

The Australian burrowing skinks of the genus *Hemiergus* Wagler, 1830 *sensu lato* reviewed, including a newly named genus, and new species-level taxa.

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ABSTRACT

The burrowing skinks of the genus *Hemiergus* Wagler, 1830 have been subject of considerable scrutiny by herpetologists over the past 200 years.

Wells and Wellington (1985, 1985) made a determined effort at reclassifying the genus as recognized at the time, including the formal splitting off of divergent forms into other genera and also naming of new species.

More recently Cogger (2014) and Wilson and Swan (2021) recognized the same seven species within putative *Hemiergus*, with the most recently named species in the group recognized by them being *H. millewae* Coventry, 1976.

Being aware that the taxonomic actions of Wells and Wellington (1984, 1985) were largely correct with respect to *Hemiergus sensu lato*, including by way of being supported by more recent molecular studies (e.g. Reeder and Reichert 2011 or Skinner *et al.* 2013), a genus wide review was conducted.

In summary, *Hemiergus sensu lato* is divided so that the genera *Chelomeles* Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), *Arenicolascincus* Wells and Wellington, 1985 (type species *Hemiergus millewae* Coventry, 1976), *Patheticoscincus* Wells and Wellington, 1984 (type species *Lygosoma australis* Gray, 1839), *Eroticoscincus* Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) and *Anepischetosia* Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894) are all recognised as distinct genera on the basis of ancient divergence exceeding more than 10 MYA.

In each case these numbers are based on the results of Skinner *et al.* (2013) or similar studies.

Anepischetosia the only one of the preceding genera widely recognized by other authors in recent years other than the monotypic *Eroticoscincus*, was dealt with in detail by Hoser (2022) in which a total of 5 species were formally recognized, including two named by Wells and Wellington (1985) and another pair by Hoser (2022).

In addition to the preceding, a new genus, *Grantscincus* gen. nov. is erected for the *Lygosoma* (*Hemiergus*) *initiale* Werner, 1910 species complex based on a divergence of about 17 MYA from nearest related species based on the findings of Skinner *et al.* (2013).

Within *Hemiergus sensu lato* the group of seven widely recognized species is significantly expanded, including by way of resurrection of available names for divergent taxa as well as the formal description of new species for nine divergent forms for which there are no available names.

Keywords: Taxonomy; nomenclature; Australia; skink; lizard; *Hemiergus*; *Lygosoma*; *Anepischetosia*; *Patheticoscincus*; *Eroticoscincus*; *Arenicolascincus*; *talbingoensis*; *decresiensis*; *initialis*; *brookeri*; *maccoyi*; *millewae*; *peroni*; *gracilipes*; *australis*; *quadrilineatum*; *continentis*; *tridactyla*; *davisi*; *lami*; *namatjira*; new genus; *Grantscincus*; new species; *scottgrantii*; *keilleri*; *pailsorum*; *kaputarensis*; *dorsei*; *awe*; *bonfire*; *wha*; *agh*.

INTRODUCTION

The burrowing skinks of the genus *Hemiergus* Wagler, 1830 have been subject of considerable scrutiny by herpetologists over the past 200 years.

Found across southern Australia, including in large numbers close to the capital cities of Sydney, Melbourne, Adelaide and Perth, the relatively small number of recognized species are a familiar sight to herpetologists in Australia.

Due to their relative abundance, small size and the general difficulty of telling populations apart, there has never been a serious review of the genus *Hemiergus* Wagler, 1830 *sensu lato* as a whole.

Wells and Wellington (1985, 1985) perhaps made the most determined effort to date at reclassifying the genus as recognized at any time, including the formal splitting off of divergent forms into other genera and also naming of at least two new species.

I note that in line with a general attempt by the Richard Shine cohort (including the Wolfgang Wuster gang of thieves) to suppress uptake of the Wells and Wellington taxonomy and nomenclature, the only major taxonomic act with respect of *Hemiergus sensu lato* by Wells and Wellington to have gained any acceptance among publishing herpetologists has been recognition of the genus *Anepischetosia* Wells and Wellington, 1985, for the divergent taxon, *Siaphos maccoyi* Lucas and Frost, 1894.

That arose as a result of Cogger including this genus as monotypic in Cogger (2014) and then being followed without question by all publishing herpetologists since.

Treated as a monotypic genus, by others to 2023, Wells and Wellington (1985) did in fact describe two further species in New South Wales, previously treated as northern populations of *H. maccoyi* (*sensu* Cogger *et al.* 1983).

Like sheep, all publishing herpetologists in Australia have without question accepted the unscientific Shine *et al.* doctrine of pretending that the relevant Wells and Wellington species did not exist.

Hoser (2022) was forced to publish a review of *Anepischetosia* Wells and Wellington, 1985, after finding what was obviously a divergent taxon in the same genus in the Otway Ranges of south-west Victoria.

Following inspection of specimens from across the known range of the genus *Anepischetosia*, Hoser (2022) in fact named two new species from western Victoria and also recognized the two morphologically divergent forms named by Wells and Wellington some decades earlier.

To this extent, *Anepischetosia* Wells and Wellington, 1985 has already been dealt with and is therefore not subject of this paper.

I note here that the Hoser (2022) assessment of *Anepischetosia* was done without any input from Wells and Wellington and the only thing that mattered in that paper was getting the taxonomy correct.

In terms of nomenclature, the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) applied and this dictated the appropriate names applied to each taxon identified.

I also mention that the two species taxa within *Anepischetosia* formally named by Wells and Wellington in 1985, were so obviously divergent to the type species in the genus that they should have been widely accepted by all relevant publishing herpetologists from 1985 onwards.

They would have been accepted by any taxonomist or half-decent herpetologist who even went so far as to make a cursory inspection of the three putative taxa.

It is a shocking indictment on the level of control by a bunch of non-scientists with respect of Australian herpetology and names of taxa (or lack of them) and a similar indictment on the lack of scientific method by others in the field of herpetology in not questioning everything they are told with respect of reptiles and their names, but instead accepting without question what they

are told, no matter how obviously incorrect that information is.

More recently than Wells and Wellington (1984 and 1985), Cogger (2014) and Wilson and Swan (2021) each recognized the same seven species within putative *Hemiergus* Wagler, 1830 (with a type species of *Tridactylus decreasiensis* Cuvier, 1829) with the most recently named species in the group recognized by the later authors being *H. millewae* Coventry, 1976.

Being aware that the taxonomic actions of Wells and Wellington (1984, 1985) were largely correct with respect to *Hemiergus sensu lato*, including by way of being supported by more recent molecular studies, (e.g. Reeder and Reichert 2011, Skinner *et al.* 2013 or Pyron *et al.* 2013) a genus wide review was conducted.

Based on the molecular results in tables in Figs 1 and 2 of Skinner *et al.* (2013), the following generic assignments were apparent, based on divergences indicated.

In short, it made sense to divide *Hemiergus sensu lato* so that the genera *Chelomeles* Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), *Arenicolascincus* Wells and Wellington, 1985 (type species *Hemiergus millewae* Coventry, 1976), *Patheticoscincus* Wells and Wellington, 1984 (type species *Lygosoma australis* Gray, 1839), *Eroticoscincus* Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) and *Anepischetosia* Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894) are all recognised as distinct genera on the basis of ancient divergence exceeding more than 10 MYA.

This is in the main part based on the results of Skinner *et al.* (2013) combined with obvious morphological divergences of the said taxa.

As already stated, *Anepischetosia* Wells and Wellington, 1985, the only one of the preceding genera widely recognized by other authors in recent years other than *Eroticoscincus* was dealt with in detail by Hoser (2022) in which a total of 5 species were formally recognized.

In addition to the preceding, a new genus, was indicated by Skinner *et al.* (2013) for the *Lygosoma* (*Hemiergus*) *initiale* Werner, 1910 species complex based on an estimated divergence of about 17 MYA from nearest related species.

Hence the erection in this paper of *Grantscincus* *gen. nov.* for that species group.

Within *Hemiergus sensu lato* the group of seven widely recognized species was known by me to be a serious underestimate of the species diversity in the group.

Scattered populations of morphologically divergent specimens within given putative species were being treated as one taxon, when self-evidently this was not going to be likely.

Wells and Wellington (1985) formally named two divergent populations, one of which is self-evidently a separate and valid species.

That one, *Arenicolascincus lami* Wells and Wellington, 1985, related to *A. millewae* Coventry, 1976 from south-west Victoria, has been improperly ignored by herpetologists in Australia since the date of description.

Shine and Wuster, through their mouthpiece Peter Uetz and their controlled "The Reptile Data Base", falsely allege that *Arenicolascincus lami* Wells and Wellington, 1985 is a "*nomen nudum*".

The statement is a lie.

Nomen Nudum is defined in the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as when a name cannot be applied to a given taxon. Because Wells and Wellington (1985) had a type specimen for their species, it cannot possibly be a *nomen nudum*!

The Peter Uetz "The Reptile Data Base" claims to be the "go to" complete bibliography of herpetological names. However it routinely censors out names and authors who are not in his own cohort, including of course Wells, Wellington, Hoser and over 1000 Russian authors and papers, the latter group erased from

their version of herpetological history and science because in 2022 Russian President Vladimir Putin decided to invade Ukraine and so Uetz decided to punish all Russian scientists, living and deceased and their associates as his way to fight the war.

Uetz also noted that the associated erasure of non-Russian scientists from his database, that is the co-authors, was “collateral damage” and he never apologised for this.

In fact a year after the ban, Uetz stood his ground publicly, declaring that his censored version of “The Reptile Database” was in his eyes perfect.

The other *Hemiergus* species of note formally named by Wells and Wellington (1985) was their taxon *H. namatjira*, from the Granite country of New South Wales, immediately west of the Blue Mountains, which until then had been treated as a population of *H. decresiensis* (type locality of Kangaroo Island, South Australia) or more recently a population of *H. talbingoensis* (Copland, 1946), with a type locality of Talbingo, southern New South Wales.

There is not much comparative DNA available for any of *H. decresiensis*, *H. talbingoensis* or *H. namatjira*, or for that matter the associated taxon, *H. davisii* Copland, 1946 from the New England Region of New South Wales, although Reeder and Reichert (2011) do provide some in their Fig. 3, which supports a three-way split of eastern “*H. decresiensis*” into *H. talbingoensis*, *H. namatjira* and *H. davisii* Copland, 1946.

Furthermore, based on molecular studies of other small skinks in the highlands of New South Wales, for example, the *Pseudemoia spenceri* Lucas and Frost, 1894 complex as detailed by Hoser (2022) or the *Woolfscincus saxatilis* Cogger, 1960 complex as detailed by Hoser (2018), it is reasonable to expect that putative “*H. decresiensis*” from the west of the Blue Mountains are of a different species to specimens from the Bindabella Ranges / Snowy Mountains to the south or for that matter putative “*H. decresiensis*”, AKA *H. davisii* from the New England region to the north.

Copland (1946) also found and itemised differences between the central and southern highlands specimens of his taxon *H. talbingoensis*, implying more than one species being involved. Therefore each of *H. decresiensis*, *H. talbingoensis*, *H. namatjira* and *H. davisii* are recognized herein as valid species-level taxa. The putative species *H. continentis* Copland, 1946 from Myponga, South Australia (SA), is the only form with a strong possibility of being conspecific with *H. decresiensis* (type locality of Kangaroo Island, SA), based on the molecular evidence of Reeder and Reichert (2011).

Now the evidence cited here is not new and on the basis of it, I note that the Wells and Wellington taxon *H. namatjira* should have been accepted by other herpetologists long before this paper was published and/or certainly in preference to recognition of for example *H. continentis*. I note however that in Australia, authors such as Wilson and Swan (2021), part of the anti Wells and Wellington cohort, recognize *H. continentis* (as a subspecies), but steadfastly pretend that *H. namatjira* does not even exist!

Put simply, on the basis of the readily available and published scientific evidence, there is no scientific basis to not accept *H. namatjira*, which says a lot about many so-called herpetologists operating within Australia.

It also shows that the claims of Kaiser *et al.* (2013) against Hoser, Wells and Wellington, are best directed at Kaiser *et al.* themselves and all who are duped by them.

I note also that there are at least two other separate and isolated populations of putative *H. decresiensis* in western Victoria, which are also morphologically divergent and came under investigation as this paper was being prepared.

I also had the privilege of inspecting specimens in the southern Flinders Ranges of South Australia when doing a snake catching course and filming in recent years and similar with respect to the populations in the Granite Belt of far southern Queensland, all of

which appeared to be divergent in form.

As part of this audit, I also inspected specimens from outlying sites such as Mount Kaputar in north-west New South Wales. Specimens were observed live *in situ* in the wild, also via photos with locality information and dead specimens. The ultimate conclusion that they were unnamed species was hard to contradict in most cases.

The zones of absence surrounding these populations does not appear to be recent in a geological sense (dated at 2.5-2.8 MYA on the eastern edge of the central Victorian population, (which in any event appears morphologically more like South Australian animals), being the date of the formation of the basalt plains on the eastern edge of their known occurrence) and in terms of the isolated western population corroborates the idea of high site fidelity in this species complex combined with an inability to cross hotter flatter areas without rocky substrates. This again implies long-term isolation.

