

**Hiding in plain sight. A previously unrecognized biogeographical barrier in Australia formed by an event of biblical proportions. Five new species of skink lizard from south-west Victoria, three more closely related species from New South Wales and another from South Australia.**

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RAYMOND T. HOSER

LSIDurn:lsid:zoobank.org:author:F9D74EB5-CFB5-49A0-8C7C-9F993B8504AE

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

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

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### ABSTRACT

Formed by Volcanic eruptions on a Biblical scale, some 3 to 5 MYA, the creation of most of the basalt plains in central and western Victoria created an impenetrable biogeographical barrier to the movement of some previously wide-ranging species of frog and lizard.

Species found across southern Victoria were split into refugia west of where Melbourne, the State capital now stands. The relevant taxa in turn evolved into distinctive new species over the following 3-5 MYA.

The principal refugia are the Otway Ranges, hilly country west of Warrnambool and the Grampians, causing at least 2 populations of two species of frogs and 4 lizard populations to split off from the two main populations in hilly regions east of Melbourne.

The relevant frogs were formally named by Hoser in 2020 and the four skink lizard species are formally named in this paper.

Another previously wide ranging taxon was split two ways at the species level by the same geological events and the western population is formally named for the first time.

Three distinctive and divergent species in New South Wales, closely related to these skink taxa are also named for the first time as is another unnamed species in South Australia.

A new genus is erected for five very divergent species for which current and changing generic assignments, each genus including other type species, has not been appropriate.

**Keywords:** Biogeography; taxonomy; nomenclature; Victoria; Australia; New South Wales; South Australia; ACT; skink; lizard; frog; Otway; Otways; Guyra, Eyre Peninsula; basalt; basalt plains; sedimentary rocks; *Anepischetosia*; *maccoyi*; *brindabellaensis*; *sharmani*; *Pseudemoia*; *spenceri*; *weekesae*; *Claireascincus*; *rawlinsoni*; *baudini*; *pagenstecheri*; *entrecasteauxii*; new genus; *Mcpheius*; new species; *shirenhoserae*; *simonkortlangi*; *danielmannixi*; *mcnamarai*; *davidkerryi*; *hadynmcpheii*; *michaelmatheri*; *scottgranti*; *jackyhoserae*.

### INTRODUCTION

In late 2019, while teaching dogs Snake Avoidance® training at an address at the township of Apollo Bay, western Victoria, (Australia) Latitude 38.7552° S., Longitude 143.6676° E., I took time out to start searching for specimens of the frog species *Limnodynastes cameronganti* Hoser, 2020 (Hoser, 2020b) and *Geocrinia otwaysensis* Hoser, 2020 (Hoser 2020e), the latter taxon originally described as a subspecies of *Geocrinia victoriana* (Boulenger, 1888) (see below).

At the same time, I also found numerous specimens of putative *Anepischetosia maccoyi* (Lucas and Frost, 1894). Having photographed and inspected numerous specimens of this taxon

from immediately adjacent to the type locality (my most recently inspected specimens being from about 30 km straight line east of Ringwood, Victoria, being viewed and photographed just seven days prior), and being very familiar with this taxon throughout eastern Victoria, I immediately noticed what I thought were stark species-level differences between the Apollo Bay animals (more than 100 km south-west of Melbourne) and those of the nominate form (east of Melbourne).

Most striking was the obvious yellow venter, which strongly contrasts with the obviously orange venter in the type form, as well as the red stripes running longitudinally down the (original)

tail, not seen in the nominate type form.

With more than 20 specimens of each inspected just a week apart, I knew that the differences were consistent.

Inspection of photos of both, enlarged on a computer screen, yielded many other consistent differences between the forms which led me to believe that I had a new species.

#### MATERIALS, METHODS AND RESULTS

In order to satisfy myself that I had a new species within the genus *Anepischetosia* Wells and Wellington, 1985 and in the absence of DNA comparisons of the two forms, I sought alternative means to verify, what appeared to be obvious.

An audit of museum holdings in Australia for putative *Anepischetosia maccoyi* confirmed that the Otways population (of which Apollo Bay is a part) was isolated. In turn another population further west of the Otways population, being generally west and north of Warrnambool was also isolated from the main population. The main population occurs in a broad region commencing east of Melbourne, through the Great Dividing Range almost as far north as Sydney.

Type *Anepischetosia maccoyi* with a type locality of Ringwood, east of Melbourne, is of the main population, and I note that Wells and Wellington (1984) and Wells and Wellington (1985) had already identified and named two isolated populations in the northern part of the NSW range as separate species.

These were *A. sharmani* (Wells and Wellington, 1984) from the Illawarra Escarpment and *A. brindabellaensis* Wells and Wellington, 1985 from the Brindabella Ranges, west of Canberra on the border of the ACT and NSW.

While gaps in distribution could be attributed to non-collection of relevant localities, this possibility was dismissed on the basis that putative *Anepischetosia maccoyi* are known to be absent from intervening localities on the basis of habitat, which often, but not exclusively included basalt plains.

Excluding the basalt plains, other areas separating populations of putative *A. maccoyi* were consistent in having one or more of the following exclusionary characteristics, these being dryness, flatness without rocks, sand dunes or similar, or a combination of one or more of these.

In the case of the Otway Ranges population of putative *A. maccoyi*, the modern day barriers stopping mixing of this population with those further east are obvious.

East of the Otways the terrain is flat and either sandy, or clay. Rainfall, is affected by the Otways creating a rain shadow and is therefore low, again exclusionary for this taxon. Similar is west of the Otways, while north of the ranges are the volcanic plains, which again carry a suite of fauna typical of dry granite areas of the rain shadows of the western slopes of the Great Dividing Range, which is again exclusionary for the putative species, unless immediately proximal to prime habitat.

To the south of the Otway Ranges is Bass strait, which is an area again of flat relief and even in times of glacial minima (being dry land), was both sandy and flat, both of which are exclusionary for the taxon and gives a good reason why it has never been found in Tasmania.

So while I was satisfied that the Otways population was isolated at the present time, I needed to establish a timeline that was archaic enough to A/ Have cut off the populations long enough to have diverged to be separate species and B/ Establish a point in time prior, when at least one habitat corridor existed to allow the populations to establish in both places and be in contact.

This calibration was done two ways.

Joyce (2003) established that the basalt plains north of the Otways, including those to the west of Melbourne, substantively formed 3-5 MYA, effectively cutting off the Otways population of putative *A. maccoyi* from those to the north-east.

However I also searched for evidence from other vertebrates potentially described as endemic to the Otways, and known to have been isolated from other similar species to the north and east of Melbourne.

Initially I found none, but then revisited the frog formally described as *Limnodynastes cameronganti* Hoser, 2020 (Hoser, 2020b), which also happens to be an Otway ranges endemic.

When that taxon was named, the fact that sealed the conclusion it was a separate species from its nearest relative to the east, was the molecular evidence of Schäuble *et al.* (2000) clearly separating it from putative *Limnodynastes peronii* (Duméril and Bibron, 1841).

Morphological divergence on its own was not enough for me to conclude that frog was a different species.

The paper by Schäuble *et al.* (2000) confirmed that *Limnodynastes peronii* (Duméril and Bibron, 1841) *sensu stricto* was more divergent from the Otways species *Limnodynastes cameronganti* Hoser, 2020 than were the putative species and subspecies of *Platylepton dumerilii* Peters, 1863 from one another and so on that basis there was no need to establish either an exact date calibration for when *Limnodynastes peronii* (Duméril and Bibron, 1841) *sensu stricto* diverged from *Limnodynastes cameronganti* Hoser, 2020 and/or the related *L. alexanteneri* Hoser, 2020 (found generally in Melbourne's east and further east in Victoria), or what exactly was the biogeographical features or event/s that caused the populations to split.

Noting that disjunct populations can expand to cover previously uninhabited areas, the need to spend time establishing the barrier or events that caused *Limnodynastes peronii* (Duméril and Bibron, 1841) *sensu stricto* to diverge from *Limnodynastes cameronganti* Hoser, 2020 and the related *L. alexanteneri* Hoser, 2020 was not needed at the time for me to be able to assert the latter two species were valid and unnamed taxa.

This was the case at the time the paper was being prepared and written and as a frog paper only, the need to establish facts potentially relevant to the identification of potential new skink species was simply not there.

However in the context of the apparently new taxon associated with *A. maccoyi* from the Otway Ranges, the apparently parallel divergence of *L. cameronganti* from *L. alexanteneri* and *L. peronii* also became relevant.

On the basalt plains, generally west of Melbourne, these species are largely replaced with the ubiquitous *Limnodynastes tasmaniensis* Günther, 1858.

In terms of the putative taxon, *A. maccoyi* from the Otway Ranges and ranges east and west of there, it is replaced on basalt plains by the morphologically similar lizards in the ubiquitous *Nodorha bougainvillii* (Gray, 1839) species group. *Nodorha bougainvillii* is better known as *Lerista bougainvillii*, but the generic assignment of Mittleman, 1952, adopted by Wells and Wellington (1984, 1985) and Wells (2002) is corroborated by molecular studies since (e.g. Pyron *et al.* 2013) (see their phylogeny) and so is adopted as the correct genus name for these lizards here.

With effectively parallel DNA evidence available for the divergence of *L. cameronganti* from *L. alexanteneri* and *L. peronii* which could reasonably be expected to yield a similar result for the putative *A. maccoyi* populations and a calibration of known dates of formation of the basalt plain barrier to movement between the populations, this being the only newly created biogeographical feature in the region (ignoring the climatic and sea level changes and oscillations over the past 5 MYA), I had no hesitation in concluding that the Otway Ranges population of putative *A. maccoyi* was a separate and hitherto unnamed species.

It is therefore formally named according to the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended as a new species.

The same geological events that split the Otway Ranges population of putative *A. maccoyi* also split populations further west, being those west and north of Warrnambool in western Victoria. They too were morphologically distinct and with the

antiquity of the separation being dated at 3-5 MYA as per Joyce (2003), I had no hesitation in concluding that this population was also a hitherto unnamed species and so it too is formally named in this paper.

Noting that the volcanic eruptions that created the basalt plains in Victoria had now been shown to have created at least 3 species, being the two skinks and the frog species already identified above, I then turned my attention to other putative species that may in fact be complexes of species across the same relatively recently formed biogeographical barrier.

While DNA evidence is not yet available, based on the preceding it appears that the morphologically divergent frog formally described as *Geocrinia victoriana otwaysensis* Hoser, 2020, (Hoser 2020e) separated from nominate *Geocrinia victoriana* (Boulenger, 1888) by the same basalt plains, is almost certainly a full species that diverged from the nominate form 3-5 MYA.

As a result of this conclusion, I herein formally elevate *Geocrinia victoriana otwaysensis* Hoser, 2020 to the full species of *Geocrinia otwaysensis*.

There are no snakes, turtles, crocodiles, dragon lizards, legless lizards, geckos or monitors that are either found in the Otway Ranges, or with populations isolated there.

Other than the two frog species referred to already, there appear to be no others with Otway Ranges isolated populations.

So in terms of all these groups, it is safe to say that there are no Otways endemics that have been overlooked.

However with the skinks, a very different picture did emerge.

The putative species *Pseudemoia spenceri* (Lucas and Frost, 1894), with a type locality of Dandenong Ranges and south-east of Melbourne, Victoria (Coventry 1970, Rawlinson 1974), has a range encompassing cooler parts of south-east Australia. This range commences in the high altitude area west of Sydney, through most of Victoria to include both the Otway Ranges and the Grampians in Western Victoria.

Kinghorn (1929) named the Mount Kosciusko (NSW) form as *P. weeksae* (Kinghorn, 1929).

See Cogger *et al.* (1983) for the taxonomic history of both names.

The latter species has since been treated by all authors as a synonym of the former in all publications since (e.g. Hutchinson *et al.* 1990, Hutchinson and Donnellan 1992 and even Haines *et al.* 2014).

Exceptional to this was Wells and Wellington (1985) who did, without giving any reason, resurrect *P. weeksae* from synonymy.

They wrote:

"*Pseudemoia weeksae* (Kinghorn, 1929). Herein resurrected from the synonymy of *Pseudemoia spenceri*; *P. weeksae* is believed confined to southern N. S. W."

Significantly and after inspecting specimens from across the range for the putative species *P. spenceri* I agree that Wells and Wellington in their statement, were wholly correct, even if they did not present any evidence in support of it at the time.

In any event, the molecular evidence of Haines *et al.* (2014) confirmed that not only are the two forms different species based in molecular divergence, but that a third form from New South Wales with a population centre being the western edge of the Blue Mountains is an unnamed species.

Seven years have passed and no one has shown any interest in naming the relevant species and so, this also came under my scrutiny in terms of assessing the Otways population of putative *P. spenceri*, currently the only recognized mainland Australian taxon in this genus, based on the generic assignments in this paper.

The one other species in the genus is the Pedra Branca Skink, *P. palfreymani* Rawlinson, 1974, occurring on the wind-swept islet south of Tasmania (Hoser 1991).

