queensland.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

P. broomensis (Lönnerberg and Andersson, 1913) has a beige iris, dark chocolate brownish dorsum, becoming light brown on the area between the dorsum and the upper flank. Tail is heavily infused with greyish flecks, making it appear greyish, especially at the distal end. Posterior to the hind legs there may be two sets of about 4-5 black tipped scales running posteriorly down the tail on either side of the tail. Otherwise there is no indication of spotting or striping on the tail, which is essentially brown anteriorly becoming grey posteriorly. Rarely there are very faint

whitish flecks on the sides of the tail mid-way between the base and the tip, but not at either end of the tail. Upper labials are immaculate. Upper surface of the head has indistinct mottling to a limited extent and this is mainly behind the eyes. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae sp. nov. has a bluish-grey iris and a chocolate brown dorsum, which becomes greyish on the lower flanks, which is similar on the anterior part of the tail. There are semi-distinct black lines on the dorsum from the pelvic girdle down onto the tail on the upper surface and sides, ending within the first fifth of the tail. The rest of the tail is infused with numerous semi-distinct evenly spaced white flecks. Upper labials with darker mottling, as is the back of the dorsal surface of the head from between the eyes and posterior to this. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae insolitum subsp. nov. has a greyish-brown iris; medium brown dorsum and flanks, not becoming grey on the lower surfaces. On the tail from the anterior end to about one third of the way down are about 6-8 well-defined blackish stripes, formed by enlarged spots in longitudinal rows of scales that have the spots expanded in size to nearly fill each scale, meaning that in combination they form nearly unbroken lines on the tail. Lower tail is peppered darker and lighter brown, but does not become greyish. Upper labials are immaculate. Rest of the upper surface of head including the snout region anterior to the eyes is peppered greyish on an otherwise brown surface. Upper surfaces of limbs are dark brown and without any obvious markings. Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout.

P. garystephenoni sp. nov. has a dark greyish-brown iris. Dorsum is medium brown, with heavy chocolate brown on the lower flanks. Upper surfaces of limbs are dark brown to black and without markings of any sort. There is a well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. Running behind the eye to the ear is a well defined blackish bar, this feature not being prominent in any of the other species or subspecies, where it is either absent, so faded as to be barely noticeable or merely groups of mottled or peppered scales.

Tail is brown along its entire length and sides, sometimes being slightly darker on the sides and rarely having a dusting of barely distinct lighter flecks.

There is no evidence of stripes or spots configured as stripes either on the tail or where the dorsum merges with the anterior tail.

Original tail (both sexes) is usually about 1.2 times the length of the body, versus 1.3-1.5 times in the other species.

Breeding males have a medium orange throat and labials, including at the anterior end of the dorsal surface of the snout, but the orange is not as deep or dark in colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov.

P. garystephenoni absconditus subsp. nov. from Groote Eylandt, Northern Territory (and possibly the adjacent mainland of the Northern Territory) is similar in most respects to *P. garystephenoni* sp. nov. as just described above, but differs from that nominate form and all other species in the complex, by having dark spots on the scales of the flanks, uniformly arranged to give the appearance of stripes, upper surfaces of limbs with light brown interspaces on otherwise dark surfaces; dark spotting and peppering on the sides of the anterior tail, not forming any

appearance of stripes; a brown tail (top and sides), that lightens slightly at the distal end.

There is no well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. There is no well defined blackish bar running behind the eye to the ear.

Original tail (both sexes) is usually about 1.3-1.4 times the length of the body, versus 1.3-1.5 times in the other species in the complex, except for nominate *P. garystephenoni garystephenoni* subsp. nov. (type locality Jabiluka area, Northern Territory) for which the original tail (both sexes) is usually about 1.2 times the length of the body.

P. alexanderdudleyi sp. nov. has an iris that is beige with a light grey tinge. Dorsum is light to medium brown, becoming light grey on the lower flanks. Grey or whitish scales on the lower flanks are tipped dark grey, giving an appearance of broken lines on the lower flanks. Dorsum of tail is all or mainly brown at the anterior end and similar along most of the length, although grey speckling on the sides moves more to the top surface at the posterior end. The sides of the tail are light grey, heavily infused with black flecks formed from black spots within scales, but these are somewhat irregular and do not form obvious stripes down the tail as seen for example in *P. jessicabriggsae insolitum* subsp. nov.. Upper surfaces of limbs are dark brown with numerous well-defined orangeish spots that are evenly spaced.

Breeding males have an orange throat and labials, including at the anterior end of the dorsal surface of the snout, but it is not a dark or deep reddish or orange colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov..

P. tenuis (Broom, 1896) has a brown iris. The dorsum is brown on top and on the flanks, but noticeably lightens at the interface of the dorsal surface and the flanks on the body and the anterior end of the tail, sometimes giving an appearance of two stripes running down the dorso-lateral lines. There are three thin, but well defined grey lines running from the anterior end of the tail down for about the first third of the tail length. The sides of the tail are whitish brown with dark grey flecks, which while arranged linearly, do not give the appearance of striping. Posterior end of the tail is lighter and tending reddish-orange. Upper labials are white in non-breeding females and light orange in breeding males, but always immaculate. Markings on the head are mottled, rather than peppered. Upper surfaces of limbs are purplish brown with semi-distinct regularly spaced lighter markings. The significant amount of dark peppering or mottling between the eye and the ear characteristic of this species, does not form any well-defined stripe as seen in *P. garystephenoni* sp. nov..

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnberg and Andersson, 1913), *P. garystephenoni* sp. nov. (including the subspecies *P. garystephenoni absconditus* subsp. nov.), *P. jessicabriggsae* sp. nov. (including the subspecies *P. jessicabriggsae insolitum* subsp. nov.) and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz

and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Proablepharus broomensis (Lönnerberg and Andersson, 1913) from the West Kimberley in Western Australia is depicted in life online at:

<https://www.flickr.com/photos/stephenmahony/14010727961/>
and

<https://www.flickr.com/photos/stephenmahony/13990787266/>
P. jessicabriggsae sp. nov. from the northern East Kimberley in Western Australia is depicted in life in Storr, Smith and Johnstone (1981) on plate 17, photo 1, at top left, Wilson and Knowles (1988) on page 308 middle right and Wilson and Swan (2017) on page 387 at top.

P. jessicabriggsae insolitum subsp. nov. from the Keep River / Victoria River districts in the north-west Northern Territory is depicted in life online at:

<https://www.flickr.com/photos/reptileshots/38275966486/>

P. garystephenoni sp. nov. from Arnhem Land, Northern Territory is depicted online at:

<https://www.flickr.com/photos/58349528@N02/52012502120/>
and

<https://www.flickr.com/photos/126237772@N07/51989138792/>
P. alexanderdudleyi sp. nov. from Mount Isa, Queensland is depicted online at:

<https://www.flickr.com/photos/ryanfrancis/16923727106/>
and

<https://www.flickr.com/photos/ryanfrancis/7806419530/>
and

<https://www.flickr.com/photos/ryanfrancis/16762025798/>
and

<https://www.flickr.com/photos/ryanfrancis/16762016358/>
P. tenuis (Broom, 1896) from Cape York, north Queensland is depicted in life online at:

https://www.flickr.com/photos/zimny_anders/43741856850/
and

<https://www.flickr.com/photos/euprepiosaur/31174257476/>

Distribution: *P. garystephenoni* sp. nov. occurs on the West Arnhem Land escarpment and immediately adjacent hilly areas at the top end of the Northern Territory, south-west to the Daly River, including the Tiwi Islands to the north and extending south-east towards the south-west part of the Gulf of Carpentaria.

The subspecies *P. garystephenoni absconditus* subsp. nov. is found on Groote Eylandt, Northern Territory. Specimens from the immediately adjacent areas of the Northern Territory mainland and along the coast north to the Gove Peninsula in East Arnhem Land are tentatively assigned to this subspecies, due to morphological convergence.

Etymology: *P. garystephenoni* sp. nov. is named in honour of Gary Stephenson, originally of Bondi Junction (Sydney), New South Wales, Australia but having since ventured all over Australia many times, in recognition of a lifetime's dedication to herpetology, especially with regards to pioneering work in captive breeding in the 1970's and 1980's and as an excellent

photographer of reptiles and frogs ever since in a career spanning more than 5 decades.

P. garystephenoni sp. nov. is not a replacement nomen for *P. stephenoni* Wells and Wellington, 1985 (also named in honour of Gary Stephenson) as it relates to another putative taxon, which is not recognized herein, because that taxon is treated herein as a subjective junior synonym of *P. tenuis*.

The nomen *P. stephenoni* remains available in the sense of the *International Code of Zoological Nomenclature* (Ride et al. 1999 as amended online since).

PROABLEPHARUS GARYSTEPHENONI ABSCONDITUS SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:BC11A9CB-1A33-446E-80F2-5151CB1599C9

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.135285 collected from the Gemco Mining Lease, Groote Eylandt, Northern Territory, Australia, Latitude -13.916 S., Longitude 136.433 E.

This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen number R07473 collected from Wurrijarbarba, Groote Eylandt, Northern Territory, Australia, Latitude -14.217, Longitude 136.333 E.

Diagnosis: Until now, *Proablepharus tenuis* (Broom, 1896), type locality Muldiva on Cape York, north Queensland has been treated as a single wide-ranging species from various mainly but not always, rocky parts of tropical northern Australia including, Queensland in the east, across the hilly country south of the Gulf of Carpentaria, through the top end of the Northern Territory and across the Kimberley district of Western Australia to the vicinity of Broome in the south-west Kimberley.

However it is now split into five allopatric species as follows:

Proablepharus tenuis (Broom, 1896), herein restricted to north Queensland, Australia, generally east of Hughenden and including the lower parts of Cape York and nearby parts of the Gulf of Carpentaria.

P. broomensis (Lönnerberg and Andersson, 1913), from the West Kimberley of Western Australia.

P. jessicabriggsae sp. nov. from the northern part of the East Kimberley of Western Australia, with the subspecies *P. jessicabriggsae insolitum* subsp. nov. found around the Keep and Victoria River systems in the far north-west of the Northern Territory.

P. garystephenoni sp. nov. from the West Arnhem Land escarpment and immediately adjacent hilly areas at the top end of the Northern Territory, south-west to the Daly River, including the Tiwi Islands to the north and extending south-east towards the south-west part of the Gulf of Carpentaria.

The subspecies *P. garystephenoni absconditus* subsp. nov. is found on Groote Eylandt, Northern Territory. Specimens from the immediately adjacent areas of the Northern Territory mainland and along the coast north to the Gove Peninsula in East Arnhem Land are tentatively assigned to this subspecies, due to morphological convergence.

P. alexanderdudleyi sp. nov. occurs in the Selwyn Ranges near Cloncurry and Mount Isa in Queensland, extending north-west to about Lawn Hill, Queensland.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

P. broomensis (Lönnerberg and Andersson, 1913) has a beige iris, dark chocolate brownish dorsum, becoming light brown on the area between the dorsum and the upper flank. Tail is heavily infused with greyish flecks, making it appear greyish, especially at the distal end. Posterior to the hind legs there may be two sets of about 4-5 black tipped scales running posteriorly down the tail on either side of the tail. Otherwise there is no indication

of spotting or striping on the tail, which is essentially brown anteriorly becoming grey posteriorly. Rarely there are very faint whitish flecks on the sides of the tail mid-way between the base and the tip, but not at either end of the tail. Upper labials are immaculate. Upper surface of the head has indistinct mottling to a limited extent and this is mainly behind the eyes. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae sp. nov. has a bluish-grey iris and a chocolate brown dorsum, which becomes greyish on the lower flanks, which is similar on the anterior part of the tail. There are semi-distinct black lines on the dorsum from the pelvic girdle down onto the tail on the upper surface and sides, ending within the first fifth of the tail. The rest of the tail is infused with numerous semi-distinct evenly spaced white flecks. Upper labials with darker mottling, as is the back of the dorsal surface of the head from between the eyes and posterior to this. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae insolitum subsp. nov. has a greyish-brown iris; medium brown dorsum and flanks, not becoming grey on the lower surfaces. On the tail from the anterior end to about one third of the way down are about 6-8 well-defined blackish stripes, formed by enlarged spots in longitudinal rows of scales that have the spots expanded in size to nearly fill each scale, meaning that in combination they form nearly unbroken lines on the tail. Lower tail is peppered darker and lighter brown, but does not become greyish. Upper labials are immaculate. Rest of the upper surface of head including the snout region anterior to the eyes is peppered greyish on an otherwise brown surface. Upper surfaces of limbs are dark brown and without any obvious markings. Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout.

P. garystephenoni sp. nov. has a dark greyish-brown iris. Dorsum is medium brown, with heavy chocolate brown on the lower flanks. Upper surfaces of limbs are dark brown to black and without markings of any sort. There is a well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. Running behind the eye to the ear is a well defined blackish bar, this feature not being prominent in any of the other species or subspecies, where it is either absent, so faded as to be barely noticeable or merely groups of mottled or peppered scales.

Tail is brown along its entire length and sides, sometimes being slightly darker on the sides and rarely having a dusting of barely distinct lighter flecks.

There is no evidence of stripes or spots configured as stripes either on the tail or where the dorsum merges with the anterior tail.

Original tail (both sexes) is usually about 1.2 times the length of the body, versus 1.3-1.5 times in the other species.

Breeding males have a medium orange throat and labials, including at the anterior end of the dorsal surface of the snout, but the orange is not as deep or dark in colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov.

P. garystephenoni absconditus subsp. nov. from Groote Eylandt, Northern Territory (and possibly the adjacent mainland of the Northern Territory) is similar in most respects to *P. garystephenoni* sp. nov. as just described above, but differs from that nominate form and all other species in the complex, by having dark spots on the scales of the flanks, uniformly arranged to give the appearance of stripes, upper surfaces of limbs with

light brown interspaces on otherwise dark surfaces; dark spotting and peppering on the sides of the anterior tail, not forming any appearance of stripes; a brown tail (top and sides), that lightens slightly at the distal end.

There is no well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. There is no well defined blackish bar running behind the eye to the ear.

Original tail (both sexes) is usually about 1.3-1.4 times the length of the body, versus 1.3-1.5 times in the other species in the complex, except for nominate *P. garystephenoni garystephenoni* subsp. nov. (type locality Jabiluka area, Northern Territory) for which the original tail (both sexes) is usually about 1.2 times the length of the body.

P. alexanderdudleyi sp. nov. has an iris that is beige with a light grey tinge. Dorsum is light to medium brown, becoming light grey on the lower flanks. Grey or whitish scales on the lower flanks are tipped dark grey, giving an appearance of broken lines on the lower flanks. Dorsum of tail is all or mainly brown at the anterior end and similar along most of the length, although grey speckling on the sides moves more to the top surface at the posterior end. The sides of the tail are light grey, heavily infused with black flecks formed from black spots within scales, but these are somewhat irregular and do not form obvious stripes down the tail as seen for example in *P. jessicabriggsae insolitum* subsp. nov.. Upper surfaces of limbs are dark brown with numerous well-defined orangeish spots that are evenly spaced.

Breeding males have an orange throat and labials, including at the anterior end of the dorsal surface of the snout, but it is not a dark or deep reddish or orange colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae* sp. nov. and *P. jessicabriggsae insolitum* subsp. nov..

P. tenuis (Broom, 1896) has a brown iris. The dorsum is brown on top and on the flanks, but noticeably lightens at the interface of the dorsal surface and the flanks on the body and the anterior end of the tail, sometimes giving an appearance of two stripes running down the dorso-lateral lines. There are three thin, but well defined grey lines running from the anterior end of the tail down for about the first third of the tail length. The sides of the tail are whitish brown with dark grey flecks, which while arranged linearly, do not give the appearance of striping. Posterior end of the tail is lighter and tending reddish-orange. Upper labials are white in non-breeding females and light orange in breeding males, but always immaculate. Markings on the head are mottled, rather than peppered. Upper surfaces of limbs are purplish brown with semi-distinct regularly spaced lighter markings. The significant amount of dark peppering or mottling between the eye and the ear characteristic of this species, does not form a well-defined stripe like in *P. garystephenoni* sp. nov.. The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti* sp. nov., *P. martinekae* sp. nov., *P. igh* sp. nov., *P. micra* sp. nov. and *P. eughr* sp. nov. are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephenoni* sp. nov. (including the subspecies *P. garystephenoni absconditus* subsp. nov.), *P. jessicabriggsae* sp. nov. (including the subspecies *P. jessicabriggsae insolitum* subsp. nov.) and *P. alexanderdudleyi* sp. nov. by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Proablepharus broomensis (Lönnerberg and Andersson, 1913) from the West Kimberley in Western Australia is depicted in life online at: <https://www.flickr.com/photos/stephenmahony/14010727961/> and <https://www.flickr.com/photos/stephenmahony/13990787266/> *P. jessicabriggsae* sp. nov. from the northern East Kimberley in Western Australia is depicted in life in Storr, Smith and Johnstone (1981) on plate 17, photo 1, at top left, Wilson and Knowles (1988) on page 308 middle right and Wilson and Swan (2017) on page 387 at top. *P. jessicabriggsae insolitum* subsp. nov. from the Keep River / Victoria River districts in the north-west Northern Territory is depicted in life online at:

<https://www.flickr.com/photos/reptileshots/38275966486/> *P. garystephenoni* sp. nov. from Arnhem Land, Northern Territory is depicted online at: <https://www.flickr.com/photos/58349528@N02/52012502120/> and

<https://www.flickr.com/photos/126237772@N07/51989138792/> *P. alexanderdudleyi* sp. nov. from Mount Isa, Queensland is depicted online at:

<https://www.flickr.com/photos/ryanfrancis/16923727106/> and

<https://www.flickr.com/photos/ryanfrancis/7806419530/> and

<https://www.flickr.com/photos/ryanfrancis/16762025798/> and

<https://www.flickr.com/photos/ryanfrancis/16762016358/> *P. tenuis* (Broom, 1896) from Cape York, north Queensland is depicted in life online at:

https://www.flickr.com/photos/zimny_anders/43741856850/ and

<https://www.flickr.com/photos/euprepiosaur/31174257476/>

Distribution: The subspecies *P. garystephenoni absconditus* subsp. nov. is found on Groote Eylandt, Northern Territory. Specimens from the immediately adjacent areas of the Northern Territory mainland and along the coast north to the Gove Peninsula in East Arnhem Land are tentatively assigned to this subspecies, due to morphological convergence.

Nominate *P. garystephenoni* sp. nov. (Also identified herein as *P. garystephenoni garystephenoni* subsp. nov.) occurs on the West Arnhem Land escarpment and immediately adjacent hilly areas at the top end of the Northern Territory, south-west to the Daly River, including the Tiwi Islands to the north and extending south-east towards the south-west part of the Gulf of Carpentaria.

Etymology: The subspecies *P. garystephenoni absconditus* subsp. nov. is named in reflection that it has been largely hidden or “absconded” from science in a remote corner of the Northern Territory. The Latin word *absconditus* means hidden.

PROABLEPHARUS ALEXANDERDUDLEYI SP. NOV.
LSIDurn:lsid:zoobank.org:act:61798CD8-F639-4FE4-827C-04A833B4A98D

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J64465 collected from Mount Isa, Queensland, Australia, Latitude -20.723333 S., Longitude 139.451111 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J64467 and J82580 (a juvenile) both collected from Mount Isa, Queensland, Australia.

Diagnosis: Until now, *Proablepharus tenuis* (Broom, 1896), type locality Muldiva on Cape York, north Queensland has been treated as a single wide-ranging species from various mainly but not always, rocky parts of tropical northern Australia including, Queensland in the east, across the hilly country south of the Gulf of Carpentaria, through the top end of the Northern Territory and across the Kimberley district of Western Australia to the vicinity of Broome in the south-west Kimberley.

However it is now split into five allopatric species as follows:

Proablepharus tenuis (Broom, 1896), herein restricted to north Queensland, Australia, generally east of Hughenden and including the lower parts of Cape York and nearby parts of the Gulf of Carpentaria.

P. broomensis (Lönnerberg and Andersson, 1913), from the West Kimberley of Western Australia.

P. jessicabriggsae sp. nov. from the northern part of the East Kimberley of Western Australia, with the subspecies *P. jessicabriggsae insolitum* subsp. nov. found around the Keep and Victoria River systems in the far north-west of the Northern Territory.

P. garystephenoni sp. nov. from the West Arnhem Land escarpment and immediately adjacent hilly areas at the top end of the Northern Territory, south-west to the Daly River, including the Tiwi Islands to the north and extending south-east towards the south-west part of the Gulf of Carpentaria.

The subspecies *P. garystephenoni absconditus* subsp. nov. is found on Groote Eylandt, Northern Territory. Specimens from the immediately adjacent areas of the Northern Territory mainland and along the coast north to the Gove Peninsula in East Arnhem Land are tentatively assigned to this subspecies, due to morphological convergence.

P. alexanderdudleyi sp. nov. occurs in the Selwyn Ranges near Cloncurry and Mount Isa in Queensland, extending north-west to about Lawn Hill, Queensland.

The six species are morphologically conservative, but can be separated from one another, by the unique suites of characters as follows:

P. broomensis (Lönnerberg and Andersson, 1913) has a beige iris, dark chocolate brownish dorsum, becoming light brown on the area between the dorsum and the upper flank. Tail is heavily infused with greyish flecks, making it appear greyish, especially at the distal end. Posterior to the hind legs there may be two sets of about 4-5 black tipped scales running posteriorly down the tail on either side of the tail. Otherwise there is no indication of spotting or striping on the tail, which is essentially brown anteriorly becoming grey posteriorly. Rarely there are very faint whitish flecks on the sides of the tail mid-way between the base and the tip, but not at either end of the tail. Upper labials are immaculate. Upper surface of the head has indistinct mottling to a limited extent and this is mainly behind the eyes. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae sp. nov. has a bluish-grey iris and a chocolate brown dorsum, which becomes greyish on the lower flanks,

which is similar on the anterior part of the tail. There are semi-distinct black lines on the dorsum from the pelvic girdle down onto the tail on the upper surface and sides, ending within the first fifth of the tail. The rest of the tail is infused with numerous semi-distinct evenly spaced white flecks. Upper labials with darker mottling, as is the back of the dorsal surface of the head from between the eyes and posterior to this. Upper surfaces of the limbs are blackish, with numerous semi-distinct and tiny, lighter spots.

Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout, spreading to the anterior upper part of the head.

P. jessicabriggsae insolitum subsp. nov. has a greyish-brown iris; medium brown dorsum and flanks, not becoming grey on the lower surfaces. On the tail from the anterior end to about one third of the way down are about 6-8 well-defined blackish stripes, formed by enlarged spots in longitudinal rows of scales that have the spots expanded in size to nearly fill each scale, meaning that in combination they form nearly unbroken lines on the tail. Lower tail is peppered darker and lighter brown, but does not become greyish. Upper labials are immaculate. Rest of the upper surface of head including the snout region anterior to the eyes is peppered greyish on an otherwise brown surface. Upper surfaces of limbs are dark brown and without any obvious markings. Breeding males have a deep red throat and labials, including at the anterior end of the dorsal surface of the snout.

P. garystephenoni sp. nov. has a dark greyish-brown iris. Dorsum is medium brown, with heavy chocolate brown on the lower flanks. Upper surfaces of limbs are dark brown to black and without markings of any sort. There is a well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. Running behind the eye to the ear is a well defined blackish bar, this feature not being prominent in any of the other species or subspecies, where it is either absent, so faded as to be barely noticeable or merely groups of mottled or peppered scales.

Tail is brown along its entire length and sides, sometimes being slightly darker on the sides and rarely having a dusting of barely distinct lighter flecks.

There is no evidence of stripes or spots configured as stripes either on the tail or where the dorsum merges with the anterior tail.

Original tail (both sexes) is usually about 1.2 times the length of the body, versus 1.3-1.5 times in the other species.

Breeding males have a medium orange throat and labials, including at the anterior end of the dorsal surface of the snout, but the orange is not as deep or dark in colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae sp. nov.* and *P. jessicabriggsae insolitum subsp. nov.*

P. garystephenoni absconditus subsp. nov. from Groote Eylandt, Northern Territory (and possibly the adjacent mainland of the Northern Territory) is similar in most respects to *P. garystephenoni sp. nov.* as just described above, but differs from that nominate form and all other species in the complex, by having dark spots on the scales of the flanks, uniformly arranged to give the appearance of stripes, upper surfaces of limbs with light brown interspaces on otherwise dark surfaces; dark spotting and peppering on the sides of the anterior tail, not forming any appearance of stripes; a brown tail (top and sides), that lightens slightly at the distal end.

There is no well-defined series of 3-4 blackish spots on each scale between the nostril and lower eye forming a distinctive line. There is no well defined blackish bar running behind the eye to the ear.

Original tail (both sexes) is usually about 1.3-1.4 times the length of the body, versus 1.3-1.5 times in the other species in the complex, except for nominate *P. garystephenoni garystephenoni subsp. nov.* (type locality Jabiluka area, Northern Territory) for which the original tail (both sexes) is

usually about 1.2 times the length of the body.

P. alexanderdudleyi sp. nov. has an iris that is beige with a light grey tinge. Dorsum is light to medium brown, becoming light grey on the lower flanks. Grey or whitish scales on the lower flanks are tipped dark grey, giving an appearance of broken lines on the lower flanks. Dorsum of tail is all or mainly brown at the anterior end and similar along most of the length, although grey speckling on the sides moves more to the top surface at the posterior end. The sides of the tail are light grey, heavily infused with black flecks formed from black spots within scales, but these are somewhat irregular and do not form obvious stripes down the tail as seen for example in *P. jessicabriggsae insolitum subsp. nov.* Upper surfaces of limbs are dark brown with numerous well-defined orangeish spots that are evenly spaced.