Among publishing herpetologists, there has also been considerable confusion as to the species assignment of the central Victorian animals. Some authors have placed them within *H. decresiensis*, while others have placed them within *H. talbingoensis*.

A similar situation worth investigating existed with the northernmost (southern Queensland) population of putative “*H. decresiensis*” from the Stanthorpe area (including Amiens) and environs, being split from the main New England Population to the south of Glen Innes / Inverell line, with similarly affected species complexes (e.g. *Uvidicolus* Oliver and Bauer, 2011 geckos as detailed by Hoser, 2016, *Amalasia* Wells and Wellington, 1984 geckos as detailed by Hoser 2017 and *Egernia* Gray, 1838 skinks as detailed by Hoser 2018) having been separated by relatively rock free zones for periods sufficient to allow allopatric speciation. As already mentioned, Mount Kaputar’s population was also flagged for investigation.

All seven species within *Hemiergus* Wagler, 1830 *sensu lato*, as recognised by Cogger (2014) and Wilson and Swan (2021) were audited to confirm the validity of the species and any secondary populations that may have been formally named.

Where populations were found to be divergent and no names available, the intention was to formally name them as new.

MATERIALS AND METHODS

Specimens of all species within *Hemiergus* Wagler, 1830 *sensu lato*, as recognised by Cogger (2014) and Wilson and Swan (2021) were inspected from all parts of their known distributions. They were checked for morphological divergences and/or obvious biogeographical barriers separating the populations, including those flagged in the introduction. Specimens inspected included dead and live specimens as well as quality images with good locality data.

Molecular studies involving species within *Hemiergus* Wagler, 1830 *sensu lato* and other similarly distributed reptiles and frogs from southern Australia (noting that this genus in effect occupies southern Australia only), were also reviewed to flag likely speciation points for wide-ranging putative taxa.

Published references and taxonomic treatments relevant to the preceding taxa were reviewed and those relevant to the taxonomic conclusions in this paper included Boulenger (1887), Bush (1981), Cogger (2014), Cogger *et al.* (1983), Copland (1946), Coventry (1976), Cuvier (1829), Duméril and Bibron (1839), Farquhar (2020), Fitzinger (1826), Ford (1963), Glauert (1960), Gray (1831, 1839), Greenbaum (2000), Greer (1985), Hoser (2018, 2022), Hutchinson *et al.* (2021), Kinghorn (1924), Lucas and Frost (1894, 1902), Mecke *et al.* (2009), Pyron *et al.* (2013), Rabosky *et al.* (2014), Reeder (2003), Reeder and Reichert (2011), Ride *et al.* (1999), Shea *et al.* (2017), Singhal *et al.* (2018), Smith (1939), Smith (1927, 1937), Smyth (1968), Steindachner (1870), Storr (1967, 1975), Storr *et al.* (1981), Wagler (1830), Wells and Wellington (1984, 1985), Werner (1910), Wilson and Swan (2021) and sources cited therein.

RESULTS

As already mentioned, *Hemiergis* Wagler, 1830 *sensu lato* was broken up into several genera as indicated before based largely on morphological divergence and molecular divergence as shown in Skinner *et al.* (2013).

Within this group, the following arrangement was determined.

Hemiergis Wagler, 1830 includes each of *H. decresiensis* (the type species), *H. talbingoensis*, *H. namatjira*, *H. davisii* as well as the newly named species from Western Victoria, being *H. keilleri* *sp. nov.* and *H. pailsorum* *sp. nov.*, *H. dorsei* *sp. nov.* from far southern Queensland in the high altitude Granite Belt around Stanthorpe, *H. kaputarensis* *sp. nov.* from north-west New South Wales and *H. awe* *sp. nov.* from the Wilpena Pound area of the Flinders Ranges in South Australia.

H. continentis is not supported by the molecular evidence of Reeder and Reichert (2011), even though it is morphologically separable from the type form of *H. decresiensis* which is found proximally to it. For this reason, the putative taxon is tentatively treated as valid in this paper and noting that at the present time, both *H. decresiensis* and *H. continentis* are evolving separately and as if being separate species.

Reeder and Reichert (2011) also indicated greater divergence of specimens further north in South Australia (see Fig. 3), supporting the identification of Wilpena Pound specimens as a separate and valid species and so they are formally named herein as *H. awe* *sp. nov.*

In terms of the populations of putative "*H. decresiensis*" from central and western Victoria, the following points are noted. They are geographically disjunct from their nearest proximal populations further east.

The separation for the main population in hills north-west of Ballarat is the basalt plains running north and north-west of Melbourne, which is unsuitable habitat and occupied by the competing burrowing species *Lerista bougainvillii* (Gray, 1839).

The age of that plain in the relevant area has been dated at between 2.5 and 2.8 MYA which is sufficient time for speciation to occur across that barrier and so I have no hesitation in naming the affected population as a new species.

The same applies for the isolated population further west at Mount Arapiles-Tooan State Park, also separated by a flat zone of wholly unsuitable and unpassable habitat.

In terms of the populations in the New England region of NSW and Queensland, the following is noted.

The distribution of *Hemiergis* in the area and also further south, inland from the NSW Central Coast is almost identical to that of geckoes in the genus *Amalosia* Wells and Wellington, 1984.

Hoser (2017) in summing up, stated:

"*Amalosia alexanderdudleyi* *sp. nov.* is found in the lower New England Tableland in New South Wales, Australia in a region generally bounded by the Hunter Valley in the south and a broad line running from Inverell in the West, across to Glen Innes in the east. The uplands region north of here has the morphologically similar *A. phillipsi* Wells and Wellington, 1985, while *A. lesueurii* is confined to the sandstone regions of Sydney, including the mountains to the west and south of Sydney."

Predating the paper of Hoser (2017) was molecular data confirming the divergence of the proximal species *Amalosia alexanderdudleyi* Hoser, 2017 and *A. phillipsi* Wells and Wellington, 1985.

While *Hemiergis* in hillier parts of northern and central New South Wales appears more strictly confined to granite country as opposed to sandstones (where the species *S. equalis* Gray 1825 occurs instead), the above still effectively applies to the relevant species. The relevant barrier in the New England region is a zone of relatively rock free uplands, north of the Glen Innes/Inverell line, that is in effect unpassable by rock-dwelling lizards and so has formed a barrier between populations north and south of there allowing speciation to occur.

Another example of similarly constrained sibling species is

the species pair *Uvidicolus covacevichae* Hoser, 2016 from Girraween, Queensland and nearby, combined with *Uvidicolus sphyrrurus* (Ogilby, 1892) from northern New South Wales (but of the form from south of Glen Innes / Inverell), as detailed by Hoser (2016).

It is thus an inescapable conclusion that the northernmost population of putative "*H. decresiensis*" is in fact an unnamed species and therefore is also named herein as *H. dorsei* *sp. nov.*. Morphologically divergent outlier populations from the Mount Kaputar volcanic escarpment in north-west New South Wales and that from Wilpena Pound in South Australia are also formally named as new species.

Chelomeles Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), also includes the species *C. peronii* (Gray, 1831) and *C. tridactylum* (Boulenger, 1915).

Arenicolascincus Wells and Wellington, 1985, type species *Hemiergis millewae* Coventry, 1976, with a type locality of western Victoria includes the taxon *A. lami* Wells and Wellington, 1985, from south-west Australia. A population from the Eyre Peninsula, South Australia is also formally named as a new species *A. bonfire* *sp. nov.*, as is an outlier population from the Barrier Range in New South Wales, Australia formally named as *A. wha* *sp. nov.*

Patheticoscincus Wells and Wellington, 1984, with a type species *Lygosoma australis* Gray, 1839, with a type locality of Albany, Western Australia is split into two quite divergent species.

The morphologically divergent, *P. agh* *sp. nov.* occurs on the west coast of south-west Australia. The type form from Albany, West Australia occupies nearby parts of the southern coast of south-west Western Australia.

It is somewhat surprising that until now, no one has suggested that these two divergent forms are of different species in the face of quite significant differences between the two populations.

The genus *Patheticoscincus* is recognized herein on the basis the type species has a divergence of about 13 MYA from its nearest relative other than the related new form described in this paper, based on a number of recently published phylogenies cited herein including Skinner *et al.* (2013).

The correct and first available name for the species *Lygosoma australis* Gray, 1839 is used. In error a number of authors use the name *P. gracilipes* (Steindachner, 1870).

I note that a full reading of the fourth edition of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) including in particular all of Article 59, confirms that the correct name for the species is the original "*Lygosoma australis* Gray, 1839" and not the later "*Hinulia gracilipes* Steindachner, 1870".

Eroticoscincus Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) maybe a species complex, but is herein treated as monotypic.

Anepischetosia Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894)

was dealt with in detail by Hoser (2022) in which a total of 5 species were formally recognized.

Grantscincus *gen. nov.*, is erected for the species *Lygosoma (Hemiergis) initiale* Werner, 1910, with a type locality of Lion Mill, Western Australia. Also recognized in this genus is *G. brookeri* (Storr, 1975) from south-east South Australia.

Three other forms were investigated to see if they were worth giving taxonomic recognition to.

These were the form from the mid south-coastal area of Western Australia, one from the western Nullarbor area, generally west of Ceduna, South Australia and another from the eastern Eyre Peninsula, South Australia. Only the last of the trio was determined to be worthy of taxonomic recognition.

All appeared to be morphologically divergent, but the molecular evidence was not convincing in terms of the two more eastern populations.

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, spelling of names 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 (Ride *et al.* 1999 and ICZN 2012).

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 28 April 2023, unless otherwise stated and were accurate in terms of the context cited herein as of that date.

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

While numerous texts and references were consulted prior to publication of this paper, the criteria used to separate the relevant species 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.

In the unlikely event any "first reviser" seeks to merge two or more newly named taxa into one, then the name to be retained is that which is first by page priority as listed in the abstract keywords.

CONSERVATION

Delays in recognition of these species and subspecies could jeopardise the long-term survival of the taxa as outlined by Hoser (2019a, 2019b) and sources cited therein.

Therefore attempts by taxonomic vandals like the Wolfgang Wüster gang via Kaiser (2012a, 2012b, 2013, 2014a, 2014b) and Kaiser *et al.* (2013) (as frequently amended and embellished, e.g. Rhodin *et al.* 2015, Thiele *et al.* 2020, Hammer and Thiele 2021) to unlawfully suppress the recognition of these taxa on the basis they have a personal dislike for the person who formally named it should be resisted (e.g. Ceriaco *et al.* 2023, Cogger 2014, Dubois *et al.* 2019, Mosyakin 2022 and Wellington 2015). Claims by the Wüster gang against this paper and the descriptions herein will no doubt be no different to those the gang have made previously, all of which were discredited long ago as outlined by Ceriaco *et al.* (2023), Cogger (2014), Cotton (2014), Dubois *et al.* (2019), Hawkeswood (2021), Hoser, (2007a-b, 2009, 2012a, 2012b, 2013, 2015a-f, 2019a, 2019b), ICZN (1991, 2001, 2012, 2021), Mosyakin (2022), Wellington (2015) and sources cited therein.

Some material within descriptions is repeated to ensure each fully complies with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

GRANTSCINCUS GEN. NOV.

LSIDurn:lsid:zoobank.org:act:3B86A2FB-9159-4692-997F-8462EF4985C0

Type species: *Lygosoma (Hemiergus) initiale* Werner, 1910.

Diagnosis: *Grantoscincus gen. nov.* is a genus of small, slender smooth-scaled skinks occurring from coastal southern Australia, from the Eyre Peninsula west to near Perth.

Species within *Grantoscincus gen. nov.* are separated from other morphologically similar species within *Hemiergus* Wagler, 1830 *sensu* Cogger 2014, by having no prefrontals (except in *G. Scottgranti sp. nov.*), versus their presence on all other species. They also are characterised and separated from the other species within *Hemiergus* Wagler, 1830 *sensu* Cogger 2014, by the following unique combination of characters: Five fingers; a scaly lower eyelid with an opaque scaly disc; 11 or less lamellae

under the fourth toes; supralabials are separated from the eye by a series of subocular scales.

Species within *Hemiergus* Wagler, 1830 *sensu* Cogger 2014 including *Grantoscincus gen. nov.* are separated from all other Australian skinks by the following character combination:

Short limbs which fail to overlap by several scale rows when adpressed; no supranasals; small to moderate nasals, that are usually separated; parietal shields in contact behind the interparietal; lower eyelid moveable, with a transparent disc; ear opening usually absent, but usually determined by a depression; enlarged pre-anals.

Distribution: *Grantoscincus gen. nov.* occur in coastal southern Australia, from the Eyre Peninsula, South Australia, west to near Perth, Western Australia.

Etymology: Named in honour of Scott Grant of Whyalla, South Australia, Australia, the former owner of the Whyalla Fauna Park, in recognition of his many years of working for wildlife conservation in Australia.

Ultimately, he was shut down by the South Australian Government, including the government-owned Adelaide Zoo, who wanted no competition in the "wildlife business".

Content: *Grantoscincus initialis* (Werner, 1910) (type species); *G. brookeri* (Storr, 1975); *G. scottgranti sp. nov.* (this paper).

GRANTSCINCUS SCOTTGRANTI SP. NOV.