For the record (from Genbank at <https://www.ncbi.nlm.nih.gov/>

genbank/), the sampled specimens shown by Haines *et al.* (2014), which on the basis of divergence are clearly of three species, are as follows:

1/ NMVZ19287, collected from Mount Baw Baw, Victoria and representative of the type form of *P. spenceri* (Lucas and Frost, 1894);

2/ ABTC11323, collected from Nimmitabel, NSW (near Cooma), being representative of the type form of *P. weeksae* (Kinghorn, 1929);

3/ ABTC11329 collected from Hampton, NSW, near Jenolan Caves on the western edge of the Blue Mountains, until now unnamed and herein formally described as the new species *P. davidkerryi* sp. nov..

In terms of populations from the Otway Ranges and the Grampians, each are separated from each other and all other putative *P. spenceri* by distribution, created by a barrier of known antiquity.

Based on obvious morphological divergence of each population, I again have no hesitation in naming each of these as new species.

Furthermore, I again note that those specimens from the Upper Blue Mountains and the Oberon area, west of there in the New South Wales central highlands are also divergent in both distribution and morphology, also in association with a biogeographical break of known antiquity and therefore it is also formally named for the first time as a new species as indicated already.

The genus *Pseudemoia* Fuhn, 1967 has been variously defined, ranging from a broad assemblage of species (*sensu* Haines *et al.* 2014), split several ways, *sensu* Wells and Wellington (1985), with the molecular evidence of Haines *et al.* (2014) largely supporting the conclusions of Wells and Wellington (1985), which in turn followed the genus level taxonomy of Rawlinson (1974).

Rawlinson (1974) speculated on past distribution of the genus *Pseudemoia* as defined by him, with reference to biogeographical events.

Clearly based on distribution, ranges of taxa have contracted. However this may not have been the case in the recent past, especially in the period following human habitation in Australia. Rawlinson (1974) wrote under "Habitat" the following, "*Found only in regions of high rainfall (more than 75 cm per year). Populations within these regions are restricted to dead trees or rocky outcrops in montane wet sclerophyll forests and rocky outcrops in subalpine woodlands.*"

*The exposed surfaces of the trees or rocks are used for basking and foraging sites during activity, while crevices are used for shelters when inactive.*"

Rawlinson (1974) also wrote:

*"The densest populations are found on large fire killed or fire damaged trees in burnt regenerating montane forests."*

Greer (1982) confirmed these findings explicitly.

This has also been my experience with respect of lizards of the putative taxon, *P. spenceri*, noting a strong increase in numbers in areas affected by the Black Saturday Bushfires in Feb 2009 (as detailed by Hoser 2010).

Noting that during recent ice-age maxima, rainfalls in south-east Australia were significantly lower than at present, spread of extant populations would have been prevented across regions currently devoid of these lizards, confirming the contention that currently separated populations have been this way for some time.

It should also be noted that the fire-stick economy of tribal Aboriginals in south-east Australia pre-dating the European invasion of Australia in the 1700's would have also assisted putative *P. spenceri* and assisted both increases in numbers and dispersal in the most recent prehistorical past, that being defined as in the 40K years predating the British dominated European invasion of Australia, combined with the genocide and near

extermination of the original Aboriginal inhabitants.

Two putative species, originally described as *Leiopisma rawlinsoni* Hutchinson and Donnellan, 1988 and *Leiopisma baudini* Greer, 1982 are divergent from the rest and have been placed in various genera, including *Pseudemoia* (type species: *Lygosoma (Emoia) spenceri* Lucas and Frost, 1894) by most publishing authors since, or *Claireascincus* Wells and Wellington, 1985 type species, *Lygosoma entrecasteauxii* Duméril and Bibron, 1839.

While it is evident on the phylogeny of Haines *et al.* (2014) that *Claireascincus* Wells and Wellington, 1985 is a valid and separate genus-level grouping distinct from type *Pseudemoia*, Haines *et al.* (2014) also clearly show that *Leiopisma rawlinsoni* Hutchinson and Donnellan, 1988 and *Leiopisma baudini* Greer, 1982 should also be placed in a genus of their own. The genus *Mcphieus gen. nov.* is erected to accommodate those species.

Haines *et al.* (2014) also show that putative "*Leiopisma rawlinsoni* Hutchinson and Donnellan, 1988" consists of two species and further inspection of live specimens by myself from across the known range of the species shows clear morphological divergence between them.

The western Victorian population, herein formally named as *Mcphieus hadynmcphiei* is also the type species for the new genus.

The same biogeographical event, of biblical proportions, being the volcanic eruptions in western Victoria is the event (or sequence of events) that appears to have split the population of the putative "*Leiopisma rawlinsoni* Hutchinson and Donnellan, 1988" some 3-5 MYA.

That putative taxon is not found in the Otways proper, but instead is an inhabitant of usually flatter and swampy areas, sand dunes or clay type of soils. They do not however inhabit basalt plains, except when immediately adjacent to other areas they are found.

A divergent population of putative "*Leiopisma rawlinsoni* Hutchinson and Donnellan, 1988" from the Brindabella Ranges in Southern New South Wales, not sampled by Haines *et al.* (2014) is also formally named as a new species.

There is no molecular evidence available relevant to the status of populations of "*Leiopisma baudini* Greer, 1982" and whether all lizards presently referred to this species by herpetologists in Australia are conspecific.

However Greer (1982) makes it clear that the specimens until then referred to as "*Lygosoma entrecasteauxii* Duméril and Bibron, 1839" from the Eyre Peninsula Region of South Australia are not of the same species.

In spite of this, and noting the morphological similarity of these lizards to Greer's species, "*Leiopisma baudini* Greer, 1982", those specimens of "*Lygosoma entrecasteauxii* Duméril and Bibron, 1839", have since been transferred to Greer's "*Leiopisma baudini* Greer, 1982" most recently by other herpetologists, this also being reflected in the distribution map of Cogger (2014) and in the various museum specimen databases. Cogger (2014) also claims "*Pseudemoia entrecasteauxii*" occurs on the Eyre Peninsula, but this error is probably an editorial oversight, as Haines *et al.* (2014) published at the same time and based on similar information, make it clear that this is not the case. Relevant specimens from this region (Eyre Peninsula) are categorised as "*P. baudini*" and are conspecific with one another (based on two separated Eyre Peninsula samples), but are not tested against a sample from the very disjunct Western Australian population of "*P. baudini*", that being Greer's type form.

These two populations are (based on museum samples in Australia) separated from one another by at least 400 km straight line measurement and as demonstrated by Greer, morphologically distinct from one another (at consistent species level divergence) and in turn from all other species within *Pseudemoia sensu lato*.

On that basis I have no hesitation in formally naming putative Eyre Peninsula "*P. baudini*" as a new species, in this case being formally named *Mcphieus scottgranti sp. nov.*

Inspection of putative *Lygosoma entrecasteauxii* Duméril and Bibron, 1839 from the Otway Ranges did not yield any obvious differences between these lizards and those from eastern Victoria, also inspected at the same time, side by side.

Significantly, this species also makes intrusions into the basalt plains, implying that the barrier created by the volcanic eruptions 3-5 MYA is not as rigid for this taxon.

Of note is that Wells and Wellington (1985) did formally name several forms in the "*Lygosoma entrecasteauxii* Duméril and Bibron, 1839" complex, some or all of which were confirmed as valid taxa by Haines *et al.* (2014).

My own inspection of specimens also shows that there are strong regional differences worthy of species-level recognition, which in some cases has already occurred.

However one very divergent form that was not named previously is that from around Guyra in northern New South Wales.

This part of the New England region has a number of vertebrate species separated by a well defined break from similar species further south as explained by Haines *et al.* (2014) at page 93.

The Guyra species is formally named in this paper for the first time as *Claireascincus jackyhoserae sp. nov.*

In terms of all the formal descriptions, and preceding them, I managed to inspect live and dead specimens of all putative species in the genus *Anepischetosia* Wells and Wellington, 1985 as well as all three genera within *Pseudemoia sensu lato* as adopted herein, namely *Pseudemoia* Fuhn, 1967, *Claireascincus* Wells and Wellington, 1985 and *Mcphieus gen. nov.* enabling the newly named species to be separated on the basis of consistent differences in morphology.

These differences alone made the relevant populations worthy of taxonomic recognition.

In terms of level of division, be it species or subspecies, the decision to recognize each newly named form herein was based primarily on the dating of divergence times, based on the relevant geological events.

The volcanic eruptions that changed habitats in a band north of the Otway Ranges to an average width of about 100 km (straight line) have been dated at about 3-5 MYA and ice-age temperature and rainfall fluctuations, along with variations in sea-level covering and uncovering land bridges merely served to maintain other pre-existing barriers to the dispersal of the species.

The same applies to the Grampians species, including specimens found in regions to the south.

In terms of the two NSW forms formally named herein, both are also morphologically distinct and found across biogeographical barriers of known antiquity and that separate previously described similarly affected sibling species, including for example in the skink genus *Eulamprus* Fitzinger, 1843 or the putative species *Burrmys parvus* Broom, 1896, divided into regional taxonomic entities by Hoser (2020a).

East-west divisions of species across the Great Australian Bight are not unheard of with reptiles, including for example, what was until recently the single species *Nephrurus stellatus* Storr, 1968.

That species was split two ways by Hoser (2016a) on the basis of both morphological and molecular divergence.

While consulting current literature in the form of Cogger (2014) to ascertain currently recognized species within *Anepischetosia* Wells and Wellington, 1985 as well as all three genera within *Pseudemoia sensu lato* as adopted herein, namely *Pseudemoia* Fuhn, 1967, *Claireascincus* Wells and Wellington, 1985 and *Mcphieus gen. nov.* all the scientific literature was consulted to identify potential synonyms and those synonyms that could be referred to valid taxonomic entities.

Where applicable, those species are recognized as valid as outlined in the relevant descriptions of new species.

**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.

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 19 December 2021 (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.

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, preanal pores = precloacal pores, preanal = precloacal, 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.

**DEFINITIONS**

These apply throughout this paper.

Otway Ranges and Otways are different ways to identify the same biogeographical feature in south-west Victoria, being a coastal mountain range that rises abruptly from the sea to the south (Bass Strait), being an area of relatively flat low-lying land at times of glacial maxima. The Otways are generally bounded by the low clay and sand based hills to the west of Airey's Inlet in the East, these hills grading to clay or sand and being reduced to flat land east of Anglesea and including the rest of the extant Bellarine Peninsula, in turn being covered in basaltic lava flows to the north; the Gillibrand River to the west and north-west forms this boundary of the Otways, Bass Strait in the south and a line from Torquay to Colac, across generally flat land and including basaltic lava flows in the north-east, complete the surrounding boundaries of the Otways.

The core of the Otway ranges is the Early Cretaceous Eumeralla Formation, dated at about 145 MYA to 100 MYA consisting of sandstones, siltstones, mudstones and similar sedimentary rocks, which combined with the steep slopes, higher altitude and southerly location, means the region is composed of heavily

forested hills, with rock outcrops along watercourses, in stark contrast to the generally flat and dry areas to the north, east and west of these ranges and also south, when proximal parts of Bass Strait was largely exposed flat-lands (Miner and Rosengren, 2019).

The Grampians are a set of ancient and eroded mountains and large hills in the west of Victoria composed of sandstone which was laid down from large rivers during the Devonian period 425-415 million years ago. This sediment slowly accumulated to a depth of 7 kilometres (4.3 miles) which was later raised and tilted for its present form (Calder, 1987). They lie west of Ararat and Stawell, south of Horsham, east of Edenhope and north of Hamilton, all being within western Victoria.

**ANEPISCHETOSIA SHIREENHOSERAE SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:9F079D17-6F4C-4BF1-9E0E-B6F24D124039**

**Holotype:** A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D34738 collected 1.6 km North of Cape Horn in the Otway Ranges, Victoria, Australia, Latitude -38.73 S., Longitude 143.62 E. This government-owned facility allows access to its holdings.

**Paratype:** A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D34778 collected from 3.2 km North of Cape Horn in the Otway Ranges, Victoria, Australia, Latitude -38.7 S., Longitude 143.62 E.

**Diagnosis:** *Anepischetosia shireenhoserae sp. nov.* has until now been treated as a population of the widespread putative species *Anepischetosia maccoyi* (Lucas and Frost, 1894). *A. shireenhoserae sp. nov.* is wholly confined to the Otway Ranges of Victoria as defined previously in this paper.

*Anepischetosia simonkortlangi sp. nov.* also previously treated as a population of *A. maccoyi* occurs between Burk's Island 7km East of Beachport, South Australia in the west, Warrnambool, Victoria in the east and the Grampians, Victoria in the north, also occurring within the Grampians, the Grampians as a biogeographical entity being defined elsewhere in this paper.

*A. shireenhoserae sp. nov.* is separated from all other species within the *A. maccoyi* species complex, including *A. simonkortlangi sp. nov.*, *A. maccoyi* (Lucas and Frost, 1894) from eastern Victoria, *A. sharmani* (Wells and Wellington, 1984) from the Illawarra Escarpment and *A. brindabellaensis* Wells and Wellington, 1985 from the Brindabella Ranges, west of Canberra on the border of the ACT and NSW, by the following unique suite of characters:

Iris red; venter yellow; spots forming two longitudinal stripes, orange-red in colour on either side of the upper surface of the tail; about four alternating and obvious, well-defined dark greyish, and light whitish bands on the lower labials; anterior of snout is light brown (versus a darker body).