Breeding males have an orange throat and labials, including at the anterior end of the dorsal surface of the snout, but it is not a dark or deep reddish or orange colour in this species as seen in the Western Australian species *P. broomensis*, *P. jessicabriggsae sp. nov.* and *P. jessicabriggsae insolitum subsp. nov.*

P. tenuis (Broom, 1896) has a brown iris. The dorsum is brown on top and on the flanks, but noticeably lightens at the interface of the dorsal surface and the flanks on the body and the anterior end of the tail, sometimes giving an appearance of two stripes running down the dorso-lateral lines. There are three thin, but well defined grey lines running from the anterior end of the tail down for about the first third of the tail length. The sides of the tail are whitish brown with dark grey flecks, which while arranged linearly, do not give the appearance of striping. Posterior end of the tail is lighter and tending reddish-orange. Upper labials are white in non-breeding females and light orange in breeding males, but always immaculate. Markings on the head are mottled, rather than peppered. Upper surfaces of limbs are purplish brown with semi-distinct regularly spaced lighter markings. The significant amount of dark peppering or mottling between the eye and the ear characteristic of this species, does not form any well-defined stripe as seen in *P. garystephenoni sp. nov.*

The species *Proablepharus reginae* (Glauert, 1960), *P. stevebennetti sp. nov.*, *P. martinekae sp. nov.*, *P. igh sp. nov.*, *P. micra sp. nov.* and *P. eughr sp. nov.* are all separated from the morphologically similar species *P. tenuis* (Broom, 1896), *P. broomensis* (Lönnerberg and Andersson, 1913), *P. garystephenoni sp. nov.* (including the subspecies *P. garystephenoni absconditus subsp. nov.*), *P. jessicabriggsae sp. nov.* (including the subspecies *P. jessicabriggsae insolitum subsp. nov.*) and *P. alexanderdudleyi sp. nov.* by having four supraoculars, as opposed to three in the other species.

Proablepharus Fuhn, 1969 are separated from the morphologically similar *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 by having paired frontoparietals and three or four supraoculars.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

In spite of this convergence of characters, the molecular evidence of Hoskin, Potter, Bragg and Moritz (2018), showed that the two genera are not particularly closely related, with *Acritoscincus* Wells and Wellington, 1985 and *Morethia* Gray, 1845 being more closely related to *Austroablepharus*, than are all the *Proablepharus* species.

Proablepharus broomensis (Lönnerberg and Andersson, 1913) from the West Kimberley in Western Australia is depicted in life online at:

<https://www.flickr.com/photos/stephenmahony/14010727961/>
and

<https://www.flickr.com/photos/stephenmahony/13990787266/>
P. jessicabriggsae sp. nov. from the northern East Kimberley in Western Australia is depicted in life in Storr, Smith and Johnstone (1981) on plate 17, photo 1, at top left, Wilson and Knowles (1988) on page 308 middle right and Wilson and Swan (2017) on page 387 at top.

P. jessicabriggsae insolitum subsp. nov. from the Keep River / Victoria River districts in the north-west Northern Territory is depicted in life online at:

<https://www.flickr.com/photos/reptileshots/38275966486/>

P. garystephenoni sp. nov. from Arnhem Land, Northern Territory is depicted online at:

<https://www.flickr.com/photos/58349528@N02/52012502120/>
and

<https://www.flickr.com/photos/126237772@N07/51989138792/>

P. alexanderdudleyi sp. nov. from Mount Isa, Queensland is depicted online at:

<https://www.flickr.com/photos/ryanfrancis/16923727106/>
and

<https://www.flickr.com/photos/ryanfrancis/7806419530/>
and

<https://www.flickr.com/photos/ryanfrancis/16762025798/>
and

<https://www.flickr.com/photos/ryanfrancis/16762016358/>

P. tenuis (Broom, 1896) from Cape York, north Queensland is depicted in life online at:

https://www.flickr.com/photos/zimny_anders/43741856850/
and

<https://www.flickr.com/photos/euprepiosaur/31174257476/>

Distribution: *P. alexanderdudleyi* sp. nov. occurs in the Selwyn Ranges near Cloncurry and Mount Isa in Queensland, extending north-west to about Lawn Hill, Queensland.

Etymology: The new species *P. alexanderdudleyi* sp. nov. is named in honour of Alexander (Alex) Dudley, originally of Kenthurst (Sydney), New South Wales, Australia but having since ventured all over Australia many times, in recognition of a lifetime's dedication to herpetology, especially with regards to pioneering work in the 1970's and 1980's and as an excellent photographer of reptiles and frogs ever since in a career spanning more than 5 decades.

He is also probably the most experienced interpretation ranger in Australia, having completed 23 summer seasons in Tasmania, 7 in Kakadu and one in Victoria.

AUSTROABLEPHARUS KINGHORNII ELONGINQUO SUBSP. NOV.

LSIDDurn:lsid:zoobank.org:act:89E4DBC7-F119-40DE-BC45-C141D70DFB0D

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J82214 collected from the Diamantina National Park, Queensland, Australia, Latitude -23.732222 S., Longitude 141.177778 E. This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J65084 collected from Astrebla Downs National Park, Queensland, Australia, Latitude -24.164722 S., Longitude 140.592778 E.

Diagnosis: Both *Austroablepharus kinghorni* (Copland, 1947)

and the morphologically similar *A. barklyensis* (Wells and Wellington, 1985), until now treated by most authors as a junior subjective synonym of *A. kinghorni* are separated from the other two species in the genus, namely *A. barrylyoni* (Couper, Limpus, McDonald and Amey, 2010) and *A. naranjicaudus* (Greer, Fisher and Horner, 2004) by having 4-5 supraciliaries and an interparietal scale that is distinct from the fused frontoparietals, versus the interparietal being fused to form a single shield and 5-6 supraciliaries.

However in *A. kinghorni elonginquo* subsp. nov. the interparietal condition is usually, but not always different in that the interparietal is significantly reduced and at times may become a suture line where it would otherwise be.

In colouration the type form of adult male *A. kinghorni* is chocolate brown at the anterior end of the dorsum overlain with about five semi-distinct light brown stripes on the upper surface, becoming less distinct posteriorly and the body in general adopting a light brown colour. There is a semi-distinct line or border on the mid flank of either side going from blackish grey to white. In males, the face region is flushed bright orange-red, as is the tail.

By contrast, adult male *A. kinghorni elonginquo* subsp. nov. is grey brown anteriorly on the dorsum and the dorsal stripes are more yellowish, rather than brown, the same colouration of the dorsum remaining of similar nature and intensity as one moves posteriorly down the dorsum of the body. The whitish line on the mid flank is bordered below by a broken and semi-distinct darker line, before becoming white ventrally, this broken and semi-distinct darker line, not being present in the type form of *A. kinghorni*.

In adult male *A. barklyensis* the dorsum is yellow, sometimes with a slight orange tinge, and with dark chocolate brown stripes running down the body to the base of the tail, which is a brilliant orange colour or at least orange but faded slightly. There is no obvious dark to light border on the mid flank as seen in *A. kinghorni elonginquo* subsp. nov. and *A. kinghorni kinghorni*.

In adult male *A. barklyensis* the dark blackish stripe on side from eye to above the forelimb and beyond is prominent and bold in adults, versus faded in adult male *A. barklyensis* and *A. kinghorni kinghorni*.

Species within the genus *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz, 2018 are separated from species within the morphologically similar genus *Proablepharus* Fuhn, 1969 by having four supraoculars and the frontoparietals fused to form a single shield. They are also separated by the fact that the red tail colour of the juveniles is retained by adults, whereas it is usually lost in adults of *Proablepharus*.

By contrast *Proablepharus* have paired frontoparietals and three or four supraoculars.

Both *Austroablepharus* Couper, Hoskin, Potter, Bragg and Moritz and the morphologically similar genus *Proablepharus* Fuhn, 1969 are separated from all other Australian skinks by the following unique suite of characters: Limbs moderate to short, not meeting when adpressed; limbs pentadactyle; ear opening very small; supranasals absent; nasals undivided; prefrontals large, in contact or separated; frontoparietals fused (*Austroablepharus*) or paired (*Proablepharus*) distinct from or fused with the interparietal; lower eyelid is fixed, and not movable, being partially fused to the upper eyelid to form a permanent spectacle but with a distinct slit between the lower eyelid and the supraciliaries.

A. kinghorni elonginquo subsp. nov. is depicted in Wilson and Swan (2017) on page 385 centre.

A. barklyensis in life is depicted in Cogger (2014) on page 671 and Wilson and Knowles (1998) on page 308 at top right.

Distribution: *A. kinghorni elonginquo* subsp. nov. appears to be confined to the drainages of the north-east side of Lake Eyre, with a center of distribution in western Queensland and nearby parts of north-west New South Wales and South Australia. Specimens from the Darling River system of New South Wales and southern Queensland are of the nominate subspecies *A.*

kinghorni kinghorni.

The morphologically similar species *A. barklyensis* (Wells and Wellington, 1985) occurs in the black soil country of the eastern Northern Territory, Australia, bounded in the east by the Georgina River system, that runs slightly east of the Northern Territory and Queensland border, south of the Selwyn Ranges, near Mount Isa.

Etymology: The subspecies name *elonginquo* is a variation of the Latin "e longinquo", which means from a remote place, in reference to where the subspecies occurs.

CONCLUSIONS

This and other recent papers including some cited herein (e.g. Wells and Wellington 1985, 1985), have underscored previously underestimated species diversity in well-known and common Australian reptile species. While the species formally named within this paper are not believed to be under any existential threats at present, things can change rapidly if and when new pathogens or pests enter the ecosystem, as seen for example with frogs as detailed in Hoser (1991).

Aspects of conservation of Australasian reptiles discussed by Hoser (1989, 1991, 1993 and 1996) apply to these species, as does the comments of Hoser (2019a, 2019b).

The latter two papers Hoser (2019a, 2019b) deal specifically with extinction of species arising from non-recognition of valid taxa by small minded ego-driven pseudo-scientists, not wanting to recognize the works or scientific names of persons they see as rivals.

Formal recognition of unnamed species is an important first step to their conservation and management.

It is critically important that valid species should only be named once and not subjected to unwarranted taxonomic vandalism as being practiced by the Wolfgang Wüster gang as detailed by Hoser (2007, 2009, 2012a-b, 2013a, 2015a-f, 2019a-b), Hawkeswood (2021) and ICZN (2021).

The ICZN formally rejected the Wolfgang Wüster gang's many applications to overwrite names of myself (Hoser) and others, most prominently through the Wüster gang's submissions of Kaiser (2012a-b, 2013), Kaiser *et al.* (2013) and Rhodin *et al.* (2015).

The ICZN formally voted against the Wüster gang of thieves in 2020 and published their formal ruling against the Wüster gang's taxonomic vandalism in 2021 (ICZN 2021).

The ICZN stated that all names of Hoser were valid and available, without need to formally make a plenary ruling to effect what was already in effect and obvious.

Separately Hawkeswood (2021) said exactly the same thing.

The Plenary power is to be used to rectify things outside the *International Code of Zoological Nomenclature* and not to affect what is self-evidently compliant with it.

This is not the first time the ICZN have had to deal with the Wolfgang Wüster gang's immoral and anti-conservation actions.

In 1991, the same gang of thieves were ruled against by the ICZN in the matter of hundreds of names formally proposed by Wells and Wellington in 1984 and 1985 including at least one used as valid in this paper, being *Austroablepharus barklyensis* Wells and Wellington, 1985.

Notwithstanding the ruling of the ICZN in 1991 (ICZN 1991), in favour of Wells and Wellington's works and a second ruling in their favour in 2001 (ICZN 2001) arising from Sprackland *et al.* (1997) and the ongoing availability of the Wells and Wellington names to the biological sciences, the group known as the Wolfgang Wüster gang of thieves have pressured publishing authors not to use or adopt the Wells and Wellington names (see Hoser 2007, 2009, 2012a, 2012b, 2013a, 2015 a-f, 2018b, 2019a-b) and more recently those I have formally proposed.

This attack has been at numerous levels, ranging from control of editors of journals, lies, defamation and a number of other anti-science tactics (see also Shine 1987, Sprackland *et al.* 1997).

Added to this have been non-stop trolling and harassment online,

including countless false and defamatory claims, countless telephone death threats from blocked phone numbers (later unblocked by the phone companies to identify the callers) and fake complaints to authorities to instigate illegal armed raids on ourselves and others working with us in the wildlife conservation and science arenas.

Central in all this in the first instance has been an evidence free general proposition put by them that the taxonomy of Wells and Wellington or myself is simply wrong and that therefore the names need not be used.

A clear example of this is seen in the online database they effectively control and censor, called "*The Reptile database*", now marketed as the "go to" reference for herpetological taxonomy and nomenclature.

Online at:

<https://reptile-database.reptarium.cz>

and optimized for Google (Search engine optimisation), this website comes up for searches for most species of reptile globally when searched for by scientific name.

Once at this website, the internet user is fed the warped and twisted world view of reptile taxonomy as promulgated by Wolfgang Wüster and his gang of thieves.

Contrary to the position of the Wolfgang Wüster gang of thieves, the science does support the use of the names proposed in this and other works of myself and also Wells and Wellington (in the vast majority of cases as mentioned earlier) (Hawkeswood 2021), and the sooner they come into general usage, the sooner the relevant species can be properly conserved and managed.

When the scientific evidence becomes overwhelming for the recognition of taxa formally named by Wells and Wellington, myself or other targets of the Wolfgang Wüster gang of thieves, rather than simply accepting the obvious, this gang of thieves engage in acts of taxonomic vandalism to rename the same entities in direct breach of the *International Code of Zoological Nomenclature*.

The act of taxonomic vandalism is confirmed by their self-promotion of their illegal names on websites they control like "*The Reptile database*" and ongoing harassment of journals and editors to use their illegally coined names instead of the correct and earlier proposed ICZN names, knowing full well that the earlier names are those that should be used.

Following on from the ICZN ruling of 2021 (ICZN 2021), the scourge of the Wolfgang Wüster's gang of thieves actions should now be removed from the biological sciences.

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CONFLICTS OF INTEREST

None.

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The inevitable split up of the common Australian skink lizard *Allengreerus delicata* AKA *Lampropholis delicata* into resurrected and new species (Reptilia: Squamata: Scincidae).

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ABSTRACT

Long known to be a species complex, the putative species originally described as *Mococa delicata* De Vis, 1888, has a chequered taxonomic history. It has since been placed in the genera *Lygosoma*, *Leiolopisma*, *Lampropholis* and most recently *Allengreerus* by Hoser (2009), based on divergence from the type species within *Lampropholis* Fitzinger, 1843.

Related forms have been formally named including *Lampropholis longleyi* Wells and Wellington, 1985 from the New England region of New South Wales, *Lampropholis colossus* Ingram, 1990 from the Bunya Mountains, Queensland, *Allengreerus ronhoseri* Hoser, 2009 from near Shepparton in northern Victoria and *A. delicata jackyhoseri* from Pakenham, (Melbourne), Victoria, Australia.

Cogger (2014), following from the unscientific dictates of Kaiser *et al.* (2013), synonymised the preceding forms with "*Lampropholis delicata*", (excluding one of the least divergent of them, being *L. colossus*) as have more recent authors such as Wilson and Swan (2017).

This was also in the face of excellent peer reviewed scientific descriptions for each and noting that Kaiser *et al.* (2013) was not peer reviewed. It was in fact published in their own online "journal".

However, the peer reviewed scientific evidence of Chapple *et al.* in 2011 showed that each of these preceding formally named forms diverged from the nominate form of *L. delicata* with a type locality of Warro Station, Port Curtis, Queensland (between Bundaberg and Rockhampton), millions of years prior.

A. longleyi diverged about 6 MYA from *A. delicata*; *A. ronhoseri* from *A. longleyi* about 4 MYA and *A. colossus*, *A. delicata jackyhoseri* both diverged from *A. ronhoseri* and from each other about 3.5 MYA, with no known genetic admixture, meaning each should be given full species-level recognition.

Besides recognizing these five previously named species, this paper formally describes and names 14 other obviously divergent forms in the same species complex in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 2019), being a significant addition to the biodiversity inventory of Australia.

Each has an estimated minimum divergence from their nearest relative of at least 2 MYA.

An obviously divergent new species in the *Lampropholis guichenoti* Duméril and Bibron, 1839 species complex, with a 2.15-5.77 MYA divergence from its nearest relative *L. swani* Wells and Wellington, 1985 is also formally named for the first time.

Keywords: Taxonomy; nomenclature; Australia; Skink; lizard; Scincidae; *Lampropholis*; *Allengreerus*; *delicata*; *longleyi*; *colossus*; *ronhoseri*; *jackyhoseri*; *guichenoti*; *lunneyi*; *swani*; New species; *allengreeri*; *brunneo*; *dorsei*; *davidmerceicai*; *robertwatsoni*; *angelikadennesae*; *scottgranti*; *rosswellingtoni*; *kaputarensis*; *trevorhawkeswoodi*; *richardwellsei*; *adelynhoseri*; *matheri*; *marulanensis*; *oxyi*.

INTRODUCTION

Long known to be a species complex, the putative species originally described as *Mococa delicata* De Vis, 1888, is one of the most common lizards in south-east Australia.

Known as the "Garden skink", "Delicata Skink", or "Dark-flecked Garden Skink" the putative species has a chequered taxonomic history.

It has since been placed in the genera *Lygosoma* Hardwicke and Gray, 1827, *Leiopisma* Duméril and Bibron, 1839, *Lampropholis* Fitzinger, 1843 and most recently *Allengreerus* Hoser, 2009 by Hoser (2009), based on divergence from the type species within *Lampropholis* Fitzinger, 1843, that being *Lygosoma guichenoti* Duméril and Bibron, 1839.

Related forms have been formally named including *Lampropholis longleyi* Wells and Wellington, 1985 from the New England region of New South Wales, *Lampropholis colossus* Ingram, 1991 from the Bunya Mountains in south-east Queensland, *Allengreerus ronhoseri* Hoser, 2009 from near Shepparton in northern Victoria and *A. delicata jackyhoserae* from Pakenham, (Melbourne), Victoria, Australia.

Cogger (2014), following from the unscientific dictates of Kaiser *et al.* (2013), synonymised the preceding forms with "*Lampropholis delicata*", (excluding one of the least divergent of them, being *L. colossus*) as have more recent authors such as Wilson and Swan (2017).

This was also in the face of excellent peer reviewed scientific descriptions for each of the preceding taxa and noting that Kaiser *et al.* (2013) was not peer reviewed. It was published in their own online "journal" and quickly discredited by Hoser (2015a-f).

However, the peer reviewed scientific evidence of Chapple *et al.* (2011a) showed that each of these preceding formally named forms diverged from the nominate form of *L. delicata* with a type locality of Warro Station, Port Curtis, Queensland (between Bundaberg and Rockhampton), millions of years prior.

A. longleyi diverged about 6 MYA from *A. delicata*; *A. ronhoseri* from *A. longleyi* about 4 MYA and *A. colossus* as well as *A. delicata jackyhoserae* diverged from *A. ronhoseri* and each other about 3.5 MYA, with no known genetic admixture.

Added to that the defined morphological differences, with species level recognition often automatic with a 1.5 MYA or more divergence, I have no hesitation in stating the obvious in that each of *A. delicata*, *A. colossus*, *A. ronhoseri*, *A. longleyi* and *A. jackyhoserae* shall be treated from here on in as full species. Molecular studies (e.g. Pyron *et al.* 2013 and Chapple *et al.* 2011a) have confirmed the divergence of relevant species with respect of the generic assignment of *Allengreerus* Hoser, 2009 and so it too is used throughout this paper as correct.

Besides recognizing these five previously named species, this paper is the culmination of a project to formally identify and name other species which have until now been treated as populations of *A. delicata*.

Referring also to the species "*Lampropholis colossus* Ingram, 1991" endemic to the Bunya Mountains, Queensland, treated herein as properly placed in the genus *Allengreerus* Hoser, 2009, it appears to be a divergent form of putative *A. delicata* (De Vis, 1888), which happened to be in an unnamed species-level clade of the taxon, based on the phylogeny of Chapple *et al.* (2011a). 4 groups within that unnamed clade all appeared to diverge from one another about 2 MYA and in turn from other named clades at least 3.5 MYA.

The claim by Wilson (2015) of *A. colossus* that it is "*Status uncertain; possibly outlying pop. of L. delicata*" while more-or-less correct at the time, can be amended to read that it is a valid species, allied to *A. delicata*, but divergent by some millions of years.

Ingram (1991) who first mooted that *A. colossus* may have been an aberrant population of *A. delicata* also wrote:

"Moreover, there are several other unnamed distinctly coloured populations of *L. delicata* throughout eastern Queensland that

warrant similar investigations. Undoubtedly, the taxon *L. delicata* is still a complex of species."

The putative species *Lampropholis guichenoti* Duméril and Bibron, 1839, already divided three ways by Wells and Wellington, 1985, but continually treated as a single species by all publishing authors since was also audited as part of this project. This was to determine:

A/ The validity of the taxa formally named by Wells and Wellington in 1984 and 1985 and,

B/ Regardless of the preceding, to see if there were any further unnamed forms warranting formal scientific description.

MATERIALS AND METHODS

A review of the relevant literature was undertaken.

This was to ascertain distribution of putative *A. delicata* and *L. guichenoti*, diagnostic information published to date and also any or all available synonyms for given forms.

An audit of the holdings of Australian museums was also conducted.

Specimens from across the range were inspected, or re-inspected, noting that these two species groups (*A. delicata* and *L. guichenoti*) had been studied by myself for some decades (see for example Hoser 1989, 2009, 2012).

Included were live specimens, dead animals and photos of specimens with good quality location data.

Field work was conducted by myself in every mainland state of Australia, including those states where putative *A. delicata* (and *L. guichenoti*), has been known to occur, this being done over more than 5 decades and including inspection of many thousands of living specimens, including repeated visits to many remote locations.

Literature relevant to the taxonomy and nomenclature adopted within this paper in terms of the putative species *A. delicata* and *L. guichenoti* include Baker (1980), Boulenger (1887), Bowles (2000), Chapple *et al.* (2011a, 2011b, 2016a, 2016b), Cogger (2014), Cogger *et al.* (1983), Daly and Hoyer (2016), De Vis (1888), Doody and Paull (2013), Driessen and Brereton (1998), Duméril and Bibron (1839), Eldridge *et al.* (2020), Fisher (1948), Forsman and Shine (1995), Gray (1842, 1845), Green (1981), Greer (1967, 1974, 1976, 1989, 1997), Harris *et al.* (2020), Henle (1981), Hoser (1989, 2009, 2012), Howard *et al.* (2003), Hutchinson (1979), Ingram (1991), Ingram and Rawlinson (1981), Jacobson (1973), Joss and Minard (1985), Kay *et al.* (2013), Loveridge (1934, 1939), Lyon (1972), Mather (1990), McKeown (1996), Metcalfe and Annable (2016), Miller *et al.* (2017), Mittleman (1952), Mo (2015), Moule *et al.* (2015), Murphy (1994, 2010), Naimo *et al.* (2021), Osborne and Hoefler (2018), Pyron *et al.* (2013), Rawlinson (1969, 1971), Ride *et al.* (1999), Singhal *et al.* (2018), Smith (1937), Swan *et al.* (2017), Taylor *et al.* (1993), van Winkel *et al.* (2018), Walsh *et al.* (2018), Wells (1981, 2002, 2011), Wells and Wellington (1984, 1985a), Wilson (2015), Wilson and Knowles (1988), Wilson and Swan (2010, 2017) and all relevant sources cited therein.

RESULTS

As noted in the introduction, Chapple *et al.* (2011a) gave a molecular basis for the recognition of each of *A. delicata*; *A. ronhoseri*, *A. colossus*, *A. longleyi* and *A. jackyhoserae* as full species.

Their paper also flagged a number of other species, based on divergences of populations in excess of 1.5 MYA.

These were inspected to see if they had quantifiable differences enabling diagnosis as species.

In addition to this, a divergent population warranting species-level recognition was located in the Mount Kaputar area of New South Wales this being the only one for which there is no molecular data.

As a result of this, those fourteen species for which there are no available synonym names are formally described herein and formally named in accordance with the *International Code of*

Zoological Nomenclature (Ride *et al.* 1999, as amended online since).

The species *Mococa cuprea*, Gray, 1842, as detailed in Boulenger, 1887, is not a synonym of anything resembling *A. delicata* as alleged on the Wuster gang controlled website at: <https://reptile-database.reptarium.cz/species?genus=Lampropholis&species=delicata>

(viewed most recently on 20 May 2022).

(who also got the date of Boulenger's publication wrong).

The head scalation in plate XX, Fig 2, does not conform. Neither do the scalation and morphological details in the account of Boulenger (1887) at pages 268-269, including for example the mid-body scale rows, or number of lamellae under the fourth toe.

The species described as *Leiolopisma hawaiiensis* Loveridge, 1939 may well be synonymous with a form previously described, or even one formally named in this paper.

If it is ultimately shown to be synonymous with one of these taxa, the first formally named form will take priority and will be the nomen appropriately used beyond any date that the identity of the Loveridge-named taxon is made properly known.