LSIDurn:lsid:zoobank.org:act:D61EFAA5-755B-4151-A387-B633B09B751B

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R57519 collected from 23.5 km North, north-east of Sheoak Hill, South Australia, Australia, Latitude -33.1864 S., Longitude 136.9775 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, 1/ Specimen number R57641 collected from 20.5 km west, north-west of Mount Middleback, South Australia, Australia, Latitude -33.2025 S., Longitude 136.9156 E., 2/ Specimen number R57632 collected from 18.7 km west, north-west of Iron Duchess, South Australia, Australia, Latitude -33.2231 S., Longitude 136.9308 E., 3/ Specimen number R57649 collected from 21.1 km west, north-west of Mount Middleback, South Australia, Australia, Latitude -33.2092 S., Longitude 136.9097 E.

Diagnosis: *Grantoscincus scottgranti sp. nov.* is differentiated from *G. initialis* (Werner, 1910) by the absence of a well-defined black band on the upper margin of the flank, as in an absence of a black border between the grey of the flank and brown of the dorsum.

G. scottgranti sp. nov. is differentiated from *G. brookeri* (Storr, 1975) by the presence of prefrontals, less numerous nuchals and larger adult size.

G. initialis is dark grey on the flanks and dark brown above, and in west coast of Western Australia specimens, is usually a deep or reddish chocolate brown above. *G. brookeri* is generally a medium brownish colour all over and with black peppering on the dorsum and in particular the upper flanks. Unlike in *B. initialis*, there is no well-defined black boundary at the top of the upper flank.

G. scottgranti sp. nov. is a medium brown above, with the black peppering coalesced to form tiny spots forming longitudinal lines running down the dorsum. Flanks are a greyish brown becoming whitish at the lower margin. On the (original) tail blackish dots form a stripe down the midline which is not the case in the other two species.

The three preceding species form the entirety of *Grantoscincus gen. nov.*

Grantoscincus gen. nov. is a genus of small, slender smooth-scaled skinks occurring from coastal southern Australia, from the Eyre Peninsula, west to near Perth.

Species within *Grantoscincus gen. nov.* are separated from other

morphologically similar species within *Hemiergus* Wagler, 1830 *sensu* Cogger 2014, by having no prefrontals (except in *G. Scottgranti* sp. nov.), versus their presence on all other species. They also are characterised and separated from the other species within *Hemiergus* Wagler, 1830 *sensu* Cogger 2014, by the following unique combination of characters: Five fingers; a scaly lower eyelid with an opaque scaly disc; 11 or less lamellae under the fourth toes; supralabials are separated from the eye by a series of subocular scales.

Species within *Hemiergus* Wagler, 1830 *sensu* Cogger 2014 including *Grantscincus* gen. nov. are separated from all other Australian skinks by the following character combination: Short limbs which fail to overlap by several scale rows when adpressed; no supranasals; small to moderate nasals, that are usually separated; parietal shields in contact behind the interparietal; lower eyelid moveable, with a transparent disc; ear opening usually absent, but usually determined by a depression; enlarged pre-anals.

Distribution: *G. scottgranti* sp. nov. appears to be confined to the north-eastern Eyre Peninsula in South Australia, Australia in an area bounded by Whyalla in the north-east, Kimba in the north-west and the Blue Range in the south.

Etymology: The species *Grantscincus scottgranti* sp. nov. is named in honour of Scott Grant of Whyalla, South Australia, Australia, the former owner of the Whyalla Fauna Park, in recognition of his many years of working for wildlife conservation in Australia.

Ultimately, he was shut down by the South Australian Government, including the government-owned monopolistic Adelaide Zoo, who decided that they wanted no competition in the "wildlife business".

HEMIERGIS KEILLERI SP. NOV.

LSIDurn:lsid:zoobank.org:act:8D8002B5-1F14-4290-8984-C7F7F39D0F6C

Holotype: A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D39593 collected from the vicinity of the Ben Nevis Fire Tower in the Pyrenees Ranges, Victoria, Australia, Latitude -37.23 S., Longitude 143.2 E.

This government-owned facility allows access to its holdings.

Paratypes: Nine preserved specimens at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen numbers D39594, D39595, D39596, D55284, D55285, D55286, D55287, D55288, D55292, all collected from the vicinity of the Ben Nevis Fire Tower in the Pyrenees Ranges, Victoria, Australia, Latitude -37.23 S., Longitude 143.2 E.

Diagnosis: *Hemiergus keilleri* sp. nov., *H. pailsorum* sp. nov., *H. kaputarensis* sp. nov., *H. dorsei* sp. nov. and *H. awe* sp. nov. are five of several species until now treated by most authors as populations of the well-known species *H. decresiensis* (Cuvier, 1829), a putative taxon until now treated as occupying the arc from south-east Queensland to south-east South Australia, mainly, but not always tied to cooler areas and granite type rock areas. This means the relevant species are usually found in uplands in the northern parts of the general distribution (i.e. northern New South Wales, far south Queensland, more northern parts of South Australia in the Flinders Ranges), while extending to lower altitude areas further south (e.g. Kangaroo Island in South Australia).

It is uncertain if the climatic factors, substrates, competing species or a combination of these are the main factors constraining extant distributions of and movements of the relevant species.

In terms of *H. keilleri* sp. nov. and each of the other relevant species, it is important to spell out the differences between each as essential parts of this diagnosis.

H. decresiensis is herein confined to Kangaroo Island, South Australia.

The morphologically similar putative taxon (herein treated as a

full species, but only tentatively), *H. continentis* (Copland, 1946) is herein restricted to nearby parts of south-east South Australia, generally in the region including the Adelaide Hills, with the bulk of the population found between Victor Harbour in the south and Burra in the north, with the population not extending any further east than the Coorong in the south, or beyond the Murray River further north.

H. awe sp. nov. is the divergent taxon found in the cooler parts of the Flinders Ranges around Wilpena Pound and potentially other nearby locations.

H. pailsorum sp. nov. is the isolated population found in the Mount Arapiles area west of the Grampians in western Victoria.

H. keilleri sp. nov. is found in association with the granitic hills from Mount Kerang (Wedderburn) in the north, south through the associated granite hills to the connected Pyrenees and Mount Buangor ranges (around Beaufort), all in western Victoria, Australia.

H. talbingoensis (Copland, 1946) is the species found in the Granite belt of the western side of the Great Dividing Range from near Yea in central Victoria, generally north and east of there to about Goulburn in New South Wales.

H. namatjira Wells and Wellington, 1985 is found generally north of Goulburn in New South Wales, north to about Mudgee and the Hunter Valley in New South Wales.

H. davisii (Copland, 1946) is found north of the Hunter Valley in the New England region, generally south of the line between Inverell and Glen Innes.

H. kaputarensis sp. nov. is an isolated, range-restricted morphologically divergent taxon confined to the high altitude Kaputar Range, north-west New South Wales, being some 70 km from the nearest population of *H. davisii* to the east.

H. dorsei sp. nov. is a range restricted taxon confined to the high altitude Granite Belt, around Stanthorpe in far southern Queensland, separated by a relatively rock-free zone from *H. davisii* to the south.

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

H. decresiensis has 24-26 midbody scale rows; is light greyish brown on the dorsal surface and greyish on the flanks. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is thick.

H. continentis has 24-26 midbody scale rows; and is a dark grey brown lizard, being this colour both dorsally and on most of the flanks, although the lower flanks are more whitish in colour. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is very thin and with an ill-defined lower boundary.

H. awe sp. nov. is similar in most respects to *H. continentis* detailed above, but is separated from that form by being more chocolate brown in dorsal colour and similar on the flanks, including the lower flanks which remain brownish and the fact that the black border extending along the upper flank has a well defined upper and lower edge.

H. pailsorum sp. nov. has 24-26 midbody scale rows; it is light brown on the dorsum and creamish on the flanks. There is a thick black line forming the border of the upper flank, which extends unbroken along the entire length of the (original) tail. Dorsally there is spotting composed of scattered moderate sized black spots, tending to form semi-distinct and broken lines. While black spots or peppering are on the centre of most scales on the dorsum in the other species in the complex, *H. pailsorum* sp. nov. is unusual in that this is not quite the case, with black spotting tending to be scattered, especially at the anterior part of the dorsum. Lower labials are strongly barred. There are no scattered white spots or flecks on the side of the original tail.

H. keilleri sp. nov. has 24-26 midbody scale rows; is a dark brownish to brownish grey on the dorsal surface. The black line at the top of the flank has a lower boundary that is often, but not always poorly defined, below which is a light brownish or

grey colouration before becoming lighter at the lower edge of the flank. On the upper surface the dark spotting at the centre of each scale is reasonably large and well defined to give the lizard an appearance of having moderately well-defined lines running down the dorsum, the spotting itself being slightly broken. There are scattered white spots or flecks on the side of the tail. Lower labials are either all brownish or grey or otherwise strongly etched around the edges brownish-grey and white in the centres.

H. talbingoensis has 22 midbody scale rows; the dorsum is a dark brown colour and a brownish-grey on the lower flank; the black line of the upper flank is very wide, with a poorly defined lower edge.

Dorsally the dark spotting or markings are typically either blurred or broken, especially on the posterior part of the body, meaning the appearance of stripes on the dorsum is often not there or only at the anterior part of the body. Striping of any form from the dorsum does not continue onto the tail. Upper and lower labials are a mixture of white and brownish, mainly brownish, but without any obvious patterning or markings.

H. namatjira has 20 midbody scale rows (rarely 18 or 22); is a boldly marked lizard, with well-defined black lines running down the dorsum of the body and continuing down the tail where they break to become lines of well-defined blackish spots. The black line on the top of the lateral edge of the flank is thin and well-defined. Mid and lower flank is whitish-grey. Upper labials are mainly dark, with white bars. The dorsum itself is a light beige-brown colour.

H. davisii is similar in most respects to *H. namatjira* above, but separated from *H. namatjira* by having a moderately thick line on the upper edge of the flank, below which is whitish grey and then below that another moderately thick black line on the mid to lower flank, which tends to break at the posterior end. This lower line is unique to this species and the morphologically similar *H. dorsei* sp. nov.. The dorsum itself is a beige-grey colour. The head is a light grey colour with only limited black peppering.

H. dorsei sp. nov. is similar in most respects to *H. davisii* above, but separated from that species by the increased amount of black pigment on the upper surface of the head, especially towards the snout, and the fact that the pair of black lines running down the dorsum are thicker and more prominent. The anterior of the body also has a strong and lighter brownish tinge (as compared to the lower part of the body); the light scales (or parts of them) that are between the black lines running down either side of the midline are of a slightly different colour to those outside these lines, which is apparently unique to this species. Adults observed appear to be more thick set in build than seen in *H. davisii* or for that matter any other species in the complex.

H. kaputarensis sp. nov. has 20 midbody scale rows; it is a lizard that appears to be a plain brown colour when viewed at a distance; stripes on the dorsum are either faded or absent and usually dark brown rather than blackish in colour, meaning that they often appear to blend in with the surrounding scale colouration, although some aberrant specimens are very boldly striped with unusually thick stripes. While the dorsum is invariably brownish in colour, the upper surface of the head is a darker brown or grey colour, but does not appear blackish towards the snout, have any obvious marks or flecks or rapid colour change at any point. Upper and lower labials are also brownish, but with small white centres. Sides of the tail are boldly dark flecked at the anterior end.

All the preceding species *H. decresiensis* (Cuvier, 1829), *H. continentis* (Copland, 1946), *H. awe* sp. nov., *H. pailsorum* sp. nov., *H. keilleri* sp. nov., *H. talbingoensis* (Copland, 1946), *H. namatjira* Wells and Wellington, 1985, *H. davisii* (Copland, 1946), *H. kaputarensis* sp. nov. and *H. dorsei* sp. nov. being the entirety of the genus *Hemiergus* Wagler, 1830 as defined in this paper, are separated from all other species within *Hemiergus sensu* Cogger (2014), being the genera *Chelomeles* Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), *Arenicolascincus* Wells and Wellington,

1985 (type species *Hemiergus millewae* Coventry, 1976), *Patheticoscincus* Wells and Wellington, 1984 (type species *Lygosoma australis* Gray, 1839), *Eroticoscincus* Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) and *Anepischetosia* Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894) by having tridactyle limbs with second toes only being slightly longer than the third (versus much longer in the genus *Chelomeles* Duméril and Bibron, 1839).

All the preceding genera are separated from all other Australian skinks by the following suite of characters: Parietal shields in contact behind the interparietal; lower eyelid is movable with a transparent disc; limbs short, usually separated by at least several scale lengths when adpressed;

supranasals usually absent; nasals small to moderate and usually separated; fingers 2-5, toes 2-5; ear opening is either small or in specimens with five fingers and five toes is hidden. They are cryptozoic, fossorial, small, slender, smooth-scaled skinks (modified and corrected from Cogger 2014).