*A. simonkortlangi sp. nov.* is readily separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters:

Dull orange-yellow iris; a dorsum that is a light brownish-grey colour (as opposed to an obvious chocolate brown type of colour or dark greyish-brown in all other species); the upper lateral edge of the body has a well defined black upper edge, against a dark brown dorsum, this dark edge usually covering the upper part of the lateral flank and the tail, and always forming at least a thick black line, with the surface below this (lower flanks) being whitish in colour, this not being the case in all other species in the *A. maccoyi* species complex; upper surface of the head is unicolour, being the same lightish colour of the body or slightly darker with a grey hue, but no obvious peppering; upper surface of anterior tail, has two obvious rows of black dots running either side of the midline and two less well defined similar lines of black dots on the border of the upper surface and flank of the anterior tail; no distinct or indistinct white spots or flecks on the upper surface of the body; no red spots on the tail or body; upper labial region both in front of and behind the eye is a

unicolour greyish.

*A. maccoyi* is separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters:

Iris is yellow-orange, rarely darker; venter light orange; large joined spots forming two longitudinal stripes, greyish-black in colour on either side of the upper surface of the tail; any red or whitish spots or marks on tail, are not part of any longitudinal lines and are otherwise scattered; lower labials are mainly greyish with a number of ill defined cream coloured spots or blotches or rarely barred; anterior of snout is heavily peppered grey

*A. sharmani* is separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters:

Iris is orange; venter variable in colour, but usually orange; except for a light yellow brown line running either side of the dorsum of the lower body onto the tail, there are no spots forming two longitudinal stripes that are different in colour than the rest of the upper surface of the tail; upper labials have two to four tiny white spots or bars, all fully encircled with dark brown, with the possible exception of the rear two, which sometimes extend under the chin; anterior of snout is dark brown with some peppering; the tail has irregularly scattered red spots, but these do not form longitudinal lines.

*A. brindabellaensis* is separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters: Brownish iris; the upper lateral edge of the body has a well defined black upper edge, against a dark brown dorsum, this dark edge usually covering the upper part of the lateral flank and the tail, and always forming at least a thick black line, with the surface below this (the lower flanks) being brownish in colour this not being the case in all other species in the *A. maccoyi* species complex; upper surface of dorsum is peppered with tiny indistinct white spots.

*A. shireenhoserae* sp. nov. in life can be found depicted online at:

<https://www.inaturalist.org/observations/70630763>  
and

<https://www.inaturalist.org/observations/64470225>

*A. simonkortlangi* in life can be found depicted online at:

<https://www.inaturalist.org/observations/62548840>  
and

<https://www.inaturalist.org/observations/100638337>  
and

<https://www.inaturalist.org/observations/66599370>

*A. maccoyi* in life can be found depicted online at:

[https://www.flickr.com/photos/zimny\\_anders/49387622433/](https://www.flickr.com/photos/zimny_anders/49387622433/)  
and

[https://www.flickr.com/photos/zimny\\_anders/49387623978/](https://www.flickr.com/photos/zimny_anders/49387623978/)  
and

[https://www.flickr.com/photos/zimny\\_anders/49388301007/](https://www.flickr.com/photos/zimny_anders/49388301007/)  
and

<https://www.inaturalist.org/observations/39196571>  
and

<https://www.inaturalist.org/observations/41592421>  
and

<https://www.inaturalist.org/observations/39221867>  
and

<https://www.inaturalist.org/observations/35844959>

*A. sharmani* in life can be found depicted in Swan, Shea and Sadler (2004) on page 174, Swanson (2007) on page 185 at bottom and online at:

<https://www.inaturalist.org/observations/39139976>  
and

<https://www.inaturalist.org/observations/95233386>

and

<https://www.inaturalist.org/observations/2383151>  
and

<http://arod.net.au/arod/reptilia/Squamata/Scincidae/Anepischetosia/maccoyi>

*A. brindabellaensis* in life can be found depicted in Hoser (1989) on page 99 at top, or in Jenkins and Bartell (1980) at page 150 and online at:

<https://canberra.naturemapr.org/sightings/2727379>  
and

<https://canberra.naturemapr.org/sightings/4237846>

All five named species in the *A. maccoyi* species complex, including *A. maccoyi*, *A. shireenhoserae* sp. nov., *A. simonkortlangi* sp. nov., *A. sharmani* and *A. brindabellaensis*, which in total comprise the entirety of the genus *Anepischetosia* Wells and Wellington, 1985, are readily separated from all other Australasian skinks by the following unique combination of characters: Moderate limbs that just fail to meet when adpressed; supranasals absent; nasals are small, undivided and separated; prefrontals usually absent; parietal shields in contact behind the interparietal; lower eyelid is movable with a small transparent disc; tiny ear opening that is punctiform and distinct; preanals enlarged; limbs pentadactyle (modified from Cogger 2014).

**Distribution:** *A. shireenhoserae* sp. nov. has a distribution centred on the Otway Ranges of southern Victoria, effectively confined to this area, being an area bounded by the low clay and sand based hills to the west of Airey's Inlet in the East, these hills grading to clay or sand and being reduced to flat land east of Anglesea and including the rest of the extant Bellarine Peninsula, in turn being covered in basaltic lava flows to the north; the Gillibrand River to the west and north-west forms this boundary of the Otways, Bass strait in the south and a line from Torquay to Colac, across generally flat land and including basaltic lava flows in the north-east, complete the surrounding boundaries of the Otways.

The core of the Otway ranges is the Early Cretaceous Eumeralla Formation, dated at about 145 MYA to 100 MYA consisting of sandstones, siltstones, mudstones and similar sedimentary rocks, which combined with the steep slopes, higher altitude and southerly location, means the region is composed of heavily forested hills, with rock outcrops along watercourses, in stark contrast to the generally flat and dry areas to the north, east and west of these ranges (with much smaller trees and generally more sparse vegetation) and also south, when proximal parts of Bass Strait was largely exposed flat-lands (Miner and Rosengren, 2019).

**Etymology:** The species *A. shireenhoserae* sp. nov. is named in honour of my long suffering wife, Shireen Hoser, of Park Orchards, Victoria, Australia, originally from Athlone in South Africa in recognition of decades of services to herpetology in numerous ways.

**ANEPISCHETOSIA SIMONKORTLANGI SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:379E9427-AB4F-46DE-87D1-858E11553CE0**

**Holotype:** A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D14726 collected from Ink Bottle, Kentbruck, Victoria, Australia, Latitude -38.139 S., Longitude 141.285 E. This government-owned facility allows access to its holdings.

**Paratype:** A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D14727 collected from Ink Bottle, Kentbruck, Victoria, Australia, Latitude -38.139 S., Longitude 141.285 E.

**Diagnosis:** *Anepischetosia simonkortlangi* sp. nov. which until now has been treated as a population of *A. maccoyi* occurs between Burk's Island 7km East of Beachport, South Australia in the west, Warrnambool, Victoria in the east and the Grampians, Victoria in the north, also occurring within the Grampians, the



*Anepischetosia shireenhoserae* sp. nov. in life.

Top photo of dorsum and bottom photo showing venters of same specimens.

Photos: Raymond Hoser.



Hoser 2022 - Australasian Journal of Herpetology 56:3-21.

Available online at [www.herp.net](http://www.herp.net)

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Grampians as a biogeographic entity being defined elsewhere in this paper.

*Anepischetosia shireenhoserae* sp. nov. has also until now been treated as a population of the widespread putative species *Anepischetosia maccoyi* (Lucas and Frost, 1894). *A. shireenhoserae* sp. nov. is wholly confined to the Otway Ranges of Victoria as defined previously in this paper.

*A. simonkortlangi* sp. nov. is readily separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters:

Dull orange-yellow iris; a dorsum that is a light brownish-grey colour (as opposed to an obvious chocolate brown type of colour or dark greyish-brown in all other species); the upper lateral edge of the body has a well defined black upper edge, against a dark brown dorsum, this dark edge usually covering the upper part of the lateral flank and the tail, and always forming at least a thick black line, with the surface below this (lower flanks) being whitish in colour, this not being the case in all other species in the *A. maccoyi* species complex; upper surface of the head is unicolour, being the same lightish colour of the body or slightly darker with a grey hue, but no obvious peppering; upper surface of anterior tail, has two obvious rows of black dots running either side of the midline and two less well defined similar lines of black dots on the border of the upper surface and flank of the anterior tail; no distinct or indistinct white spots or flecks on the upper surface of the body; no red spots on the tail or body; upper labial region both in front of and behind the eye is a unicolour greyish.

*A. shireenhoserae* sp. nov. is separated from all other species within the *A. maccoyi* species complex, including *A. simonkortlangi* sp. nov., *A. maccoyi* (Lucas and Frost, 1894) from eastern Victoria, *A. sharmani* (Wells and Wellington, 1984) from the Illawarra Escarpment and *A. brindabellaensis* Wells and Wellington, 1985 from the Brindabella Ranges, west of Canberra on the border of the ACT and NSW, by the following unique suite of characters:

Iris red; venter yellow; spots forming two longitudinal stripes, orange-red in colour on either side of the upper surface of the tail; about four alternating and obvious, well-defined dark greyish, and light whitish bands on the lower labials; anterior of snout is light brown (versus a darker body).

*A. maccoyi* is separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters:

Iris is yellow-orange, rarely darker; venter light orange; large joined spots forming two longitudinal stripes, greyish-black in colour on either side of the upper surface of the tail; any red or whitish spots or marks on tail, are not part of any longitudinal lines and are otherwise scattered; lower labials are mainly greyish with a number of ill defined cream coloured spots or blotches or rarely barred; anterior of snout is heavily peppered grey

*A. sharmani* is separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters:

Iris is orange; venter variable in colour, but usually orange; except for a light yellow brown line running either side of the dorsum of the lower body onto the tail, there are no spots forming two longitudinal stripes that are different in colour than the rest of the upper surface of the tail; upper labials have two to four tiny white spots or bars, all fully encircled with dark brown, with the possible exception of the rear two, which sometimes extend under the chin; anterior of snout is dark brown with some peppering; the tail has irregularly scattered red spots, but these do not form longitudinal lines.

*A. brindabellaensis* is separated from all other species within the *A. maccoyi* species complex by the following unique suite of characters: Brownish iris; the upper lateral edge of the body has a well defined black upper edge, against a dark brown dorsum, this dark edge usually covering the upper part of the lateral flank

and the tail, and always forming at least a thick black line, with the surface below this (the lower flanks) being brownish in colour this not being the case in all other species in the *A. maccoyi* species complex; upper surface of dorsum is peppered with tiny indistinct white spots.

*A. shireenhoserae* sp. nov. in life can be found depicted online at:

<https://www.inaturalist.org/observations/70630763>  
and

<https://www.inaturalist.org/observations/64470225>

*A. simonkortlangi* in life can be found depicted online at:

<https://www.inaturalist.org/observations/62548840>  
and

<https://www.inaturalist.org/observations/100638337>  
and

and

<https://www.inaturalist.org/observations/66599370>

*A. maccoyi* in life can be found depicted online at:

[https://www.flickr.com/photos/zimny\\_anders/49387622433/](https://www.flickr.com/photos/zimny_anders/49387622433/)  
and

and

[https://www.flickr.com/photos/zimny\\_anders/49387623978/](https://www.flickr.com/photos/zimny_anders/49387623978/)  
and

and

[https://www.flickr.com/photos/zimny\\_anders/49388301007/](https://www.flickr.com/photos/zimny_anders/49388301007/)  
and

and

<https://www.inaturalist.org/observations/39196571>  
and

and

<https://www.inaturalist.org/observations/41592421>  
and

and

<https://www.inaturalist.org/observations/39221867>  
and

and

<https://www.inaturalist.org/observations/35844959>

*A. sharmani* in life can be found depicted in Swan, Shea and Sadler (2004) on page 174, Swanson (2007) on page 185 at bottom and online at:

<https://www.inaturalist.org/observations/39139976>  
and

and

<https://www.inaturalist.org/observations/95233386>  
and

and

<https://www.inaturalist.org/observations/2383151>  
and

and

<http://arod.net.au/arod/reptilia/Squamata/Scincidae/Anepischetosia/maccoyi>

*A. brindabellaensis* in life can be found depicted in Hoser (1989) on page 99 at top, or in Jenkins and Bartell (1980) at page 150 and online at:

<https://canberra.naturemapr.org/sightings/2727379>  
and

and

<https://canberra.naturemapr.org/sightings/4237846>

All five named species in the *A. maccoyi* species complex, including *A. maccoyi*, *A. shireenhoserae* sp. nov., *A. simonkortlangi* sp. nov., *A. sharmani* and *A. brindabellaensis*, which in total comprise the entirety of the genus *Anepischetosia* Wells and Wellington, 1985, are readily separated from all other Australasian skinks by the following unique combination of characters: Moderate limbs that just fail to meet when adpressed; supranasals absent; nasals are small, undivided and separated; prefrontals usually absent; parietal shields in contact behind the interparietal; lower eyelid is movable with a small transparent disc; tiny ear opening that is punctiform and distinct; preanals enlarged; limbs pentadactyle (modified from Cogger 2014).