In terms of putative *L. guichenoti*, Chapple *et al.* (2011b) in their detailed phylogeny, concluded that what they described as northern *L. guichenoti* was in fact a valid species with a 7.91-11.62 MYA divergence from the population south of the Hunter Valley.

They stopped short of stating the obvious, in that it already had been named by Wells and Wellington (1985) as *L. swani* with a type locality in the New England region of New South Wales.

Furthermore they found that the southern population was split into two clades, being:

1/ Southern Victoria and South Australia (including the nominate form with a type locality of Kangaroo Island, South Australia), and,

2/ The only available name for the clade from north-east Victoria and southern New South Wales, south of the Hunter Valley, was *L. lunneyi*, Wells and Wellington, 1984, with a type locality of near Nowra in New South Wales.

Chapple *et al.* (2011b) found the two southern clades (*L. guichenoti* and *L. lunneyi*) diverged from one another some 3.62-5.77 MYA.

Hence Chapple *et al.* (2011b) emphatically confirmed that the two species in the *L. guichenoti* complex formally named by Wells and Wellington in 1984 and 1984 were in fact valid.

Hence my formal recognition of both forms and their resurrection from synonymy with *L. guichenoti*.

Chapple *et al.* (2011b) also flagged a Queensland population of putative "Northern *L. guichenoti*" from south-east Queensland as being significantly divergent from those south of the McPherson Range on the NSW/Queensland border.

With a divergence of 2.15-5.77 MYA between the south-east Queensland population and *L. lunneyi* from New South Wales, combined with obvious morphological divergence between the forms, I have no hesitation in formally naming it as a new species, *Lampropholis oxyi sp. nov.*

INFORMATION RELEVANT TO THE FORMAL DESCRIPTIONS THAT FOLLOW

There is no conflict of interest in terms of this paper or the conclusions arrived at herein.

Several people including anonymous peer reviewers who revised the manuscript prior to publication are also thanked as are relevant staff at museums who made specimens and records available in line with international obligations.

In terms of the following formal descriptions, spellings should not be altered in any way for any purpose unless expressly and exclusively called for by the rules governing Zoological Nomenclature as administered by the International Commission of Zoological Nomenclature (ICZN).

This includes if gender assignment of suffixes seems incorrect,

Latinisation is wrong, apparent spelling mistakes and so on (see Article 32.5.1 of the *International Code of Zoological Nomenclature*).

In the unlikely event two or more newly named taxa are deemed to be the same by a first reviser, then the name to be used and retained is that which first appears in this paper by way of page priority and as listed in the abstract keywords, or by way of date priority if this is possible.

Some material in descriptions for taxa may be repeated for other taxa in this paper and this is necessary to ensure each fully complies with the provisions of the *International Code of Zoological Nomenclature* (fourth edition) (Ride *et al.* 1999) as amended online since.

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 20 May 2022 (including if also viewed prior), unless otherwise stated and was accurate in terms of the content cited herein as of that date.

Any online citations within this paper, including copied emails and the like, are not as a rule cited in the references part of this paper and have the same most recent viewing date as just given.

Unless otherwise stated explicitly, colour and other descriptions apply to living adult specimens of generally good health, as seen by day, and not under any form of stress by means such as excessive cool, heat, dehydration, excessive ageing, abnormal skin or reaction to chemical or other input.

SVL or SV means snout-vent length, TL means tail length, tail measurements refer to original tails, max. size refers to maximum known, sometimes approximated up to the nearest 10 mm if number of measured specimens is below 10.

Unless otherwise stated in the descriptions below, maximum adult SV is 45 mm.

While numerous texts and references were consulted prior to publication of this paper, the criteria used to separate the relevant genera, subgenera, species or subspecies has already been spelt out and/or is done so within each formal description and does not rely on material within publications not explicitly cited herein.

ALLENGREERUS ALENGREERI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:9DF57456-2C75-45F0-BE80-A2E34E41E9BE

Holotype: A preserved specimen at the Australian National Wildlife Collection (Commonwealth Scientific and Industrial Research Organisation (AKA CSIRO), Canberra, ACT, Australia, specimen number R05114 collected from a suburban back yard in the Railway Estate, Townsville, Queensland, Australia, Latitude -19.2667 S., Longitude 146.8167 E.

This government owned facility allows access to its holdings.

Paratypes: 1/ Two preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J82316 and J84609 both collected from Townsville Common Conservation Park, Townsville, Queensland, Australia, Latitude -19.23111 S., Longitude 146.76 E.

2/ A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J57568 collected from Townsville, Queensland, Australia, Latitude -19.266667 S., Longitude 146.816667 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888) has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species with a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One species only has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper.

All the relevant species, as well as their estimated divergences from their nearest previously described and/or closest related relatives (if described at the same time) are given below.

Allengreerus delicata (De Vis, 1888), with a type locality of Warro Station, Port Curtis, Queensland (between Bundaberg and Rockhampton), has a known distribution from about Bundaberg Queensland, on the coast, north to the St. Lawrence Gap, near Marlborough, Queensland, also on the coast.

A. allengreeri sp. nov. occurs north of the Burdekin Gap, generally north of just south of Townsville, Queensland in coastal areas to include the wet tropics region of far north Queensland. It diverged from *A. delicata* 3 MYA.

A. brunneo sp. nov. occurs in the Eungella/Mackay region of North Queensland, which is located between the St. Lawrence Gap (north of Rockhampton) and Burdekin Gap (South of Townsville). It diverged from *A. delicata* and *A. allengreeri* sp. nov. 3 MYA.

A. longleyi (Wells and Wellington, 1985), with a type locality of Guyra, New South Wales is confined to the New England region between Armidale, New South Wales and Girraween in far southern Queensland and ranges east of there. It diverged from *A. delicata* 6.5 MYA.

A. colossus (Ingram, 1991), with a type locality of Bunya Mountains, Queensland is believed to be restricted to the Bunya Mountains, South-east Queensland and diverged from *A. longleyi* 4.2 MYA.

A. dorsei sp. nov. is confined to Kroombit Tops, Queensland and diverged from *A. colossus* and associated newly named species 3 MYA.

A. davidmerceicai sp. nov. known only from the vicinity of Cooloola, south-east Queensland diverged from *A. colossus* and associated newly named species 2 MYA.

A. robertwatsoni sp. nov. occurs in the D'aguiar and Conondale Ranges in the hinterland of Brisbane's north and the nearby Sunshine coast. It diverged from *A. colossus* and associated newly named species 2 MYA.

A. angelikadennesae sp. nov. is found south of the Brisbane River valley in the hillier or wetter southern suburbs of Brisbane, from Parkinson extending south-west to Barney View. It may be found in a wider area. It diverged from *A. colossus* and associated newly named species 2 MYA.

A. ronhoseri Hoser, 2019 is a species from inland eastern Vic, including the lower Goulburn River valley (the type locality) and western slopes of southern and central New South Wales, with a 4MYA divergence from *A. colossus* and *A. jackyhoseræ* (Hoser, 2012).

A. scottgranti sp. nov. is confined to South-east South Australia, but generally not including Adelaide and the nearby hills (natural occurrence at least, noting the invasiveness of these species due to human mediated movements), but also including a population on the lower Eyre Peninsula and including far south-west Victoria. There is a 2 MYA divergence from *A. ronhoseri*.

No species in the complex occupies Victoria south-west of Melbourne to Portland in far west Victoria, this region including the Otway Ranges, which would appear to be otherwise good habitat for these lizards, had they been able to cross the unfavourable intervening areas.

A. rosswellingtoni sp. nov. occurs only in the vicinity of Coolah Tops, New South Wales and has a 4 MYA divergence from *A. ronhoseri*.

A. kaputarensis sp. nov. is confined to wetter parts of the Mount Kaputar massif in north inland New South Wales and is the only taxon in the complex for which there is no DNA divergence evidence available. Another endemic in the Kaputar Massif, *Contundo roomi* Wells and Wellington, 1985 (note the use of the correct genus nomen for this taxon), was shown by Sadlier *et al.*

(2019) to have a 6 MYA divergence from its nearest relative.

A. trevorhawkeswoodi sp. nov. occurs in the vicinity of the Blackdown Tableland, Queensland and has a 3.5 MYA divergence from *A. ronhoseri*.

A. richardwellsei sp. nov. is believed to be confined to the coastal strip of New South Wales north of the Hunter Valley to the McPherson ranges barrier on the NSW, Queensland border, definitely occurring between Port Macquarie and Yamba. It has a 3.5 MYA divergence from *A. ronhoseri*.

A. jackyhoseræ Hoser, 2012, originally formally described as a subspecies of *A. delicata* but from here on in treated as a full species, occurs in Victoria generally south of the Great Dividing Range, from Melbourne's eastern suburbs at least as far east to the New South Wales border.

It diverged from *A. colossus* 4 MYA.

A. adelynhoseræ sp. nov. is found from the Royal National Park, south of Sydney in New South Wales, north to the Central Coast of New South Wales, being stopped by the Hunter Valley intrusion to the north. It diverged from *A. jackyhoseræ* 2.5 MYA.

A. matheri sp. nov. occurs south of where the Illawarra Escarpment meets to coast, just north of Wollongong, New South Wales, south to at least Nowra. It is uncertain which taxon occurs between there and the Victorian border or where the ranges of *A. jackyhoseræ* and *A. matheri* sp. nov. extend to along the NSW south coast, from south or north respectively. *A. matheri* sp. nov. diverged from *A. maralunensis* sp. nov. 2 MYA.

A. marulanensis sp. nov. is known only from an isolated population in the Brayton-Marulan area in the New South Wales, southern highlands. *A. maralunensis* sp. nov. diverged from *A. matheri* sp. nov. 2 MYA.

The preceding species are separated from one another by each of the following unique suites of characters:

Allengreerus delicata (De Vis, 1888) is separated from other species in the complex by the following combination of characters:

A generally dark brown dorsum, including the head and tail and upper surfaces of the limbs. The head may be slightly lighter or tending slightly yellowish; anterior of tail may become slightly greyish. The light upper boundary of the flank is very narrow and indistinct and the lower boundary is semi-distinct and also sometimes dotted white above. Other than the lower parts, the upper flanks are a similar brown to the dorsum, but just slightly darker in colour, but not grey or blackish as seen in many other species in the complex; in this species not forming an obvious lateral stripe. Head has little if any peppering of any sort, upper labials are a brownish colour, barely lighter than above, no obvious spots, speckling or markings on the upper surfaces of the limbs and on the body. On the dorsum, flecking is either absent, or indistinct, including any darkening on parts of each scale. There are no obvious markings on the tail, although sides are slightly darker than the upper surface; the distal end barely lightens. Toes may have 2-3 semi-distinct white bars.

Any head markings are either absent or barely distinct.

A. delicata in life is depicted online at:

<https://www.inaturalist.org/observations/97124712>

and

<https://www.inaturalist.org/observations/103435087>

A. allengreeri sp. nov. is separated from other species in the complex by the following unique combination of characters:

A light grayish brown dorsum with a semi-distinct lighter brown edge separating the dorsum from the blackish lateral stripe on the upper flank. This stripe is reduced in thickness to occupy half or less than half of the flank, the lower boundary of which may or may not be distinct, below which is whitish. The upper lateral boundary and stripe extends well onto the (original tail). There is semi-distinct light and dark flecking on the upper body from the neck to the base of the tail, this being most numerous and prominent just posterior to the pelvic girdle. Upper surfaces

of limbs are brown, with dense blackish speckling, tending to brown with black bands on the digits of toes and hind feet. Upper and lower labials and lower neck are whitish with greyish-black peppering. The dorsum of the head is immaculate or nearly so anterior to the eyes, with speckling or peppering commencing posterior to the eyes. The dark lateral stripe extends well down the original tail before breaking up into spots along a line and then becoming indistinct on the lower half of the tail. Upper surface of the tail is similar in colour to the dorsum and with barely distinct dark peppering, as well as sometimes a small amount of barely distinct lighter peppering. Iris is yellowish orange in colour.

A. allengreeri sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/108218022>

A. brunneo sp. nov. is separated from other species in the complex by the following unique combination of characters:

A rich medium chocolate brown dorsally, being slightly lighter on the head and darker on the upper surfaces of the limbs and the tail.

Most of the head, including the upper labials are an even brown in colour. No obvious markings, flecks or peppering on any part of the upper body.

At the top of the flanks on the dorsum are well-defined thin whitish lines on each side of the dorsum, separating a thick blackish line on either flank.

In turn this line is bounded on the lower surface by a well defined white boundary, continuing onto the white ventral surface. Dark and light spots on the upper surfaces of the limbs are barely visible. On the neck, the dark line running to the flanks is either absent or barely distinct at the posterior end, as is the case for where it runs onto the anterior end of the side of the tail. No markings at all on the tail. Iris is greyish-beige.

A. brunneo sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/96209436>

A. longleyi (Wells and Wellington, 1985) is separated from other species in the complex by the following unique combination of characters:

A greyish, rather than brownish, grey-brown dorsum, distinctive in that it has numerous small but distinctive whitish flecks on the dorsum and anterior half of the tail, arranged in a series of longitudinal lines. In some specimens these are blackish, rather than whitish flecks, but otherwise the markings are the same. Lower and upper labials whitish. The white upper labials then grade towards the even brownish grey head. Posterior end of tail is slightly lighter, but all the upper surface of the tail is similar to the dorsum of the body in colour.

At the sides of the dorsum the boundary between the dorsum and the distinctive thick black stripe on the flank is slightly lightened, but is distinct because of the well defined boundary of the black. Occupying all but the very lower flank, this black line has a well defined white boundary with the white under parts. Venter is immaculate white. The thick black line on the flank commences behind the ear, runs over the axila of the forelimb, effectively through the hind limb and onto the side of the tail, where it remains thick and prominent on the side of the tail for the first half of its length, before fading to merge with the rest of the tail. Upper surfaces of the limbs are brownish-grey with dark and light speckling.

Iris is light brown.

A. longleyi in life is depicted online at:

<https://www.inaturalist.org/observations/96287821>

and

<https://www.inaturalist.org/observations/39470798>

A. colossus (Ingram, 1991) is separated from other species in the complex by the following unique combination of characters: Middle of dorsum is dark brown to almost blackish, grading on the edges to a sharp whitish boundary on the corner of the upper flank. Below this it is dark brown on the upper half, grading to

whitish, but without any obvious boundary, although in some specimens the dark flank is punctuated by a white line running through the lower part. The dark flank line is less distinct on the posterior neck, while anterior to the ear, the scales on the side of the head are mainly white, most also having small light brown centres, these being larger in the upper scales. Top of head is dark brown, with black etching in many scales.

Many dorsal scales also have black spots, giving the lizard a darker appearance. The upper surface of the anterior tail is brown, bounded on the flanks with a semi-distinct irregular edged line, this line ranging from grey to blackish, below being grey with numerous whitish flecks. Upper surface of limbs are whitish, with many blackish spots and specks. Fingers and toes are brown with distinctive blackish borders on the scales. Ventrally yellow. Maximum SV 56mm. Iris light beige to light brown.

A. colossus in life is depicted in Wilson (2015) on page 154 at top left, and online at:

https://www.flickr.com/photos/zimny_anders/36591515134

A. dorsei sp. nov. is separated from other species in the complex by the following unique combination of characters:

Light brown head, with dark flecks or marbling both anterior and posterior to the eyes. A generally dark brown dorsum, with scattered yellowish and darker flecks or marbling. There is a well defined dark blackish stripe running from the snout, through the eye and above the axila of the forelimb becoming a well-defined thick blackish lateral stripe, which in turn runs onto the anterior part of the tail. Upper surfaces of the limbs are dark greyish brown with black flecks and a distinctive white undersurface. Sides of tail are light grey with a series of dark grey markings along the medial line (of the flank) on the anterior third to half, forming a sort of broken line with an irregular edge. Top of tail is a greyish brown. Iris is brown. Under surfaces are whitish with grey speckling.

A. davidmerceicai sp. nov. is separated from other species in the complex by the following unique combination of characters:

Dorsum is greyish brown, immaculate in colour, light brown on the head, lower dorsum and tail is greyish, becoming yellowish at the tip.

There is no light boundary above the thick dark stripe on the upper flank.

At the lower boundary is a distinctive thick white line, below which is a thin greyish-black border, which fades at the lower surface to the whitish venter.

This white line continues past the hind limb onto the tail, where it terminates abruptly.

Upper labials and scales immediately above are whitish, becoming brownish at the upper parts of the side of the head. There is limited grey peppering on the head away from the labials. A semi-distinct and irregular band, better described as a stripe, runs from nostril to eye (not from the snout), being mottling between the eye past the ear, before forming as a thick dark stripe anterior to the forelimb axila. Upper surfaces of the limbs are brown with black speckling. Toes and fingers are light in colour but with dark at the scale boundaries.

On the upper flank of the anterior tail is a row of evenly spaced white spots, forming a line running down the tail (on either side). Iris is greyish-yellow.

Adult snout-vent is 45 mm.

A. davidmerceicai sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/106518371>

and

<https://www.inaturalist.org/observations/25288597>

A. robertwatsoni sp. nov. is separated from other species in the complex by the following unique combination of characters:

As for *A. davidmerceicai* sp. nov. as described above, except for the following obvious differences:

1/ There are scattered semi-distinct blackish markings in the form

of flecks or dots on the dorsal surface of the body and;
2/ There is not a row of evenly spaced white spots, forming a line running down the tail (on either side).

A. robertwatsoni sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/11442952>

and

<https://www.inaturalist.org/observations/36993376>

A. angelikadennesae sp. nov. is separated from other species in the complex by the following unique combination of characters:

As for *A. davidmerceicai* sp. nov. as described above, but separated from both *A. davidmerceicai* sp. nov. and *A. robertwatsoni* sp. nov. by having:

1/ Numerous distinct blackish markings in the form of flecks or dots on the dorsal surface of the body and;

2/ Brownish upper labials as opposed to whitish in the other two species. There is also some semi-distinct dark barring on the upper labials.

A. angelikadennesae sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/99326162>

A. ronhoseri Hoser, 2009 is separated from other species in the complex by the following unique combination of characters:

Dorsum is gun-metal grey, head light brown. Tail is grey with scattered black and white speckling.

Scattered but distinct, irregular light flecks on the back. Dark upper-mid lateral stripes are absent or indistinct and the upper boundary is not defined by any light colour. Lightening of colour around the labial scales is either absent or not very pronounced. There is a distinct peppering colouration on the lower parts of the upper labials in a manner only seen in this taxon. This colouration is best seen by looking at photos of adult specimens in life. Iris is light yellowish-orange. Maximum SVL is 42 mm.

A. ronhoseri in life is depicted in Hoser (2009), pages 2, 4, 5 and online at:

<https://www.inaturalist.org/observations/86656917>

A. scottgranti sp. nov. is separated from other species in the complex by the following unique combination of characters:

Upper surface of head, immaculate brown and without any peppering or spots. Neck, slightly yellowish before grading to reddish brown on the dorsum. This is densely peppered with small black flecks, which enlarge just before the flank. These flecks also enlarge on the upper surface of the tail, at which point they become less dense. The anterior of the tail is a faded version of the dorsal colour, becoming grey in the middle and brownish near the tip. There are more black flecks on the sides than the top of the tail.

On either side of the dorsum and at the top of the flank is a thin, evenly edged, well defined and prominent creamy-white line forming a boundary. Otherwise there is no change in dorsum colour before this boundary. Below this line on the flank is a dark zone that is merely darker than the dorsum and heavily flecked, but not blackish at all. The lower edge is bound by a well-defined white line.

The prominent creamy-white line forming a boundary for the upper flank commences immediately anterior to the forelimb and effectively stops at the hind limb, not extending onto the tail in any meaningful way, there being a short row of scattered blackish spots where the line would continue along the side of the tail.

Upper surfaces of the limbs are light brown with dark markings occupying about half the surface. Upper labials are whitish. Above these the scales are whitish but with dark centres, becoming more so as one gets to the upper side of the head, which in turn is an immaculate brown colour. From snout to neck, the only evidence of a line is broken dark brown spots on the temple posterior to the eye.

Venter is whitish, iris light brown and maximum SV is 45 mm.

A. scottgranti sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/68074640>

A. rosswellingtoni sp. nov. is separated from other species in the complex by the following unique combination of characters:

Upper surface of head light brown, dorsum medium brown, with indistinct black flecks and tail is brownish-grey.

Head peppered black on top and sides. Labials whitish with well defined dark spots or specks as is the anterior chin. A well defined blackish line runs from snout through nostril and eye and posterior to it, then fading above the ear before reforming as a well-defined blackish stripe anterior to the axilla of the forelimb. This stripe runs to the hind limb. Beyond this onto the tail it forms an ill defined and/or broken blackish line with jagged edges, fading posteriorly down the tail.

Upper surfaces of limbs are black with well-defined medium brown spots.

At the top of the black line on the flank the boundary is not lighter than the surface of the dorsum or is barely so. The lower margin of the black band or stripe is ill defined and fades into the white ventral colour. On the dorsum, there is faded black spotting or flecks in indistinct lines running down the back, which is only noticeable on close inspection. Fingers and toes are dark, with light brown boundaries to the scales.

Iris in this species ranges from grey to brown.

A. rosswellingtoni sp. nov. in life is depicted online at:

<https://www.flickr.com/photos/126237772@N07/49224702262>

and

<https://www.flickr.com/photos/stephenmahony/42722975722>

A. kaputarensis sp. nov. is separated from other species in the complex by the following unique combination of characters:

As for *A. rosswellingtoni* sp. nov. as described above except for:

1/ A well defined blackish line runs from snout through nostril and eye and posterior to it, then continues above the ear, without fading and continuing as a well-defined blackish stripe anterior to the axilla of the forelimb, going on to form the lateral stripe.

2/ Numerous distinct black flecks on the dorsum.

A. trevorhawkeswoodi sp. nov. is separated from other species in the complex by the following unique combination of characters:

Reddish brown head, with dark flecks or marbling both anterior and posterior to the eyes. A generally dark brown dorsum, with each scale on the dorsum having an ill-defined black centre, occupying about half the scale in most cases, this ratio being highest along the medial line and reducing towards the flanks on the back. There is a well defined dark blackish stripe running from the snout, through the eye and above the axilla of the forelimb becoming a well-defined thick blackish flank stripe, which in turn runs onto the anterior part of the tail. Upper surfaces of the limbs are dark greyish brown with black flecks and a distinctive white undersurface. Sides of tail are light grey with a series of dark grey markings along the medial line (of the flank) on the anterior third to half, forming a sort of broken line with irregular edge. Iris is brown. Top of tail is a greyish brown. Under surfaces are whitish with grey speckling.

A. trevorhawkeswoodi sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/67445546>

A. richardwellsei sp. nov. is separated from other species in the complex by the following unique combination of characters:

Anterior of head light brown, grading to chocolate brown posteriorly, then dark greyish-brown on the dorsum, even across the width of the upper surface, then a dark grey tail. A thin somewhat dotted yellow line demarcates that upper edge of a well-defined blackish line that runs all the way from the snout, through the nostril, eye and above ear, above forelimb and along the upper and mid flank and along the anterior part of the tail. The centre of this black line has one or two rows of tiny white spots, most prominent in the region equidistant of the limbs. Below this blackish line is a well-defined thin white line, bound below by a greyish-white ventral surface. The upper surfaces

of the body, flanks and upper surfaces of the limbs are all covered with a scattering of small, but distinct white dots, these sometimes being black, grey or more than one of these colours.

Upper labials are whitish-grey, venter is whitish-grey, toes and fingers alternate black and white, iris is dark. Peppering of grey on anterior upper labials, usually on each scale, but top of head is either immaculate or indistinctly marbled. Iris is brown.

A. richardwellsei sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/69187702>

and

<https://www.inaturalist.org/observations/22324325>

A. jackyhoserae Hoser, 2012 is separated from other species in the complex by the following unique combination of characters:

The white stripe along each side of the lower flanks commencing behind the ear and before the front leg and running to the hind leg is indistinct and only runs between the limbs in most specimens. Dorsum is a dark grayish black or dark greyish brown in color.

Head dark brown and usually immaculate, as in no mottling or flecks.

Tail is light grey, with no obvious markings save for a faded indistinct and jagged edged broken line running down the mid-dorsal line of the tail.

A. jackyhoserae has a tiny white spot behind the eye, which is sometimes faded.

Upper surfaces of the limbs are gun-metal grey to black, sometimes with lighter areas between the dark.

Upper and lower labials are light, but peppered with brown.

The greyish-black lateral stripe commences behind the ear and runs onto the base of the tail before narrowing, then breaking up into spots and finally disappearing, at usually about the length of the extended hind limb down the tail.

No stripe from nose to ear. Occasionally one or more smallish irregular brown spots are on the temple behind ear.

Venter is whitish grey.

Iris is grey-brown.

A. jackyhoserae in life is depicted online at:

<https://www.inaturalist.org/observations/106486758>

and

<https://www.inaturalist.org/observations/101676367>

A. adelynhoserae sp. nov. is separated from other species in the complex by the following unique combination of characters:

Medium brown upper surfaces of the head, sides, including upper and lower labials are white with numerous dark grey-brown flecks, extending posterior to the eye. Top of head immaculate, but with slight indistinct marbling. A well defined black line runs from the tip of the snout, through the nose and eye, above ear and continuously onto the upper flank, where it thickens and continues onto the anterior part of the side of the tail. In most specimens the line remains unbroken down the sides of most of the (original) tail.