H. decresiensis in life is depicted Wilson and Swan (2021) on page 341 at top right and online at:

<https://www.inaturalist.org/observations/73883044>

and

<https://www.inaturalist.org/observations/73882340>

and

<https://www.inaturalist.org/observations/6880996>

H. continentis in life is depicted in Wilson and Swan (2021) on page 341 at top left and online at:

<https://www.inaturalist.org/observations/100106076>

and

<https://www.flickr.com/photos/128497936@N03/50183308686/>

and

<https://www.flickr.com/photos/stephenmahony/52860519424/>

and

<https://www.flickr.com/photos/126237772@N07/31545804293/>

and

<https://www.flickr.com/photos/126237772@N07/31514451484/>

and

<https://www.flickr.com/photos/ryanfrancis/52020686868/>

H. pailsorum sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/126237772@N07/49903278286/>

and

<https://www.flickr.com/photos/127392361@N04/49903286101/>

and

<https://www.inaturalist.org/observations/153528278>

H. keilleri sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/68921296@N06/7991310532/>

and

<https://www.flickr.com/photos/68921296@N06/7991299111/>

and

<https://www.inaturalist.org/observations/37502548>

and

<https://www.inaturalist.org/observations/144710964>

and

<https://www.inaturalist.org/observations/64154617>

and

<https://www.inaturalist.org/observations/64229366>

H. talbingoensis is depicted in life in Wilson and Swan (2021) on page 345 at bottom and online at:

https://www.flickr.com/photos/ken_griffiths_photography/40306479154/

and

<https://www.inaturalist.org/observations/99854026>

and

<https://www.inaturalist.org/observations/119837457>

and
<https://www.flickr.com/photos/189037423@N06/51288445179/>
 and
<https://www.flickr.com/photos/189037423@N06/51288445169/>
H. namatjira is depicted in life in Hoser (1989) on page 98 at middle left, Cogger (2014) on page 577 at bottom, Swan *et al.* (2022) on page 172 top and online at:
<https://www.flickr.com/photos/shaneblackfnq/18604715978/>

and
<https://www.inaturalist.org/observations/57303146>
 and
<https://www.inaturalist.org/observations/8410443>
H. davisii is depicted in life in Wilson and Swan (2021) on page 343 middle right and online at:
<https://www.flickr.com/photos/126237772@N07/47509260012/>

and
<https://www.inaturalist.org/observations/130747870>
 and
<https://www.inaturalist.org/observations/134584279>
 and
<https://www.inaturalist.org/observations/130597944>

H. kaputarensis sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/171250498@N08/51282573293/>
 and
<https://www.flickr.com/photos/ryanfrancis/40026976514/>
 and
https://www.flickr.com/photos/zimny_anders/52903501674/
 and
<https://www.inaturalist.org/observations/69663574>

and
<https://www.inaturalist.org/observations/42467274>
 and
<https://www.inaturalist.org/observations/61527956>

Distribution: *H. keilleri sp. nov.* is found in association with the granitic hills from Mount Kerang (Wedderburn) in the north, south through the associated hills to the connected Pyrenees and Mount Buangor ranges (around Beaufort), all in western Victoria, Australia.

Etymology: Named in honour of Darren Keiller, trading as Snake Catcher Geelong, in recognition for his services to wildlife conservation in Victoria over some decades.

HEMIERGIS PAILSORUM SP. NOV.

LSIDDurn:lsid:zoobank.org:act:37609A39-A69A-452A-80BA-60DAEEDB7AE8

Holotype: A preserved adult female specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D5431 collected from Mt. Arapiles, Victoria, Australia, Latitude -36.77 S., Longitude 141.85 E.

This government-owned facility allows access to its holdings.

Paratypes: 37 preserved specimens at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen numbers D13937, D33433, D44862, D54300, D54302, D54305, D54306, D54310, D54314, D54316, D54317, D54318, D54320, D54321, D54322, D54325, D54329, D54337, D55846, D55848, D55850, D67108, D67110, D67112, D67113, D67124, D67125, D67129, D67131, D67135, D67137, D67140, D67141, D67149, D67155, D67160, D67144 all collected from Mt. Arapiles, Victoria, Australia, Latitude -36.77 S., Longitude 141.85 E.

Diagnosis: *Hemiergis keilleri sp. nov.*, *H. pailsorum sp. nov.*, *H. kaputarensis sp. nov.*, *H. dorsei sp. nov.* and *H. awe sp. nov.* are five of several species until now treated by most authors as populations of the well-known species *H. decresiensis* (Cuvier, 1829), a putative taxon until now treated as occupying the arc from south-east Queensland to south-east South Australia, mainly, but not always tied to cooler areas and granite type rock areas. This means the relevant species are usually found in uplands in the northern parts of the general distribution (i.e.

northern New South Wales, far south Queensland, more northern parts of South Australia in the Flinders Ranges), while extending to lower altitude areas further south (e.g. Kangaroo Island in South Australia).

It is uncertain if the climatic factors, substrates, competing species or a combination of these are the main factors constraining extant distributions of and movements of the relevant species.

In terms of *H. keilleri sp. nov.* and each of the other relevant species, it is important to spell out the differences between each as essential parts of this diagnosis.

H. decresiensis is herein confined to Kangaroo Island, South Australia.

The morphologically similar putative taxon (herein treated as a full species, but only tentatively), *H. continentis* (Copland, 1946) is herein restricted to nearby parts of south-east South Australia, generally in the region including the Adelaide Hills, with the bulk of the population found between Victor Harbour in the south and Burra in the north, with the population not extending any further east than the Coorong in the south, or beyond the Murray River further north.

H. awe sp. nov. is the divergent taxon found in the cooler parts of the Flinders Ranges around Wilpena Pound and potentially other nearby locations.

H. pailsorum sp. nov. is the isolated population found in the Mount Arapiles area west of the Grampians in western Victoria.

H. keilleri sp. nov. is found in association with the granitic hills from Mount Kerang (Wedderburn) in the north, south through the associated hills to the connected Pyrenees and Mount Buangor ranges (around Beaufort), all in western Victoria, Australia.

H. talbingoensis (Copland, 1946) is the species found in the Granite belt of the western side of the Great Dividing Range from near Yea in central Victoria, generally north and east of there to about Goulburn in New South Wales.

H. namatjira Wells and Wellington, 1985 is found generally north of Goulburn in New South Wales, north to about Mudgee and the Hunter Valley in New South Wales.

H. davisii (Copland, 1946) is found north of the Hunter Valley in the New England region, generally south of the line between Inverell and Glen Innes.

H. kaputarensis sp. nov. is an isolated, range-restricted morphologically divergent taxon confined to the high altitude Kaputar Range, north-west New South Wales, being some 70 km from the nearest population of *H. davisii* to the east.

H. dorsei sp. nov. is a range restricted taxon confined to the high altitude Granite Belt, around Stanthorpe in far southern Queensland, separated by a relatively rock-free zone from *H. davisii* to the south.

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

H. decresiensis has 24-26 midbody scale rows; is light greyish brown on the dorsal surface and greyish on the flanks. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is thick.

H. continentis has 24-26 midbody scale rows; and is a dark grey brown lizard, being this colour both dorsally and on most of the flanks, although the lower flanks are more whitish in colour. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is very thin and with an ill-defined lower boundary.

H. awe sp. nov. is similar in most respects to *H. continentis* detailed above, but is separated from that form by being more chocolate brown in dorsal colour and similar on the flanks, including the lower flanks which remain brownish and the fact that the black border extending along the upper flank has a well defined upper and lower edge.

H. pailsorum sp. nov. has 24-26 midbody scale rows; it is light brown on the dorsum and creamish on the flanks. There is a

thick black line forming the border of the upper flank, which extends unbroken along the entire length of the (original) tail. Dorsally there is spotting composed of scattered moderate sized black spots, tending to form semi-distinct and broken lines. While black spots or peppering are on the centre of most scales on the dorsum in the other species in the complex, *H. pailsorum* sp. nov. is unusual in that this is not quite the case, with black spotting tending to be scattered, especially at the anterior part of the dorsum. Lower labials are strongly barred. There are no scattered white spots or flecks on the side of the tail.

H. keilleri sp. nov. has 24-26 midbody scale rows; is a dark brownish to brownish grey on the dorsal surface. The black line at the top of the flank has a lower boundary that is often, but not always poorly defined, below which is a light brownish or grey colouration before becoming lighter at the lower edge of the flank. On the upper surface the dark spotting at the centre of each scale is reasonably large and well defined to give the lizard an appearance of having moderately well-defined lines running down the dorsum, the spotting itself being slightly broken. There are scattered white spots or flecks on the side of the tail. Lower labials are either all brownish or grey or otherwise strongly etched around the edges brownish-grey and white in the centres.

H. talbingoensis has 22 midbody scale rows; the dorsum is a dark brown colour and a brownish-grey on the lower flank; the black line of the upper flank is very wide, with a poorly defined lower edge.

Dorsally the dark spotting or markings are typically either blurred or broken, especially on the posterior part of the body, meaning the appearance of stripes on the dorsum is often not there or only at the anterior part of the body. Striping of any form from the dorsum does not continue onto the tail. Upper and lower labials are a mixture of white and brownish, mainly brownish, but without any obvious patterning or markings.

H. namatjira has 20 midbody scale rows (rarely 18 or 22); is a boldly marked lizard, with well-defined black lines running down the dorsum of the body and continuing down the tail where they break to become lines of well-defined blackish spots. The black line on the top of the lateral edge of the flank is thin and well-defined. Mid and lower flank is whitish-grey. Upper labials are mainly dark, with white bars. The dorsum itself is a light beige-brown colour.

H. davisii is similar in most respects to *H. namatjira* above, but separated from *H. namatjira* by having a moderately thick line on the upper edge of the flank, below which is whitish grey and then below that another moderately thick black line on the mid to lower flank, which tends to break at the posterior end. This lower line is unique to this species and the morphologically similar *H. dorseyi* sp. nov.. The dorsum itself is a beige-grey colour. The head is a light grey colour with only limited black peppering.

H. dorseyi sp. nov. is similar in most respects to *H. davisii* above, but separated from that species by the increased amount of black pigment on the upper surface of the head, especially towards the snout, and the fact that the pair of black lines running down the dorsum are thicker and more prominent. The anterior of the body also has a strong and lighter brownish tinge (as compared to the lower part of the body); the light scales (or parts of them) that are between the black lines running down either side of the midline are of a slightly different colour to those outside these lines, which is apparently unique to this species. Adults observed appear to be more thick set in build than seen in *H. davisii* or for that matter any other species in the complex.

H. kaputarensis sp. nov. has 20 midbody scale rows; it is a lizard that appears to be a plain brown colour when viewed at a distance; stripes on the dorsum are either faded or absent and usually dark brown rather than blackish in colour, meaning that they often appear to blend in with the surrounding scale colouration, although some aberrant specimens are very boldly striped with unusually thick stripes. While the dorsum is invariably brownish in colour, the upper surface of the head is a darker brown or grey colour, but does not appear blackish

towards the snout, have any obvious marks or flecks or rapid colour change at any point. Upper and lower labials are also brownish, but with small white centres. Sides of the tail are boldly dark flecked at the anterior end.

All the preceding species *H. decresiensis* (Cuvier, 1829), *H. continentis* (Copland, 1946), *H. awe* sp. nov., *H. pailsorum* sp. nov., *H. keilleri* sp. nov., *H. talbingoensis* (Copland, 1946), *H. namatjira* Wells and Wellington, 1985, *H. davisii* (Copland, 1946), *H. kaputarensis* sp. nov. and *H. dorseyi* sp. nov. being the entirety of the genus *Hemiergis* Wagler, 1830 as defined in this paper, are separated from all other species within *Hemiergis sensu* Cogger (2014), being the genera *Chelomeles* Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), *Arenicolascincus* Wells and Wellington, 1985 (type species *Hemiergis millewae* Coventry, 1976), *Patheticoscincus* Wells and Wellington, 1984 (type species *Lygosoma australis* Gray, 1839), *Eroticoscincus* Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) and *Anepischetosia* Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894) by having tridactyle limbs with second toes only being slightly longer than the third (versus much longer in the genus *Chelomeles* Duméril and Bibron, 1839).

All the preceding genera are separated from all other Australian skinks by the following suite of characters: Parietal shields in contact behind the interparietal; lower eyelid is movable with a transparent disc; limbs short, usually separated by at least several scale lengths when adpressed;

supranasals usually absent; nasals small to moderate and usually separated; fingers 2-5, toes 2-5; ear opening is either small or in specimens with five fingers and five toes is hidden. They are cryptozoic, fossorial, small, slender, smooth-scaled skinks (modified and corrected from Cogger 2014).