**Distribution:** *Anepischetosia simonkortlangi* sp. nov. occurs between Burk's Island 7km East of Beachport, South Australia in the west, Warrnambool, Victoria in the east and the northern limits of the Grampians, Victoria in the north, this taxon also occurring within the Grampians, the Grampians as a biogeographic entity being defined elsewhere in this paper.



**Etymology:** *A. simonkortlangi* sp. nov. is named in honour of Simon Kortlang of South Yarra, Victoria, Australia, previously of Canterbury, Victoria, Australia in recognition of his services to herpetology.

In the 1980's and 1990's he was a prominent member of the Victorian Herpetological Society Incorporated at a time when draconian wildlife laws across Australia were being rewritten as a result of the publication of the "Smuggled" books (Hoser 1993 and Hoser 1996).

Besides successfully assisting in having laws changed in the State of Victoria to allow people to legally keep various species of native reptiles in captivity for the first time in decades, which is now taken for granted by many younger herpetologists, Kortlang also was the first to breed in large numbers, species and mutations of pythons now commonplace in captivity, including Top-end of Northern Territory form of Carpet Pythons. While many prominent Victorian herpetologists are effectively removed from the field of herpetology by corrupt government wildlife department officers seeking to remove potential competitors to their own employed "scientists" or their dysfunctional "zoo" businesses like "Zoos Victoria" (think of names like Fritz Maaten, Andy Stevens, Vicki Lowing, Rob Jealous, all of whom were removed from herpetology because they were "too successful"), Kortlang was effectively removed from herpetology by an unusual set of circumstances. This was a series of medical disasters leading to removal of much of his digestive tract and unrelated medical issues causing him to have near total blindness, thereby effectively terminating his ability to keep reptiles or work with them, or to publish on them.

**PSEUDEMOIA DANIELMANNIXI SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:A89B6C20-2274-4BAE-BCD0-06E10E485F2F**

**Holotype:** A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D13621 collected from Mount Sabine, Otway Ranges, Victoria, Australia, Latitude -38.62 S. Longitude 143.73 E. This government facility allows access to its holdings.

**Paratypes:** Nine preserved specimens at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen numbers D13622-30 collected from Mount Sabine, Otway Ranges, Victoria, Australia, Latitude -38.62 S. Longitude 143.73 E.

**Diagnosis:** Until now, all of *Pseudemoia spenceri* (Lucas and Frost, 1894), *P. weekesae* (Kinghorn, 1929), *P. danielmannixi* sp. nov., *P. mcnamarai* sp. nov. and *P. davidkerryi* sp. nov. have been regarded by virtually all herpetologists as being of a single species, namely *P. spenceri*.

Within the last 50 years the only exception to this has been Wells and Wellington (1985), who resurrected from synonymy *P. weekesae*, but did not publish a reason for doing so.

No herpetologist, published or otherwise, had prior to the publication of this paper countenanced the possibility of further unnamed species within *Pseudemoia* Fuhn, 1967 *sensu stricto* other than myself immediately prior to the publication of this paper.

This is surprising as the molecular phylogeny of Haines *et al.* (2014) at Fig. 3, provided excellent evidence that there was in fact at least 3 species in the genus, based on just three divergent samples, these representing the nominate form of *P. spenceri*, as well as *P. weekesae* and the form described herein as *P. davidkerryi* sp. nov..

The biogeographical event of a biblical scale, being the volcanism in western Victoria, peaking 3-5 MYA, clearly isolated the two main west Victorian populations a long time ago, allowing for significant morphological divergence to occur, with the divergence clearly sufficient to make these forms separate allopatric species.

The five species formally treated as *Pseudemoia spenceri* (Lucas and Frost, 1894), are as follows:

1/ *Pseudemoia spenceri* (Lucas and Frost, 1894), is confined to

the highlands east of Melbourne in eastern Victoria, generally south and west of what is now Lake Eildon.

2/ *P. weekesae* (Kinghorn, 1929) is confined to the Snowy Mountains region of New South Wales and possibly adjacent parts of far north-east Victoria. The lizards of this putative taxon found in the Brindabella Ranges are morphologically similar to the type form and are herein tentatively referred to the same species.

3/ *P. danielmannixi* sp. nov. is effectively confined to the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

4/ *P. mcnamarai* sp. nov. occurs in the Grampians as defined elsewhere in this paper and east of there in the large hills north of Ararat, in western Victoria (e.g. Mount Buangor State Park).

5/ *P. davidkerryi* sp. nov. is the taxon from the western edge of the Blue Mountains and nearby areas. Specimens from the Illawarra escarpment are also tentatively referred to this species.

The five species are readily separated from one another by the following unique suites of characters:

1/ *P. spenceri* is readily separated from the four other species by the following unique combination of characters:

Dorsum that in the mid line section is clearly marbled in markings, colouration and texture (this marbling not being seen in any of the other species), being more brown than blackish; there is a thick, well defined and unbroken cream stripe running down each side of the upper surface at the interface between dorsum and flanks (slightly broken rarely); flanks blackish with numerous small cream spots of irregular shape; no obvious barring or markings on the upper labials; black or grey peppering on head is heavy, and may join to form blotches.

2/ *P. weekesae* (Kinghorn, 1929) is readily separated from the four other species by the following unique suite of characters:

A dorsum that is mainly blackish in colour, with a concentration of medium brown spots or whitish spots running down the mid section of the spine (occasionally with a distinctive cream mid-dorsal stripe); a thin, but well defined whitish yellow line running on either side of the dorsum on the interface between the upper surface and the flanks; the flanks themselves are mainly black, but with a small number of tiny brown spots on the anterior end of the body; spots or markings on the labials are small and barely noticeable; snout anterior to the eyes is noticeably lighter and a mainly light brown colour with limited speckling or flecks.

3/ *P. danielmannixi* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Well defined barring on the upper labials; dorsum is about 50 percent creamish, versus not so in the other species; the upper surface is then overlain with black, in turn with numerous creamish spots throughout; the midline is creamish, as is the two lines on either side of the dorsum, bounding the flanks; all markings on the dorsum are clear and not marbled in nature; flanks are black, but with well defined creamish spots from anterior to posterior of the body; head is brown and boldly peppered black; a distinctive blackish triangle between nostril and eye, the widest point near the eye; markings on the upper surfaces of the forelimbs are not in the form of white spots.

4/ *P. mcnamarai* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Main surface of flanks are black and without any obvious spotting or flecks (rarely with distinct flecks); forelimbs with white spots; dorsum is mainly black, but with well defined cream spots in the black area; the upper surface of the head is all or mainly black; body stripes, including those on the upper flank/dorsum interface and lower flank are white or whitish, well-defined and continuous. Upper labials creamish and without barring.

5/ *P. davidkerryi* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Brown head and upper neck (peppered black), rapidly transforming (at the back of the skull) to a black upper body with numerous evenly scattered, distinct, tiny white spots throughout,

the same colouration being on the flanks and the limbs, with the body stripes reduced so as to be barely distinguishable from the other areas, meaning that the stripe between upper surface of dorsum and upper flank is wholly broken up and consists of little more than spotting in the same way as other areas of the dorsum, or if the dorso-lateral lines are present they are either thin, indistinct, or broken..

This colouration of the dorsum, gives this species a very different appearance to all the other four species.

Flanks in some specimens lacks white spotting, but the dorsum remains as just described.

The white spotting is not on the head, which is light brown and peppered black. Upper surfaces of the limbs are black with distinct white spots.

*P. spenceri* in life is depicted online at:

<https://www.flickr.com/photos/whawha88/17093355776/>  
and

<https://www.inaturalist.org/observations/39222713>  
and

<https://www.inaturalist.org/observations/70133372>  
and

<https://www.inaturalist.org/observations/28985995>

*P. weekesae* in life is depicted in Hoser (1989) on page 106 at top left, Jenkins and Bartell (180) on page 183, Swanson (2007) on page 190, Cogger (2014) on page 676 at bottom right and online at:

<https://www.inaturalist.org/observations/8760539>

and

<https://www.flickr.com/photos/bumblebc/5992749933/>

*P. danielmannixi* sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/92214028>

and

<https://www.inaturalist.org/observations/66038997>

and

<https://www.inaturalist.org/observations/92042681>

and

<https://www.inaturalist.org/observations/68794018>

and

<https://www.inaturalist.org/observations/71178461>

*P. mcnamarai* sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/190014189@N06/51745004112/>

and

<https://www.inaturalist.org/observations/58403164>

and

<https://www.inaturalist.org/observations/91237112>

and

<https://www.inaturalist.org/observations/84210421>

and

<https://www.inaturalist.org/observations/103038172>

*P. davidkerryi* sp. nov. is depicted in life in Swan, Shea and

Sadler (2004) on page 183 and online at:

<https://www.inaturalist.org/observations/65398425>

The Pedra Branca Skink, *Pseudemoia palfreymani* Rawlinson, 1974 is separated from the preceding five species by having fused as opposed to separate frontoparietals.

*P. palfreymani* is depicted in life in Hoser (1991) on page 93 top.

The genus *Pseudemoia* Fuhn, 1967, *sensu stricto*, as defined herein, was diagnosed by Rawlinson (1974), and is confined to the six preceding species.

That diagnosis is adopted herein with minor refinement.

The six species within *Pseudemoia* Fuhn, 1967 are separated from all other Australasian skinks, including morphologically similar species at times included in this genus by the following unique suite of characters:

They are small to moderately large skinks (snout-vent length 2-

4-8-5 cm), head and body flattened, tail round. Limbs pentadactyl, well developed and overlap when adpressed. Digits not elongate, 20-28 lamellae under the fourth toe, palmar tubercles flattened. Body scales small, smooth, the dorsal and lateral scales with 3-5 very faint keels, midbody scales in 37-48 rows. Lower eyelid moveable with a well developed transparent palpebral disc surrounded by small granular scales. External ear opening moderately large with 2-4 enlarged anterior lobules. A pair of supranasal scales invariably present, separated medially by the frontonasal. A small postnasal is present, normally fused to the supranasal scale (always present) in *P. spenceri* (85% of the time based on Rawlinson, 1974) but free in all *P. palfreymani* Rawlinson, 1974 specimens examined by Rawlinson (1974). Prefrontals enlarged but barely contact or fail to contact along the midline. Frontoparietals are separate in all species except for *P. palfreymani* in which they are fused. Interparietal always separate. Parietals large and meet along midline.

**Distribution:** *P. danielmannixi* sp. nov. is effectively confined to the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

**Etymology:** Named in honour of Daniel Mannix of Sunbury, Victoria, Australia (as of 2021), owner and director of the Victorian Dog Training Academy ® (VDTA), who has saved the lives of countless dogs working with Snakebusters: Australia's best reptiles ® with world first Snake Avoidance ® training, using vet certified de venomized snakes (venomoids), being the only people in Australia offering such training to save the lives of dogs.

Unlike fake Snake Avoidance training offered by trademark infringing thieves using non-venomous pythons, who continue to operate in Australia in breach of multiple court orders, Snake Avoidance ® training using the exact venomous species likely to kill dogs does in fact work!

The Snake Avoidance ® training does not just save dogs lives, but also the lives of the snakes that would otherwise be attacked and killed by people's domestic pets.

Hence Daniel Mannix is being honoured for his major contribution to the conservation of reptiles!

**PSEUDEMOIA MCNAMARAI SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:93C59DF7-3C04-4F1D-80F9-CC0B35838FD5**

**Holotype:** A preserved adult male specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D56382 collected from the Grampians, Victoria, Australia, Latitude -37.12 S., Longitude 142.43 E. This government facility allows access to its holdings.

**Paratype:** A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D56383 collected from the Grampians, Victoria, Australia, Latitude -37.12 S., Longitude 142.43 E.

**Diagnosis:** Until now, all of *Pseudemoia spenceri* (Lucas and Frost, 1894), *P. weekesae* (Kingham, 1929), *P. danielmannixi* sp. nov., *P. mcnamarai* sp. nov. and *P. davidkerryi* sp. nov. have been regarded by virtually all herpetologists as being of a single species, namely *P. spenceri*.

Within the last 50 years the only exception to this has been Wells and Wellington (1985), who resurrected from synonymy *P. weekesae*, but did not publish a reason for doing so.

No herpetologist, published or otherwise, had prior to the publication of this paper countenanced the possibility of further unnamed species within *Pseudemoia* Fuhn, 1967 *sensu stricto* other than myself immediately prior to the publication of this paper.

This is surprising as the molecular phylogeny of Haines *et al.* (2014) at Fig. 3, provided excellent evidence that there was in fact at least 3 species in the genus, based on just three divergent samples, these representing the nominate form of *P. spenceri*, as well as *P. weekesae* and the form described herein as *P. davidkerryi* sp. nov..