Lower surface of the lateral stripe is not distinct and fades to greyish white. Venter is white with some flecks of grey. The dorsum is generally unmarked save for semi-distinct darkening of the posterior edges of the scales, giving it a slightly fish-like appearance. Upper surfaces of the limbs are mainly a medium brown with black in between, with semi-distinct white specks, more common on the hind limbs. Fingers and toes are mainly black, with some brown barring.

There are numerous tiny white spots on the flanks commencing from the neck to the base of the tail, these being most numerous on the lower half, these spots being distinct and obvious in some specimens, but indistinct in others.

Max SV 42 cm. Iris is medium brown.

A. adelynhoserae sp. nov. is depicted in life in Hoser (1989) on page 100 (photo 249) and Cogger (2014) on page 582 top left

and online at:

<https://www.inaturalist.org/observations/8621731>

and

<https://www.inaturalist.org/observations/107656926>

A. matheri sp. nov. is separated from other species in the complex by the following unique combination of characters:

As for *A. adelynhoserae* sp. nov. as described above except for:

1/ On the dorsum of the back the rear of every second row of scales (crossways) is a black dot giving the appearance of semi-distinct longitudinal lines of spots down the dorsum.

2/ Many inspected specimens have low welts (folds of skin) on the anterior flanks.

3/ Upper surfaces of the limbs are mainly dark (blackish) with white markings.

4/ There is reduced white on the sides of the head, with upper labials being white overlain mainly with brown and scales above tending to be all brown, with no white (in contrast to still white in *A. adelynhoserae* sp. nov.).

5/ Iris is light orange.

A. matheri sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/84813987>

and

<https://www.inaturalist.org/observations/5780255>

and

<https://www.inaturalist.org/observations/94886006>

A. marulanensis sp. nov. is separated from other species in the complex by the following unique combination of characters:

Light brown upper surface of head, with limited indistinct darker marbling. Dorsum of body same colour, but overlain with a reticulation of grey, including a series of tiny whiteish ocelli, not seen in any other species in the complex. Upper surfaces of limbs are well marked blackish and light brown, with fingers and toes mainly light and with black flecks. There is no obvious white or yellow line or colour change at the interface of the dorsum and the black lateral stripe, which commences anterior to the front legs and runs onto the tail. The lower surface of the dark lateral stripe is bound on the body by a distinctive white band of moderate thickness, which in turn gives way to the greyish-white venter.

There is a black band, better described as a stripe, running from snout, through nose, above eye and fading above the ear, beyond which it re-forms quickly as the dark lateral stripe.

Upper labials are brown with black etchings, while scales behind the eye and sides of neck are whitish, but heavily peppered brown, grey or black.

Iris is brown.

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

Distribution: *A. allengreeri* sp. nov. occurs north of the Burdekin Gap, generally north of just south of Townsville, Queensland in coastal areas to include the wet tropics region of far north

Queensland, being known from Mount Elliot in the south to Cairns in the north.

Etymology: *A. allengreeri* sp. nov. is named in honour of Allen E. Greer, herpetologist of many years

at the Australian Museum, Sydney, now of Mudgee, New South Wales, who perhaps more than anyone else has resolved taxonomic questions in relation to Australasian skinks, including issues arising from four controversial works by Richard Wells and Cliff Ross Wellington in the 1980's, published in Wells and Wellington (1984, 1985a, 1985b, 1987).

ALLENGREERUS BRUNNEO SP. NOV.

LSIDDurn:lsid:zoobank.org:act:1B7C6D76-BA9F-4441-97A1-0140BE114BE9

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.120818 collected by Allen Greer at the Pandanus Creek Picnic Area, Cathus State Forest, Central East Queensland, Australia, Latitude -20.80 S., Longitude 148.533 E.

This government owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.120819 and R.120820 collected by Allen Greer at the Pandanus Creek Picnic Area, Cathus State Forest, Central East Queensland, Australia, Latitude -20.80 S., Longitude 148.533 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, 18 of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. brunneo* sp. nov.

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov., *A. brunneo* sp. nov., *A. longleyi* (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov., *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoseri* Hoser, 2012, *A. adelynhoseri* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. brunneo* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

A rich medium chocolate brown dorsally, being slightly lighter on the head, and darker on the upper surfaces of the limbs and the tail.

Most of the head, including the upper labials are an even brown in colour. No obvious markings, flecks or peppering on any part of the upper body.

At the top of the flanks on the dorsum are well-defined thin whitish lines on each side of the dorsum, separating a thick blackish line on either flank.

In turn this line is bounded on the lower surface by a well defined white boundary, continuing onto the white ventral surface. Dark and light spots on the upper surfaces of the limbs are barely visible. On the neck, the dark line running to the flanks is either absent or barely distinct at the posterior end, as is the case for where it runs onto the anterior end of the side of the tail. No markings at all on the tail. Iris is greyish-beige.

A. brunneo sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/96209436>

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. brunneo sp. nov. diverged from its nearest formally named relatives *A. delicata* and *A. allengreeri* sp. nov. 3 MYA., based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the preceding description of *A. allengreeri* sp. nov. which is explicitly relied upon herein as part of this formal description.

Distribution: *A. brunneo* sp. nov. occurs in the Eungella/Mackay region of North Queensland, which is located between the St. Lawrence Gap (north of Rockhampton) and Burdekin Gap (South of Townsville). It diverged from *A. delicata* and *A. allengreeri* sp. nov. 3 MYA.

Etymology: The new species name "*brunneo*" comes from the Latin word meaning "Brown", in reflection of the brown colouration of this species.

ALLENGREERUS DORSEI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:0AEC9E14-11A8-4B1F-8645-784CEEA15515

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J43873 collected from Upper Kroombit Creek, Kroombit Tops, 45km South south-west of Calliope, Queensland, Australia, Latitude -24.45 S., Longitude 150.866667 E.

This government owned facility allows access to its holdings.

Paratypes: 21 preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J39607, J40115, J40137, J40138, J42157, J42413, J42416, J42417, J42421, J47620, J47631, J47638, J47639, J54882, J54883, J54884, J54885, J54886, J54887, J54888 and J63731 all collected from Kroombit Tops, South south-west of Calliope, Queensland, Australia.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other

14 are formally described as new in this paper, including *A. dorsei* sp. nov.

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov., *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov., *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoseræ* Hoser, 2012, *A. adelynhoseræ* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. dorsei* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

Light brown head, with dark flecks or marbling both anterior and posterior to the eyes. A generally dark brown dorsum, with scattered yellowish and darker flecks or marbling. There is a well defined dark blackish stripe running from the snout, through the eye and above the axilla of the forelimb becoming a well-defined thick blackish lateral stripe, which in turn runs onto the anterior part of the tail. Upper surfaces of the limbs are dark greyish brown with black flecks and a distinctive white undersurface. Sides of tail are light grey with a series of dark grey markings along the medial line (of the flank) on the anterior third to half, forming a sort of broken line with an irregular edge. Top of tail is a greyish brown. Iris is brown. Under surfaces are whitish with grey speckling.

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. dorsei sp. nov. diverged from its nearest formally named relatives *A. colossus* and associated newly named species 3 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. dorsei* sp. nov. is confined to Kroombit Tops, Queensland, Australia and is a narrow range endemic. It is appropriately recognized as a vulnerable species.

Etymology: *A. dorsei* sp. nov. is named in honour of Marc Dorse of Toowoomba, Queensland, Australia, previously of Mount Tamborine, Queensland, Australia, a wildlife demonstrator of some decades (Business name "Deadly Australians", Australian Registered Trademark number 797420, registered in 1999), in recognition of his services to education and wildlife conservation in Australia.

Dorse was the first person in the world to breed in captivity the little known freshwater turtle species *Wollumbinia purvisi* (Wells

and Wellington, 1985) (genus and species both formally named by Wells and Wellington), which Dorse did in 2014-2015.

The more recent and widely posted claim in 2019-2020 by John Weigel and his privately owned zoo business in receipt of massive amounts of government hand outs and trading as the "Australian Reptile Park" to be the first in the world to breed this species (*Wollumbinia purvisi*) (e.g. as posted at: <https://reptilepark.com.au/animals/reptiles/turtles-tortoises/manning-river-turtle/>) is nothing more than a scam to entice well-meaning gullible people to donate yet more money to his privately owned business masquerading as a charity.

Trading on the plight of endangered wildlife by making false claims for personal profit, in order to scam cash from well-meaning but otherwise ill informed people is ethically and morally repugnant!

ALLENGREERUS DAVIDMERCEICAI SP. NOV.

LSIDurn:lsid:zoobank.org:act:6A15BA5E-7548-4AC0-B4E9-0EC40BAF8502

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J55037 collected from Cooloola National Park, Queensland, Australia, Latitude -25.95 S., Longitude 153.116667 E.

This government owned facility allows access to its holdings.

Paratypes: 15 preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J22336, J25398, J25399, J25400, J25401, J25402, J27391, J27392, J27393, J27394, J31294, J32517, J49694, J86755 and J86756 all collected from near Lake Poona, Cooloola National Park, Queensland, Australia, Latitude -25.958333 S., Longitude 153.108333 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a). One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. davidmerceica* sp. nov.

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov., *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov., *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoseræ* Hoser, 2012, *A. adelynhoseræ* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. davidmerceica* sp. nov. is separated from the other 18 above listed species by the following suite of characters: Dorsum is greyish brown, immaculate in colour, light brown on the head, lower dorsum and tail is greyish, becoming yellowish at the tip.

There is no light boundary above the thick dark stripe on the upper flank.

At the lower boundary is a distinctive thick white line, below which is a thin greyish-black border, which fades at the lower surface to the whitish venter.

This white line continues past the hind limb onto the tail, where it terminates abruptly.

Upper labials and scales immediately above are whitish, becoming brownish at the upper parts of the side of the head. There is limited grey peppering on the head away from the labials. A semi-distinct and irregular band, better described as a stripe, runs from nostril to eye (not from the snout), being mottling between the eye past the ear, before forming as a thick dark stripe anterior to the forelimb axilla. Upper surfaces of the limbs are brown with black speckling. Toes and fingers are light in colour but with dark at the scale boundaries.

On the upper flank of the anterior tail is a row of evenly spaced white spots, forming a line running down the tail (on either side). Iris is greyish-yellow.

Adult snout-vent is 45 mm.

A. davidmerceicai sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/106518371>

and

<https://www.inaturalist.org/observations/25288597>

All the preceding species, being the entirety of the *A.*

delicata complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. davidmerceicai sp. nov. diverged from its nearest formally named relatives *A. colossus* and associated newly named species 2 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: The new species *A. davidmerceicai* sp. nov. is known only from the vicinity of Cooloola, south-east Queensland and presumably occurs only in this general area as a range-restricted taxon.

Etymology: *A. davidmerceicai* sp. nov. is named in honour of David Merceica, formerly of Victoria, Australia, now of Queensland, Australia, a businessman and now owner of Snakes Downunder Reptile Park and Zoo, at 51 Lucketts Rd, Childers, Queensland, 4660, Australia.

Merceica has made significant contributions to herpetology in Australia, with particular emphasis on captive breeding rare and sought after species.

ALLENGREERUS ROBERTWATSONI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:01DADB2F-BC4F-41E8-9403-41D604A841AB

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J34164 collected from Mount Nebo, Queensland, Australia, Latitude -27.383333 S., Longitude 152.783333 E.

This government owned facility allows access to its holdings.

Paratypes: Six preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.97878, R.97879, R.97880, R.97881, R.97882 and R.97883 collected from Mount Nebo, Queensland, Australia, Latitude -27.383333 S., Longitude 152.783333 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a). One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. robertwatsoni* sp. nov.

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov. *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorseyi* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov. *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. robertwatsoni* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

Dorsum is greyish brown, with scattered semi-distinct blackish markings in the form of flecks or dots, light brown on the head, lower dorsum and tail is greyish, becoming yellowish at the tip.

There is no light boundary above the thick dark stripe on the upper flank.

At the lower boundary is a distinctive thick white line, below which is a thin greyish-black border, which fades at the lower surface to the whitish venter.

This white line continues past the hind limb onto the tail, where it terminates abruptly.

Upper labials and scales immediately above are whitish, becoming brownish at the upper parts of the side of the head. There is limited grey peppering on the head away from the labials. A semi-distinct and irregular band, better described as a stripe, runs from nostril to eye (not from the snout), being mottling between the eye past the ear, before forming as a thick dark stripe anterior to the forelimb axilla. Upper surfaces of the limbs are brown with black speckling. Toes and fingers are light in colour but with dark at the scale boundaries.

On the upper flank of the anterior tail there is not a row of evenly spaced white spots, forming a line running down the tail (on either side) as seen in the species *A. davidmerceicai* sp. nov..

Iris is greyish-yellow.

Adult snout-vent is 45 mm.

A. robertwatsoni sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/11442952>

and

<https://www.inaturalist.org/observations/36993376>

All the preceding species, being the entirety of the *A.*

delicata complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral

band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. robertwatsoni sp. nov. diverged from its nearest formally named relatives *A. colossus* and associated newly named species 2 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. robertwatsoni* sp. nov. occurs in the D'aguilar and Conondale Ranges in the hinterland of Brisbane's north and the nearby Sunshine coast.

Etymology: *A. robertwatsoni* sp. nov. is named in honour of Brisbane based snake catcher Robert Watson, of Stafford Heights (Brisbane), trading as "South-eastern Reptiles: Snake Catching Brisbane Northside", in recognition of his services to wildlife conservation in Queensland.

ALLENGREERUS ANGELIKADENNESAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:064887E2-9960-4FC8-8995-2C27966312D4

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J46094 collected from Barney View, near Rathdowney, Queensland, Australia, Latitude -28.216667 S., Longitude 152.75 E.

This government owned facility allows access to its holdings.

Paratype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J67537 collected from lower portals, Mount Barney Creek, Barney National Park, Queensland, Australia, Latitude -28.252778 S., Longitude 152.697222 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. angelikadennesae* sp. nov..

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov. *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov. *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp.

nov., *A. richardwellsei* sp. nov., *A. jackyhoseri* Hoser, 2012, *A. adelynhoseri* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov..

The species *A. angelikadennesae* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

Dorsum is greyish brown, with distinct blackish markings in the form of flecks or dots on the dorsal surface of the body, light brown on the head, lower dorsum and tail is greyish, becoming yellowish at the tip.

There is no light boundary above the thick dark stripe on the upper flank. At the lower boundary is a distinctive thick white line, below which is a thin greyish-black border, which fades at the lower surface to the whitish venter. This white line continues past the hind limb onto the tail, where it terminates abruptly.

Upper labials and scales immediately above are brownish with some semi-distinct dark barring on the upper labials. Sides of head are generally brown in colour as is the top of the head. There is limited grey peppering on the head away from the labials. A semi-distinct and irregular band, better described as a stripe, runs from nostril to eye (not from the snout), being mottling between the eye past the ear, before forming as a thick dark stripe anterior to the forelimb axilla. Upper surfaces of the limbs are brown with black speckling. Toes and fingers are light in colour but with dark at the scale boundaries.

On the upper flank of the anterior tail is a row of evenly spaced white spots, forming a line running down the tail (on either side). Iris is greyish-yellow.

Adult snout-vent is 45 mm.

A. angelikadennesae sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/99326162>

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. angelikadennesae sp. nov. diverged from its nearest formally named relatives *A. colossus* and associated newly named species 2 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. angelikadennesae* sp. nov. is found south of the Brisbane River valley in the hillier or wetter southern suburbs of Brisbane, from Parkinson extending south-west to Barney View.

Etymology: *A. angelikadennesae* sp. nov. is named in honour of Angelika Emmaline Dennes, a snake catcher based in Brisbane and the Gold Coast, trading as "Back to bush snake relocations" in recognition of her services to wildlife conservation and public safety.

ALLENGREERUS SCOTTGRANTI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:A7BA2E5F-E4C3-4708-81F8-0066BA6700AB

Holotype: A preserved adult female specimen at the South Australian Museum, Adelaide, South Australia, specimen number R48660 collected from 3.8 km south east of Westwood Homestead at the Gum Lagoon Conservation Park, South Australia, Latitude -36.32 S., Longitude 140.0197 E.

This government owned facility allows access to its holdings.

Paratype: A preserved adult female specimen at the South Australian Museum, Adelaide, South Australia, specimen number R48648 collected from 3.2 km south east of Westwood Homestead at the Gum Lagoon Conservation Park, South Australia, Latitude -36.33 S., Longitude 140.0256 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. scottgranti sp. nov.*

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri sp. nov.*, *A. brunneo sp. nov.*,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei sp. nov.*, *A. davidmerceicai sp. nov.*, *A. robertwatsoni sp. nov.*, *A. angelikadennesae sp. nov.*, *A. ronhoseri* Hoser, 2019, *A. scottgranti sp. nov.*, *A. rosswellingtoni sp. nov.*, *A. kaputarensis sp. nov.*, *A. trevorhawkeswoodi sp. nov.*, *A. richardwellsei sp. nov.*, *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae sp. nov.*, *A. matheri sp. nov.* and *A. marulanensis sp. nov.*

The species *A. scottgranti sp. nov.* is separated from the other 18 above listed species by the following suite of characters:

Upper surface of head, immaculate brown and without any peppering or spots. Neck, slightly yellowish before grading to reddish brown on the dorsum. This is densely peppered with small black flecks, which enlarge just before the flank. These flecks also enlarge on the upper surface of the tail, at which point they become less dense. The anterior of the tail is a faded version of the dorsal colour, becoming grey in the middle and brownish near the tip. There are more black flecks on the sides than the top of the tail.

On either side of the dorsum and at the top of the flank is a thin, evenly edged, well defined and prominent creamy-white line forming a boundary. Otherwise there is no change in dorsum colour before this boundary. Below this line on the flank is a dark zone that is merely darker than the dorsum and heavily flecked, but not blackish at all. The lower edge is bound by a well-defined white line.

The prominent creamy-white line forming a boundary for the upper flank commences immediately anterior to the forelimb and effectively stops at the hind limb, not extending onto the tail in any meaningful way, there being a short row of scattered blackish spots where the line would continue along the side of the tail.

Upper surfaces of the limbs are light brown with dark markings occupying about half the surface. Upper labials are whitish. Above these the scales are whitish but with dark centres, becoming more so as one gets to the upper side of the head,

which in turn is an immaculate brown colour. From snout to neck, the only evidence of a line is broken dark brown spots on the temple posterior to the eye.

Venter is whitish, iris light brown and maximum SV is 45 mm.

A. scottgranti sp. nov. in life is depicted online at:

<https://www.inaturalist.org/observations/68074640>

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. scottgranti sp. nov. diverged from its nearest formally named relative *A. ronhoseri* 2 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri sp. nov.* in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. scottgranti sp. nov.* is confined to South-east South Australia, but generally not including Adelaide and the nearby hills (natural occurrence at least, noting the invasiveness of these species due to human mediated movements), but also including a population on the lower Eyre Peninsula and including specimens from far south-west Victoria.

Etymology: The new species *A. scottgranti sp. nov.* is named in honour of Scott Grant of Whyalla, South Australia (as of 2022), in recognition of his services to wildlife conservation. He took over the lease on the Whyalla Fauna and Reptile Park, but was within three short years forced to shut down at gunpoint in late 2021. This is because his zoo was too successful and popular with the general public. This meant that his business posed a potential threat to the business success of the government owned zoos in Adelaide, who prefer to operate in a monopolistic environment. The dysfunctional government enterprise "Zoos South Australia" seeks by all means, including improper, to be the only or main wildlife experience for the local population, and to collect money from them to see the animals, sell photo rights, claim grants and donations for breeding rare species and so on.

ALLENGREERUS ROSSWELLINGTONI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:E4A99FCE-73F1-47A5-A876-4EBEA66A8818

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.152164 collected from the Rocky Falls Picnic Area, Coolah Tops, National Park, New South Wales, Australia, Latitude -31.70583 S., Longitude 150.01444 E.

This government owned facility allows access to its holdings.

Paratypes: Five preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.152179 and R.185787 collected from the Rocky Falls Picnic Area, Coolah Tops, National Park, New South Wales, Australia,

Latitude -31.70583 S., Longitude 150.01444 E.; specimen numbers R.185857 and R.185859 collected from the Brackens Cottage area, Coolah Tops, National Park, New South Wales, Australia, Latitude -31.74961 S., Longitude 150.03179 E. and specimen number R.185788 collected from the Shepherds Peak Trail, Coolah Tops National Park, New South Wales, Australia, Latitude -31.82362 S., Longitude 150.20243 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a). One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. rosswellingtoni* sp. nov.

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov., *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov., *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. rosswellingtoni* sp. nov. is separated from the other 18 above listed species by the following suite of characters: Upper surface of head light brown, dorsum medium brown, with indistinct black flecks and tail is brownish-grey.

Head peppered black on top and sides. Labials whitish with well defined dark spots or specks as is the anterior chin. A well defined blackish line runs from snout through nostril and eye and posterior to it, then fading above the ear before reforming as a well-defined blackish stripe anterior to the axilla of the forelimb. This stripe runs to the hind limb. Beyond this onto the tail it forms an ill defined and/or broken blackish line with jagged edges, fading posteriorly down the tail.

Upper surfaces of limbs are black with well-defined medium brown spots.

At the top of the black line on the flank the boundary is not lighter than the surface of the dorsum or is barely so. The lower margin of the black band or stripe is ill defined and fades into the white ventral colour. On the dorsum, there is faded black spotting or flecks in indistinct lines running down the back, which is only noticeable on close inspection. Fingers and toes are dark, with light brown boundaries to the scales.

Iris in this species ranges from grey to brown.

A. rosswellingtoni sp. nov. in life is depicted online at: <https://www.flickr.com/photos/126237772@N07/49224702262>

and <https://www.flickr.com/photos/stephenmahony/42722975722>

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks;

less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. rosswellingtoni sp. nov. diverged from its nearest formally named relative *A. ronhoseri* 4 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. rosswellingtoni* sp. nov. appears to be a range-restricted endemic confined to the Coolah Tops area in central-west, New South Wales, Australia and based on the limited distribution should be formally listed as a vulnerable species as a matter of urgency.

Etymology: The new species *A. rosswellingtoni* sp. nov. is named in honour of Cliff Ross Wellington of Ramornie, northern New South Wales, Australia in recognition of his many contributions to Australian herpetology, that go well beyond two publications he is a well-known co-author of, namely Wells and Wellington (1984 and 1985).

ALLENGREERUS KAPUTARENSIS SP. NOV.

LSIDurn:lsid:zoobank.org:act:5246D285-C93A-42BD-A0C8-670CD98DBCD2

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.161983 collected from the north side of Mount Coryah, 200 metres south of the road leading to Mount Kaputar, New South Wales, Australia, Latitude -30.27691 S., Longitude 150.11727 E. This government owned facility allows access to its holdings.

Paratypes: Four preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, as follows:

1/ R.161735 collected at Dawson Springs, on the Narrabri Road, about 2 km from Coryah Gap, New South Wales, Australia, Latitude -30.27777 S., Longitude 150.11721 E.

2/ R.161984 collected on the north side of Mount Coryah, 200 metres south of the road leading to Mount Kaputar, New South Wales, Australia, Latitude -30.27666 S., Longitude 150.11721 E.

3/ R.94829 collected at the creek below the Bark Hut Camping area, Mount Kaputar National Park, New South Wales, Australia, Latitude -30.30 S., Longitude 150.183 E.

4/ R.162136 collected at the Horton River, Upstream of Horton Falls Road Crossing, New South Wales, Australia, Latitude -30.3361 S., Longitude 150.31388 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other

14 are formally described as new in this paper, including *A. kaputarensis* sp. nov.

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov. *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov. *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. kaputarensis* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

A. kaputarensis sp. nov. is separated from other species in the complex by the following unique combination of characters:

Upper surface of head light brown, dorsum medium brown, with indistinct black flecks and tail is brownish-grey.

Head peppered black on top and sides. Labials whitish with well defined dark spots or specks as is the anterior chin. A well defined blackish line runs from snout through nostril and eye and posterior to it, then continues above the ear, without fading and continuing as a well-defined blackish stripe anterior to the axilla of the forelimb, going on to form the lateral stripe (versus fading before the ear in the morphologically similar *A. rosswellingtoni* sp. nov.). This stripe runs to the hind limb. Beyond this onto the tail it forms an ill defined and/or broken blackish line with jagged edges, fading posteriorly down the tail.

Upper surfaces of limbs are black with well-defined medium brown spots.

At the top of the black line on the flank the boundary is not lighter than the surface of the dorsum or is barely so. The lower margin of the black band or stripe is ill defined and fades into the white ventral colour. On the dorsum, there are numerous distinct black flecks on the dorsum (versus faded black spotting or flecks in indistinct lines running down the back, which is only noticeable on close inspection in the morphologically similar *A. rosswellingtoni* sp. nov.). Fingers and toes are dark, with light brown boundaries to the scales. Iris in this species ranges from grey to brown.

A. kaputarensis sp. nov. is confined to wetter parts of the Mount Kaputar massif in north inland New South Wales and immediately adjacent areas of suitable habitat and is the only taxon in the complex for which there is no DNA divergence evidence available. Another endemic in the Kaputar Massif, *Contundo roomi* Wells and Wellington, 1985 (note the use of the correct genus nomen for this taxon), was shown by Sadlier *et al.* (2019) to have a 6 MYA divergence from its nearest relative.