H. decresiensis in life is depicted Wilson and Swan (2021) on page 341 at top right and online at:

<https://www.inaturalist.org/observations/73883044>

and

<https://www.inaturalist.org/observations/73882340>

and

<https://www.inaturalist.org/observations/6880996>

H. continentis in life is depicted in Wilson and Swan (2021) on page 341 at top left and online at:

<https://www.inaturalist.org/observations/100106076>

and

<https://www.flickr.com/photos/128497936@N03/50183308686/>

and

<https://www.flickr.com/photos/stephenmahony/52860519424/>

and

<https://www.flickr.com/photos/126237772@N07/31545804293/>

and

<https://www.flickr.com/photos/126237772@N07/31514451484/>

and

<https://www.flickr.com/photos/ryanfrancis/52020686868/>

H. pailsorum sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/126237772@N07/49903278286/>

and

<https://www.flickr.com/photos/127392361@N04/49903286101/>

and

<https://www.inaturalist.org/observations/153528278>

H. keilleri sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/68921296@N06/7991310532/>

and

<https://www.flickr.com/photos/68921296@N06/7991299111/>

and

<https://www.inaturalist.org/observations/37502548>

and

<https://www.inaturalist.org/observations/144710964>
 and
<https://www.inaturalist.org/observations/64154617>
 and
<https://www.inaturalist.org/observations/64229366>
H. talbingoensis is depicted in life in Wilson and Swan (2021) on page 345 at bottom and online at:
https://www.flickr.com/photos/ken_griffiths_photography/40306479154/
 and
<https://www.inaturalist.org/observations/99854026>
 and
<https://www.inaturalist.org/observations/119837457>
 and
<https://www.flickr.com/photos/189037423@N06/51288445179/>
 and
<https://www.flickr.com/photos/189037423@N06/51288445169/>
H. namatjira is depicted in life in Hoser (1989) on page 98 at middle left, Cogger (2014) on page 577 at bottom, Swan *et al.* (2022) on page 172 top and online at:
<https://www.flickr.com/photos/shaneblackfnq/18604715978/>
 and
<https://www.inaturalist.org/observations/57303146>
 and
<https://www.inaturalist.org/observations/8410443>
H. davisii is depicted in life in Wilson and Swan (2021) on page 343 middle right and online at:
<https://www.flickr.com/photos/126237772@N07/47509260012/>
 and
<https://www.inaturalist.org/observations/130747870>
 and
<https://www.inaturalist.org/observations/134584279>
 and
<https://www.inaturalist.org/observations/130597944>
H. kaputarensis sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/171250498@N08/51282573293/>
 and
<https://www.flickr.com/photos/ryanfrancis/40026976514/>
 and
https://www.flickr.com/photos/zimny_anders/52903501674/
 and
<https://www.inaturalist.org/observations/69663574>
 and
<https://www.inaturalist.org/observations/42467274>
 and
<https://www.inaturalist.org/observations/61527956>
Distribution: *H. pailsorum* sp. nov. is only known from the immediate vicinity of Mount Arapiles, Victoria, Australia and appears restricted to this location. While very abundant at this location, heavily surveyed nearby areas have not yielded specimens of this taxon.
 Therefore it should be monitored closely as a vulnerable taxon.
Etymology: Named in honour of Roy and Lynn Pails of Ballarat, Victoria, Australia, owners of "Pails for Scales" wildlife conservation, in recognition of their fantastic services to wildlife conservation by both Roy and Lynn over some decades.
HEMIERGIS KAPUTARENSIS SP. NOV.
LSIDDurn:lsid:zoobank.org:act:4F28DDFC-F98D-4756-9167-C71F909DACE1
Holotype: A live specimen depicted in a photo uploaded to the photo sharing site "flickr.com" on 1 July 2021, posted at:
<https://www.flickr.com/photos/171250498@N08/51282573293/>
 collected from Mount Kaputar National Park, NSW, Australia, and remaining online at the time this paper was published in 2023.
Paratypes: Two live specimens depicted in photos uploaded to

the photo sharing site "flickr.com" at:
<https://www.flickr.com/photos/ryanfrancis/40026976514/>
 and
https://www.flickr.com/photos/zimny_anders/52903501674/
 and remaining online at the time this paper was published in 2023.

All the three preceding referred to images can be found at online archives, (e.g. "wayback machine") even if deleted from their hosted site pages at any time.

Diagnosis: *Hemiergis keilleri* sp. nov., *H. pailsorum* sp. nov., *H. kaputarensis* sp. nov., *H. dorsei* sp. nov. and *H. awe* sp. nov. are five of several species until now treated by most authors as populations of the well-known species *H. decresiensis* (Cuvier, 1829), a putative taxon until now treated as occupying the arc from south-east Queensland to south-east South Australia, mainly, but not always tied to cooler areas and granite type rock areas. This means the relevant species are usually found in uplands in the northern parts of the general distribution (i.e. northern New South Wales, far south Queensland, more northern parts of South Australia in the Flinders Ranges), while extending to lower altitude areas further south (e.g. Kangaroo Island in South Australia).

It is uncertain if the climatic factors, substrates, competing species or a combination of these are the main factors constraining extant distributions of and movements of the relevant species.

In terms of *H. keilleri* sp. nov. and each of the other relevant species, it is important to spell out the differences between each as essential parts of this diagnosis.

H. decresiensis is herein confined to Kangaroo Island, South Australia.

The morphologically similar putative taxon (herein treated as a full species, but only tentatively), *H. continentis* (Copland, 1946) is herein restricted to nearby parts of south-east South Australia, generally in the region including the Adelaide Hills, with the bulk of the population found between Victor Harbour in the south and Burra in the north, with the population not extending any further east than the Coorong in the south, or beyond the Murray River further north.

H. awe sp. nov. is the divergent taxon found in the cooler parts of the Flinders Ranges around Wilpena Pound and potentially other nearby locations.

H. pailsorum sp. nov. is the isolated population found in the Mount Arapiles area west of the Grampians in western Victoria.

H. keilleri sp. nov. is found in association with the granitic hills from Mount Kerang (Wedderburn) in the north, south through the associated hills to the connected Pyrenees and Mount Buangor ranges (around Beaufort), all in western Victoria, Australia.

H. talbingoensis (Copland, 1946) is the species found in the Granite belt of the western side of the Great Dividing Range from near Yea in central Victoria, generally north and east of there to about Goulburn in New South Wales.

H. namatjira Wells and Wellington, 1985 is found generally north of Goulburn in New South Wales, north to about Mudgee and the Hunter Valley in New South Wales.

H. davisii (Copland, 1946) is found north of the Hunter Valley in the New England region, generally south of the line between Inverell and Glen Innes.

H. kaputarensis sp. nov. is an isolated, range-restricted morphologically divergent taxon confined to the high altitude Kaputar Range, north-west New South Wales, being some 70 km from the nearest population of *H. davisii* to the east.

H. dorsei sp. nov. is a range restricted taxon confined to the high altitude Granite Belt, around Stanthorpe in far southern Queensland, separated by a relatively rock-free zone from *H. davisii* to the south.

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

H. decresiensis has 24-26 midbody scale rows; is light greyish brown on the dorsal surface and greyish on the flanks. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is thick.

H. continentis has 24-26 midbody scale rows; and is a dark grey brown lizard, being this colour both dorsally and on most of the flanks, although the lower flanks are more whitish in colour. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is very thin and with an ill-defined lower boundary.

H. awe sp. nov. is similar in most respects to *H. continentis* detailed above, but is separated from that form by being more chocolate brown in dorsal colour and similar on the flanks, including the lower flanks which remain brownish and the fact that the black border extending along the upper flank has a well defined upper and lower edge.

H. pailsorum sp. nov. has 24-26 midbody scale rows; it is light brown on the dorsum and creamish on the flanks. There is a thick black line forming the border of the upper flank, which extends unbroken along the entire length of the (original) tail. Dorsally there is spotting composed of scattered moderate sized black spots, tending to form semi-distinct and broken lines. While black spots or peppering are on the centre of most scales on the dorsum in the other species in the complex, *H. pailsorum* sp. nov. is unusual in that this is not quite the case, with black spotting tending to be scattered, especially at the anterior part of the dorsum. Lower labials are strongly barred. There are no scattered white spots or flecks on the side of the tail.

H. keilleri sp. nov. has 24-26 midbody scale rows; is a dark brownish to brownish grey on the dorsal surface. The black line at the top of the flank has a lower boundary that is often, but not always poorly defined, below which is a light brownish or grey colouration before becoming lighter at the lower edge of the flank. On the upper surface the dark spotting at the centre of each scale is reasonably large and well defined to give the lizard an appearance of having moderately well-defined lines running down the dorsum, the spotting itself being slightly broken. There are scattered white spots or flecks on the side of the tail. Lower labials are either all brownish or grey or otherwise strongly etched around the edges brownish-grey and white in the centres.

H. talbingoensis has 22 midbody scale rows; the dorsum is a dark brown colour and a brownish-grey on the lower flank; the black line of the upper flank is very wide, with a poorly defined lower edge.

Dorsally the dark spotting or markings are typically either blurred or broken, especially on the posterior part of the body, meaning the appearance of stripes on the dorsum is often not there or only at the anterior part of the body. Striping of any form from the dorsum does not continue onto the tail. Upper and lower labials are a mixture of white and brownish, mainly brownish, but without any obvious patterning or markings.

H. namatjira has 20 midbody scale rows (rarely 18 or 22); is a boldly marked lizard, with well-defined black lines running down the dorsum of the body and continuing down the tail where they break to become lines of well-defined blackish spots. The black line on the top of the lateral edge of the flank is thin and well-defined. Mid and lower flank is whitish-grey. Upper labials are mainly dark, with white bars. The dorsum itself is a light beige-brown colour.

H. davisii is similar in most respects to *H. namatjira* above, but separated from *H. namatjira* by having a moderately thick line on the upper edge of the flank, below which is whitish grey and then below that another moderately thick black line on the mid to lower flank, which tends to break at the posterior end. This lower line is unique to this species and the morphologically similar *H. dorsei* sp. nov.. The dorsum itself is a beige-grey colour. The head is a light grey colour with only limited black peppering.

H. dorsei sp. nov. is similar in most respects to *H. davisii* above, but separated from that species by the increased amount of black pigment on the upper surface of the head, especially

towards the snout, and the fact that the pair of black lines running down the dorsum are thicker and more prominent. The anterior of the body also has a strong and lighter brownish tinge (as compared to the lower part of the body); the light scales (or parts of them) that are between the black lines running down either side of the midline are of a slightly different colour to those outside these lines, which is apparently unique to this species. Adults observed appear to be more thick set in build than seen in *H. davisii* or for that matter any other species in the complex.

H. kaputarensis sp. nov. has 20 midbody scale rows; it is a lizard that appears to be a plain brown colour when viewed at a distance; stripes on the dorsum are either faded or absent and usually dark brown rather than blackish in colour, meaning that they often appear to blend in with the surrounding scale colouration, although some aberrant specimens are very boldly striped with unusually thick stripes.

While the dorsum is invariably brownish in colour, the upper surface of the head is a darker brown or grey colour, but does not appear blackish towards the snout, have any obvious marks or flecks or rapid colour change at any point. Upper and lower labials are also brownish, but with small white centres. Sides of the tail are boldly dark flecked at the anterior end.

All the preceding species *H. decresiensis* (Cuvier, 1829), *H. continentis* (Copland, 1946), *H. awe* sp. nov., *H. pailsorum* sp. nov., *H. keilleri* sp. nov., *H. talbingoensis* (Copland, 1946), *H. namatjira* Wells and Wellington, 1985, *H. davisii* (Copland, 1946), *H. kaputarensis* sp. nov. and *H. dorsei* sp. nov. being the entirety of the genus *Hemiergus* Wagler, 1830 as defined in this paper, are separated from all other species within *Hemiergus sensu* Cogger (2014), being the genera *Chelomeles* Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), *Arenicolascincus* Wells and Wellington, 1985 (type species *Hemiergus millewae* Coventry, 1976), *Patheticoscincus* Wells and Wellington, 1984 (type species *Lygosoma australis* Gray, 1839), *Eroticoscincus* Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) and *Anepischetosia* Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894) by having tridactyle limbs with second toes only being slightly longer than the third (versus much longer in the genus *Chelomeles* Duméril and Bibron, 1839).

All the preceding genera are separated from all other Australian skinks by the following suite of characters: Parietal shields in contact behind the interparietal; lower eyelid is movable with a transparent disc; limbs short, usually separated by at least several scale lengths when adpressed;

supranasals usually absent; nasals small to moderate and usually separated; fingers 2-5, toes 2-5; ear opening is either small or in specimens with five fingers and five toes is hidden. They are cryptozoic, fossorial, small, slender, smooth-scaled skinks (modified and corrected from Cogger 2014).