The biogeographical event of a biblical scale, being the volcanism in western Victoria, peaking 3-5 MYA, clearly isolated the two main west Victorian populations a long time ago, allowing for significant morphological divergence to occur, with the divergence clearly sufficient to make these forms separate allopatric species.

The five species formally treated as *Pseudemoia spenceri* (Lucas and Frost, 1894), are as follows:

1/ *Pseudemoia spenceri* (Lucas and Frost, 1894), is confined to the highlands east of Melbourne in eastern Victoria, generally south and west of what is now Lake Eildon.

2/ *P. weekesae* (Kinghorn, 1929) is confined to the Snowy Mountains region of New South Wales and possibly adjacent parts of far north-east Victoria. The lizards of this putative taxon found in the Brindabella Ranges are morphologically similar to the type form and are herein tentatively referred to the same species.

3/ *P. danielmannixi* sp. nov. is effectively confined to the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

4/ *P. mcnamarai* sp. nov. occurs in the Grampians as defined elsewhere in this paper and east of there in the large hills north of Ararat, in western Victoria (e.g. Mount Buangor State Park).

5/ *P. davidkerryi* sp. nov. is the taxon from the western edge of the Blue Mountains and nearby areas. Specimens from the Illawarra escarpment are also tentatively referred to this species.

The five species are readily separated from one another by the following unique suites of characters:

1/ *P. spenceri* is readily separated from the four other species by the following unique suite of characters:

Dorsum that in the mid line section is clearly marbled in markings, colouration and texture (this marbling not being seen in any of the other species), being more brown than blackish; there is a thick, well defined and unbroken cream stripe running down each side of the upper surface at the interface between dorsum and flanks (slightly broken rarely); flanks blackish with numerous small cream spots of irregular shape; no obvious barring or markings on the upper labials; black or grey peppering on head is heavy, that may join to form blotches.

2/ *P. weekesae* (Kinghorn, 1929) is readily separated from the four other species by the following unique suite of characters:

A dorsum that is mainly blackish in colour, with a concentration of medium brown spots or whitish spots running down the mid section of the spine (occasionally with a distinctive cream mid-dorsal stripe); a thin, but well defined whitish yellow line running on either side of the dorsum on the interface between the upper surface and the flanks; the flanks themselves are mainly black, but with a small number of tiny brown spots on the anterior end of the body; spots or markings on the labials are small and barely noticeable; snout anterior to the eyes is noticeably lighter and a mainly light brown colour with limited speckling or flecks.

3/ *P. danielmannixi* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Well defined barring on the upper labials; dorsum is about 50% creamish, versus not so in the other species; the upper surface is then overlain with black, in turn with numerous creamish spots throughout; the midline is creamish, as is the two lines on either side of the dorsum, bounding the flanks; all markings on the dorsum are clear and not marbled in nature; flanks are black, but with well defined creamish spots from anterior to posterior of the body; head is brown and boldly peppered black; a distinctive blackish triangle between nostril and eye, the widest point near the eye; markings on the upper surfaces of the forelimbs are not in the form of white spots.

4/ *P. mcnamarai* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Main surface of flanks are black and without any obvious spotting or flecks (rarely with distinct flecks); forelimbs with white spots; dorsum is mainly black, but with well defined cream spots

in the black area; the upper surface of the head is all or mainly black; body stripes, including those on the upper flank/dorsum interface and lower flank are white or whitish, well-defined and continuous. Upper labials creamish and without barring.

5/ *P. davidkerryi* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Brown head and upper neck (peppered black), rapidly transforming (at the back of the skull) to a black upper body with numerous evenly scattered, distinct, tiny white spots throughout, the same colouration being on the flanks and the limbs, with the body stripes reduced so as to be barely distinguishable from the other areas, meaning that the stripe between upper surface of dorsum and upper flank is wholly broken up and consists of little more than spotting in the same way as other areas of the dorsum, or if the dorso-lateral lines are present they are either thin, indistinct, or broken..

This colouration of the dorsum, gives this species a very different appearance to all the other four species.

Flanks in some specimens lacks white spotting, but the dorsum remains as just described

The white spotting is not on the head, which is light brown and peppered black. Upper surfaces of the limbs are black with distinct white spots.

*P. spenceri* in life is depicted online at:

<https://www.flickr.com/photos/whawha88/17093355776/> and

<https://www.inaturalist.org/observations/39222713> and

<https://www.inaturalist.org/observations/70133372> and

<https://www.inaturalist.org/observations/28985995>

*P. weekesae* in life is depicted in Hoser (1989) on page 106 at top left, Jenkins and Bartell (180) on page 183, Swanson (2007) on page 190, Cogger (2014) on page 676 at bottom right and online at:

<https://www.inaturalist.org/observations/8760539>

and

<https://www.flickr.com/photos/bumblebc/5992749933/>

*P. danielmannixi* sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/92214028>

and

<https://www.inaturalist.org/observations/66038997>

and

<https://www.inaturalist.org/observations/92042681>

and

<https://www.inaturalist.org/observations/68794018>

and

<https://www.inaturalist.org/observations/71178461>

*P. mcnamarai* sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/190014189@N06/51745004112/>

and

<https://www.inaturalist.org/observations/58403164>

and

<https://www.inaturalist.org/observations/91237112>

and

<https://www.inaturalist.org/observations/84210421>

and

<https://www.inaturalist.org/observations/103038172>

*P. davidkerryi* sp. nov. is depicted in life in Swan, Shea and Sadlier (2004) on page 183 and online at:

<https://www.inaturalist.org/observations/65398425>

The Pedra Branca Skink, *Pseudemoia palfreymani* Rawlinson, 1974 is separated from the preceding five species by having fused as opposed to separate frontoparietals.

*P. palfreymani* is depicted in life in Hoser (1991) on page 93 top.

The genus *Pseudemoia* Fuhn, 1967, *sensu stricto*, as defined herein, was diagnosed by Rawlinson (1974), and is confined to the six preceding species.

That diagnosis is adopted herein with minor refinement.

The six species within *Pseudemoia* Fuhn, 1967 are separated from all other Australasian skinks, including morphologically similar species at times included in this genus by the following unique suite of characters:

They are small to moderately large skinks (snout-vent length 2-4-8-5 cm), head and body flattened, tail round. Limbs pentadactyl, well developed and overlap when adpressed. Digits not elongate, 20-28 lamellae under the fourth toe, palmar tubercles flattened. Body scales small, smooth, the dorsal and lateral scales with 3-5 very faint keels, midbody scales in 37-48 rows. Lower eyelid moveable with a well developed transparent palpebral disc surrounded by small granular scales. External ear opening moderately large with 2-4 enlarged anterior lobules. A pair of supranasal scales invariably present, separated medially by the frontonasal. A small postnasal is present, normally fused to the supranasal scale (always present) in *P. spenceri* (85% of the time based on Rawlinson, 1974) but free in all *P. palfreymani* Rawlinson, 1974 specimens examined by Rawlinson (1974). Prefrontals enlarged but barely contact or fail to contact along the midline. Frontoparietals are separate in all species except for *P. palfreymani* in which they are fused. Interparietal always separate. Parietals large and meet along midline.

**Distribution:** *P. mcnamarai* sp. nov. occurs in the Grampians as defined elsewhere in this paper and east of there in the large hills north of Ararat, in western Victoria (e.g. Mount Buangor State Park).

**Etymology:** Named in honour of Benny McNamara of Colac Victoria, Australia who in 2021 was operating a snake rescue service (Snake Catcher Colac), in recognition of his services to reptile conservation in Australia.

**PSEUDEMOIA DAVIDKERRYI SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:E74394F6-11F4-4512-9C1A-4E74F8DD1501**

**Holotype:** A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R1860 collected from the Jenolan Caves area, Blue Mountains, New South Wales, Australia, Latitude -33.816 S., Longitude 150.033 E. This government owned facility allows access to its holdings. The specimen was listed as a paratype for the species *Lygosoma (Leiopolisma) weekesae* Kinghorn, 1929 with a holotype specimen number R9745 in the Australian Museum, Sydney, Australia, collected from Mount Kosciusko (at 1,680 m elevation), NSW, Australia, collected by R. Helms in May 1889 (Rawlinson, 1974).

**Paratypes:** 34 preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.149680-R.149694, R.149696-R.149705, R.149707-R.149708 and R.149710-R.149716 all collected from Hollanders Creek on Kanangra Rd, 15km North of Morong Creek in Kanangra Boyd National Park, New South Wales, Australia, Latitude -33.816 S., Longitude 150.033 E.

**Diagnosis:** Until now, all of *Pseudemoia spenceri* (Lucas and Frost, 1894), *P. weekesae* (Kinghorn, 1929), *P. danielmannixi* sp. nov., *P. mcnamarai* sp. nov. and *P. davidkerryi* sp. nov. have been regarded by virtually all herpetologists as being of a single species, namely *P. spenceri*.

Within the last 50 years the only exception to this has been Wells and Wellington (1985), who resurrected from synonymy *P. weekesae*, but did not publish a reason for doing so.

No herpetologist, published or otherwise, had prior to the publication of this paper countenanced the possibility of further unnamed species within *Pseudemoia* Fuhn, 1967 *sensu stricto* other than myself immediately prior to the publication of this paper.

This is surprising as the molecular phylogeny of Haines *et al.*

(2014) at Fig. 3, provided excellent evidence that there was in fact at least 3 species in the genus, based on just three divergent samples, these representing the nominate form of *P. spenceri*, as well as *P. weekesae* and the form described herein as *P. davidkerryi* sp. nov..

The biogeographical event of a biblical scale, being the volcanism in western Victoria, peaking 3-5 MYA, clearly isolated the two main west Victorian populations a long time ago, allowing for significant morphological divergence to occur, with the divergence clearly sufficient to make these forms separate allopatric species.

The five species formally treated as *Pseudemoia spenceri* (Lucas and Frost, 1894), are as follows:

1/ *Pseudemoia spenceri* (Lucas and Frost, 1894), is confined to the highlands east of Melbourne in eastern Victoria, generally south and west of what is now Lake Eildon.

2/ *P. weekesae* (Kinghorn, 1929) is confined to the Snowy Mountains region of New South Wales and possibly adjacent parts of far north-east Victoria. The lizards of this putative taxon found in the Brindabella Ranges are morphologically similar to the type form and are herein tentatively referred to the same species.

3/ *P. danielmannixi* sp. nov. is effectively confined to the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

4/ *P. mcnamarai* sp. nov. occurs in the Grampians as defined elsewhere in this paper and east of there in the large hills north of Ararat, in western Victoria (e.g. Mount Buangor State Park).

5/ *P. davidkerryi* sp. nov. is the taxon from the western edge of the Blue Mountains and nearby areas. Specimens from the Illawarra escarpment are also tentatively referred to this species.

The five species are readily separated from one another by the following unique suites of characters:

1/ *P. spenceri* is readily separated from the four other species by the following unique suite of characters:

Dorsum that in the mid line section is clearly marbled in markings, colouration and texture (this marbling not being seen in any of the other species), being more brown than blackish; there is a thick, well defined and unbroken cream stripe running down each side of the upper surface at the interface between dorsum and flanks (slightly broken rarely); flanks blackish with numerous small cream spots of irregular shape; no obvious barring or markings on the upper labials; black or grey peppering on head is heavy, which sometimes join to form blotches.

2/ *P. weekesae* (Kinghorn, 1929) is readily separated from the four other species by the following unique suite of characters:

A dorsum that is mainly blackish in colour, with a concentration of medium brown spots or whitish spots running down the mid section of the spine (occasionally with a distinctive cream mid-dorsal stripe); a thin, but well defined whitish yellow line running on either side of the dorsum on the interface between the upper surface and the flanks; the flanks themselves are mainly black, but with a small number of tiny brown spots on the anterior end of the body; spots or markings on the labials are small and barely noticeable; snout anterior to the eyes is noticeably lighter and a mainly light brown colour with limited speckling or flecks.

3/ *P. danielmannixi* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Well defined barring on the upper labials; dorsum is about 50% creamish, versus not so in the other species; the upper surface is then overlain with black, in turn with numerous creamish spots throughout; the midline is creamish, as is the two lines on either side of the dorsum, bounding the flanks; all markings on the dorsum are clear and not marbled in nature; flanks are black, but with well defined creamish spots from anterior to posterior of the body; head is brown and boldly peppered black; a distinctive blackish triangle between nostril and eye, the widest point near the eye; markings on the upper surfaces of the forelimbs are not in the form of white spots.

4/ *P. mcnamarai* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Main surface of flanks are black and without any obvious spotting or flecks (rarely with distinct flecks); forelimbs with white spots; dorsum is mainly black, but with well defined cream spots in the black area; the upper surface of the head is all or mainly black; body stripes, including those on the upper flank/dorsum interface and lower flank are white or whitish, well-defined and continuous. Upper labials creamish and without barring.