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally

occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. kaputarensis* sp. nov. is confined to wetter parts of the Mount Kaputar massif in north inland New South Wales, Australia and immediately adjacent areas of suitable habitat, is range restricted and should urgently be listed as a vulnerable species.

Refer to the relevant comments in Hoser (2019a, 2019b).

Etymology: *A. kaputarensis* sp. nov. is named in reflection of where it occurs, being the environs of the Mount Kaputar Massif in inland New South Wales, Australia.

ALLENGREERUS TREVORHAWKESWOODI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:BFA1EAA7-E2EF-45E5-9699-C9102675B085

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J64075 collected from the Blackdown Tableland State Forest, Queensland, Australia, Latitude -23.866667 S., Longitude 149.078611 E.

This government owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J64076, J64077 and J64078 all collected from the Blackdown Tableland State Forest, Queensland, Australia, Latitude -23.866667 S., Longitude 149.078611 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. trevorhawkeswoodi* sp. nov.

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov. *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov. *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. trevorhawkeswoodi* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

Reddish brown head, with dark flecks or marbling both anterior and posterior to the eyes. A generally dark brown dorsum, with each scale on the dorsum having an ill-defined black centre, occupying about half the scale in most cases, this ratio being highest along the medial line and reducing towards the flanks on the back. There is a well defined dark blackish stripe running from the snout, through the eye and above the axilla of the forelimb becoming a well-defined thick blackish flank stripe, which in turn runs onto the anterior part of the tail. Upper surfaces of the limbs are dark greyish brown with black flecks and a distinctive white undersurface. Sides of tail are light grey with a series of dark grey markings along the medial line (of the flank) on the anterior third to half, forming a sort of broken line

with irregular edge. Iris is brown. Top of tail is a greyish brown. Under surfaces are whitish with grey speckling.

A. trevorhawkeswoodi sp. nov. in life is depicted online at: <https://www.inaturalist.org/observations/67445546>

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. trevorhawkeswoodi sp. nov. diverged from its nearest formally named relative *A. ronhoseri* 3.5 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. trevorhawkeswoodi* sp. nov. is a range-restricted endemic confined to the Blackdown Tableland, Queensland, Australia and should therefore be listed as a vulnerable species.

Etymology: *A. trevorhawkeswoodi* sp. nov. is named in honour of distinguished Zoologist, Dr. Trevor J. Hawkeswood of Sydney, New South Wales, Australia, in recognition of his many contributions to zoology over some decades, including his strong advocacy against taxonomic vandalism as practiced by Welsh criminal Wolfgang Wüster and his gang of thieves as detailed by Cogger (2014), Hoser (2007, 2009, 2012a-c, 2013c-d, 2015a-g), Hawkeswood (2021) and ICZN (1991, 2001, 2021).

ALLENGREERUS RICHARDWELLSEI SP. NOV.

LSIDurn:lsid:zoobank.org:act:8E69DF67-3B6E-4589-BDE4-CF338C240767

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.144587 collected from Yuraygir National Park, north of Minnie Water, New South Wales, Australia, Latitude -29.74055 S., Longitude 153.29166 E.

This government owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.144593 collected from Yuraygir National Park, north of Minnie Water, New South Wales, Australia, Latitude -29.74055 S., Longitude 153.29166 E.

2/ Two preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.20766 and R.20767 collected from Minnie Water (near Grafton), New South Wales, Australia, Latitude -29.783 S., Longitude 153.3 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a). One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. richardwellsei* sp. nov..

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov. *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicaei* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov. *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov.

The species *A. richardwellsei* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

Anterior of head light brown, grading to chocolate brown posteriorly, then dark greyish-brown on the dorsum, even across the width of the upper surface, then a dark grey tail. A thin somewhat dotted yellow line demarcates that upper edge of a well-defined blackish line that runs all the way from the snout, through the nostril, eye and above ear, above forelimb and along the upper and mid flank and along the anterior part of the tail. The centre of this black line has one or two rows of tiny white spots, most prominent in the region equidistant of the limbs. Below this blackish line is a well-defined thin white line, bound below by a greyish-white ventral surface. The upper surfaces of the body, flanks and upper surfaces of the limbs are all covered with a scattering of small, but distinct white dots, these sometimes being black, grey or more than one of these colours. Upper labials are whitish-grey, venter is whitish-grey, toes and fingers alternate black and white, iris is dark. Peppering of grey on anterior upper labials, usually on each scale, but top of head is either immaculate or indistinctly marbled. Iris is brown.

A. richardwellsei sp. nov. in life is depicted online at: <https://www.inaturalist.org/observations/69187702> and

<https://www.inaturalist.org/observations/22324325>

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. richardwellsei sp. nov. diverged from its nearest formally named relative *A. ronhoseri* 3.5 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named

species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. richardwellsei* sp. nov. is believed to be confined to the coastal strip of New South Wales north of the Hunter Valley to the McPherson ranges barrier on the New South Wales (NSW), Queensland border, definitely occurring between Port Macquarie and Yamba in NSW, Australia.

Etymology: *A. richardwellsei* sp. nov. is named in honour of Australian herpetologist, Richard Wells, recently of Lismore, New South Wales, Australia, in recognition for his services to herpetology and zoology globally, including his strong advocacy against taxonomic vandalism as practiced by Welsh criminal Wolfgang Wüster and his gang of thieves as detailed by Cogger (2014), Hoser (2007, 2009, 2012a, 2012c, 2013a, 2015a-f, 2017a, 2019a, 2019b), Hawkeswood (2021), ICZN (1991, 2001, 2021) and sources cited therein.

Besides the association of Richard Wells with the exact area this species occurs, it is also noted that along with his colleague, Cliff Ross Wellington, they formally named another species in this complex, namely *A. longleyi* (Wells and Wellington, 1985) since shown by Chapple et al. (2011a) using molecular techniques to be a valid species-level taxon.

Richard Wells is also by far the largest benefactor with respect of collecting and donating reptiles to the Australian Museum in Sydney, having donated many thousands of specimens to their research collection spanning full-time work over many decades. He has received few if any accolades for this achievement.

Coincidentally, he also caught some of the paratypes for the new species *A. adelynhoserae* sp. nov., described below from McCarr's Creek, New South Wales, an area I also engaged in extensive fieldwork over many decades, including in the immediately adjacent West Head area of Kurringai Chase (see Hoser, 1989).

The spelling of the species name "*richardwellsei*" with the added second last letter "e" is deliberate and should not be changed unless mandated by an International Commission of Zoological Nomenclature (ICZN) rule either I am unaware of or that is later introduced.

ALLENGREERUS ADELYNHOSERAE SP. NOV.

LSIDDurn:lsid:zoobank.org:act:2F4C9586-B5A1-4134-AC04-583F170E5405

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.141011, collected from the Newington Woodland, Homebush Bay, Sydney, New South Wales, Australia, Latitude -33.83193 S., Longitude 151.06888 E.

This government owned facility allows access to its holdings.

Paratypes: 1/ Four preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.106530, R.106531, R.106532 and R.106533 collected by Richard Wells from McCarr's Creek, Kurringai Chase National Park, north of Sydney, New South Wales, Australia, Latitude -33.666 S., Longitude 151.25 E. 2/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.141010, collected from the Newington Woodland, Homebush Bay, Sydney, New South Wales, Australia, Latitude -33.83193 S., Longitude 151.06888 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and

within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple et al. (2011a). One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. adelynhoserae* sp. nov..

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeeri* sp. nov. *A. brunneo* sp. nov.,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov. *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov..

The species *A. adelynhoserae* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

Medium brown upper surfaces of the head, sides, including upper and lower labials are white with numerous dark grey-brown flecks, extending posterior to the eye. Top of head immaculate, but with slight indistinct marbling. A well defined black line runs from the tip of the snout, through the nose and eye, above ear and continuously onto the upper flank, where it thickens and continues onto the anterior part of the side of the tail. In most specimens the line remains unbroken down the sides of most of the (original) tail.

Lower surface of the lateral stripe is not distinct and fades to greyish white. Venter is white with some flecks of grey. The dorsum is generally unmarked save for semi-distinct darkening of the posterior edges of the scales, giving it a slightly fish-like appearance. Upper surfaces of the limbs are mainly a medium brown with black in between, with semi-distinct white specks, more common on the hind limbs. Fingers and toes are mainly black, with some brown barring.

There are numerous tiny white spots on the flanks commencing from the neck to the base of the tail, these being most numerous on the lower half, these spots being distinct and obvious in some specimens, but indistinct in others.

Max SV 42 cm. Iris is medium brown.

A. adelynhoserae sp. nov. is depicted in life in Hoser (1989) on page 100 (photo 249) and Cogger (2014) on page 582 top left and online at:

<https://www.inaturalist.org/observations/8621731>

and

<https://www.inaturalist.org/observations/107656926>

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within

Allengreerus Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. adelynhoserae sp. nov. diverged from its nearest formally

named relative *A. jacksyhoserae* 2.5 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeeri sp. nov.* in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. adelynhoserae sp. nov.* is found from the Royal National Park, south of Sydney in New South Wales, including other parts of the Sydney basin, north to the Central Coast of New South Wales, being stopped by the Hunter Valley intrusion to the north. It does well in urbanised areas and is an invasive species.

Etymology: *A. adelynhoserae sp. nov.* is named in honour of my eldest daughter Adelyn Hoser, of Park Orchards, Victoria, Australia, in recognition of over 20 years of services to wildlife conservation globally.

ALLENGREEERUS MATHERI SP. NOV.

LSIDurn:lsid:zoobank.org:act:3F6C03D2-4FAD-410A-8C16-74CD24A2523B

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R148555 collected by Allen E. Greer from north of Seafoam Avenue, west of railway line at Thirroul (north of Wollongong), New South Wales, Australia, Latitude -34.316 S., Long. 150.916 E. This government owned facility allows access to its holdings. This government owned facility allows access to its holdings.

Paratypes: 1/ 17 preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.98993, R.98994, R.98995, R.98996, R.98997, R.98998, R.98999, R.99000, R.99001, R.99003, R.99004, R.99005, R.99006, R.99007, R.99008, R.99009 and R.99013 all collected from around Wollongong, New South Wales, Australia, Latitude -34.433 S., Longitude 150.90 E. 2/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.64087 collected from Dapto, New South Wales, Australia, Latitude -34.50 S., Longitude 150.783 E. 3/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.60901 collected from the surf beach at Shellharbour, New South Wales, Australia, Latitude -34.583 S., Longitude 150.866 E. 4/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.67584, collected from Seven Mile Beach, Gerroa, New South Wales, Australia, Latitude -34.766 S., Longitude 150.816 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a). One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. matheri sp. nov.*

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeeri sp. nov.*, *A. brunneo sp. nov.*,

A. longleyi (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei sp. nov.*, *A. davidmerceicai sp. nov.*, *A.*

robertwatsoni sp. nov., *A. angelikadennesae sp. nov.*, *A. ronhoseri* Hoser, 2019, *A. scottgranti sp. nov.*, *A. rosswellingtoni sp. nov.*, *A. kaputarensis sp. nov.*, *A. trevorhawkeswoodi sp. nov.*, *A. richardwellsei sp. nov.*, *A. jacksyhoserae* Hoser, 2012, *A. adelynhoserae sp. nov.*, *A. matheri sp. nov.* and *A. marulanensis sp. nov.*

The species *A. matheri sp. nov.* is separated from the other 18 above listed species by the following suite of characters:

Medium brown upper surfaces of the head, sides, including upper and lower labials are white with numerous dark grey-brown flecks, extending posterior to the eye. Top of head immaculate, but with slight indistinct marbling. A well defined black line runs from the tip of the snout, through the nose and eye, above ear and continuously onto the upper flank, where it thickens and continues onto the anterior part of the side of the tail. In most specimens the line remains unbroken down the sides of most of the (original) tail.

Lower surface of the lateral stripe is not distinct and fades to greyish white. Venter is white with some flecks of grey.

On the dorsum of the back the rear of every second row of scales (crossways) is a black dot giving the appearance of semi-distinct longitudinal lines of spots down the dorsum.

There is reduced white on the sides of the head, with upper labials being white overlain mainly with brown and scales above tending to be all brown, with no white (in contrast to still white in *A. adelynhoserae sp. nov.*).

Many inspected specimens have low welts (folds of skin) on the anterior flanks.

Upper surfaces of the limbs are mainly dark (blackish) with white markings.

Fingers and toes are mainly black, with some brown barring.

There are numerous tiny white spots on the flanks commencing from the neck to the base of the tail, these being most numerous on the lower half, these spots being distinct and obvious in some specimens, but indistinct in others.

Max SV 42 cm. Iris is light orange.

A. matheri sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/84813987>

and

<https://www.inaturalist.org/observations/5780255>

and

<https://www.inaturalist.org/observations/94886006>

All the preceding species, being the entirety of the *A.*

delicata complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. matheri sp. nov. diverged from its nearest formally named relative *A. marulanensis* (described in this paper) 2 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally

occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. matheri* sp. nov. occurs south of where the Illawarra Escarpment meets to coast, just north of Wollongong, New South Wales, south to at least Nowra. It is uncertain which taxon occurs between there and the Victorian border or where the ranges of *A. jackyhoserae* and *A. matheri* sp. nov. extend to along the NSW south coast, from south or north respectively. However based on known limits of other pairs of sister taxa which have distributional limits on the south coast of New South Wales, it is reasonable to infer a southwards distribution of *A. matheri* sp. nov. to at least as far south as Ulladulla, New South Wales, Latitude 35.3572 S., Longitude 150.4613 E.

Etymology: *A. matheri* sp. nov. is named in honour of Michael Mather of Wollongong in New South Wales, Australia in recognition of a lifetime's contributions to herpetology in Australia, particularly with respect to the captive study and breeding of small skinks and pygopids (Pygopodidae) over many decades.

ALLENGREERUS MARULANENSIS SP. NOV.

LSIDurn:lsid:zoobank.org:act:9493504F-758C-43EC-B5C7-EA7BDE279A31

Holotype: A preserved male specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R39166 collected from 3 km south west of Brayton, New South Wales, Australia, Latitude -34.67 S., Longitude 149.95 E.

This government owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.64426, collected 4 miles west of Marulan, near the Hume Highway, New South Wales, Australia, Latitude -34.75 S., Longitude 149.933 E. 2/ Two preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.52849 and R.52850 collected from Uringalia Creek, 25 miles north of Goulburn in New South Wales, Australia, Latitude -34.683 S., Longitude 150.083 E.

Diagnosis: Until now, *Allengreerus delicata* (De Vis, 1888), better known as *Lampropholis delicata*, has been treated as a wide-ranging taxon found more-or-less continuously from the wet tropics in far north Queensland, south along the coast and near ranges through New South Wales, into Victoria and across into south-east South Australia.

It is now known that the distribution is somewhat broken and within this realm are no less than 19 apparently allopatric species, eighteen of which have a divergence of about 2 MYA or more minimum between one another's closest relatives, based on the molecular phylogeny published by Chapple *et al.* (2011a).

One of these 19 species has no molecular data, but is clearly divergent and self-evidently isolated from all others.

5 of these species have been previously described and the other 14 are formally described as new in this paper, including *A. marulanensis* sp. nov..

The 19 relevant species are: *A. delicata* (De Vis, 1888), *A. allengreeri* sp. nov., *A. brunneo* sp. nov., *A. longleyi* (Wells and Wellington, 1985), *A. colossus* (Ingram, 1991), *A. dorsei* sp. nov., *A. davidmerceicai* sp. nov., *A. robertwatsoni* sp. nov., *A. angelikadennesae* sp. nov., *A. ronhoseri* Hoser, 2019, *A. scottgranti* sp. nov., *A. rosswellingtoni* sp. nov., *A. kaputarensis* sp. nov., *A. trevorhawkeswoodi* sp. nov., *A. richardwellsei* sp. nov., *A. jackyhoserae* Hoser, 2012, *A. adelynhoserae* sp. nov., *A. matheri* sp. nov. and *A. marulanensis* sp. nov..

The species *A. marulanensis* sp. nov. is separated from the other 18 above listed species by the following suite of characters:

Light brown upper surface of head, with limited indistinct darker marbling. Dorsum of body same colour, but overlain with a

reticulation of grey, including a series of tiny whiteish ocelli, not seen in any other species in the complex. Upper surfaces of limbs are well marked blackish and light brown, with fingers and toes mainly light and with black flecks. There is no obvious white or yellow line or colour change at the interface of the dorsum and the black lateral stripe, which commences anterior to the front legs and runs onto the tail. The lower surface of the dark lateral stripe is bound on the body by a distinctive white band of moderate thickness, which in turn gives way to the greyish-white venter.

There is a black band, better described as a stripe, running from snout, through nose, above eye and fading above the ear, beyond which it reforms quickly as the dark lateral stripe.

Upper labials are brown with black etchings, while scales behind the eye and sides of neck are whitish, but heavily peppered brown, grey or black.

Iris is brown.

All the preceding species, being the entirety of the *A. delicata* complex, are separated from all other species within *Allengreerus* Hoser, 2009 and/or *Lampropholis* Fitzinger, 1843, *sensu lato* as defined in Cogger, 2014 by the following suite of characters:

An absence of an irregular dark vertebral stripe; the dark lateral band is usually, but not always, not bordered by a well-defined narrow light coloured band, but rather either with no border or a border created by a lightening of the dorsum near the flanks; less than 29 mid-body rows and less than 27 lamellae under the fourth toe; four supraoculars and usually seven supralabials; usually seven supraciliaries; parietal scales are fused to form a single shield, but are distinct from the interparietal; dark lateral stripe is usually but not always defined on the lower edge by some sort of white line or edge; lower surfaces white, whitish grey or yellow and either immaculate or lightly peppered, but not heavily spotted with black or with chevrons (derived from Cogger, 2014).

A. marulanensis sp. nov. diverged from its nearest formally named relative *A. matheri* (described in this paper) 2 MYA based on the phylogeny of Chapple *et al.* (2011a), confirming the appropriateness of the species-level assignment of this taxon.

Details of the diagnostic characters of each of the 19 species in this species group, enabling separation of each named species from all others, including where they are found (naturally occur) and their dated divergences from one another, in terms of next closest related species are contained within the earlier description of *A. allengreeri* sp. nov. in this paper, which is explicitly relied upon herein as part of this formal description.

Distribution: *A. marulanensis* sp. nov. is known only from an isolated population in the Brayton-Marulan area in the New South Wales, southern highlands (Australia) and is presumed to be range-restricted. It should therefore be formally listed by governments as vulnerable, before it potentially expires due to bureaucratic indifference as detailed by Hoser (2019a, 2019b).

The preceding comment is made noting that the species has until now been treated as a population of a putative species that is widespread, "weedy", invasive and not under any known threat.

Etymology: *A. marulanensis* sp. nov. is named in reflection of the best known town from where it is known to occur, that being Marulan in New South Wales, Australia (as described below).

Marulan is a usually cold, windswept cesspit of a place, severely degraded by human activity and for many years a petrol stop on the highway from Sydney to Melbourne, populated by a bunch of petrol outlets and not much else.

More recently it has obtained a notorious reputation for the corrupt and violent NSW Police ambushing motorists for allegedly failing to observe ridiculously slow (and variable by remote control) speed limits on the local highway.

The presence of a hitherto unknown and locally endemic species, may I hope, improve the reputation and profile of this impoverished hell-hole of a place.

LAMPROPHOLIS OXYI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:F18A667A-7A7E-4DBD-B987-C07529E4B499

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J46121 collected from 3 km west of Rainbow Beach, Queensland, Australia, Latitude -25.9 S., Longitude 153.1 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J60616 and J60617 collected from Marcoola, Queensland, Australia, Latitude 26.5810 S., Longitude 153.0947 E.

Diagnosis: *Lampropholis oxyi sp. nov.* has until now been treated as putative *Lampropholis guichenoti* Duméril and Bibron, 1839 by all relevant publishing authors, including for example Cogger (2014), representing the majority view of Australian herpetologists at the time.

Chapple *et al.* (2011b) found that putative *L. guichenoti* had at least four deeply divergent clades, sufficiently divergent to be recognized as separate species, each separated from one another by well-known biogeographical barriers.

L. guichenoti with a type locality of Kangaroo Island, South Australia is found in south-east South Australia and southern Victoria.

L. lunneyi Wells and Wellington, 1984 with a type locality from near Nowra on the NSW South Coast, occurs in north-east Victoria and southern New South Wales as far north as the Hunter Valley.

L. swani Wells and Wellington, 1985 occurs north of the Hunter Valley and to the NSW/Queensland border, with a type locality in the New England region near Walcha, New South Wales.

L. oxyi sp. nov. is believed to occur generally north of the Queensland border in south-east Queensland, north to at least Maryborough.

L. oxyi sp. nov. is readily separated from the three other preceding species (*L. guichenoti*, *L. lunneyi* and *L. swani*) by having scattered white spots on the back of adult males that are mainly arranged to form two lines running either side of the mid dorsal dark zone that is barely darker than the rest of the dorsum, versus white spots generally scattered all over the back and not in lines or clustered to form rows on either side of the mid dorsal dark zone in adult males of the other three species.

In males, the white line running from the upper labials over the axilla of the front leg and along the mid-lower flank to the hind limb is prominent and bordered above with dark and blackish anterior to the forelimb.

In *L. guichenoti*, *L. lunneyi* and *L. swani* the white line referred to above is generally indistinct and/or absent behind the ear.

Adult female *L. oxyi sp. nov.* have a slight yellowish tinge in the dorsum, absent in the otherwise greyish brown colour of the other three species.

L. swani is also separated from *L. oxyi sp. nov.* by having a very dark and prominent thick mid-dorsal band, which is relatively indistinct in *L. oxyi sp. nov.*

The dark band behind the eye is thick and prominent in *L. swani*, versus thin or absent in the other three species.

In *L. guichenoti* there is usually a break in this band behind the eye, while in *L. lunneyi* it either thins or becomes indistinct just posterior to the eye.

All of *L. guichenoti*, *L. oxyi sp. nov.*, *L. swani* and *L. lunneyi* are separated from all other species within *Lampropholis* Fitzinger, 1843 *sensu* Cogger (2014), which includes all the species of *Allengreerus* Hoser, 2009 as defined in this paper, by having some kind of irregular dark vertebral stripe (sometimes indistinct or even absent in some females), and a well defined dark lateral band, not going below the mid-flank (versus does as a rule in *Allengreerus*), bordered below by a well defined, narrower band, lighter in colour than the dorsal surface colour.

L. oxyi sp. nov. is depicted in life in Wilson and Swan (2017) on page 321, second photo from bottom and online at: <https://www.inaturalist.org/observations/111052218>

L. swani is depicted in life online at:

<https://www.inaturalist.org/observations/18385007>
and

<https://www.inaturalist.org/observations/103277469>

L. lunneyi is depicted in life in Hoser (1989) on page 100 at bottom and Cogger (2014) on page 582 at top right and online at: <https://www.inaturalist.org/observations/109481216>

and

<https://www.inaturalist.org/observations/8925031>

L. guichenoti from Kangaroo Island, South Australia are depicted online at:

<https://www.inaturalist.org/observations/42271997>

and

<https://www.inaturalist.org/observations/39956572>

and

<https://www.inaturalist.org/observations/42284788>

Chapple *et al.* (2011b) found that *L. guichenoti* and *L. lunneyi* as a pair diverged from *L. swani* and *L. oxyi sp. nov.* 7.91-11.62 MYA; that *L. guichenoti* diverged from *L. lunneyi* 3.62-5.77 MYA and that *L. swani* diverged from *L. oxyi sp. nov.* 2.15-5.77 MYA, confirming the sense in recognising each at the species level.

Distribution: While the exact distribution of *L. oxyi sp. nov.* is not certain, this taxon clearly is found north of Brisbane in the coastal strip to just past Maryborough in the north. The southern limit is believed to be in the vicinity of the Queensland/New South Wales border, but the exact area is not known.

Etymology: *L. oxyi sp. nov.* is named in honour of a Great Dane Dog, owned by our family named "Oxyuranus", or "Oxy" for short in recognition of his services guarding the family wildlife display business and research facility for the 8 and a half years he shared with us in his lifetime.

FURTHER NOTES

In Hoser (2015a-f), I deal with the next-level frauds and lies peddled by the Wolfgang Wüster gang of thieves to suppress science and to stop the use of valid scientific names proposed by persons outside of their gang.

To this effect, their unscientific edicts have suppressed and delayed scientific progress with respect of the lizards formally named in this paper.

I note that the 15 taxa formally identified and named, should have been recognized long ago, as should have the previously named forms recognized as valid in this paper, but not so elsewhere to this date.

Specifically I refer to *Allengreerus longleyi* (Wells and Wellington, 1985), *A. ronhoseri* Hoser, 2019 and *A. jackyhoserae* Hoser, 2012 as well as *Lampropholis lunneyi* Wells and Wellington, 1984 and *L. swani* Wells and Wellington, 1985.

All five species were formally described and named in journals and papers that were subjected to robust peer review.

The descriptions were based on solid scientific evidence, spelt out clearly the purported differences between these putative forms and those they were most closely related to.

All the descriptions complied with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999), or in the case of the earlier names of Wells and Wellington (1984, 1985), the in force *International Code of Zoological Nomenclature* at the time (which happened to be the second edition, although the relevant paper complied with all of codes 2, 3 and 4).