H. decresiensis in life is depicted Wilson and Swan (2021) on page 341 at top right and online at:

<https://www.inaturalist.org/observations/73883044>

and

<https://www.inaturalist.org/observations/73882340>

and

<https://www.inaturalist.org/observations/6880996>

H. continentis in life is depicted in Wilson and Swan (2021) on page 341 at top left and online at:

<https://www.inaturalist.org/observations/100106076>

and

<https://www.flickr.com/photos/128497936@N03/50183308686/>

and

<https://www.flickr.com/photos/stephenmahony/52860519424/>

and

<https://www.flickr.com/photos/126237772@N07/31545804293/>

and

<https://www.flickr.com/photos/126237772@N07/31514451484/>
 and
<https://www.flickr.com/photos/ryanfrancis/52020686868/>
H. pailsorum sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/126237772@N07/49903278286/>
 and
<https://www.flickr.com/photos/127392361@N04/49903286101/>
 and
<https://www.inaturalist.org/observations/153528278>
H. keilleri sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/68921296@N06/7991310532/>
 and
<https://www.flickr.com/photos/68921296@N06/7991299111/>
 and
<https://www.inaturalist.org/observations/37502548>
 and
<https://www.inaturalist.org/observations/144710964>
 and
<https://www.inaturalist.org/observations/64154617>
 and
<https://www.inaturalist.org/observations/64229366>
H. talbingoensis is depicted in life in Wilson and Swan (2021) on page 345 at bottom and online at:
https://www.flickr.com/photos/ken_griffiths_photography/40306479154/
 and
<https://www.inaturalist.org/observations/99854026>
 and
<https://www.inaturalist.org/observations/119837457>
 and
<https://www.flickr.com/photos/189037423@N06/51288445179/>
 and
<https://www.flickr.com/photos/189037423@N06/51288445169/>
H. namatjira is depicted in life in Hoser (1989) on page 98 at middle left, Cogger (2014) on page 577 at bottom, Swan *et al.* (2022) on page 172 top and online at:
<https://www.flickr.com/photos/shaneblackfnq/18604715978/>
 and
<https://www.inaturalist.org/observations/57303146>
 and
<https://www.inaturalist.org/observations/8410443>
H. davisii is depicted in life in Wilson and Swan (2021) on page 343 middle right and online at:
<https://www.flickr.com/photos/126237772@N07/47509260012/>
 and
<https://www.inaturalist.org/observations/130747870>
 and
<https://www.inaturalist.org/observations/134584279>
 and
<https://www.inaturalist.org/observations/130597944>
H. kaputarensis sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/171250498@N08/51282573293/>
 and
<https://www.flickr.com/photos/ryanfrancis/40026976514/>
 and
https://www.flickr.com/photos/zimny_anders/52903501674/
 and
<https://www.inaturalist.org/observations/69663574>
 and
<https://www.inaturalist.org/observations/42467274>
 and
<https://www.inaturalist.org/observations/61527956>
Distribution: *H. kaputarensis* sp. nov. is only known from the immediate vicinity of Mount Kaputar in New South Wales,

Australia and appears restricted to this locality. While very abundant at this location, heavily surveyed nearby areas (flat areas) have not yielded specimens of this taxon.

H. davisii found in the main part of the New England region is separated by a relatively flat zone of about 70 km in a straight line from this isolated species.

Etymology: *H. kaputarensis* sp. nov. is named in reflection of from where this taxon occurs.

HEMIERGIS DORSEI SP. NOV.

LSIDurn:lsid:zoobank.org:act:B8210D46-9AD8-4C37-9B32-08AA604F5823

Holotype: A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D9393 collected from 7.5 km west of Amiens, south-east Queensland, Australia, Latitude -28.58 S., Longitude 151.73 E.

This government-owned facility allows access to its holdings.

Diagnosis: *Hemiergis keilleri* sp. nov., *H. pailsorum* sp. nov., *H. kaputarensis* sp. nov., *H. dorsei* sp. nov. and *H. awe* sp. nov. are five of several species until now treated by most authors as populations of the well-known species *H. decresiensis* (Cuvier, 1829), a putative taxon until now treated as occupying the arc from south-east Queensland to south-east South Australia, mainly, but not always tied to cooler areas and granite type rock areas. This means the relevant species are usually found in uplands in the northern parts of the general distribution (i.e. northern New South Wales, far south Queensland, more northern parts of South Australia in the Flinders Ranges), while extending to lower altitude areas further south (e.g. Kangaroo Island in South Australia).

It is uncertain if the climatic factors, substrates, competing species or a combination of these are the main factors constraining extant distributions of and movements of the relevant species.

In terms of *H. keilleri* sp. nov. and each of the other relevant species, it is important to spell out the differences between each as essential parts of this diagnosis.

H. decresiensis is herein confined to Kangaroo Island, South Australia.

The morphologically similar putative taxon (herein treated as a full species, but only tentatively), *H. continentis* (Copland, 1946) is herein restricted to nearby parts of south-east South Australia, generally in the region including the Adelaide Hills, with the bulk of the population found between Victor Harbour in the south and Burra in the north, with the population not extending any further east than the Coorong in the south, or beyond the Murray River further north.

H. awe sp. nov. is the divergent taxon found in the cooler parts of the Flinders Ranges around Wilpena Pound and potentially other nearby locations.

H. pailsorum sp. nov. is the isolated population found in the Mount Arapiles area west of the Grampians in western Victoria.

H. keilleri sp. nov. is found in association with the granitic hills from Mount Kerang (Wedderburn) in the north, south through the associated hills to the connected Pyrenees and Mount Buangor ranges (around Beaufort), all in western Victoria, Australia.

H. talbingoensis (Copland, 1946) is the species found in the Granite belt of the western side of the Great Dividing Range from near Yea in central Victoria, generally north and east of there to about Goulburn in New South Wales.

H. namatjira Wells and Wellington, 1985 is found generally north of Goulburn in New South Wales, north to about Mudgee and the Hunter Valley in New South Wales.

H. davisii (Copland, 1946) is found north of the Hunter Valley in the New England region, generally south of the line between Inverell and Glen Innes.

H. kaputarensis sp. nov. is an isolated, range-restricted morphologically divergent taxon confined to the high altitude Kaputar Range, north-west New South Wales, being some 70 km

from the nearest population of *H. davisii* to the east.

H. dorsei sp. nov. is a range restricted taxon confined to the high altitude Granite Belt, around Stanthorpe in far southern Queensland, separated by a relatively rock-free zone from *H. davisii* to the south.

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

H. decresiensis has 24-26 midbody scale rows; is light greyish brown on the dorsal surface and greyish on the flanks. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is thick.

H. continentis has 24-26 midbody scale rows; and is a dark grey brown lizard, being this colour both dorsally and on most of the flanks, although the lower flanks are more whitish in colour. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is very thin and with an ill-defined lower boundary.

H. awe sp. nov. is similar in most respects to *H. continentis* detailed above, but is separated from that form by being more chocolate brown in dorsal colour and similar on the flanks, including the lower flanks which remain brownish and the fact that the black border extending along the upper flank has a well defined upper and lower edge.

H. pailsorum sp. nov. has 24-26 midbody scale rows; it is light brown on the dorsum and creamish on the flanks. There is a thick black line forming the border of the upper flank, which extends unbroken along the entire length of the (original) tail. Dorsally there is spotting composed of scattered moderate sized black spots, tending to form semi-distinct and broken lines. While black spots or peppering are on the centre of most scales on the dorsum in the other species in the complex, *H. pailsorum* sp. nov. is unusual in that this is not quite the case, with black spotting tending to be scattered, especially at the anterior part of the dorsum. Lower labials are strongly barred. There are no scattered white spots or flecks on the side of the tail.

H. keilleri sp. nov. has 24-26 midbody scale rows; is a dark brownish to brownish grey on the dorsal surface. The black line at the top of the flank has a lower boundary that is often, but not always poorly defined, below which is a light brownish or grey colouration before becoming lighter at the lower edge of the flank. On the upper surface the dark spotting at the centre of each scale is reasonably large and well defined to give the lizard an appearance of having moderately well-defined lines running down the dorsum, the spotting itself being slightly broken. There are scattered white spots or flecks on the side of the tail. Lower labials are either all brownish or grey or otherwise strongly etched around the edges brownish-grey and white in the centres.

H. talbingoensis has 22 midbody scale rows; the dorsum is a dark brown colour and a brownish-grey on the lower flank; the black line of the upper flank is very wide, with a poorly defined lower edge.

Dorsally the dark spotting or markings are typically either blurred or broken, especially on the posterior part of the body, meaning the appearance of stripes on the dorsum is often not there or only at the anterior part of the body. Striping of any form from the dorsum does not continue onto the tail. Upper and lower labials are a mixture of white and brownish, mainly brownish, but without any obvious patterning or markings.

H. namatjira has 20 midbody scale rows (rarely 18 or 22); is a boldly marked lizard, with well-defined black lines running down the dorsum of the body and continuing down the tail where they break to become lines of well-defined blackish spots. The black line on the top of the lateral edge of the flank is thin and well-defined. Mid and lower flank is whitish-grey. Upper labials are mainly dark, with white bars. The dorsum itself is a light beige-brown colour.

H. davisii is similar in most respects to *H. namatjira* above, but separated from *H. namatjira* by having a moderately thick line on the upper edge of the flank, below which is whitish grey and

then below that another moderately thick black line on the mid to lower flank, which tends to break at the posterior end. This lower line is unique to this species and the morphologically similar *H. dorsei* sp. nov.. The dorsum itself is a beige-grey colour. The head is a light grey colour with only limited black peppering.

H. dorsei sp. nov. is similar in most respects to *H. davisii* above, but separated from that species by the increased amount of black pigment on the upper surface of the head, especially towards the snout, and the fact that the pair of black lines running down the dorsum are thicker and more prominent. The anterior of the body also has a strong and lighter brownish tinge (as compared to the lower part of the body); the light scales (or parts of them) that are between the black lines running down either side of the midline are of a slightly different colour to those outside these lines, which is apparently unique to this species. Adults observed appear to be more thick set in build than seen in *H. davisii* or for that matter any other species in the complex.

H. kaputarensis sp. nov. has 20 midbody scale rows; it is a lizard that appears to be a plain brown colour when viewed at a distance; stripes on the dorsum are either faded or absent and usually dark brown rather than blackish in colour, meaning that they often appear to blend in with the surrounding scale colouration, although some aberrant specimens are very boldly striped with unusually thick stripes.

While the dorsum is invariably brownish in colour, the upper surface of the head is a darker brown or grey colour, but does not appear blackish towards the snout, have any obvious marks or flecks or rapid colour change at any point. Upper and lower labials are also brownish, but with small white centres. Sides of the tail are boldly dark flecked at the anterior end.

All the preceding species *H. decresiensis* (Cuvier, 1829), *H. continentis* (Copland, 1946), *H. awe* sp. nov., *H. pailsorum* sp. nov., *H. keilleri* sp. nov., *H. talbingoensis* (Copland, 1946), *H. namatjira* Wells and Wellington, 1985, *H. davisii* (Copland, 1946), *H. kaputarensis* sp. nov. and *H. dorsei* sp. nov. being the entirety of the genus *Hemiergus* Wagler, 1830 as defined in this paper, are separated from all other species within *Hemiergus sensu* Cogger (2014), being the genera *Chelomeles* Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), *Arenicolascincus* Wells and Wellington, 1985 (type species *Hemiergus millewae* Coventry, 1976), *Patheticoscincus* Wells and Wellington, 1984 (type species *Lygosoma australis* Gray, 1839), *Eroticoscincus* Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) and *Anepischetosia* Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894) by having tridactyle limbs with second toes only being slightly longer than the third (versus much longer in the genus *Chelomeles* Duméril and Bibron, 1839).

All the preceding genera are separated from all other Australian skinks by the following suite of characters: Parietal shields in contact behind the interparietal; lower eyelid is movable with a transparent disc; limbs short, usually separated by at least several scale lengths when adpressed;

supranasals usually absent; nasals small to moderate and usually separated; fingers 2-5, toes 2-5; ear opening is either small or in specimens with five fingers and five toes is hidden. They are cryptozoic, fossorial, small, slender, smooth-scaled skinks (modified and corrected from Cogger 2014).

H. decresiensis in life is depicted Wilson and Swan (2021) on page 341 at top right and online at:

<https://www.inaturalist.org/observations/73883044>

and

<https://www.inaturalist.org/observations/73882340>

and

<https://www.inaturalist.org/observations/6880996>

H. continentis in life is depicted in Wilson and Swan (2021) on page 341 at top left and online at:

<https://www.inaturalist.org/observations/100106076>

and
<https://www.flickr.com/photos/128497936@N03/50183308686/>
 and
<https://www.flickr.com/photos/stephenmahony/52860519424/>
 and
<https://www.flickr.com/photos/126237772@N07/31545804293/>
 and
<https://www.flickr.com/photos/126237772@N07/31514451484/>
 and
<https://www.flickr.com/photos/ryanfrancis/52020686868/>
H. pailsorum sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/126237772@N07/49903278286/>
 and
<https://www.flickr.com/photos/127392361@N04/49903286101/>
 and
<https://www.inaturalist.org/observations/153528278>
H. keilleri sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/68921296@N06/7991310532/>
 and
<https://www.flickr.com/photos/68921296@N06/7991299111/>
 and
<https://www.inaturalist.org/observations/37502548>
 and
<https://www.inaturalist.org/observations/144710964>
 and
<https://www.inaturalist.org/observations/64154617>
 and
<https://www.inaturalist.org/observations/64229366>
H. talbingoensis is depicted in life in Wilson and Swan (2021) on page 345 at bottom and online at:
https://www.flickr.com/photos/ken_griffiths_photography/40306479154/
 and
<https://www.inaturalist.org/observations/99854026>
 and
<https://www.inaturalist.org/observations/119837457>
 and
<https://www.flickr.com/photos/189037423@N06/51288445179/>
 and
<https://www.flickr.com/photos/189037423@N06/51288445169/>
H. namatjira is depicted in life in Hoser (1989) on page 98 at middle left, Cogger (2014) on page 577 at bottom, Swan *et al.* (2022) on page 172 top and online at:
<https://www.flickr.com/photos/shaneblackfnq/18604715978/>
 and
<https://www.inaturalist.org/observations/57303146>
 and
<https://www.inaturalist.org/observations/8410443>
H. davisii is depicted in life in Wilson and Swan (2021) on page 343 middle right and online at:
<https://www.flickr.com/photos/126237772@N07/47509260012/>
 and
<https://www.inaturalist.org/observations/130747870>
 and
<https://www.inaturalist.org/observations/134584279>
 and
<https://www.inaturalist.org/observations/130597944>
H. kaputarensis sp. nov. is depicted in life online at:
<https://www.flickr.com/photos/171250498@N08/51282573293/>
 and
<https://www.flickr.com/photos/ryanfrancis/40026976514/>
 and
https://www.flickr.com/photos/zimny_anders/52903501674/
 and

<https://www.inaturalist.org/observations/69663574>
 and
<https://www.inaturalist.org/observations/42467274>
 and
<https://www.inaturalist.org/observations/61527956>

Distribution: *H. dorsei* sp. nov. is only known from the Granite belt of far south-east Queensland and possibly immediately adjacent parts of far northern New South Wales (e.g. Bolivia Hill). It is separated by a relatively rock free zone from the taxon *H. davisii*, found in a line generally south of Inverell/Glen Innes in the rest of the New England region, which in turn is separated by the Hunter Valley to the south from its next congener, *H. namatjira*.
Etymology: *H. dorsei* sp. nov. is named in honour of wildlife displayer Marc Dorse of Toowoomba, Queensland, Australia (as of 2023) in recognition of his many contributions to herpetology in Australia.