5/ *P. davidkerryi* sp. nov. is readily separated from the four other species by the following unique suite of characters:

Brown head and upper neck (peppered black), rapidly transforming (at the back of the skull) to a black upper body with numerous evenly scattered, distinct, tiny white spots throughout, the same colouration being on the flanks and the limbs, with the body stripes reduced so as to be barely distinguishable from the other areas, meaning that the stripe between upper surface of dorsum and upper flank is wholly broken up and consists of little more than spotting in the same way as other areas of the dorsum, or if the dorso-lateral lines are present they are either thin, indistinct, or broken..

This colouration of the dorsum, gives this species a very different appearance to all the other four species.

Flanks in some specimens lacks white spotting, but the dorsum remains as just described

The white spotting is not on the head, which is light brown and peppered black. Upper surfaces of the limbs are black with distinct white spots.

*P. spenceri* in life is depicted online at:

<https://www.flickr.com/photos/whawha88/17093355776/>

and

<https://www.inaturalist.org/observations/39222713>

and

<https://www.inaturalist.org/observations/70133372>

and

<https://www.inaturalist.org/observations/28985995>

*P. weekesae* in life is depicted in Hoser (1989) on page 106 at top left, Jenkins and Bartell (180) on page 183, Swanson (2007) on page 190, Cogger (2014) on page 676 at bottom right and online at:

<https://www.inaturalist.org/observations/8760539>

and

<https://www.flickr.com/photos/bumblebc/5992749933/>

*P. danielmannixi* sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/92214028>

and

<https://www.inaturalist.org/observations/66038997>

and

<https://www.inaturalist.org/observations/92042681>

and

<https://www.inaturalist.org/observations/68794018>

and

<https://www.inaturalist.org/observations/71178461>

*P. mcnamarai* sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/190014189@N06/51745004112/>

and

<https://www.inaturalist.org/observations/58403164>

and

<https://www.inaturalist.org/observations/91237112>

and

<https://www.inaturalist.org/observations/84210421>

and

<https://www.inaturalist.org/observations/103038172>

*P. davidkerryi* sp. nov. is depicted in life in Swan, Shea and Sadler (2004) on page 183 and online at:

<https://www.inaturalist.org/observations/65398425>

The Pedra Branca Skink, *Pseudemoia palfreymani* Rawlinson, 1974 is separated from the preceding five species by having fused as opposed to separate frontoparietals.

*P. palfreymani* is depicted in life in Hoser (1991) on page 93 at the top.

The genus *Pseudemoia* Fuhn, 1967, *sensu stricto*, as defined herein, was diagnosed by Rawlinson (1974), and is confined to the six preceding species.

That diagnosis is adopted herein with minor refinement.

The six species within *Pseudemoia* Fuhn, 1967 are separated from all other Australasian skinks, including morphologically similar species at times included in this genus by the following unique suite of characters:

They are small to moderately large skinks (snout-vent length 2-4-8-5 cm), head and body flattened, tail round. Limbs pentadactyl, well developed and overlap when adpressed. Digits not elongate, 20-28 lamellae under the fourth toe, palmar tubercles flattened. Body scales small, smooth, the dorsal and lateral scales with 3-5 very faint keels, midbody scales in 37-48 rows. Lower eyelid moveable with a well developed transparent palpebral disc surrounded by small granular scales. External ear opening moderately large with 2-4 enlarged anterior lobules. A pair of supranasal scales invariably present, separated medially by the frontonasal. A small postnasal is present, normally fused to the supranasal scale (always present) in *P. spenceri* (85% of the time based on Rawlinson, 1974) but free in all *P. palfreymani* Rawlinson, 1974 specimens examined by Rawlinson (1974). Prefrontals enlarged but barely contact or fail to contact along the midline. Frontoparietals are separate in all species except for *P. palfreymani* in which they are fused. Interparietal always separate. Parietals large and meet along midline.

**Distribution:** *P. davidkerryi* sp. nov. occurs on the western edge of the Blue Mountains and nearby areas. Specimens from the Illawarra escarpment are also tentatively referred to this species.

**Etymology:** Named in honour of David Kerry, who in 2021 lived in Carlton, Victoria, but who spent time in New South Wales, Queensland and the Northern Territory in recognition of decades of work in herpetology in Australia, including for example assisting in the sourcing of reptiles to photograph for the book *Australian Reptiles and Frogs*, published in 1989 (Hoser, 1989).

**MCPHIEUS GEN. NOV.**

**LSIDurn:lsid:zoobank.org:act:0E1BF95D-48D5-4E51-B7D5-A33B89A95D1C**

**Type species:** *Mcphieus hadynmcpchiei* sp. nov.

**Diagnosis:** The five species within the genus *Mcphieus* gen. nov. are readily separated from all other species of Australian skink by the following unique suite of characters: small, active diurnal, smooth-scaled skinks characterised by: well developed pentadactyle limbs that meet or overlap when adpressed, or which fail to meet by no more than one or two scale-lengths; ear opening prominent with anterior lobules present; supranasals present or absent; parietal shields in contact behind the interparietal; distinct frontoparietals; movable lower eyelids with a transparent disc being almost as large as the eye; 23-30 mid-body rows; less than 30 lamellae under the fourth toe; a pale dorso-lateral stripe (usually, but not always) distinct on the third scale row of the midline of the back being a part of a distinctive pattern of light and dark stripes.

Species within the closely related genus *Pseudemoia* Fuhn, 1967 are similar in most respects to *Mcphieus* gen. nov., but readily separated from that genus by the presence of 37-48 mid-body scale rows (vs 23-30 in *Mcphieus* gen. nov.) as well as always having supranasal scales present, no distinct frontoparietals and a flattened body.

Species within the closely related genus *Claireascincus* Wells and Wellington, 1985 are readily separated from both preceding genera by having 26-34 mid-body rows, no distinct frontoparietals and a pale dorso-lateral stripe on the fourth, or third and fourth scale row from the midline of the back.

**Distribution:** Southern Australia along the coastal fringe extending east from eastern Western Australia extending through southern South Australia to north-east Tasmania, north-east Victoria, south-east New South Wales and the western Australian Capital Territory.

**Etymology:** *Mcphieus gen. nov.* is named in honour of Hadyn McPhie of Mirboo North in Gippsland, Victoria, Australia in recognition of a lifetime's services to herpetology. Other species named in his honour have had different spellings in the epithet, but in this case the species name for *Mcphieus hadynmcpheii sp. nov.*, reflects the unusual and correct spelling of his name. None of the previous names as formally proposed by myself relevant to Hadyn McPhie should have their spellings altered.

**Content:** *Mcphieus hadynmcpheii sp. nov.* (type species); *M. baudini* (Greer, 1982); *M. michaelmatheri sp. nov.*; *M. rawlinsoni* (Hutchinson and Donnellan, 1988); *M. scottgranti sp. nov.*

**MCPHIEUS HADYNMCPHIEI SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:7E9F5477-EB17-4820-A783-74A7C8DFB65B**

**Holotype:** A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R53777 collected from 9 km south west of Millicent, South Australia, Australia, Latitude -37.6333 S., Longitude 140.275 E. This government-owned facility allows access to its holdings.

**Paratypes:** Four preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, specimen numbers R49585, R49589, R49590 and R49594 all collected from 20 km west, north-west of Millicent Airport, South Australia, Australia, Latitude -37.5072 S., Longitude 140.1492 E.

**Diagnosis:** Until now, each of *Mcphieus hadynmcpheii sp. nov.*, *M. rawlinsoni* (Hutchinson and Donnellan, 1988) and *M. michaelmatheri sp. nov.* had all been treated as the single species originally described as "*Leiopisma rawlinsoni* Hutchinson and Donnellan, 1988", but since placed in the genus *Pseudemoia* Fuhn, 1967 by Hutchinson *et al.* (1990), with a type species: *Lygosoma (Eomoia) spenceri* Lucas and Frost, 1894 by all publishing authors since.

Exceptional to the preceding has been the placement of the putative species in *Claireascincus* Wells and Wellington, 1985, type species, *Lygosoma entrecasteauxii* Duméril and Bibron, 1839 by Wells and Wellington (1985) and by Dr. Allen E. Greer in an online database of Australian skinks published in year 2020 (available online at: [https://docplayer.net/61329515-Encyclopedia-of-australian-reptiles-allen-e-greer-herpetology-section-australian-museum-introduction.html#show\\_full\\_text](https://docplayer.net/61329515-Encyclopedia-of-australian-reptiles-allen-e-greer-herpetology-section-australian-museum-introduction.html#show_full_text)).

*Mcphieus hadynmcpheii sp. nov.* is restricted to Lake Hawdon, South Australia, Australia, Latitude 37.2249 S., Longitude 139.9469 E. in the west, along the coast and near coastal areas east to the western edge of the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

*M. rawlinsoni* (Hutchinson and Donnellan, 1988), type locality near Bunyip, about 80 km south-east of Melbourne, Victoria, is confined to Victoria, east of Geelong on Port Phillip Bay to coastal eastern Victoria at Croajingolong National Park, with the species being most commonly found in the region between the Mornington Peninsula and Orbost, especially in coastal and near coastal areas.

Tasmanian specimens are also assigned to this species.

*M. michaelmatheri sp. nov.* occurs in the Snowy Mountains of New South Wales, immediately adjacent parts of north-east Victoria in the high country and the Brindabella Ranges on the border of the Australian Capital Territory and New South Wales.

*Mcphieus hadynmcpheii sp. nov.* is separated from the other two species *M. rawlinsoni* (Hutchinson and Donnellan, 1988) and *M. michaelmatheri sp. nov.* by the fact that the brownish-red upper lateral stripe is not bordered with black at the upper margin, versus is, for the other two species, or if so, only intermittently and not continuously as in the other two species (including as seen in the images of this taxon cited elsewhere in this

description).

In *M. hadynmcpheii sp. nov.* the anterior of the upper surface of the head is a beige-brown colour, versus medium brown in *M. rawlinsoni* and a reddish brown colour in *M. michaelmatheri sp. nov.*

*M. hadynmcpheii sp. nov.* has a beige iris versus dull orange in *M. rawlinsoni* and bright orange in *M. michaelmatheri sp. nov.*

For both *M. hadynmcpheii sp. nov.* and *M. rawlinsoni* the anterior extension of the light stripe that separates the dorsum and lateral surface (on each side) extends to about the level of the ear opening, but in *M. michaelmatheri sp. nov.* it does not come close to this point, instead terminating significantly further back.

In both *M. hadynmcpheii sp. nov.* and *M. rawlinsoni* the upper labials are significantly lighter than the scales on the upper surface of the snout, versus usually not so in *M. michaelmatheri sp. nov.*

*M. michaelmatheri sp. nov.* is most readily separated from the two other preceding species by the fact that the blackish striped scales on the body have a lighter etching on both anterior and posterior edges, versus not so in the other species. Exceptional to this is the vertebral line that does not have this etching on the scales.

*M. michaelmatheri sp. nov.* has an orange iris, versus beige in *M. hadynmcpheii sp. nov.* and light orange to brownish-grey in *M. rawlinsoni*.

The three preceding species are separated from *M. baudini* (Greer, 1982) and *M. scottgranti sp. nov.* by the absence of supranasal scales (versus presence in *M. baudini* and *M. scottgranti sp. nov.*).

In both *M. baudini* and *M. scottgranti sp. nov.* the nasal is separated posteriorly from the postnasal by a well developed suture, although this is often reduced to some extent in *M. scottgranti sp. nov.* There is no such suture in any of *M. hadynmcpheii sp. nov.*, *M. rawlinsoni* or *M. michaelmatheri sp. nov.*

*M. baudini* can be separated from *M. scottgranti sp. nov.* by its broadly meeting prefrontals and the position of the dorsolateral and lateral light stripes. In *M. scottgranti sp. nov.* the white line on the lower flank is two scales wide, versus 1-1.5 scales wide in *M. baudini*. The broad dark lateral stripe is distinct anteriorly as far as the rear of the eye in *M. baudini*, versus not so in *M. scottgranti sp. nov.*

The five species within the genus *Mcphieus gen. nov.* are readily separated from all other species of Australian skink by the following unique suite of characters: small, active diurnal, smooth-scaled skinks characterised by: well developed pentadactyle limbs that meet or overlap when adpressed, or which fail to meet by no more than one or two scale-lengths; ear opening prominent with anterior lobules present; supranasals present or absent; parietal shields in contact behind the interparietal; distinct frontoparietals; movable lower eyelids with a transparent disc being almost as large as the eye; 23-30 mid-body rows; less than 30 lamellae under the fourth toe; a pale dorso-lateral stripe (usually, but not always distinct) on the third scale row of the midline of the back being a part of a distinctive pattern of light and dark stripes.

Species within the closely related genus *Pseudemoia* Fuhn, 1967 are similar in most respects to *Mcphieus gen. nov.*, but readily separated from that genus by the presence of 37-48 mid-body scale rows (vs 23-30 in *Mcphieus gen. nov.*) as well as always having supranasal scales present, no distinct frontoparietals and a flattened body.

Species within the closely related genus *Claireascincus* Wells and Wellington, 1985 are readily separated from both preceding genera by having 26-34 mid-body rows, no distinct frontoparietals and a pale dorso-lateral stripe on the fourth, or third and fourth scale row from the midline of the back.