Furthermore anyone with basic intelligence over the age of 10 and who has actually worked with, or seen the relevant forms would have no doubt that they were clearly of different species.

The discredited unscientific rant of Kaiser *et al.* (2013), actually written by Wolfgang Wüster on his own, did without giving

any scientific evidence or reason, synonymise all names of Hoser and Wells and Wellington, including the five species of *Allengreerus* and *Lampropholis* referred to above.

Kaiser *et al.* (2013) was not peer reviewed in any way and did not have a shred of evidence to support their taxonomic and nomenclatural vandalism that they sought others to copy.

Neither of these grossly overweight keyboard warriors, Hinrich Kaiser or Wolfgang Wüster are from Australia. Kaiser is in the back blocks of California, USA at a so-called university that specialises in "Creationist Science" and Wüster is at a second tier university in Wales.

Neither man has probably ever even set eyes on any of the relevant species, but this has not stopped them trying to dictate the taxonomy and nomenclature of all relevant species not just to herpetologists, but also to the ICZN as seen in Rhodin *et al.* (2015).

That attempt by this gang of thieves to hijack the rules of nomenclature was wholly rejected by the ICZN in 2021 (ICZN 2021).

Via the website Wolfgang Wüster controls, being "The Reptile Database" ostensibly edited by Peter Uetz, who is in fact no more than a stooge of Wolfgang Wüster, the claims against any and all Hoser taxonomy and that of Wells or Wells and Wellington (the same Richard Wells in both) are ridiculous in the extreme.

While I could give examples across hundreds of taxa and names, I need only refer to those relevant to the species in this paper.

But before I do, I just make it known that this site is aggressively marketed via black hat SEO (search engine optimisation) as the one and only "go to" complete database and bibliography of herpetology and species descriptions and names. It purports to be a so-called "list of available names" and to have all.

In fact it has far from it.

For example, on the page

<https://reptile-database.reptarium.cz/species?genus=Lampropholis&species=delicata>

Which is the webpage for "*Lampropholis delicata* (DE VIS, 1888)", it goes without saying that the Wells and Wellington species *Allengreerus longleyi* (Wells and Wellington, 1985) and the Hoser species *A. ronhoseri* Hoser, 2019 and *A. jackyhoserae* (Hoser, 2012) are synonymised.

However in the case of the Wells and Wellington name, it is simply omitted from the database, as are the relevant papers of Wells and Wellington (1985a) and Wells (2002), the latter of which confirms the validity of *Allengreerus longleyi* (Wells and Wellington, 1985) with a massive body of evidence.

The webpage does cite the two Hoser names, which in itself is amazing as the vast majority of Hoser papers and names are not on the website and may as well not even exist.

This is due to a stated position on their "what's news" page to not include Hoser names or papers on their site (Uetz 2022), even in the face of an effective ICZN directive to do so (ICZN 2021).

The two *Allengreerus* species are about the last of the Hoser species to be included on the website as they pre-date the publication of Kaiser *et al.* in 2013, from which time on, all things Hoser were banned from the Wolfgang Wüster controlled website.

That means hundreds of papers, species and genera are not included on the site. This is before one factors in the over 1,000 papers and names by Russian authors censored from the site (Uetz, 2022).

The unscientific rant of Kaiser *et al.* (2013) is cited as a basis to synonymise the Hoser names, but worse still, Wolfgang Wüster and his stooge Peter Uetz get others in their gang to try to justify their wholly unscientific and anti-wildlife conservation position.

I publish below the entirety of the comment on the Uetz page about the Hoser names, to illustrate the stupidity and outright dishonesty of what is put forward as their "scientific" position.

"HOSER (2009) established a new genus, *Allengreerus* HOSER 2009 for *L. delicata*. He diagnoses the genus as follows:

"Separated from *Lampropholis* (type species *guichenoti*), to which it/they would otherwise be identified as, by the general lack of a distinct midvertebral stripe as seen in adult specimens."

The validity of *Allengreerus* remains unclear, given that "there is clinal variation within *Lampropholis delicata*, which Hoser has failed to take into account. While he claims *ronhoseri* lacks the pale midlateral stripe of *delicata*, there is a gradual decrease in the frequency of the pale midlateral stripe with increasing latitude in New South Wales." [Glenn Shea, pers. comm]. Without cladistic analysis it is impossible to decide whether Hoser's form is different from *Lampropholis* and whether *A. ronhoseri* is different from *L. delicata*."

Firstly, I shall treat the comment as being written by Peter Uetz, although in reality it was almost certainly written by Wolfgang Wüster, potentially in consultation with others in his gang. After all, as mentioned already, Wolfgang Wüster being based on Wales has probably never set eyes on anything "*Lampropholis*" from Australia in his life and probably would have no idea what one even looks like!

The reference to Glenn Shea makes sense in as much as he lives in Australia and does claim expertise on Australian skinks.

However the comment itself is ridiculous in all major ways.

It confuses the act of erecting a genus *Allengreerus* with the diagnosis of the species, *A. ronhoseri*.

Clinal variation (as alleged) in putative "*Lampropholis delicata*" has zero relevance to the validity of the genus, as that species is placed in the genus anyway.

Uetz, Wüster and Shea all failed to realise that the type species of the genus *Lampropholis* Fitzinger, 1843 is the very different species *Lygosoma guichenoti* Duméril and Bibron, 1839.

So whether or not *Lampropholis delicata* (placed in the genus *Allengreerus* by Hoser in 2009) and *A. ronhoseri* are of the same species is wholly irrelevant in this regard.

As Uetz, Wüster and Shea all failed to assess whether or not the divergence between *Lampropholis guichenoti* and "*Lampropholis delicata*" (including their synonymised form *Allengreerus ronhoseri*) was genus level or otherwise, I shall make a point of (re) doing it here for them.

Reference to the works of Chapple *et al.* (2011) and Pyron *et al.* (2013) indicate a divergence in excess of 10 MYA for the two species.

There are several ways to calibrate the divergences, but all end up being over 10 MYA.

That alone is deemed worthy of genus-level separation in Australian skinks by most herpetologists.

In terms of the action by Uetz, Wüster and Shea to synonymise the two Hoser species *A. ronhoseri* Hoser, 2019 and *A. jackyhoserae* (Hoser, 2012) on their website, I should note the following.

Glenn Shea has been involved in herpetology for decades and even has a PHD from the University of Sydney, giving him an A-grade academic pedigree.

From there the good news ends. His thesis was nothing more than a long-winded rambling piece on Bluetongue Lizards which in the main rehashed what had been well-known for decades.

Glen Ingram later commented that he thought it was "a load of rubbish" but that he felt sorry for Shea, so recommended he get his PHD.

He also said that if he refused it, he'd end up being asked to re-read it later and he said the thought of that was "wholly unbearable".

Most of Shea's work in herpetology since has been a minefield of disasters.

His first notable and destructive incursion into taxonomy in 1988 (Shea *et al.* 1988), formally synonymised *Cannia weigeli* Wells and Wellington, 1987 with *Pseudechis australis* (Gray, 1842).

He had no evidence to support his action, but that clearly did not matter.

Hoser (2001a) and again in Hoser (2001b) formally resurrected *Cannia weigeli* Wells and Wellington, 1987 from synonymy, doing no more than reviewing the peer reviewed evidence published by Wells and Wellington in 1987.

The result is that the species *Cannia weigeli* Wells and Wellington, 1987 is now seen in all major Australian reptile guides, including for example Cogger (2014) as well as Wilson and Swan (2017), although sometimes in the genus *Pseudechis*. Notably in one of his more audacious acts, he petitioned the ICZN in 1987 in a long-winded rant (Shea 1987) to formally suppress the major works of Wells and Wellington in Wells and Wellington (1984, 1985a, 1985b) for the purposes of nomenclature so as to allow him the right to gain the self gratification of renaming the same entities and making the false claim of having discovered them.

The application, in support an earlier one by Richard Shine also in 1987, failed (ICZN 1991).

Shea has also engaged in the morally repugnant act of taxonomic vandalism in recent years, including for example when in 2020, in breach of the *International Code of Zoological Nomenclature* (Article 23. Principle of Priority), he created an invalid junior synonym for *Supremechelys* Hoser, 2014 with his own illegally coined name *Chelydera* Shea, Thomson and Georges 2020.

Shea's co-authors, Scott Thomson and Arthur Georges are both serial offenders when it comes to taxonomic vandalism, this being the deliberate act of naming species or genera they know have already been named by others.

In the case of his comments about *A. delicata*, *A. ronhoseri* and *A. jackyhoserae* on the Uetz website, I shall for the purposes of this commentary, assume they are from Glenn Shea and if they are not (bearing in mind they are attributed to him by webmaster Peter Uetz), I say "sorry" and would advise Shea to take action against his mates for putting rubbish words into his mouth and making him look even more like an idiot.

The relevant statement I take obvious issue with is this:

"While he (Hoser) claims ronhoseri lacks the pale midlateral stripe of delicata, there is a gradual decrease in the frequency of the pale midlateral stripe with increasing latitude in New South Wales." [Glenn Shea, pers. comm]. Without cladistic analysis it is impossible to decide whether Hoser's form is different from *Lampropholis* and whether *A. ronhoseri* is different from *L. delicata*."

Firstly, the species "ronhoseri" was diagnosed as distinct and in the absence of clinal variation in putative "delicata", for which not a shred of evidence has ever been published.

Now noting that the comment was downloaded in 2021 and the page was most recently edited in the same year, based on the addition of references dated 2021, the statement "Without cladistic analysis it is impossible to decide whether Hoser's form is different from *Lampropholis* and whether *A. ronhoseri* is different from *L. delicata*." is quite ridiculous.

At least a decade earlier, Chapple *et al* (2011) did a cladistic analysis of the relevant taxa and found that the various populations did not interbreed or form clines and had in fact diverged millions of years ago.

So much for the alleged clinal variation Shea spoke of. Like the alleged evidence of Kaiser *et al.* (2013) and all of Wolfgang Wüster's ridiculous and libellous claims, none actually existed!

Shea's so called science was in effect, wholly evidence free and fabricated!

As already mentioned, *A. ronhoseri* Hoser, 2019 is a species from inland eastern Vic, including the lower Goulburn River valley (the type locality) and western slopes of southern and central New South Wales, with a 4MYA divergence from *A. colossus* and

A. jackyhoserae (Hoser, 2012) and an even greater divergence from the Queensland species *A. delicata*.

A. jackyhoserae Hoser, 2012 occurs in Victoria generally south of the Great Dividing Range, from Melbourne's eastern suburbs at least as far east to the New South Wales border.

It diverged from *A. colossus* 4 MYA and even more distantly from the Queensland species *A. delicata*.

Uetz, Wüster and Shea on their "the reptile database" recognize taxa as species with divergences under 500K year divergence, so cannot possibly refuse to recognize the Hoser species with divergences measured in the range of 4MYA if they had a single shred of integrity.

The works of Chapple are cited across "the reptile database", including on the relevant webpage at: <https://reptile-database.reptarium.cz/species?genus=Lampropholis&species=delicata>

so it is not as if Uetz, Wüster and Shea were unaware of the fact that a cladistic analysis had been done on the Hoser species and found them to be valid.

In other words all of Uetz, Wüster and Shea were lying on "the reptile database".

Now in case it is missed by anyone, *A. longleyi* (Wells and Wellington, 1985), with a type locality of Guyra, New South Wales is confined to the New England region between Armidale, New South Wales and Girraween in far southern Queensland and ranges east of there. It diverged from *A. delicata* 6.5 MYA based on the results of Chapple *et al.* (2011), meaning it clearly passes the species test.

But of course, as far as Uetz, Wüster and Shea are concerned, they would prefer that species did not exist. This is even if it were to become extinct as a result of their actions in the same way as happened for another species they chose to pretend did not exist, being *Tympanocryptis pinguicolla* (Mitchell, 1948), also first identified as a species by Wells and Wellington (1985a).

The history of the extinction event was detailed by Hoser (2019b).

The same applies in terms of the species *Lampropholis lunneyi* Wells and Wellington, 1984 and *L. swani* Wells and Wellington, 1985, both of which Uetz, Wüster and Shea preferred to pretend did not exist.

The expertise of Wells and Wellington, who have each spent a lifetime working on these exact species means nothing when it comes to liars and thieves like Uetz, Wüster and Shea.

Significant in terms of the 15 taxa named herein, all have already been confirmed as species with molecular study and "cladistic analysis" bar one, which is clearly divergent in any event.

That of course strongly contradicts the false claims of Uetz, Wüster and Shea on their fraudulent and incomplete database.

Non-recognition of these 15 newly named species, or outright ignoring of them by Uetz, Wüster and Shea on their "the reptile database" if such happens (as is highly likely based on their past actions), will be yet another egregious act of dishonesty by them and further reason to regard their un-peer reviewed site with disdain.

I did in January 2022, email Uetz and phoned him and spoke to him asking him to at least include the "banned" author's papers and names on his "the reptile database". So far he has not seen reason and done so (as of when this paper went to final draft in mid 2022)

FINAL CONCLUSIONS

This and other recent papers including some cited herein, as well as for example more recent papers of Hoser (2016, 2017b, 2018a-c, 2019a, 2022a-d), have underscored previously underestimated species diversity in well-known and common Australian putative reptile species. While the species formally named within this paper are not believed to be under any existential threats at present, things can change rapidly if and when new pathogens or pests enter the ecosystem, as seen for

example with frogs as detailed in Hoser (1991).

Aspects of conservation of Australasian reptiles discussed by Hoser (1989, 1991, 1993 and 1996) apply to these species, as does the comments of Hoser (2019a, 2019b).

The latter two papers Hoser (2019a, 2019b) deal specifically with extinction of species arising from non-recognition of valid taxa by small minded ego-driven pseudo-scientists, not wanting to recognize the works or scientific names of persons they see as rivals.

Formal recognition of unnamed species is an important first step to their conservation and management.

It is critically important that valid species should only be named once and not subjected to unwarranted taxonomic vandalism as being practiced by the Wolfgang Wüster gang as detailed by Dubois (2014), Dubois *et al.* (1988), Hoser (2007, 2009a, 2012b-c, 2013a-b, 2015a-f, 2017a, 2019a-b), Hawkeswood (2021) and ICZN (2021).

The ICZN formally rejected the Wolfgang Wüster gang's many applications (e.g. Kaiser, 2012, 2013, 2014a-b, Kaiser *et al.* 2012, 2013 and Rhodin *et al.* 2015) to overwrite names of myself (Hoser) and others (ICZN 2021).

The ICZN stated that all names of Hoser were valid and available, without need to formally make a plenary ruling to effect what was already in effect and obvious.

Separately Hawkeswood (2021) said exactly the same thing.

The Plenary power is to be used to rectify things outside the *International Code of Zoological Nomenclature* and not to affect what is self-evidently compliant with it.

This is not the first time the ICZN have had to deal with the Wolfgang Wüster gang's immoral and anti-conservation actions.

In 1991, the same gang of thieves were ruled against by the ICZN in the matter of names proposed by Wells and Wellington in 1984, 1985a and 1985b.

Notwithstanding the ruling of the ICZN in 1991 (ICZN 1991), in favour of Wells and Wellington's works and a second ruling in their favour in 2001 (ICZN 2001) arising from Sprackland *et al.* (1997) and the ongoing availability of the Wells and Wellington names to the biological sciences, the group known as the Wolfgang Wüster gang of thieves have pressured publishing authors not to use or adopt the Wells and Wellington names (see Hoser 2007, 2009, 2012a, 2012b, 2013a, 2015 a-f, 2017a, 2019a-b) and more recently those I have formally proposed.

This attack has been at numerous levels, ranging from control of editors of journals, lies, defamation and a number of other anti-science tactics (see also Shine 1987, Sprackland *et al.* 1997).

Central in all this has been an evidence free general proposition put by them that the taxonomy of Wells and Wellington or myself is simply wrong and that therefore the names need not be used.

A clear example of this is seen in the online database they effectively control and censor, called "*The Reptile database*", now marketed as the "go to" reference for herpetological taxonomy and nomenclature. It is online at:

<https://reptile-database.reptarium.cz>

and optimized for Google (Search engine optimisation). This means that this website comes up for searches for most species of reptile globally when searched for by scientific name.

Once at this website, the internet user is fed the warped and twisted world view of reptile taxonomy as promulgated by Wolfgang Wüster and his gang of keyboard warriors and thieves.

Contrary to the position of the Wolfgang Wüster gang of thieves, the science does support the use of the names proposed in this and other works of myself and also Wells and Wellington (in the vast majority of cases as mentioned earlier) (Hawkeswood 2021), and the sooner they come into general usage, the sooner the relevant species can be properly managed and conserved.

Following on from the ICZN ruling of 2021 (ICZN 2021), the scourge of the Wolfgang Wüster's gang of thieves actions should now be removed from the biological sciences.

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CONFLICTS OF INTEREST

None.

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The inevitable further break up of the skink genus *Saproscincus* Wells and Wellington (1984) into two genera, each split to subgenera and the formal description of a new species from North Queensland, Australia.

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ABSTRACT

The skink genus *Saproscincus* Wells and Wellington (1984), type species *Mococa mustelina* O'Shaughnessy, 1874 comprises a diverse assemblage of skinks from eastern Australia.

Wells and Wellington (1985) considered erecting a new genus for the *Lygosoma challengerii* Boulenger, 1887 group, but deferred to Allen Greer, who at the time was working on the relevant species.

For the species *Lampropholis tetradactyla* Greer and Kluge, 1980, Wells and Wellington (1985) said "We herein only tentatively include this species in *Saproscincus*."

Since 1985, no further movement has been done with regards of the generic assignments of species or species groups placed within *Saproscincus* by Wells and Wellington (1985) and Greer has been retired from herpetology for many years.

In view of more recent molecular studies, including those of Moussalli *et al.* (2005) and Pyron *et al.* (2013), *Saproscincus* is formally divided into two genera, each reasonably estimated to be divergent from one another more than 10 MYA.

Furthermore each of these are divided into two subgenera.

The species originally described as *Lampropholis basiliscus* Ingram and Rawlinson, 1981, with a type locality of Charmillin Creek, via Ravenshoe, North Queensland, Latitude -17.43 S., Longitude 145.31 E. has also long been known to comprise two very divergent populations, with molecular evidence of Moussalli *et al.* (2005) confirming that they are of two species.

The previously unnamed southern population, with a distribution centred on Mount Spec, the Paluma Range and Hinchinbrook Island is herein formally named as a new species *Obscuraskinkus neglectus* sp. nov..

The putative species "*S. czechurai* (Ingram and Rawlinson, 1981)", with a type locality of Charmillin Creek, via Ravenshoe, North Queensland, Latitude -17.43 S., Longitude 145.31 E. is also split in line with morphological differences by location and molecular divergence into two subspecies, across the low-lying region biogeographical barrier between Cairns and Port Douglas, Queensland (the Black Mountain Corridor), with the northern form formally named *Obscuraskinkus (Sparsuskinkus) czechurai divergens* subsp. nov..

Keywords: Taxonomy; nomenclature; Australia; Skink; lizard; Scincidae; Queensland; New South Wales; *Saproscincus*; new genus; *Obscuraskinkus*; new subgenus; *Tractuoscincus*; *Sparsuskinkus*; new species; *neglectus*; new subspecies; *divergens*.

INTRODUCTION

The skink genus *Saproscincus* Wells and Wellington (1984), type species *Mococa mustelina* O'Shaughnessy, 1874 comprises a diverse assemblage of skinks from eastern Australia.

Wells and Wellington (1984) erected the genus as a split from the genus *Lampropholis* Fitzinger, 1843 type species *Lygosoma guichenoti* Duméril and Bibron, 1839 which included a far greater number of species including the relevant species he transferred to *Saproscincus*.

Wells and Wellington (1985) stated that they had also considered erecting a new genus for the *Lygosoma challengerii* Boulenger, 1887 group, also placed within *Saproscincus* but deferred to Allen Greer, who at the time was working on the relevant species.

For the species *Lampropholis tetradactyla* Greer and Kluge, 1980, Wells and Wellington (1985) said "We herein only tentatively include this species in *Saproscincus*."

Since 1985, no further movement has been done with regards of the generic assignments of species or species groups placed within *Saproscincus* by Wells and Wellington (1985) and Greer has been retired from herpetology for many years.

More recent molecular studies, including those of Moussalli *et al.* (2005) and Pyron *et al.* (2013), have confirmed that the genus *Saproscincus* as originally conceived by Wells and Wellington (1984) and again in 1985 does comprise a monophyletic assemblage of species.

However the studies of Moussalli *et al.* (2005) and Pyron *et al.* (2013) have repeatedly confirmed that *Saproscincus* is divided into two well-defined groups, being the so-called northern and southern clades.

Within each are two distinct sets of species.

In light of these divergences by phylogeny and previously known divergences in morphology, *Saproscincus* is formally divided into two genera, each reasonably to be estimated to be divergent from one another more than 10 MYA.

Furthermore each of these are divided into two subgenera of very similar antiquity in terms of divergence dates.

The species *Obscuraskinkus neglectus* sp. nov. treated until now as a form of putative *Lampropholis basiliscus* Ingram and Rawlinson, 1981 is the type species for the genus *Obscuraskinkus* gen. nov.

The species originally described as *Lampropholis basiliscus* Ingram and Rawlinson, 1981, with a type locality of Charmillin Creek, via Ravenshoe, North Queensland, Latitude -17.43 S., Longitude 145.31 E., has long been known to comprise two divergent forms.

The molecular evidence of Moussalli *et al.* (2005) confirmed that they are of two species and yet no one has named the unnamed southern form as a new species in the intervening 17 years.

Rather than risk the species expiring through general indifference by either the scientific community or wildlife enthusiasts in general, I take the opportunity to formally name the southern form as a new species *Obscuraskinkus neglectus* sp. nov., which as already mentioned is the type species for the new genus.

The putative species “*S. czechurai* (Ingram and Rawlinson, 1981)”, with a type locality of Charmillin Creek, via Ravenshoe, North Queensland, Latitude -17.43 S., Longitude 145.31 E. was also flagged by Moussalli *et al.* (2005) as being potentially more than one taxon and so was inspected closely in terms of this audit.

MATERIALS AND METHODS

A review of the relevant literature was undertaken.

This was to ascertain available synonym names of any for the relevant taxa.

Furthermore the literature as well as live and dead specimens of all species were inspected to confirm the generic assignments as outlined in the abstract and introduction.

Each putative species within the genus was also audited to confirm whether they were valid and also to see if other forms remained either unrecognized, improperly synonymised, or alternatively should be synonymised.

This action incorporated reviewing all listed and known synonyms for the various forms assigned to *Saproscincus* by Wells and Wellington in 1984 and 1985, before arriving at the taxonomy for all relevant species and genera as outlined in the abstract and introduction.

I conducted field work collecting a number of the relevant species (but not all) and also viewed specimens in museums and photos with good quality location data.

Populations of species were also checked against known biogeographical barriers to see if there were likely unrecognized taxa.

In terms of the putative species *Obscuraskinkus basiliscus* Ingram and Rawlinson, 1981, it was checked closely to confirm the likely break zone/s between populations and also inspected to see if there were any known intermediates between the two putative forms.

Literature relevant to the taxonomy and nomenclature adopted within this paper in terms of the putative species within *Saproscincus* as originally conceived by Wells and Wellington in 1984 and 1985 included Ahl (1925), Boettger (1879), Boulenger (1897), Cogger (2014), Cogger *et al.* (1983), Capocaccia (1961), Couper and Kiem (1988), Daly and Hoye (2016), De Vis (1888), Duméril and Bibron (1839), Fitzinger (1843), Greer (1967, 1974, 1976, 1989), Greer and Kluge (1980), Hawkeswood (2021), Hines *et al.* (2015), Hoskin (2013), Ingram (1991, 1994), Ingram and Rawlinson (1981), Longman (1918), Moussalli *et al.* (2005), Muñoz *et al.* (2016), O’Shaughnessy (1874, 1879), Peters (1878), Peters and Doria (1878), Pyron *et al.* (2013), Ride *et al.* (1999), Sadlier (1998), Sadlier *et al.* (1999, 2005), Smith (1937), Swan *et al.* (2017), Virkki *et al.* (2012), Wells and Wellington (1984, 1985), Werner (1903), Wilson (2015), Wilson and Knowles (1988), Wilson and Swan (2017) and all relevant sources cited therein.

RESULTS

The genus-level split indicated via the phylogenies of Moussalli *et al.* (2005) and Pyron *et al.* (2013) was a two way split of *Saproscincus* into two genera and a further split of each into two subgenera.

The three new entities have no available synonyms and so are formally named in this paper according to the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended online since.

Relevant rulings of the ICZN with regards to the correct legal nomenclature were noted, including ICZN (1991, 2001 and 2021).

At the species level, I note that the list presented in this paper for all species within *Saproscincus sensu lato* is greater than most contemporary lists, including those published by Cogger (2014) and Wilson and Swan (2017).

While the species included in those books are also included herein, I note the following changes as well.

Relying on the phylogeny of Moussalli *et al.* (2005), *S. mustelina* (O’Shaughnessy, 1874) is split three ways, best described as north, central and southern, with names available for each form, these being *S. ritchiei* Wells and Wellington, 1985 for the northern form (north of the Hunter Valley), *S. mustelina* (O’Shaughnessy, 1874) for the Sydney form and *S. sonderi* (Peters, 1878) for the Victorian form.

The three first available names are used for each taxon.