HEMERGIS AWE SP. NOV.

LSIDurn:lsid:zoobank.org:act:D282E75D-C79B-4085-A2A5-684DFDD39451

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R53231 collected from 5.5 km west, north-west of Wilpena Pound Chalet, Wilpena Pound, South Australia, Australia, Latitude -31.5061 S., Longitude 138.5519 E.

This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R60931 collected from 3.8km north, north-east of Rawnsley Park Homestead, South Australia, Australia, Latitude -31.6228 S., Longitude 138.6131 E.

Diagnosis: *Hemiergis keilleri* sp. nov., *H. pailsorum* sp. nov., *H. kaputarensis* sp. nov., *H. dorsei* sp. nov. and *H. awe* sp. nov. are five of several species until now treated by most authors as populations of the well-known species *H. decresiensis* (Cuvier, 1829), a putative taxon until now treated as occupying the arc from south-east Queensland to south-east South Australia, mainly, but not always tied to cooler areas and granite type rock areas. This means the relevant species are usually found in uplands in the northern parts of the general distribution (i.e. northern New South Wales, far south Queensland, more northern parts of South Australia in the Flinders Ranges), while extending to lower altitude areas further south (e.g. Kangaroo Island in South Australia).

It is uncertain if the climatic factors, substrates, competing species or a combination of these are the main factors constraining extant distributions of and movements of the relevant species.

In terms of *H. keilleri* sp. nov. and each of the other relevant species, it is important to spell out the differences between each as essential parts of this diagnosis.

H. decresiensis is herein confined to Kangaroo Island, South Australia.

The morphologically similar putative taxon (herein treated as a full species, but only tentatively), *H. continentis* (Copland, 1946) is herein restricted to nearby parts of south-east South Australia, generally in the region including the Adelaide Hills, with the bulk of the population found between Victor Harbour in the south and Burra in the north, with the population not extending any further east than the Coorong in the south, or beyond the Murray River further north.

H. awe sp. nov. is the divergent taxon found in the cooler parts of the Flinders Ranges around Wilpena Pound and potentially other nearby locations.

H. pailsorum sp. nov. is the isolated population found in the Mount Arapiles area west of the Grampians in western Victoria.

H. keilleri sp. nov. is found in association with the granitic hills from Mount Kerang (Wedderburn) in the north, south through the associated hills to the connected Pyrenees and Mount Buangor

ranges (around Beaufort), all in western Victoria, Australia.

H. talbingoensis (Copland, 1946) is the species found in the Granite belt of the western side of the Great Dividing Range from near Yea in central Victoria, generally north and east of there to about Goulburn in New South Wales.

H. namatjira Wells and Wellington, 1985 is found generally north of Goulburn in New South Wales, north to about Mudgee and the Hunter Valley in New South Wales.

H. davisii (Copland, 1946) is found north of the Hunter Valley in the New England region, generally south of the line between Inverell and Glen Innes.

H. kaputarensis sp. nov. is an isolated, range-restricted morphologically divergent taxon confined to the high altitude Kaputar Range, north-west New South Wales, being some 70 km from the nearest population of *H. davisii* to the east.

H. dorsei sp. nov. is a range restricted taxon confined to the high altitude Granite Belt, around Stanthorpe in far southern Queensland, separated by a relatively rock-free zone from *H. davisii* to the south.

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

H. decresiensis has 24-26 midbody scale rows; is light greyish brown on the dorsal surface and greyish on the flanks. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is thick.

H. continentis has 24-26 midbody scale rows; and is a dark grey brown lizard, being this colour both dorsally and on most of the flanks, although the lower flanks are more whitish in colour. Black peppering on the back barely tends to form dorso-linear stripes. The black border extending along the upper flank is very thin and with an ill-defined lower boundary.

H. awe sp. nov. is similar in most respects to *H. continentis* detailed above, but is separated from that form by being more chocolate brown in dorsal colour and similar on the flanks, including the lower flanks which remain brownish and the fact that the black border extending along the upper flank has a well defined upper and lower edge.

H. pailsorum sp. nov. has 24-26 midbody scale rows; it is light brown on the dorsum and creamish on the flanks. There is a thick black line forming the border of the upper flank, which extends unbroken along the entire length of the (original) tail. Dorsally there is spotting composed of scattered moderate sized black spots, tending to form semi-distinct and broken lines. While black spots or peppering are on the centre of most scales on the dorsum in the other species in the complex, *H. pailsorum* sp. nov. is unusual in that this is not quite the case, with black spotting tending to be scattered, especially at the anterior part of the dorsum. Lower labials are strongly barred. There are no scattered white spots or flecks on the side of the tail.

H. keilleri sp. nov. has 24-26 midbody scale rows; is a dark brownish to brownish grey on the dorsal surface. The black line at the top of the flank has a lower boundary that is often, but not always poorly defined, below which is a light brownish or grey colouration before becoming lighter at the lower edge of the flank. On the upper surface the dark spotting at the centre of each scale is reasonably large and well defined to give the lizard an appearance of having moderately well-defined lines running down the dorsum, the spotting itself being slightly broken. There are scattered white spots or flecks on the side of the tail. Lower labials are either all brownish or grey or otherwise strongly etched around the edges brownish-grey and white in the centres.

H. talbingoensis has 22 midbody scale rows; the dorsum is a dark brown colour and a brownish-grey on the lower flank; the black line of the upper flank is very wide, with a poorly defined lower edge.

Dorsally the dark spotting or markings are typically either blurred or broken, especially on the posterior part of the body, meaning the appearance of stripes on the dorsum is often not there or only at the anterior part of the body. Striping of any form from the

dorsum does not continue onto the tail. Upper and lower labials are a mixture of white and brownish, mainly brownish, but without any obvious patterning or markings.

H. namatjira has 20 midbody scale rows (rarely 18 or 22); is a boldly marked lizard, with well-defined black lines running down the dorsum of the body and continuing down the tail where they break to become lines of well-defined blackish spots. The black line on the top of the lateral edge of the flank is thin and well-defined. Mid and lower flank is whitish-grey. Upper labials are mainly dark, with white bars. The dorsum itself is a light beige-brown colour.

H. davisii is similar in most respects to *H. namatjira* above, but separated from *H. namatjira* by having a moderately thick line on the upper edge of the flank, below which is whitish grey and then below that another moderately thick black line on the mid to lower flank, which tends to break at the posterior end. This lower line is unique to this species and the morphologically similar *H. dorsei* sp. nov.. The dorsum itself is a beige-grey colour. The head is a light grey colour with only limited black peppering.

H. dorsei sp. nov. is similar in most respects to *H. davisii* above, but separated from that species by the increased amount of black pigment on the upper surface of the head, especially towards the snout, and the fact that the pair of black lines running down the dorsum are thicker and more prominent. The anterior of the body also has a strong and lighter brownish tinge (as compared to the lower part of the body); the light scales (or parts of them) that are between the black lines running down either side of the midline are of a slightly different colour to those outside these lines, which is apparently unique to this species. Adults observed appear to be more thick set in build than seen in *H. davisii* or for that matter any other species in the complex.

H. kaputarensis sp. nov. has 20 midbody scale rows; it is a lizard that appears to be a plain brown colour when viewed at a distance; stripes on the dorsum are either faded or absent and usually dark brown rather than blackish in colour, meaning that they often appear to blend in with the surrounding scale colouration, although some aberrant specimens are very boldly striped with unusually thick stripes.

While the dorsum is invariably brownish in colour, the upper surface of the head is a darker brown or grey colour, but does not appear blackish towards the snout, have any obvious marks or flecks or rapid colour change at any point. Upper and lower labials are also brownish, but with small white centres. Sides of the tail are boldly dark flecked at the anterior end.

All the preceding species *H. decresiensis* (Cuvier, 1829), *H. continentis* (Copland, 1946), *H. awe* sp. nov., *H. pailsorum* sp. nov., *H. keilleri* sp. nov., *H. talbingoensis* (Copland, 1946), *H. namatjira* Wells and Wellington, 1985, *H. davisii* (Copland, 1946), *H. kaputarensis* sp. nov. and *H. dorsei* sp. nov. being the entirety of the genus *Hemiergus* Wagler, 1830 as defined in this paper, are separated from all other species within *Hemiergus sensu* Cogger (2014), being the genera *Chelomeles* Duméril and Bibron, 1839 (type species *Chelomeles quadrilineatus* Duméril and Bibron, 1839), *Arenicolascincus* Wells and Wellington, 1985 (type species *Hemiergus millewae* Coventry, 1976), *Patheticoscincus* Wells and Wellington, 1984 (type species *Lygosoma australis* Gray, 1839), *Eroticoscincus* Wells and Wellington, 1984, (type species *Lygosoma graciloides* Lönnberg and Andersson, 1913) and *Anepischetosia* Wells and Wellington, 1985 (type species *Siaphos maccoyi* Lucas and Frost, 1894) by having tridactyle limbs with second toes only being slightly longer than the third (versus much longer in the genus *Chelomeles* Duméril and Bibron, 1839).

All the preceding genera are separated from all other Australian skinks by the following suite of characters: Parietal shields in contact behind the interparietal; lower eyelid is movable with a transparent disc; limbs short, usually separated by at least several scale lengths when adpressed; supranasals usually absent; nasals small to moderate and usually separated; fingers 2-5, toes 2-5; ear opening is either

small or in specimens with five fingers and five toes is hidden. They are cryptozoic, fossorial, small, slender, smooth-scaled skinks (modified and corrected from Cogger 2014).

H. decresiensis in life is depicted Wilson and Swan (2021) on page 341 at top right and online at:

<https://www.inaturalist.org/observations/73883044>

and

<https://www.inaturalist.org/observations/73882340>

and

<https://www.inaturalist.org/observations/6880996>

H. continentis in life is depicted in Wilson and Swan (2021) on page 341 at top left and online at:

<https://www.inaturalist.org/observations/100106076>

and

<https://www.flickr.com/photos/128497936@N03/50183308686/>

and

<https://www.flickr.com/photos/stephenmahony/52860519424/>

and

<https://www.flickr.com/photos/126237772@N07/31545804293/>

and

<https://www.flickr.com/photos/126237772@N07/31514451484/>

and

<https://www.flickr.com/photos/ryanfrancis/52020686868/>

H. pailsorum sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/126237772@N07/49903278286/>

and

<https://www.flickr.com/photos/127392361@N04/49903286101/>

and

<https://www.inaturalist.org/observations/153528278>

H. keilleri sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/68921296@N06/7991310532/>

and

<https://www.flickr.com/photos/68921296@N06/7991299111/>

and

<https://www.inaturalist.org/observations/37502548>

and

<https://www.inaturalist.org/observations/144710964>

and

<https://www.inaturalist.org/observations/64154617>

and

<https://www.inaturalist.org/observations/64229366>

H. talbingoensis is depicted in life in Wilson and Swan (2021) on page 345 at bottom and online at:

https://www.flickr.com/photos/ken_griffiths_photography/40306479154/

and

<https://www.inaturalist.org/observations/99854026>

and

<https://www.inaturalist.org/observations/119837457>

and

<https://www.flickr.com/photos/189037423@N06/51288445179/>

and

<https://www.flickr.com/photos/189037423@N06/51288445169/>

H. namatjira is depicted in life in Hoser (1989) on page 98 at middle left, Cogger (2014) on page 577 at bottom, Swan *et al.* (2022) on page 172 top and online at:

<https://www.flickr.com/photos/shaneblackfnq/18604715978/>

and

<https://www.inaturalist.org/observations/57303146>

and

<https://www.inaturalist.org/observations/8410443>

H. davisii is depicted in life in Wilson and Swan (2021) on page 343 middle right and online at:

<https://www.flickr.com/photos/126237772@N07/47509260012/>

and

<https://www.inaturalist.org/observations/130747870>

and

<https://www.inaturalist.org/observations/134584279>

and

<https://www.inaturalist.org/observations/130597944>

H. kaputarensis sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/171250498@N08/51282573293/>

and

<https://www.flickr.com/photos/ryanfrancis/40026976514/>

and

https://www.flickr.com/photos/zimny_anders/52903501674/

and

<https://www.inaturalist.org/observations/69663574>

and

<https://www.inaturalist.org/observations/42467274>

and

<https://www.inaturalist.org/observations/61527956>

Distribution: *H. awe* sp. nov. is only known from the northern part of the Flinders Ranges in South Australia and appears to be geographically disjunct from populations within the same genus further south.