*Mcphieus hadynmcpheii sp. nov.* in life is depicted online at:

<https://www.flickr.com/photos/128497936@N03/50496288643/>  
and

<https://www.flickr.com/photos/126237772@N07/51666108198/>  
and

<https://www.inaturalist.org/observations/75632114>  
and

<https://www.inaturalist.org/observations/100649956>

*M. rawlinsoni* in life is depicted in Cogger (2014) on page 676 bottom left and in Wilson and Swan (2021) on page 423 at bottom left and online at:

<https://www.flickr.com/photos/gondwanareptileproductions/40624621302/>  
and

<https://www.flickr.com/photos/craigboase/14099135063/>  
and

<https://www.flickr.com/photos/craigboase/13892496380/>  
and

<https://www.inaturalist.org/observations/75012871>  
and

<https://www.inaturalist.org/observations/100382894>  
and

<https://www.inaturalist.org/observations/65632920>

*M. michaelmatheri* sp. nov. in life is depicted in Swan, Shea and Sadler (2004) on page 182 and online at:  
<https://www.inaturalist.org/observations/64069868>  
and

<https://www.flickr.com/photos/23031163@N03/4391108667/>

*M. baudini* in life is depicted in Wilson and Swan (2021) on page 421 at centre.

*M. scottgranti* sp. nov. in life is depicted in Cogger (2014) on page 674 at top left (as "*Pseudemoia baudini*") and online at:  
<https://www.flickr.com/photos/akashsherping/49442832931/>  
and

<https://www.flickr.com/photos/128497936@N03/46770608345/>  
and

<https://www.flickr.com/photos/128497936@N03/50287697698/>

**Distribution:** *Mcphieus hadynmcpheiei* sp. nov. is restricted to Lake Hawdon, South Australia, Australia, Latitude 37.2249 S., Longitude 139.9469 E in the west, along the coast and near coastal areas east to the western edge of the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

**Etymology:** Both genus *Mcphieus* gen. nov. and the species and *Mcphieus hadynmcpheiei* sp. nov., are named in honour of Hady McPhie of Mirboo North in Gippsland, Victoria, Australia, in recognition of a lifetime's services to herpetology. Other species named in his honour have had different spellings in the epithet, but in this case the species name for *Mcphieus hadynmcpheiei* sp. nov., reflects the unusual, easily confused and correct spelling of his name. None of the previous names relevant to Hady McPhie as formally proposed by myself should have their spellings altered.

**MCPHIEUS MICHAELMATHERI SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:03C0B54B-8A52-438A-B50A-6FA50C853D62**

**Holotype:** A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D59874, collected from Ginini Flats on the border of the Australian Capital Territory and New South Wales, Australia at an elevation of about 1600 metres ASL, Latitude -35.52 S., Longitude 148.75 E. This government-owned facility allows access to its holdings.

**Paratypes:** Two preserved specimens held by the Australian National Wildlife Collection owned by the Commonwealth Scientific and Industrial Research Organisation, in Canberra, ACT, Australia.

These are specimen number R12029, collected from the summit of Mount Ginini in Namadgi National Park on the Australian

Capital Territory and New South Wales, border in Australia, at about 1,760 metres above sea level, Latitude -35.52986 S., Longitude 148.77259 E; and specimen number R05126 collected from the summit of Mount Bimberi in the Brindabella Range, west of Canberra, ACT, Australia, approximate elevation 1,900 metres ASL, Latitude -35.6667 S., Longitude 148.7667 E.

**Diagnosis:** Until now, each of *M. michaelmatheri* sp. nov., *Mcphieus hadynmcpheiei* sp. nov. and *M. rawlinsoni* (Hutchinson and Donnellan, 1988) had all been treated as the single species originally described as "*Leiolopisma rawlinsoni* Hutchinson and Donnellan, 1988", but since placed in the genus *Pseudemoia* Fuhr, 1967 by Hutchinson *et al.* (1990), with a type species: *Lygosoma (Emoia) spenceri* Lucas and Frost, 1894) by all publishing authors since.

Exceptional to the preceding has been the placement of the putative species in *Claireascincus* Wells and Wellington, 1985, type species, *Lygosoma entrecasteauxii* Duméril and Bibron, 1839 by Wells and Wellington (1985) and more recently by Dr. Allen E. Greer in an online database of Australian skinks published in year 2020 (available online at: [https://docplayer.net/61329515-Encyclopedia-of-australian-reptiles-allen-e-greer-herpetology-section-australian-museum-introduction.html#show\\_full\\_text](https://docplayer.net/61329515-Encyclopedia-of-australian-reptiles-allen-e-greer-herpetology-section-australian-museum-introduction.html#show_full_text)).

*Mcphieus rawlinsoni* (Hutchinson and Donnellan, 1988), type locality near Bunyip, about 80 km south-east of Melbourne, Victoria, is confined to Victoria, east of Geelong on Port Phillip Bay to coastal eastern Victoria at Croajingolong National Park, with the species being most commonly found in the region between the Mornington Peninsula and Orbost, especially in coastal and near coastal areas.

Tasmanian specimens are also assigned to this species.

*M. michaelmatheri* sp. nov. occurs in the Snowy Mountains of New South Wales, immediately adjacent parts of north-east Victoria in the high country and the Brindabella Ranges on the border of the Australian Capital Territory and New South Wales. *M. hadynmcpheiei* sp. nov. is restricted to Lake Hawdon, South Australia, Australia, Latitude 37.2249 S., Longitude 139.9469 E. in the west, along the coast and near coastal areas east to the western edge of the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

*Mcphieus hadynmcpheiei* sp. nov. is separated from the other two species *M. rawlinsoni* (Hutchinson and Donnellan, 1988) and *M. michaelmatheri* sp. nov. by the fact that the brownish-red upper lateral stripe is not bordered with black at the upper margin, versus is, for the other two species, or if so, only intermittently and not continuously as in the other two species (as seen in the images of this taxon cited elsewhere in this description).

In *M. hadynmcpheiei* sp. nov. the anterior of the upper surface of the head is a beige-brown colour, versus medium brown in *M. rawlinsoni* and a reddish brown colour in *M. michaelmatheri* sp. nov.

*M. hadynmcpheiei* sp. nov. has a beige iris versus dull orange in *M. rawlinsoni* and bright orange in *M. michaelmatheri* sp. nov..

For both *M. hadynmcpheiei* sp. nov. and *M. rawlinsoni* the anterior extension of the light stripe that separates the dorsum and lateral surface (on each side) extends to about the level of the ear opening, but in *M. michaelmatheri* sp. nov. it does not come close to this point, instead terminating significantly further back.

In both *M. hadynmcpheiei* sp. nov. and *M. rawlinsoni* the upper labials are significantly lighter than the scales on the upper surface of the snout, versus usually not so in *M. michaelmatheri* sp. nov..

*M. michaelmatheri* sp. nov. is most readily separated from the two other preceding species by the fact that the blackish striped scales on the body have a lighter etching on both anterior and posterior edges, versus not so in the other species. Exceptional to this is the vertebral line that does not have this etching on the scales.

*M. michaelmatheri* sp. nov. has an orange iris, versus beige in *M. hadynmcpheie* sp. nov. and light orange to brownish-grey in *M. rawlinsoni*.

The three preceding species are separated from *M. baudini* (Greer, 1982) and *M. scottgranti* sp. nov. by the absence of supranasal scales (versus presence in *M. baudini* and *M. scottgranti* sp. nov.).

In both *M. baudini* and *M. scottgranti* sp. nov. the nasal is separated posteriorly from the postnasal by a well developed suture, although this is often reduced to some extent in *M. scottgranti* sp. nov.. There is no such suture in any of *M. hadynmcpheie* sp. nov., *M. rawlinsoni* or *M. michaelmatheri* sp. nov..

*M. baudini* can be separated from *M. scottgranti* sp. nov. by its broadly meeting prefrontals and the position of the dorsolateral and lateral light stripes. In *M. scottgranti* sp. nov. the white line on the lower flank is two scales wide, versus 1-1.5 scales wide in *M. baudini*. The broad dark lateral stripe is distinct anteriorly as far as the rear of the eye in *M. baudini*, versus not so in *M. scottgranti* sp. nov..

The five species within the genus *Mcpheius* gen. nov. are readily separated from all other species of Australian skink by the following unique suite of characters: They are small, active diurnal, smooth-scaled skinks characterised by: well developed pentadactyle limbs that meet or overlap when adpressed, or which fail to meet by no more than one or two scale-lengths; ear opening prominent with anterior lobules present; supranasals present or absent; parietal shields in contact behind the interparietal; distinct frontoparietals; movable lower eyelids with a transparent disc being almost as large as the eye; 23-30 mid-body rows; less than 30 lamellae under the fourth toe; a pale dorso-lateral stripe (usually, but not always distinct) on the third scale row of the midline of the back being a part of a distinctive pattern of light and dark stripes.

Species within the closely related genus *Pseudemoia* Fuhn, 1967 are similar in most respects to *Mcpheius* gen. nov., but readily separated from that genus by the presence of 37-48 mid-body scale rows (vs 23-30 in *Mcpheius* gen. nov.) as well as always having supranasal scales present, no distinct frontoparietals and a flattened body.

Species within the closely related genus *Claireascincus* Wells and Wellington, 1985 are readily separated from both preceding genera by having 26-34 mid-body rows, no distinct frontoparietals and a pale dorso-lateral stripe on the fourth, or third and fourth scale row from the midline of the back.

*Mcpheius hadynmcpheie* sp. nov. in life is depicted online at: <https://www.flickr.com/photos/128497936@N03/50496288643/> and <https://www.flickr.com/photos/126237772@N07/51666108198/> and <https://www.inaturalist.org/observations/75632114> and

<https://www.inaturalist.org/observations/100649956>  
*M. rawlinsoni* in life is depicted in Cogger (2014) on page 676 bottom left and in Wilson and Swan (2021) on page 423 at bottom left and online at: <https://www.flickr.com/photos/gondwanareptileproductions/40624621302/>

and <https://www.flickr.com/photos/craigboase/14099135063/> and <https://www.flickr.com/photos/craigboase/13892496380/> and <https://www.inaturalist.org/observations/75012871> and <https://www.inaturalist.org/observations/100382894> and <https://www.inaturalist.org/observations/65632920>

*M. michaelmatheri* sp. nov. in life is depicted in Swan, Shea and Sadler (2004) on page 182 and online at:

<https://www.inaturalist.org/observations/64069868> and

<https://www.flickr.com/photos/23031163@N03/4391108667/>

*M. baudini* in life is depicted in Wilson and Swan (2021) on page 421 at centre.

*M. scottgranti* sp. nov. in life is depicted in Cogger (2014) on page 674 at top left (as "*Pseudemoia baudini*") and online at: <https://www.flickr.com/photos/akashsherping/49442832931/> and

<https://www.flickr.com/photos/128497936@N03/46770608345/> and

<https://www.flickr.com/photos/128497936@N03/50287697698/>

**Distribution:** *M. michaelmatheri* sp. nov. occurs in the Snowy Mountains of New South Wales, immediately adjacent parts of north-east Victoria in the high country and the Brindabella Ranges on the border of the Australian Capital Territory and New South Wales.

**Etymology:** 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 skinks and pygopids (Pygopodidae) over many decades.

**MCPHEIUS SCOTTGRANTI SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:B65FE56E-D4B8-499C-AD30-B6CD2EC221D5**

**Holotype:** A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R5768, collected from Elliston, Eyre Peninsula, South Australia, Australia, Latitude -33.65 S., Longitude 134.88 E. This government-owned facility allows access to its holdings.

**Paratypes:** Three preserved specimens at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen numbers D60963, D60964 and D60965 collected from Elliston, Eyre Peninsula, South Australia, Australia, Latitude -33.65 S., Longitude 134.88 E.

**Diagnosis:** Until now, the genus *Mcpheius* gen. nov., as named and defined herein, consisted of two putative species, namely *M. rawlinsoni* (Hutchinson and Donnellan, 1988) and *M. baudini* (Greer, 1982).

Putative *M. rawlinsoni* is herein split three ways, while putative *M. baudini* is split two ways, with all three newly identified forms named as new species herein for the first time.

Until now, each of *M. michaelmatheri* sp. nov., *Mcpheius hadynmcpheie* sp. nov. and *M. rawlinsoni* (Hutchinson and Donnellan, 1988) had all been treated as the single species originally described as "*Leiopolisma rawlinsoni* Hutchinson and Donnellan, 1988", but since placed in the genus *Pseudemoia* Fuhn, 1967 by Hutchinson *et al.* (1990), with a type species: *Lygosoma (Emoia) spenceri* Lucas and Frost, 1894) by all publishing authors since.

Exceptional to the preceding has been the placement of the putative species in *Claireascincus* Wells and Wellington, 1985, type species, *Lygosoma entrecasteauxii* Duméril and Bibron, 1839 by Wells and Wellington (1985) and more recently by Dr. Allen E. Greer in an online database of Australian skinks published in year 2020 (available online at: [https://docplayer.net/61329515-Encyclopedia-of-australian-reptiles-allen-e-greer-herpetology-section-australian-museum-introduction.html#show\\_full\\_text](https://docplayer.net/61329515-Encyclopedia-of-australian-reptiles-allen-e-greer-herpetology-section-australian-museum-introduction.html#show_full_text)).