Along with *S. orarius* Sadlier, 1998, a species similar to the type form of *S. mustelina* these four species form the nominate subgenus of *Saproscincus*.

Each of *S. challengerii* (Boulenger, 1887), *S. eungellaensis* Sadlier, Couper, Colgan, Vanderduys and Rickard, 2005, *S. rosei* Wells and Wellington, 1985 and *S. spectabilis* (De Vis, 1888) are recognized as valid and placed in the subgenus *Tractuoscincus* subgen. nov., within *Saproscincus* Wells and Wellington, 1985.

S. galli Wells and Wellington, 1985, with a type locality of Dorrigo, NSW, Australia is herein treated as a synonym of *S. rosei* Wells and Wellington, 1985 with a type locality of Barrington Tops National Park, NSW, Australia.

I note however that no DNA samples from the putative species *S. galli* were analysed by Moussalli *et al.* (2005) and so the synonymisation herein is tentative and may be subjected to change in the event of contradictory evidence emerging.

Dorrigo and Barrington Tops are about 376 km apart by road and about 200 km apart in a straight line. Both sit south of the NSW Queensland border and north of the Hunter Valley, being the two main relevant biogeographical barriers.

Within the genus *Obscuraskinkus* gen. nov. are the remainder of putative *Saproscincus* species.

These are *Obscuraskinkus neglectus* sp. nov. associated until now with putative “*Saproscincus basiliscus* Ingram and Rawlinson, 1981”, “*S. lewisi* Couper and Keim, 1998” and “*S. saltus* Hoskin, 2013” which as a group comprise the nominate subgenus, along with “*S. tetradactylus* (Greer and Kluge, 1980)”, being type species for the subgenus *Sparsuskinkus* subgen. nov., which also includes “*S. hannahae* Couper and Keim, 1998” and “*S. czechurai* (Ingram and Rawlinson, 1981)”.

The putative species “*S. czechurai* (Ingram and Rawlinson, 1981)”, with a type locality of Charmillin Creek, via Ravenshoe, North Queensland, Latitude -17.43 S., Longitude 145.31 E. was flagged by

Moussalli *et al.* (2005) as being potentially more than one taxon.

It is herein split in line with morphological differences by location and molecular divergence into two subspecies, across the low-lying region biogeographical barrier between Cairns and Port Douglas, Queensland (the Black Mountain Corridor), with the northern form formally named *Obscuraskinkus (Sparsuskinkus) czechurai divergens* subsp. nov..

While all the relevant species are locally abundant and some

even appear invasive of human modified habitats, all should be regarded as potentially vulnerable.

In spite of extensive ranges for some of the preceding species, all are habitat restricted within their known distributions and so in real terms all are range restricted.

Furthermore, as seen with some formerly abundant species of small lizard and frogs declining at great speed and some even becoming extinct in the period 1770-2020 within Australian territories, including as cited in Hoser (1991, 2019a, 2019b) and elsewhere, the conservation status of "least concern" is clearly not appropriate for the relevant species.

All also compete with other skink species of similar size. Long term shifts in the power balance and abundance of the relevant species is not something that appears to have been measured at any stage and in most cases would be unlikely to ever happen.

In terms of the conservation of the relevant species, the ongoing actions of Uetz (2022) in pretending that species named by persons outside their cohort do not even exist, don't just present a threat to the long term survival of the relevant species named herein, but also a far more serious problem for conservation in general. See also the relevant comments of Hawkeswood (2021) and note that the comments of Hoser (2019a, 2019b) also apply.

INFORMATION RELEVANT TO THE FORMAL DESCRIPTIONS THAT FOLLOW

There is no conflict of interest in terms of this paper or the conclusions arrived at herein.

Several people including anonymous peer reviewers who revised the manuscript prior to publication are also thanked as are relevant staff at museums who made specimens and records available in line with international obligations.

In terms of the following formal descriptions, spellings should not be altered in any way for any purpose unless expressly and exclusively called for by the rules governing Zoological Nomenclature as administered by the International Commission of Zoological Nomenclature (ICZN).

This includes if gender assignment of suffixes seems incorrect, Latinisation is wrong, apparent spelling mistakes and so on (see Article 32.5.1 of the *International Code of Zoological Nomenclature*).

Some material in descriptions for taxa may be repeated for other taxa in this paper and this is necessary to ensure each fully complies with the provisions of the *International Code of Zoological Nomenclature* (fourth edition) (Ride *et al.* 1999) as amended online since.

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 26 May 2022 (including if also viewed prior), unless otherwise stated and was accurate in terms of the content cited herein as of that date.

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Unless otherwise stated explicitly, colour and other descriptions apply to living adult specimens of generally good health, as seen by day, and not under any form of stress by means such as excessive cool, heat, dehydration, excessive ageing, abnormal skin or reaction to chemical or other input.

SVL or SV means snout-vent length, TL means tail length, tail measurements refer to original tails, max. size refers to maximum known, sometimes approximated up to the nearest 10 mm if number of measured specimens is below 10.

While numerous texts and references were consulted prior to publication of this paper, the criteria used to separate the relevant genera, subgenera, species or subspecies has already been spelt out and/or is done so within each formal description and does not rely on material within publications not explicitly cited herein.

The genus *Saproscincus* Wells and Wellington, 1984 is also redefined and diagnosed in line with the new taxonomy arrived at within this paper.

SAPROSCINCUS WELLS AND WELLINGTON, 1984.

Type species: *Mococa mustelina* O'Shaughnessy, 1874.

Diagnosis: Species within the genera *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* are separated from all other Australian skinks by the following suite of characters: They are small, diurnal or crepuscular, being found mainly in moist shaded forest habitats in eastern Australia.

They have well developed limbs, meeting or overlapping when adpressed, or nearly so; paired frontoparietal scales, supranasals and nasals undivided; six supralabials, the fourth of which usually doubles as a subocular; nasals usually widely separated; parietal shields in contact behind the interparietal; ear opening obvious and without lobules; eyelid movable, with a transparent disc; most specimens have a characteristic rust coloured Y-shaped mark over the rump; the single four-fingered member of the genera *Obscuraskinkus tetradactylus* (Greer and Kluge, 1980), is separated from other Australian skink genera with four fingers by having a series of suboculars separating the eye from the upper labials (derived from Cogger 2014).

Saproscincus are separated from *Obscuraskinkus gen. nov.* by having 5 fingers on the forelimb and two nuchals contacting the parietals (versus more in *Obscuraskinkus gen. nov.*), or if having more than two nuchals contacting the parietals, then by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

The species within the nominate subgenus *Saproscincus* Wells and Wellington, 1984 are separated from those in the subgenus *Tractuoscincus subgen. nov.* by having a relatively uniform dorsal pattern; a dark edged or white tear-drop like streak below and behind the eye, sometimes extending to the ear opening; a pale orange or red dorso-lateral band on each side begins on the rump and extends onto the tail, or alternatively, if with a dorsal pattern that is variegated, lacking a dark-edged white streak below and behind the eye, sometimes without a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail, and limbs that strongly overlap when adpressed.

These lizards will be further separated from *Tractuoscincus subgen. nov.* by having the following characters:

Belly is either unmarked or if marked with rarker markings aligned, at least on the outer edges of the belly as a series of regular longitudinal lines and with 6-7 (usually 7) supraciliaries as well as obvious longitudinal lines running down the sides of the body and to a lesser extent dorsally, with a black stripe extending onto the anterior of the tail.

Tractuoscincus subgen. nov. in turn are separated from subgenus *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* by having pentadactyle forelimbs; two nuchals contacting the parietals, a variegated dorsal pattern; no dark-edged white streak below and behind the eye; rarely a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail; limbs that strongly overlap when adpressed; 5-8 (usually six) supraciliaries (and also refer to the diagnosis of subgenus *Saproscincus* Wells and Wellington, 1984 above).

Obscuraskinkus gen. nov. are separated from the genus *Saproscincus* Wells and Wellington, 1984 by having pentadactyle limbs; and more than two nuchals contacting the parietals. Each parietal is bordered by a single nuchal and two temporal scales (as in being six scales contacting the posterior margin of the parietal scales). The only species of *Saproscincus* with more than two nuchals contacting the parietals, being *S. spectabilis* De Vis, 1888 is separated from species within *Obscuraskinkus*

gen. nov. by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

Species within the subgenus *Obscuraskinkus subgen. nov.* herein described explicitly as new in this formal description, being the nominate subgenus are separated from species in the subgenus *Sparsuskinkus gen. nov.* and all species within the genus *Saproscincus* Wells and Wellington, 1984 by the following suite of characters:

Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank and one or other of the following suites of characters: 1/ 50 or more paravertebral scales between the nuchal and level of the anal opening; usually a series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid (*Obscuraskinkus neglectus sp. nov.*, *O. basiliscus* (Ingram and Rawlinson, 1981), *O. saltus* (Hoskin, 2013)); or; 2/ Less than 50 paravertebral scales between the nuchal and level of the anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second supralabial in contact with one or more preocular scales (*O. lewisi* (Couper and Keim, 1998)).

The three species within *Sparsuskinkus subgen. nov.*, including the newly named subspecies *Obscuraskinkus (Sparsuskinkus) czechurai divergens subsp. nov.* are separated from all other species within *Obscuraskinkus gen. nov.* (nominate subgenus species) and the genus *Saproscincus* Wells and Wellington, 1984 by having one or other of the following three suites of characters:

1/ Tetractyle forelimbs and in turn separated from other Australian skinks with four fingered forelimbs by having a series of suboculars separating the eye from the upper labials (*O. tetractylus* (Greer and Kluge, 1980)); or; 2/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and level of the anal opening; no series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second labial is not in contact with any preocular scales (*O. hannahae* (Couper and Keim, 1998)); or; 3/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout moderately pointed; canthus rostralis is very concave and there is no indication of a black stripe with a well defined lower border from nostril to the flank (*O. czechurai* (Ingram and Rawlinson, 1981)).

Distribution: The genus *Saproscincus* Wells and Wellington, 1984 occurs along the coast and ranges of New South Wales and Queensland, from Sydney in the south to the Proserpine/Mackay region in the North, being south of the Burdekin Gap, biogeographical barrier. The genus *Obscuraskinkus gen. nov.* has a distribution centred almost exclusively on the wet tropics region of north-east Queensland, generally north of the Burdekin Gap and South of Cooktown, with the exception of a single species found in the rainforests near Mackay, south of the Burdekin Gap (*O. hannahae* (Couper and Keim, 1998)) and another north of the main wet tropics in the Melville Range, far north Queensland (*O. saltus* (Hoskin, 2013)).

Etymology: From Wells and Wellington (1984): "Etymology: Sapro = rotten, scincus = skink."

Content: *Saproscincus (Saproscincus) mustelina* (O'Shaughnessy, 1874) (type species); *S. (Tractuoscincus) challengerii* (Boulenger, 1887); *S. (Tractuoscincus) eungellaensis*

Sadlier, Couper, Colgan, Vanderduys and Rickard, 2005; S. (Saproscincus) oriarus Sadlier, 1998; *S. (Saproscincus) ritchiei* Wells and Wellington, 1985; *S. (Tractuoscincus) rosei* Wells and Wellington, 1985; *S. (Saproscincus) sonderi* (Peters, 1878); *S. (Tractuoscincus) spectabilis* (De Vis, 1888).

TRACTUOSCINCUS SUBGEN. NOV.

LSIDurn:lsid:zoobank.org:act:F8A9B593-28A6-4691-B444-A797FD6AEF10

Type species: *Lygosoma challengerii* Boulenger, 1887.

Diagnosis: *Tractuoscincus subgen. nov.* are a subgenus within *Saproscincus* Wells and Wellington 1984 and in the taxonomy herein the only other subgenus. It has been described by others including

Moussalli *et al.* (2005) as the "Challengeri" group of the genus *Saproscincus* Wells and Wellington 1984 as interpreted by them. Species within the genera *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* are separated from all other Australian skinks by the following suite of characters: They are small, diurnal or crepuscular, found mainly in moist shaded forest habitats in eastern Australia. They have well developed limbs, meeting or overlapping when adpressed, or nearly so; paired frontoparietal scales, supranasals and nasals undivided; six supralabials, the fourth of which usually doubles as a subocular; nasals usually widely separated; parietal shields in contact behind the interparietal; ear opening obvious and without lobules; eyelid movable, with a transparent disc; most specimens have a characteristic rust coloured Y-shaped mark over the rump; the single four-fingered member of the genera *Obscuraskinkus tetractylus* (Greer and Kluge, 1980), is separated from other Australian skink genera with four fingers by having a series of suboculars separating the eye from the upper labials (derived from Cogger 2014).

Saproscincus are separated from *Obscuraskinkus gen. nov.* by having 5 fingers on the forelimb and two nuchals contacting the parietals (versus more in *Obscuraskinkus gen. nov.*), or if having more than two nuchals contacting the parietals, then by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

The species within the nominate subgenus *Saproscincus* Wells and Wellington, 1984 are separated from those in the subgenus *Tractuoscincus subgen. nov.* by having a relatively uniform dorsal pattern; a dark edged or white tear-drop like streak below and behind the eye, sometimes extending to the ear opening; a pale orange or red dorso-lateral band on each side begins on the rump and extends onto the tail, or alternatively, if with a dorsal pattern that is variegated, lacking a dark-edged white streak below and behind the eye, sometimes without a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail, and limbs that strongly overlap when adpressed. The lizard will be further separated from *Tractuoscincus subgen. nov.* by having the following characters:

Belly is either unmarked or if marked with rarker markings aligned, at least on the outer edges of the belly as a series of regular longitudinal lines and with 6-7 (usually 7) supraciliaries as well as obvious longitudinal lines running down the sides of the body and to a lesser extent dorsally, with a black stripe extending onto the anterior of the tail.

Tractuoscincus subgen. nov. in turn are separated from subgenus *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* by having pentadactyle forelimbs; two nuchals contacting the parietals, a variegated dorsal pattern; no dark-edged white streak below and behind the eye; rarely a pale orange or red dorso-lateral band on each side beginning on

the rump and extending onto the tail; limbs that strongly overlap when adpressed; 5-8 (usually six) supraciliaries (and also refer to the diagnosis of subgenus *Saproscincus* Wells and Wellington, 1984 above).

Obscuraskinkus gen. nov. are separated from the genus *Saproscincus* Wells and Wellington, 1984 by having pentadactyle limbs; and more than two nuchals contacting the parietals. Each parietal is bordered by a single nuchal and two temporal scales (as in being six scales contacting the posterior margin of the parietal scales). The only species of *Saproscincus* with more than two nuchals contacting the parietals, being *S. spectabilis* De Vis, 1888 is separated from species within *Obscuraskinkus gen. nov.* by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

Species within the subgenus *Obscuraskinkus subgen. nov.* herein described explicitly as new in this formal description, being the nominate subgenus are separated from species in the subgenus *Sparsuskinkus gen. nov.* and all species within the genus *Saproscincus* Wells and Wellington, 1984 by the following suite of characters:

Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank and one or other of the following suites of characters:

1/ 50 or more paravertebral scales between the nuchal and level of the anal opening; usually a series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid (*Obscuraskinkus neglectus sp. nov.*, *O. basiliscus* (Ingram and Rawlinson, 1981), *O. saltus* (Hoskin, 2013)); or;
2/ Less than 50 paravertebral scales between the nuchal and level of the anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second supralabial in contact with one or more preocular scales (*O. lewisi* (Couper and Keim, 1998)).

The three species within *Sparsuskinkus subgen. nov.*, including the newly named subspecies *Obscuraskinkus (Sparsuskinkus) czechurai divergens subsp. nov.* are separated from all other species within *Obscuraskinkus gen. nov.* (nominate subgenus species) and the genus *Saproscincus* Wells and Wellington, 1984 by having one or other of the following three suites of characters:

1/ Tetractyle forelimbs and in turn separated from other Australian skinks with four fingered forelimbs by having a series of suboculars separating the eye from the upper labials (*O. tetradactylus* (Greer and Kluge, 1980)); or;

2/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and level of the anal opening; no series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second labial is not in contact with any preocular scales (*O. hannahae* (Couper and Keim, 1998)); or;

3/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout moderately pointed; canthus rostralis is very concave and there is no indication of a black stripe with a well defined lower border from nostril to the flank (*O. czechurai* (Ingram and Rawlinson, 1981)).

Distribution: The genus *Saproscincus* Wells and Wellington, 1984 occurs along the coast and ranges of New South Wales and Queensland, from Sydney in the south to the Proserpine/Mackay region in the North, being south of the Burdekin Gap, biogeographical barrier.

The subgenus *Tractuoscincus subgen. nov.* is found from around Sydney, New South Wales in the south to Eungella near Mackay, Queensland in the North.

The closely related genus *Obscuraskinkus gen. nov.* has a distribution centred almost exclusively on the wet tropics region of north-east Queensland, generally north of the Burdekin Gap and South of Cooktown, with the exception of a single species found in the rainforests near Mackay, south of the Burdekin Gap (*O. hannahae* (Couper and Keim, 1998)) and another north of the main wet tropics in the Melville Range, far north Queensland (*O. saltus* (Hoskin, 2013)).

Etymology: The subgenus name *Tractuoscincus* comes from the Latin word "*Tractus*" which means spongy, in reflection of the damp and spongy ground they are frequently seen crawling over, with the word "*scincus*" being in reflection of the fact they are a skink lizard.

Content: *Saproscincus (Tractuoscincus) challengerii* (Boulenger, 1887); *S. (Tractuoscincus) eungellaensis* Sadler, Couper, Colgan, Vanderduys and Rickard, 2005; *S. (Tractuoscincus) rosei* Wells and Wellington, 1985; *S. (Tractuoscincus) spectabilis* (De Vis, 1888).

OBSCURASKINKUS GEN. NOV.

LSIDurn:lsid:zoobank.org:act:0FA4FC2E-2F57-4008-9F7A-E3E93E4298F3

Type species: *Obscuraskinkus neglectus sp. nov.*

Diagnosis: Until now the species within *Obscuraskinkus gen. nov.* have been treated as species within *Saproscincus* Wells and Wellington, 1985, which remains their most closely related genus.

Obscuraskinkus gen. nov. have previously been described as the "northern lineage" of *Saproscincus* by authors including Moussalli *et al.* (2005).

The type species in this genus *Obscuraskinkus neglectus sp. nov.* has until now been treated as a divergent southern population of the wet tropics (Queensland) species, "*Saproscincus basiliscus* Ingram and Rawlinson, 1981".

Species within the genera *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* are separated from all other Australian skinks by the following suite of characters: They are small, diurnal or crepuscular, found mainly in moist shaded forest habitats in eastern Australia. They have well developed limbs, meeting or overlapping when adpressed, or nearly so; paired frontoparietal scales, supranasals and nasals undivided; six supralabials, the fourth of which usually doubles as a subocular; nasals usually widely separated; parietal shields in contact behind the interparietal; ear opening obvious and without lobules; eyelid movable, with a transparent disc; most specimens have a characteristic rust coloured Y-shaped mark over the rump; the single four-fingered member of the genera *Obscuraskinkus tetradactylus* (Greer and Kluge, 1980), is separated from other Australian skink genera with four fingers by having a series of suboculars separating the eye from the upper labials (derived from Cogger 2014).

Saproscincus are separated from *Obscuraskinkus gen. nov.* by having 5 fingers on the forelimb and two nuchals contacting the parietals (versus more in *Obscuraskinkus gen. nov.*), or if having more than two nuchals contacting the parietals, then by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

The species within the nominate subgenus *Saproscincus* Wells and Wellington, 1984 are separated from those in the subgenus *Tractuoscincus subgen. nov.* by having a relatively uniform dorsal

pattern; a dark edged or white tear-drop like streak below and behind the eye, sometimes extending to the ear opening; a pale orange or red dorso-lateral band on each side begins on the rump and extends onto the tail, or alternatively, if with a dorsal pattern that is variegated, lacking a dark-edged white streak below and behind the eye, sometimes without a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail, and limbs that strongly overlap when adpressed. The lizard will be further separated from *Tractuoscincus subgen. nov.* by having the following characters:

Belly is either unmarked or if marked with rarker markings aligned, at least on the outer edges of the belly as a series of regular longitudinal lines and with 6-7 (usually 7) supraciliaries as well as obvious longitudinal lines running down the sides of the body and to a lesser extent dorsally, with a black stripe extending onto the anterior of the tail.

Tractuoscincus subgen. nov. in turn are separated from subgenus *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* by having pentadactyle forelimbs; two nuchals contacting the parietals, a variegated dorsal pattern; no dark-edged white streak below and behind the eye; rarely a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail; limbs that strongly overlap when adpressed; 5-8 (usually six) supraciliaries (and also refer to the diagnosis of subgenus *Saproscincus* Wells and Wellington, 1984 above).

Obscuraskinkus gen. nov. are separated from the genus *Saproscincus* Wells and Wellington, 1984 by having pentadactyle limbs; and more than two nuchals contacting the parietals. Each parietal is bordered by a single nuchal and two temporal scales (as in being six scales contacting the posterior margin of the parietal scales). The only species of *Saproscincus* with more than two nuchals contacting the parietals, being *S. spectabilis* De Vis, 1888 is separated from species within *Obscuraskinkus gen. nov.* by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

Species within the subgenus *Obscuraskinkus subgen. nov.* herein described explicitly as new in this formal description, being the nominate subgenus are separated from species in the subgenus *Sparsuskinkus gen. nov.* and all species within the genus *Saproscincus* Wells and Wellington, 1984 by the following suite of characters:

Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank and one or other of the following suites of characters:
1/ 50 or more paravertebral scales between the nuchal and level of the anal opening; usually a series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid (*Obscuraskinkus neglectus sp. nov.*, *O. basiliscus* (Ingram and Rawlinson, 1981), *O. saltus* (Hoskin, 2013)); or;
2/ Less than 50 paravertebral scales between the nuchal and level of the anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second supralabial in contact with one or more preocular scales (*O. lewisi* (Couper and Keim, 1998)).

The three species within *Sparsuskinkus subgen. nov.*, including the newly named subspecies *Obscuraskinkus (Sparsuskinkus) czechurai divergens subsp. nov.* are separated from all other species within *Obscuraskinkus gen. nov.* (nominate subgenus species) and the genus *Saproscincus* Wells and Wellington, 1984 by having one or other of the following three suites of characters:

1/ Tetradactyle forelimbs and in turn separated from other Australian skinks with four fingered forelimbs by having a series of suboculars separating the eye from the upper labials (*O. tetradactylus* (Greer and Kluge, 1980)); or;

2/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and level of the anal opening; no series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second labial is not in contact with any preocular scales (*O. hannahae* (Couper and Keim, 1998)); or;

3/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout moderately pointed; canthus rostralis is very concave and there is no indication of a black stripe with a well defined lower border from nostril to the flank (*O. czechurai* (Ingram and Rawlinson, 1981)).

Distribution: The genus *Obscuraskinkus gen. nov.* has a distribution centred almost exclusively on the wet tropics region of north-east Queensland, generally north of the Burdekin Gap and South of Cooktown, with the exception of a single species found in the rainforests near Mackay, south of the Burdekin Gap (*O. hannahae* (Couper and Keim, 1998)) and another north of the main wet tropics in the Melville Range, far north Queensland (*O. saltus* (Hoskin, 2013)).

Species in the nominate subgenus *Obscuraskinkus subgen. nov.* are found in the northern wet tropics of Australia, north of the Burdekin Gap, extending as far north as Cape Melville.

Species in the subgenus *Sparsuskinkus gen. nov.* are found from the Sarina/Proserpine area of north-east Queensland, along wetter areas of the coast and nearby ranges to Cape Tribulation.

The closely related genus *Saproscincus* Wells and Wellington, 1984 occurs along the coast and ranges of New South Wales and Queensland, from Sydney in the south to the Proserpine/Mackay region in the North, being south of the Burdekin Gap, biogeographical barrier.

The subgenus (within *Saproscincus*) *Tractuoscincus subgen. nov.* is found from around Sydney, New South Wales in the south to Eungella near Mackay, Queensland in the North.

Etymology: The genus name *Obscuraskinkus gen. nov.* comes from the Latin word "Obscure" and the addition of the word skink, to identify with the obscure pattern of relevant species and that they are skink lizards. The spelling of the genus name, including the "skinkus" part, is deliberate and should not be changed unless mandated by the ICZN or their rules.

Content: *Obscuraskinkus (Obscuraskinkus) neglectus sp. nov.* (type species); *O. (Obscuraskinkus) basiliscus* (Ingram and Rawlinson, 1981); *O. (Sparsuskinkus) czechurai* (Ingram and Rawlinson, 1981); *O. (Sparsuskinkus) hannahae* (Couper and Keim, 1998); *O. (Obscuraskinkus) lewisi* (Couper and Keim, 1998); *O. (Obscuraskinkus) saltus* (Hoskin, 2013); *O. (Sparsuskinkus) tetradactylus* (Greer and Kluge, 1980).

SPARSUSKINKUS SUBGEN. NOV.

LSIDurn:lsid:zoobank.org:act:C08AB853-B49B-442E-BC61-5A114C19DD4B

Type species: *Lampropholis tetradactyla* Greer and Kluge, 1980.

Diagnosis: The species within the subgenus *Sparsuskinkus subgen. nov.* have previously been identified as the "tetradactyla" group in the so-called "Northern lineage" of *Saproscincus* Wells and Wellington, 1984, by other authors including Moussalli *et al.* (2005).