*Mcpheius rawlinsoni* (Hutchinson and Donnellan, 1988), type locality near Bunyip, about 80 km south-east of Melbourne, Victoria, is confined to Victoria, east of Geelong on Port Phillip Bay to coastal eastern Victoria at Croajingolong National Park, with the species being most commonly found in the region between the Mornington Peninsula and Orbost, especially in coastal and near coastal areas. Tasmanian specimens are also



assigned to this species.

*M. michaelmatheri* sp. nov. occurs in the Snowy Mountains of New South Wales, immediately adjacent parts of north-east Victoria in the high country and the Brindabella Ranges on the border of the Australian Capital Territory and New South Wales.

*M. hadynmcpheie* sp. nov. is restricted to Lake Hawdon, South Australia, Australia, Latitude 37.2249 S., Longitude 139.9469 E. in the west, along the coast and near coastal areas east to the western edge of the Otway Ranges in south-west Victoria as defined elsewhere in this paper.

*Mcpheius hadynmcpheie* sp. nov. is separated from the other two species *M. rawlinsoni* (Hutchinson and Donnellan, 1988) and *M. michaelmatheri* sp. nov. by the fact that the brownish-red upper lateral stripe is not bordered with black at the upper margin, versus is, for the other two species, or if so, only intermittently and not continuously as in the other two species (as seen in the images of this taxon cited elsewhere in this description).

In *M. hadynmcpheie* sp. nov. the anterior of the upper surface of the head is a beige-brown colour, versus medium brown in *M. rawlinsoni* and a reddish brown colour in *M. michaelmatheri* sp. nov..

*M. hadynmcpheie* sp. nov. has a beige iris versus dull orange in *M. rawlinsoni* and bright orange in *M. michaelmatheri* sp. nov..

For both *M. hadynmcpheie* sp. nov. and *M. rawlinsoni* the anterior extension of the light stripe that separates the dorsum and lateral surface (on each side) extends to about the level of the ear opening, but in *M. michaelmatheri* sp. nov. it does not come close to this point, instead terminating significantly further back.

In both *M. hadynmcpheie* sp. nov. and *M. rawlinsoni* the upper labials are significantly lighter than the scales on the upper surface of the snout, versus usually not so in *M. michaelmatheri* sp. nov..

*M. michaelmatheri* sp. nov. is most readily separated from the two other preceding species by the fact that the blackish striped scales on the body have a lighter etching on both anterior and posterior edges, versus not so in the other species. Exceptional to this is the vertebral line that does not have this etching on the scales.

*M. michaelmatheri* sp. nov. has an orange iris, versus beige in *M. hadynmcpheie* sp. nov. and light orange to brownish-grey in *M. rawlinsoni*.

The species *M. scottgranti* sp. nov. had been originally assigned to *Claireascincus entrecasteauxii* (Duméril and Bibron, 1839), by Greer (1982), when formally naming *M. baudini* (Greer, 1982), who separated the two species in his diagnosis of his new one.

More recently, *M. scottgranti* sp. nov. as defined herein was assigned to *M. baudini* (Greer, 1982), by authors such as Cogger (2014).

However it is self-evident that *M. scottgranti* sp. nov. is neither of the other two species.

As their closest living relatives and only known congeners within *Mcpheius* gen. nov., *M. rawlinsoni*, *M. michaelmatheri* sp. nov. and *M. hadynmcpheie* sp. nov. are separated from *M. baudini* (Greer, 1982) and *M. scottgranti* sp. nov. by the absence of supranasal scales (versus presence in *M. baudini* and *M. scottgranti* sp. nov.).

In both *M. baudini* and *M. scottgranti* sp. nov. the nasal is separated posteriorly from the postnasal by a well developed suture, although this is often reduced to some extent in *M. scottgranti* sp. nov.. There is no such suture in any of *M. hadynmcpheie* sp. nov., *M. rawlinsoni* or *M. michaelmatheri* sp. nov..

*M. baudini* can be separated from *M. scottgranti* sp. nov. by its broadly meeting prefrontals and the position of the dorsolateral and lateral light stripes. In *M. scottgranti* sp. nov. the white line on the lower flank is two scales wide, versus 1-1.5 scales wide in *M. baudini*. The broad dark lateral stripe is distinct anteriorly as far as the rear of the eye in *M. baudini*, versus not so in *M.*

*scottgranti* sp. nov..

The five species within the genus *Mcpheius* gen. nov. are readily separated from all other species of Australian skink by the following unique suite of characters: They are small, active diurnal, smooth-scaled skinks characterised by: well developed pentadactyle limbs that meet or overlap when adpressed, or which fail to meet by no more than one or two scale-lengths; ear opening prominent with anterior lobules present; supranasals present or absent; parietal shields in contact behind the interparietal; distinct frontoparietals; movable lower eyelids with a transparent disc being almost as large as the eye; 23-30 mid-body rows; less than 30 lamellae under the fourth toe; a pale dorso-lateral stripe (usually, but not always distinct) on the third scale row of the midline of the back being a part of a distinctive pattern of light and dark stripes.

Species within the closely related genus *Pseudemoia* Fuhn, 1967 are similar in most respects to *Mcpheius* gen. nov., but readily separated from that genus by the presence of 37-48 mid-body scale rows (vs 23-30 in *Mcpheius* gen. nov.) as well as always having supranasal scales present, no distinct frontoparietals and a flattened body.

Species within the closely related genus *Claireascincus* Wells and Wellington, 1985 are readily separated from both preceding genera by having 26-34 mid-body rows, no distinct frontoparietals and a pale dorso-lateral stripe on the fourth, or third and fourth scale row from the midline of the back.

*Mcpheius hadynmcpheie* sp. nov. in life is depicted online at:

<https://www.flickr.com/photos/128497936@N03/50496288643/>

and

<https://www.flickr.com/photos/126237772@N07/51666108198/>

and

<https://www.inaturalist.org/observations/75632114>

and

<https://www.inaturalist.org/observations/100649956>

*M. rawlinsoni* in life is depicted in Cogger (2014) on page 676

bottom left and in Wilson and Swan (2021) on page 423 at bottom left and online at:

<https://www.flickr.com/photos/gondwanareptileproductions/40624621302/>

and

<https://www.flickr.com/photos/craigboase/14099135063/>

and

<https://www.flickr.com/photos/craigboase/13892496380/>

and

<https://www.inaturalist.org/observations/75012871>

and

<https://www.inaturalist.org/observations/100382894>

and

<https://www.inaturalist.org/observations/65632920>

*M. michaelmatheri* sp. nov. in life is depicted in Swan, Shea and Sadler (2004) on page 182 and online at:

<https://www.inaturalist.org/observations/64069868>

and

<https://www.flickr.com/photos/23031163@N03/4391108667/>

and

*M. baudini* in life is depicted in Wilson and Swan (2021) on page 421 at centre.

*M. scottgranti* sp. nov. in life is depicted in Cogger (2014) on page 674 at top left (as "*Pseudemoia baudini*") and online at:

<https://www.flickr.com/photos/akashsherping/49442832931/>

and

<https://www.flickr.com/photos/128497936@N03/46770608345/>

<https://www.flickr.com/photos/128497936@N03/50287697698/>

**Distribution:** *M. scottgranti* sp. nov. is apparently confined to the Eyre Peninsula of South Australia between St. Peter Island to the west and Port Lincoln in the east, generally near the coast, with type locality near the centre of the known distribution.

**Etymology:** The new species *M. scottgranti* sp. nov. is named in honour of Scott Grant of Whyalla, South Australia (as of 2021), 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, where they are the only or main wildlife experience for the local population, and collect money from them to see the animals.

The announcement of his shut down was in the first instance on his Facebook page where he wrote:

"Eyre Reptile & Wildlife Park

November 10, 2021

*It is with regret that the operators of the Eyre Reptile and Wildlife Park and Whyalla City Council can confirm that the park is closing as of Monday 15 November.*

*The park has provided access to a range of wildlife for both the community of Whyalla and visitors over a number of years, helping educate students and enable children to get up-close and interact with some of their favourite animals."*

In turn the Murdoch Press via the Adelaide Advertiser newspaper did on 15 November, vilified Scott Grant and his business as part of their close relationship to the State Government and doing the bidding for the government's own dysfunctional zoo business.

There was no mention in their "news stories" of the important wildlife conservation work of Grant and his hard working family. Successful wildlife conservation enterprises in South Australia are routinely shut down by the State Government, an earlier example being the successful Warrawong Sanctuary in the Adelaide Hills, owned by John Walmsley.

The Adelaide Zoo has had some very "successful" captive breeding programs for reptiles, including for the Pygmy Bluetongued Lizard *Lazarus adelaidensis* (Peters, 1863), see Hoser (1991 and 2016b) for more on this species and the Western Ranges Taipan *Oxyuranus temporalis* Doughty et al. 2007.

The "success" of these programs being measured by them NOT breeding the species, because if they bred them and supplied specimens to other (rival) zoos, then they would lose their monopoly on possession of the species. This would damage their income flow in the form of visitors and cash hands outs from government and business to (supposedly) try to breed these species.

The government-granted monopoly that the Adelaide Zoo has on the Pygmy Bluetongued Lizard has been severely undermined in recent years by Queensland based reptile collector, private zoo owner and conservationist David Merceica, who was lucky to get some orphaned specimens from a wildlife rescue group in Tasmania and who has been breeding them in plague numbers ever since.

**CLAIREASCINCUS JACKYHOSERAE SP. NOV.**

**LSIDURN:LSID:ZOOBANK.ORG:ACT:985E053A-5AA6-47AC-8DDE-85D249CB09D4**

**Holotype:** A preserved adult female specimen in the South Australian Museum, Adelaide, South Australia, Australia, specimen number R39106 collected 5 km west of the New England Highway on Glenshiel Road, about 5 km north of Guyra Post Office, New South Wales, Australia, Latitude -30.13 S., Longitude 151.63 E. This government-owned facility allows access to its holdings.

**Paratypes:** Two preserved specimens in the South Australian Museum, Adelaide, South Australia, Australia, specimen numbers R39094 and R39096 collected 5 km west of the New England Highway on Glenshiel Road, about 5 km north of Guyra Post Office, NSW, Australia, Lat. -30.13 S., Long. 151.63 E.

**Diagnosis:** Until now, *Claireascincus jackyhoserae* sp. nov. has been treated as a north eastern population of *Claireascincus pagenstecheri* (Lindholm, 1901), *sensu* Haines et al. (2014), or alternatively the morphologically similar, *C. entrecasteauxii* (Duméril and Bibron, 1839), including the various forms described by Wells and Wellington in 1985, related to both *C. pagenstecheri* and *C. entrecasteauxii*.

However this species can be separated from all others in the genus *Claireascincus* Wells and Wellington, 1985 by the following unique suite of characters: No supranasals; a thick, blackish-grey vertebral stripe and two less distinct blackish-grey paravertebral stripes, as well as a distinctive white or cream dorso-lateral stripe, this being at least partially on the fourth scale row from the midline of the back; on each side of the head there is a bold white line running from the snout, under the eye below the ear to the anterior body; scales behind the eye are dark brown, etched anteriorly with light brown; breeding adults may have a semi-distinct orange flush on the mid flank that forms a semi-distinct stripe; iris is greyish-brown; dorsum is generally greyish-brown in adults. Other species in the genus *Claireascincus* do not have the complete suite of characters as just described, with one or more either absent, or different (e.g. a single vertebral stripe, without the associated paravertebral stripes, or brownish black dorsum).

*Claireascincus jackyhoserae* sp. nov., *C. pagenstecheri*, and putative *C. jenkinsi* Wells and Wellington, 1985, *C. schumacki* Wells and Wellington, 1985 (the latter two species sometimes treated as synonyms of *C. pagenstecheri*) are all separated from the other species in the genus by not having supranasal scales; the possession of two paravertebral stripes between the vertebral stripe and the dorsolateral stripe; a distinctive white or cream dorso-lateral stripe, this being at least partially on the fourth scale row from the midline of the back.

The species *Claireascincus triumvirates* Wells and Wellington, 1985 (depicted in Hoser (1989) on page 102 in bottom two images) is similar to *C. entrecasteauxii* (Duméril and Bibron, 1839), but is clearly of a different species. It is also more robust in build than *C. entrecasteauxii*, particularly with regard to the males.

**Distribution:** *Claireascincus jackyhoserae* sp. nov. is known only from the type locality, immediately north of Guyra in New South Wales, Australia. It is almost certainly a range restricted species and not likely to be found across a wide area.

**Etymology:** Named in honour of my youngest daughter, Jacky Indigo Hoser, DOB 19 May 2001, of Park Orchards, Victoria in recognition of more than 20 years of working with reptiles and various wildlife conservation outcomes.

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**CONFLICT OF INTEREST**

None.