This "Northern Lineage" is herein placed within the new genus *Obscuraskinkus gen. nov.*, with the nominate subgenus including those species most closely related to the well-known "*Lampropholis basiliscus* Ingram and Rawlinson, 1981".

There are only the two subgenera in this genus, being *Obscuraskinkus gen. nov.* and the subgenus *Sparsuskinkus subgen. nov.*

Species within the genera *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* are separated from all other Australian skinks by the following suite of characters: They are small, diurnal or crepuscular, found mainly in moist shaded forest habitats in eastern Australia. They have well developed limbs, meeting or overlapping when adpressed, or nearly so; paired frontoparietal scales, supranasals and nasals undivided; six supralabials, the fourth of which usually doubles as a subocular; nasals usually widely separated; parietal shields in contact behind the interparietal; ear opening obvious and without lobules; eyelid movable, with a transparent disc; most specimens have a characteristic rust coloured Y-shaped mark over the rump; the single four-fingered member of the genera *Obscuraskinkus tetradactylus* (Greer and Kluge, 1980), is separated from other Australian skink genera with four fingers by having a series of suboculars separating the eye from the upper labials (derived from Cogger 2014).

Saproscincus are separated from *Obscuraskinkus gen. nov.* by having 5 fingers on the forelimb and two nuchals contacting the parietals (versus more in *Obscuraskinkus gen. nov.*), or if having more than two nuchals contacting the parietals, then by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

The species within the nominate subgenus *Saproscincus* Wells and Wellington, 1984 are separated from those in the subgenus *Tractuoscincus subgen. nov.* by having a relatively uniform dorsal pattern; a dark edged or white tear-drop like streak below and behind the eye, sometimes extending to the ear opening; a pale orange or red dorso-lateral band on each side begins on the rump and extends onto the tail, or alternatively, if with a dorsal pattern that is variegated, lacking a dark-edged white streak below and behind the eye, sometimes without a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail, and limbs that strongly overlap when adpressed. The lizard will be further separated from *Tractuoscincus subgen. nov.* by having the following characters: Belly is either unmarked or if marked with rarker markings aligned, at least on the outer edges of the belly as a series of regular longitudinal lines and with 6-7 (usually 7) supraciliaries as well as obvious longitudinal lines running down the sides of the body and to a lesser extent dorsally, with a black stripe extending onto the anterior of the tail.

Tractuoscincus subgen. nov. in turn are separated from subgenus *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* by having pentadactyle forelimbs; two nuchals contacting the parietals, a variegated dorsal pattern; no dark-edged white streak below and behind the eye; rarely a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail; limbs that strongly overlap when adpressed; 5-8 (usually six) supraciliaries (and also refer to the diagnosis of subgenus *Saproscincus* Wells and Wellington, 1984 above).

Obscuraskinkus gen. nov. are separated from the genus *Saproscincus* Wells and Wellington, 1984 by having pentadactyle limbs; and more than two nuchals contacting the parietals. Each parietal is bordered by a single nuchal and two temporal scales (as in being six scales contacting the posterior margin of the parietal scales). The only species of *Saproscincus* with more than two nuchals contacting the parietals, being *S. spectabilis* De Vis, 1888 is separated from species within *Obscuraskinkus gen. nov.* by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50

paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

Species within the subgenus *Obscuraskinkus subgen. nov.* herein described explicitly as new in this formal description, being the nominate subgenus are separated from species in the subgenus *Sparsuskinkus gen. nov.* and all species within the genus *Saproscincus* Wells and Wellington, 1984 by the following suite of characters:

Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank and one or other of the following suites of characters:
1/ 50 or more paravertebral scales between the nuchal and level of the anal opening; usually a series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid (*Obscuraskinkus neglectus sp. nov.*, *O. basiliscus* (Ingram and Rawlinson, 1981), *O. saltus* (Hoskin, 2013)); or;
2/ Less than 50 paravertebral scales between the nuchal and level of the anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second supralabial in contact with one or more preocular scales (*O. lewisi* (Couper and Keim, 1998)).

The three species within *Sparsuskinkus subgen. nov.*, including the newly named subspecies *Obscuraskinkus (Sparsuskinkus) czechurai divergens subsp. nov.* are separated from all other species within *Obscuraskinkus gen. nov.* (nominate subgenus species) and the genus *Saproscincus* Wells and Wellington, 1984 by having one or other of the following three suites of characters:

1/ Tetradactyle forelimbs and in turn separated from other Australian skinks with four fingered forelimbs by having a series of suboculars separating the eye from the upper labials (*O. tetradactylus* (Greer and Kluge, 1980)); or;
2/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and level of the anal opening; no series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second labial is not in contact with any preocular scales (*O. hannahae* (Couper and Keim, 1998)); or;
3/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout moderately pointed; canthus rostralis is very concave and there is no indication of a black stripe with a well defined lower border from nostril to the flank (*O. czechurai* (Ingram and Rawlinson, 1981)).

Distribution: Species in the subgenus *Sparsuskinkus gen. nov.* are found from the Sarina/Proserpine area of north-east Queensland, along wetter areas of the coast and nearby ranges to Cape Tribulation.

The genus *Obscuraskinkus gen. nov.* has a distribution centred almost exclusively on the wet tropics region of north-east Queensland, generally north of the Burdekin Gap and South of Cooktown, with the exception of a single species found in the rainforests near Mackay, south of the Burdekin Gap (*O. hannahae* (Couper and Keim, 1998)) and another north of the main wet tropics in the Melville Range, far north Queensland (*O. saltus* (Hoskin, 2013)).

Species in the nominate subgenus *Obscuraskinkus subgen. nov.* are found in the northern wet tropics of Australia, north of the Burdekin Gap, extending as far north as Cape Melville.

The closely related genus *Saproscincus* Wells and Wellington, 1984 occurs along the coast and ranges of New South Wales and Queensland, from Sydney in the south to the Proserpine/Mackay region in the North, being south of the Burdekin Gap,

biogeographical barrier.

The subgenus (within *Saproscincus*) *Tractuoscincus* subgen. nov. is found from around Sydney, New South Wales in the south to Eungella near Mackay, Queensland in the North.

Etymology: The genus name *Sparsuskinkus* gen. nov. comes from the Latin word “*sparsus*” meaning mottled or dappled, in reflection of the colour of the skinks as adults. The suffix, “*skinkus*”, reflects the kind of lizard they are. The spelling of “*skinkus*” is deliberate and should not be changed. The removal of the second “*s*” in the name, as would be the case for “*sparsus*” + “*skinkus*” is deliberate and made in order to make the name more easily spoken and/or written.

Content: *O. (Sparsuskinkus) tetradactylus* (Greer and Kluge, 1980) (type species); *O. (Sparsuskinkus) czechurai* (Ingram and Rawlinson, 1981); *O. (Sparsuskinkus) hannahae* (Couper and Keim, 1998).

OBSCURASKINKUS (OBSCURASKINKUS) NEGLECTUS SP. NOV.

LSIDDurn:lsid:zoobank.org:act:50AF0B1E-0D7B-4C78-8F98-79ABE2949AF1

Holotype: A preserved specimen in the Queensland Museum, Brisbane, Queensland, Australia, specimen number J49715 collected from Mount Spec, north Queensland, Australia, Latitude -18.95 S., Longitude 164.183333 E. This government-owned facility allows access to its holdings.

Paratypes: 1/ Ten preserved specimens in the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J49716, J49719, J49720, J49723, J49725, J49726, J49727, J49729, J49730 and J49731 all collected from Mount Spec, north Queensland, Australia, Latitude -18.95 S., Longitude 164.183333 E. 2/ Six preserved specimens in the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J29668, J74845, J74846, J49718, J49724 and J80053 all collected from Paluma, Queensland, Australia, Latitude -19.00 S., Longitude 146.20 E. 3/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.87051 collected from near the spillway of the Paluma Dam in north-east Queensland, Australia, Latitude -18.950 S., Longitude 146.150 E.

Diagnosis: Until now *Obscuraskinkus neglectus* sp. nov. has been treated as a divergent southern population of *O. basiliscus* (Ingram and Rawlinson, 1981) as seen for example in Moussalli *et al.* (2005), even though they found species-level divergence between the two allopatric populations.

O. neglectus sp. nov. occurs from Mount Elliot in the south to the Paluma Range in the north, as well as on Hinchinbrook Island (being the northern limit for the species), while *O. basiliscus* is found in the ranges north from about Mount Fox, north to Roaring Meg, which is just north of Cape Tribulation (all being in far north Queensland).

O. neglectus sp. nov. is readily separated from *O. basiliscus* as follows:

- 1/ Posterior to the eye, the black stripe running posterior to the eye and onto the upper flank is bold and well defined, versus either absent or ill defined in *O. basiliscus*.
- 2/ On the dorsum and flanks are numerous well defined whitish flecks. These are either absent or indistinct in *O. basiliscus*.
- 3/ Under the chin is white, and with obvious blackish specks and markings, versus white with no such markings or alternatively indistinct and usually greyish specks and markings in *O. basiliscus*.
- 4/ Blackish spots or specks are the most prominent markings on the dorsal surface of the body in *O. basiliscus* versus not so in *O. neglectus* sp. nov., where the whitish flecks or marks dominate. *Obscuraskinkus neglectus* sp. nov. and *O. basiliscus* (Ingram and Rawlinson, 1981) are separated from their related congener, *O. saltus* (Hoskin, 2013) by having a brownish dorsum and flanks that are shades of brown, and sometimes dark upper flanks, without golden spots, versus a golden dorsum and dark flanks with golden spots.

The only other species in the nominate subgenus *Obscuraskinkus* subgen. nov. is *O. lewisi* (Couper and Keim, 1998) and the three preceding species are separated from that one by having 50 or more paravertebral scales between the nuchal and level of the anal opening; usually a series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid, versus less than 50 paravertebral scales between the nuchal and level of the anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second supralabial in contact with one or more preocular scales in *O. lewisi* (Couper and Keim, 1998).

Species within the subgenus *Obscuraskinkus* subgen. nov. herein described explicitly as new in this formal description, being the nominate subgenus are separated from species in the subgenus *Sparsuskinkus* gen. nov. and all species within the genus *Saproscincus* Wells and Wellington, 1984 by the following suite of characters:

Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank and one or other of the following suites of characters: 1/ 50 or more paravertebral scales between the nuchal and level of the anal opening; usually a series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid (*Obscuraskinkus neglectus* sp. nov., *O. basiliscus* (Ingram and Rawlinson, 1981), *O. saltus* (Hoskin, 2013)); or; 2/ Less than 50 paravertebral scales between the nuchal and level of the anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second supralabial in contact with one or more preocular scales (*O. lewisi* (Couper and Keim, 1998)).

The three species within *Sparsuskinkus* subgen. nov., including the newly named subspecies *Obscuraskinkus (Sparsuskinkus) czechurai divergens* subsp. nov. are separated from all other species within *Obscuraskinkus* gen. nov. (nominate subgenus species) and the genus *Saproscincus* Wells and Wellington, 1984 by having one or other of the following three suites of characters:

- 1/ Tetradactyle forelimbs and in turn separated from other Australian skinks with four fingered forelimbs by having a series of suboculars separating the eye from the upper labials (*O. tetradactylus* (Greer and Kluge, 1980)); or;
- 2/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and level of the anal opening; no series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second labial is not in contact with any preocular scales (*O. hannahae* (Couper and Keim, 1998)); or;
- 3/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout moderately pointed; canthus rostralis is very concave and there is no indication of a black stripe with a well defined lower border from nostril to the flank (*O. czechurai* (Ingram and Rawlinson, 1981)).

Until now the species within *Obscuraskinkus* gen. nov. have been treated as species within *Saproscincus* Wells and Wellington, 1985, which remains their most closely related genus.

Obscuraskinkus gen. nov. have previously been described as the “northern lineage” of *Saproscincus* by authors including Moussalli *et al.* (2005).

The type species in this genus *Obscuraskinkus neglectus* sp. nov. has until now been treated as a divergent southern population of the wet tropics (Queensland) species, “*Saproscincus basiliscus* Ingram and Rawlinson, 1981”.

Species within the genera *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus* gen. nov. are separated from all other

Australian skinks by the following suite of characters: They are small, diurnal or crepuscular, found mainly in moist shaded forest habitats in eastern Australia. They have well developed limbs, meeting or overlapping when adpressed, or nearly so; paired frontoparietal scales, supranasals and nasals undivided; six supralabials, the fourth of which usually doubles as a subocular; nasals usually widely separated; parietal shields in contact behind the interparietal; ear opening obvious and without lobules; eyelid movable, with a transparent disc; most specimens have a characteristic rust coloured Y-shaped mark over the rump; the single four-fingered member of the genera *Obscuraskinkus tetradactylus* (Greer and Kluge, 1980), is separated from other Australian skink genera with four fingers by having a series of suboculars separating the eye from the upper labials (derived from Cogger 2014).

Saproscincus are separated from *Obscuraskinkus gen. nov.* by having 5 fingers on the forelimb and two nuchals contacting the parietals (versus more in *Obscuraskinkus gen. nov.*), or if having more than two nuchals contacting the parietals, then by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

The species within the nominate subgenus *Saproscincus* Wells and Wellington, 1984 are separated from those in the subgenus *Tractuoscincus subgen. nov.* by having a relatively uniform dorsal pattern; a dark edged or white tear-drop like streak below and behind the eye, sometimes extending to the ear opening; a pale orange or red dorso-lateral band on each side begins on the rump and extends onto the tail, or alternatively, if with a dorsal pattern that is variegated, lacking a dark-edged white streak below and behind the eye, sometimes without a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail, and limbs that strongly overlap when adpressed. The lizard will be further separated from *Tractuoscincus subgen. nov.* by having the following characters:

Belly is either unmarked or if marked with rarker markings aligned, at least on the outer edges of the belly as a series of regular longitudinal lines and with 6-7 (usually 7) supraciliaries as well as obvious longitudinal lines running down the sides of the body and to a lesser extent dorsally, with a black stripe extending onto the anterior of the tail.

Tractuoscincus subgen. nov. in turn are separated from subgenus *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* by having pentadactyle forelimbs; two nuchals contacting the parietals, a variegated dorsal pattern; no dark-edged white streak below and behind the eye; rarely a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail; limbs that strongly overlap when adpressed; 5-8 (usually six) supraciliaries (and also refer to the diagnosis of subgenus *Saproscincus* Wells and Wellington, 1984 above).

Obscuraskinkus gen. nov. are separated from the genus *Saproscincus* Wells and Wellington, 1984 by having pentadactyle limbs; and more than two nuchals contacting the parietals. Each parietal is bordered by a single nuchal and two temporal scales (as in being six scales contacting the posterior margin of the parietal scales). The only species of *Saproscincus* with more than two nuchals contacting the parietals, being *S. spectabilis* De Vis, 1888 is separated from species within *Obscuraskinkus gen. nov.* by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular

supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

Obscuraskinkus neglectus sp. nov. in life is depicted online at: <https://www.flickr.com/photos/euprepiosaur/6537517257/>

and https://www.flickr.com/photos/zimny_anders/30618471737/

and <https://www.flickr.com/photos/88708273@N03/23323948999/>

Obscuraskinkus basiliscus is seen in Cogger (1014) on page 679 at top left, Wilson (2015) on page 182 left, Wilson and Swan (2017) on page 393 at centre, Wilson and Knowles (1988) on page 289 at middle right and also online at:

<https://www.flickr.com/photos/euprepiosaur/8459514423/>

and

<https://www.flickr.com/photos/88708273@N03/24585035262/>

Distribution: *O. neglectus sp. nov.* occurs from Mount Elliot in the south to the Paluma Range in the north, as well as on Hinchinbrook Island (being the northern limit for the species), while *O. basiliscus* is found in the ranges north from about Mount Fox, north to Roaring Meg, which is just north of Cape Tribulation (all being in far north Queensland).

Etymology: The new species name “*neglectus*” refers primarily to the fact that it has been known about for many years, but effectively neglected by science.

Taxonomy, nomenclature and the formal descriptions of species is the first and most important step in preserving biodiversity. Delays in describing clearly obvious species-level taxa should be avoided.

OBSCURASKINKUS (SPARSUSKINKUS) CZECHURAI DIVERGENS SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:6D803B46-1502-473E-90F7-C14F2C26209B

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J25227 collected from Home Rule, North Queensland, Latitude -15.748611 S., Longitude 145.331944 E. This government-owned facility allows access to its holdings.

Paratypes: 1/ Two preserved specimens in the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J40537 and J40538 both collected from Mount Finnigan, 37 km south of Cooktown, Queensland, Australia, Latitude -15.816667 S., Longitude 145.283333 E. 2/ A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J59159 collected from 2.5 km south of Mount Hartley, North Queensland, Australia, Latitude -15.783333 S., Longitude 145.316667 E. 3/ A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J60215 collected from the north-east corner of the Big Tableland, Queensland, Australia, Latitude -15.716667 S., Longitude 145.283333 E.

Diagnosis: Until now, *Obscuraskinkus (Sparsuskinkus) czechurai divergens subsp. nov.* has been treated as a northern population of *O. czechurai* (Ingram and Rawlinson, 1981).

The putative species “*S. czechurai* (Ingram and Rawlinson, 1981)”, with a type locality of Charmillin Creek, via Ravenshoe, North Queensland, Latitude -17.43 S., Longitude 145.31 E. is split in line with molecular data and molecular divergence into two subspecies, across the low-lying region biogeographical barrier between Cairns and Port Douglas, Queensland (the Black Mountain Corridor), with the northern form formally named *O. czechurai divergens subsp. nov.*

O. czechurai divergens subsp. nov. is readily separated from the nominate form *O. czechurai czechurai* (Ingram and Rawlinson, 1981) as follows:

1/ Behind the eye and on the side of the head, running posteriorly to the neck, from the dorsolateral boundary and below

and above the axilla of the forelimb is a distinctive charcoal black area of pigment or marking in *O. czechurai czechurai*. This is absent, or effectively so in *O. czechurai divergens subsp.nov.*

2/ In *O. czechurai czechurai* on the dorsolateral axis immediately posterior to the hind limb is spotting to form a black line over the lighter dorsal colouration, the spotting either being broken, continuous or a combination of both, this spotted line not running far down the tail, which is otherwise generally unmarked save for some specimens having scales of different shades of brown or reddish brown. There is not such black spotting or line seen in *O. czechurai divergens subsp.nov.*

Both *O. czechurai divergens subsp. nov.* and *O. czechurai czechurai* are separated from all other species within *Obscuraskinkus gen. nov.* (both subgenera) and species within the genus *Saproscincus* Wells and Wellington, 1984 by having limbs that are pentadactyle; more than two nuchals contacting the parietals; snout moderately pointed; canthus rostralis is very concave and there is no indication of a black stripe with a well defined lower border running from nostril to the flank.

The other species within *Sparsuskinkus subgen. nov.* are separated from all other species within *Obscuraskinkus gen. nov.* (n nominate subgenus species) and the genus *Saproscincus* Wells and Wellington, 1984 by having one or other of the following two suites of characters:

1/ Tetradactyle forelimbs and in turn separated from other Australian skinks with four fingered forelimbs by having a series of suboculars separating the eye from the upper labials (*O. tetradactylus* (Greer and Kluge, 1980)); or;

2/ Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and level of the anal opening; no series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid; second labial is not in contact with any preocular scales (*O. hannahae* (Couper and Keim, 1998)).

Until now the species within *Obscuraskinkus gen. nov.* have been treated as species within *Saproscincus* Wells and Wellington, 1985, which remains their most closely related genus.

Obscuraskinkus gen. nov. have previously been described as the "northern lineage" of *Saproscincus* by authors including Moussalli *et al.* (2005).

The type species in this genus *Obscuraskinkus neglectus sp. nov.* has until now been treated as a divergent southern population of the wet tropics (Queensland) species, "*Saproscincus basiliscus* Ingram and Rawlinson, 1981".

Species within the genera *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* are separated from all other Australian skinks by the following suite of characters: They are small, diurnal or crepuscular, found mainly in moist shaded forest habitats in eastern Australia. They have well developed limbs, meeting or overlapping when adpressed, or nearly so; paired frontoparietal scales, supranasals and nasals undivided; six supralabials, the fourth of which usually doubles as a subocular; nasals usually widely separated; parietal shields in contact behind the interparietal; ear opening obvious and without lobules; eyelid movable, with a transparent disc; most specimens have a characteristic rust coloured Y-shaped mark over the rump; the single four-fingered member of the genera *Obscuraskinkus tetradactylus* (Greer and Kluge, 1980), is separated from other Australian skink genera with four fingers by having a series of suboculars separating the eye from the upper labials (derived from Cogger 2014).

Saproscincus are separated from *Obscuraskinkus gen. nov.* by having 5 fingers on the forelimb and two nuchals contacting the parietals (versus more in *Obscuraskinkus gen. nov.*), or if having more than two nuchals contacting the parietals, then by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from

nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

The species within the nominate subgenus *Saproscincus* Wells and Wellington, 1984 are separated from those in the subgenus *Tractuoscincus subgen. nov.* by having a relatively uniform dorsal pattern; a dark edged or white tear-drop like streak below and behind the eye, sometimes extending to the ear opening; a pale orange or red dorso-lateral band on each side begins on the rump and extends onto the tail, or alternatively, if with a dorsal pattern that is variegated, lacking a dark-edged white streak below and behind the eye, sometimes without a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail, and limbs that strongly overlap when adpressed. The lizard will be further separated from *Tractuoscincus subgen. nov.* by having the following characters: Belly is either unmarked or if marked with rarker markings aligned, at least on the outer edges of the belly as a series of regular longitudinal lines and with 6-7 (usually 7) supraciliaries as well as obvious longitudinal lines running down the sides of the body and to a lesser extent dorsally, with a black stripe extending onto the anterior of the tail.

Tractuoscincus subgen. nov. in turn are separated from subgenus *Saproscincus* Wells and Wellington, 1984 and *Obscuraskinkus gen. nov.* by having pentadactyle forelimbs; two nuchals contacting the parietals, a variegated dorsal pattern; no dark-edged white streak below and behind the eye; rarely a pale orange or red dorso-lateral band on each side beginning on the rump and extending onto the tail; limbs that strongly overlap when adpressed; 5-8 (usually six) supraciliaries (and also refer to the diagnosis of subgenus *Saproscincus* Wells and Wellington, 1984 above).

Obscuraskinkus gen. nov. are separated from the genus *Saproscincus* Wells and Wellington, 1984 by having pentadactyle limbs; and more than two nuchals contacting the parietals. Each parietal is bordered by a single nuchal and two temporal scales (as in being six scales contacting the posterior margin of the parietal scales). The only species of *Saproscincus* with more than two nuchals contacting the parietals, being *S. spectabilis* De Vis, 1888 is separated from species within *Obscuraskinkus gen. nov.* by having a blunt snout (as opposed to moderately pointed), canthus rostralis not or slightly concave; some indication of a black stripe from nostril to flank; less than 50 paravertebral scales between the nuchal and the level of anal opening; no enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid and is found in south-east Queensland and New South Wales along coastal regions and nearby ranges, as opposed to mid to north east Queensland generally near the coast or ranges.

Species within the subgenus *Obscuraskinkus subgen. nov.* herein described explicitly as new in this formal description, being the nominate subgenus are separated from species in the subgenus *Sparsuskinkus gen. nov.* and all species within the genus *Saproscincus* Wells and Wellington, 1984 by the following suite of characters:

Limbs pentadactyle; more than two nuchals contacting the parietals; snout bluntish; canthus rostralis is not or is only slightly concave; there is some indication of a black stripe from nostril to flank and one or other of the following suites of characters:
1/ 50 or more paravertebral scales between the nuchal and level of the anal opening; usually a series of enlarged subocular scales between the subocular supralabial and the granules of the lower eyelid (*Obscuraskinkus neglectus sp. nov.*, *O. basiliscus* (Ingram and Rawlinson, 1981), *O. saltus* (Hoskin, 2013)); or;
2/ Less than 50 paravertebral scales between the nuchal and level of the anal opening; no enlarged subocular scales between

the subocular supralabial and the granules of the lower eyelid; second supralabial in contact with one or more preocular scales (*O. lewisi* (Couper and Keim, 1998)).

Obscuraskinkus (Sparsuskinkus) czechurai divergens subsp. nov. in life is depicted online at:

<https://www.flickr.com/photos/shaneblackfnq/16311527407/>

O. czechurai (Ingram and Rawlinson, 1981) is depicted in life in Wilson and Swan (2017) on page 395 at top left, Wilson and Swan (2015) on page 183 at top left, Wilson and Knowles (1988) page 290 at middle left and Cogger (2014) on page 679 at top right as well as online at:

<https://www.flickr.com/photos/euprepiosaur/5894016780/>
and

<https://www.flickr.com/photos/euprepiosaur/36234524205/>

Distribution: *Obscuraskinkus (Sparsuskinkus) czechurai divergens* subsp. nov. occurs in (mainly elevated) rainforests roughly between Port Douglas in the south to nearly Cooktown in the north (Shipton's Flat near Rossville), in the northern wet tropics region of Queensland Australia.

Nominate *O. czechurai* (Ingram and Rawlinson, 1981) occurs generally south and west of Cairns north Queensland in (mainly elevated) rainforests south to the Cardwell Range.

Etymology: *Obscuraskinkus (Sparsuskinkus) czechurai divergens* subsp. nov. is formally named in reflection of the fact that it is a divergent subspecies relative to the nominate form, by distribution, evolution and morphology.

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CONFLICTS OF INTEREST

None.