A similar situation appears to exist with respect of geckos in the genus *Underwoodisaurus* Wermuth, 1965 (see material cited in Hoser 2016) or *Crinia* Tschudi, 1838 (see material cited in Hoser 2020).

Etymology: *H. awe* sp. nov. is the name given to the taxon by local Adnyamathanha people, being the "first nations" people from the area.

The name derives from when these lizards are found by lifting rocks and the exclamation made, "awe".

They are commonly confused with small snakes when first seen.

Small children find these lizards when looking for insects and other curiosities, whereas adult people tend not to look for them by lifting rocks for fear of finding venomous snakes.

ARENICOLASCINCUS BONFIRE SP. NOV.

LSIDDurn:lsid:zoobank.org:act:D2F4C6C6-ABB6-4F26-B626-8889BF48A29E

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R57695 collected from 11.5 km west, south-west of Pinkawillinie, (near Kimba) South Australia, Australia, Latitude -33.1033 S., Longitude 136.0636 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, specimen numbers R57714 and R57715 both collected from 5.6 km north, north-west of Waddikee, South Australia, Australia, Latitude -33.2686 S., Longitude 136.2467 E. and specimen number R17142 collected from near the Pinkawillinie Nature Reserve, (near Kimba) South Australia, Australia, Latitude -33.1033 S., Longitude 136.0636 E.

Diagnosis: Until now, all publishing herpetologists have treated putative "*Hemiergis millewae* Coventry, 1976" as a single wide-ranging species found inhabiting Spinifex areas in southern Australia, from western Victoria to eastern Western Australia and including nearby southern New South Wales and drier near coastal regions of South Australia.

Exceptional to that were Wells and Wellington, 1985, who not only transferred the putative species to their erected genus *Arenicolascincus*, but also placed the far west Australian population into a new species, *A. lami*.

Significant is that as recently as 2023, both names are universally ignored by all publishing herpetologists and this is neither scientific or tenable.

In terms of the genus, *Arenicolascincus*, the type species "*Hemiergis millewae* Coventry, 1976" has been shown in a

number of calibrated phylogenies (including Skinner *et al.* 2013) to have diverged from its nearest relatives 15 MYA confirming the correctness of the Wells and Wellington action and so it is followed here, irrespective of any arguments put by Wells and Wellington in 1985.

Morphological divergence of the relevant species also supports the actions of Wells and Wellington.

In terms of their taxon, *A. lami* Wells and Wellington, 1985, I note the claim by their detractors, including Peter Uetz in his non ICZN "the reptile database", (last checked in early 2023) that it is "*nomen nudem*".

That statement is false.

The deliberate and reckless lie of Uetz and others in the Wolfgang Wuster gang of thieves is shown by simple cross-referencing of the Wells and Wellington description from 1985 with the *International Code of Zoological Nomenclature* (any of editions 2-4), including the given definitions of "*nomen nudem*", and it is self evident that the Wells and Wellington description is both code compliant and not a *nomen nudem*.

In terms of the taxon itself, it is quite divergent morphologically from eastern congeners and so is quite properly recognized herein as a species taxon under the name *A. lami*.

Suffice to say that if I thought that the name *A. lami* was "unavailable", I would not have hesitated to rename it, but to do so, when it is obviously available, is nothing less than an act of egregious taxonomic vandalism and to which I will not knowing be a party to.

Besides *A. millewae* (Coventry, 1976), with a type locality of Millewa South Bore in western Victoria, Australia, Latitude 34.5628 S., Longitude 141.4 E., being the form from the sandy areas of western Victoria and nearby parts of south-east South Australia and southern New South Wales, and *A. lami* from the eastern Goldfields region of south-east Western Australia, at least two other forms warrant species-level recognition.

These are *A. bonfire* *sp. nov.* from the Eyre Peninsula region of South Australia, and *A. wha* *sp. nov.* from the Barrier Range in New South Wales.

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

Arenicolascincus millewae of the type form is a lizard with a chocolate-brown dorsum, an ill-defined boundary between the colour of the upper flank (reddish tinge) and the dorsum (brownish) an orange distal end of the tail (original tail) and dark barring at the rear of each upper labial, that may be either weakly or well defined. The upper surface of the head is a similar colour to that of the dorsum.

A. lami is a lighter yellowish-brown lizard with white upper labials and no obvious line separating the upper and lateral surfaces. Midway down the flank is a weakly defined boundary between the yellowish brown dorsum and the whitish venter, the degree of infusion of the ventral colour on the flank, being between a third and half of this surface, versus far less than a third in the other three (eastern) species. The upper surface of the head is noticeably dark grey, in contrast to the lighter dorsal body colour.

A. bonfire *sp. nov.* is a lizard with a reddish-brown dorsum, no obvious reddening or orange colour of the tail at the distal end, a weakly defined boundary between the dorsal and lateral edge and mainly dark coloured upper labials (versus mainly white in *A. millewae*). The upper surface of the head is a similar colour to that of the dorsum.

A. wha *sp. nov.* is reddish brown on the dorsum, with the reddish colour most intense on the outer edges, where it forms a strong, well-defined line separating it from the dark greyish-brown flanks, the colour extending to the lower edge. Upper labials are strongly etched dark brownish-grey with white. Whereas the dorsal surface of the head is generally plain in colour in the other three preceding species, in *A. wha* *sp. nov.* the upper surface is a combination of dark and light pigment in the form of etched scales or marbling, of which the upper labials form the most

boldly marked part. These markings extend to the back of the head and upper neck, from where the colour abruptly changes to the plain and relatively uniform dorsal colouration posterior to that, this including the latter part of the neck and body. Farquhar (2020) also noted that *A. wha* *sp. nov.* had 15 lamellae under the fourth toe (as compared to 12-14 in Coventry's type species for *A. millewae*) and 8 supraciliary scales (versus 9 in Coventry's type specimen of *A. millewae*).

All the four preceding species, forming the entirety of the genus *Arenicolascincus* Wells and Wellington, 1985 are separated from all other species of Australian skink, by the following unique combination of characters: Smooth scaled-elongate skink lizards, usually found in association with *Triodia* habitat in southern Australia, limbs so small that when adpressed, they remain separated by at least 6 scales; a lower eyelid that is scaly and with an opaque scaly disc; with pentadactyle limbs; deep ear depression; separated nasals; supranasals absent; narrowly separated prefrontals; usually 2 nuchals; 6-9 supraciliaries; 7 supralabials (usually 5 is subocular); parietal shields in contact behind the interparietal; 12-16 lamellae under the fourth toes (modified from Wells and Wellington, 1985, Cogger, 2014, Farquhar 2020, as well as the result of inspection of more than 100 additional specimens from South Australia, Western Australia and Victoria).

A. millewae in life is depicted in Cogger (2014) on page 576 top left and online at:

<https://www.flickr.com/photos/190014189@N06/51676968242/> and

<https://www.flickr.com/photos/euprepiosaur/52237543529/> and

<https://www.flickr.com/photos/127392361@N04/48018287851/>

A. lami in life is depicted in Storr, Smith and Johnstone (1981) in plate 2, bottom right and online at:

<https://www.flickr.com/photos/124699310@N06/14493776395/>

A. bonfire *sp. nov.* is depicted in life online at:

<https://www.flickr.com/photos/127392361@N04/50704693253/> and

<https://www.inaturalist.org/observations/125406908>

and

<https://www.inaturalist.org/observations/100386270>

and

<https://www.inaturalist.org/observations/136010452>

H. wha *sp. nov.* (the holotype) is depicted in life in Farquhar (2020) on page 637 in Fig. 1. and the same animal (same photo) is depicted online at:

<https://www.flickr.com/photos/126237772@N07/50651053563/>

Distribution: *A. bonfire* *sp. nov.* appears to be confined to the Eyre Peninsula and immediately adjacent areas of southern South Australia.

Etymology: Named in reflection of how I first found specimens of this species near Whyalla in South Australia. For full details refer to Hoser (1996), available online at <http://www.smuggled.com/hersa.htm>

ARENICOLASCINCUS WHA SP. NOV.

LSIDurn:lsid:zoobank.org:act:93B2718A-7056-42F6-A01E-F3BA4C830284

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.185794 collected from the Silverton Wind Farm, Barrier Range, western New South Wales, Australia, Latitude -31.77322 S., Longitude 141.25031 E.

This government-owned facility allows access to its holdings.

Diagnosis: Until now, all publishing herpetologists have treated putative "*Hemiergis millewae* Coventry, 1976" as a single wide-ranging species found inhabiting Spinifex areas in southern Australia, from western Victoria to eastern Western Australia and including nearby southern New South Wales and drier near coastal regions of South Australia.

Exceptional to that were Wells and Wellington, 1985, who not only transferred the putative species to their erected genus *Arenicolascincus*, but also placed the far west Australian population into a new species, *A. lami*.

Significant is that as recently as 2023, both names are universally ignored by all publishing herpetologists and this is neither scientific or tenable.

In terms of the genus, *Arenicolascincus*, the type species "*Hemiergis millewae* Coventry, 1976" has been shown in a number of calibrated phylogenies including Skinner *et al.* (2013) to have diverged from its nearest relatives 15 MYA confirming the correctness of the Wells and Wellington action and so it is followed here, irrespective of any arguments put by Wells and Wellington in 1985.

Morphological divergence of the relevant species also supports the actions of Wells and Wellington.

In terms of their taxon, *A. lami* Wells and Wellington, 1985, I note the claim by their detractors, including Peter Uetz in his non ICZN "the reptile database", (last checked in 2023) that it is "*nomen nudem*".

That statement is false.

The lie of Uetz and others in the Wolfgang Wuster gang of thieves is shown by simple cross-referencing of the Wells and Wellington description from 1985 with the *International Code of Zoological Nomenclature* (any of editions 2-4), including the given definitions of "*nomen nudem*", and it is self evident that the Wells and Wellington description is both code compliant and not a *nomen nudem*.

In terms of the taxon itself, it is quite divergent morphologically from eastern congeners and so is quite properly recognized herein as a species taxon under the name *A. lami*.

Suffice to say that if I thought that the name *A. lami* was "unavailable", I would not have hesitated to rename it, but to do so, when it is obviously available, is nothing less than an act of egregious taxonomic vandalism and to which I will not knowing be a party to.

Besides *A. millewae* (Coventry, 1976), with a type locality of Millewa South Bore in western Victoria, Australia, Latitude 34.5628 S., Longitude 141.4 E., being the form from the sandy areas of western Victoria and nearby parts of south-east South Australia and southern New South Wales, and *A. lami* from the eastern Goldfields region of south-east Western Australia, at least two other forms warrant species-level recognition.

These are *A. bonfire sp. nov.* from the Eyre Peninsula region of South Australia, and *A. wha sp. nov.* from the Barrier Range in New South Wales.

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

Arenicolascincus millewae of the type form is a lizard with a chocolate-brown dorsum, an ill-defined boundary between the colour of the upper flank (reddish tinge) and the dorsum (brownish) an orange distal end of the tail (original tail) and dark barring at the rear of each upper labial, that may be either weakly or well defined. The upper surface of the head is a similar colour to that of the dorsum.

A. lami is a lighter yellowish-brown lizard with white upper labials and no obvious line separating the upper and lateral surfaces. Midway down the flank is a weakly defined boundary between the yellowish brown dorsum and the whitish venter, the degree of infusion of the ventral colour on the flank, being between a third and half of this surface, versus far less than a third in the other three (eastern) species. The upper surface of the head is noticeably dark grey, in contrast to the lighter dorsal body colour.

A. bonfire sp. nov. is a lizard with a reddish-brown dorsum, no obvious reddening or orange colour of the tail at the distal end, a weakly defined boundary between the dorsal and lateral edge and mainly dark coloured upper labials (versus mainly white in *A. millewae*). The upper surface of the head is a similar colour to that of the dorsum.

A. wha sp. nov. is reddish brown on the dorsum, with the reddish colour most intense on the outer edges, where it forms a strong, well-defined line separating it from the dark greyish-brown flanks, the colour extending to the lower edge. Upper labials are strongly etched dark brownish-grey with white. Whereas the dorsal surface of the head is generally plain in colour in the other three preceding species, in *A. wha sp. nov.* the upper surface is a combination of dark and light pigment in the form of etched scales or marbling, of which the upper labials form the most boldly marked part. These markings extend to the back of the head and upper neck, from where the colour abruptly changes to the plain and relatively uniform dorsal colouration posterior to that, this including the latter part of the neck and body. Farquhar (2020) also noted that *A. wha sp. nov.* had 15 lamellae under the fourth toe (as compared to 12-14 in Coventry's type species for *A. millewae*) and 8 supraciliary scales (versus 9 in Coventry's type specimen of *A. millewae*).

All the four preceding species, forming the entirety of the genus *Arenicolascincus* Wells and Wellington, 1985 are separated from all other species of Australian skink, by the following unique combination of characters: Smooth scaled-elongate skink lizards, usually found in association with *Triodia* habitat in southern Australia, limbs so small that when adpressed, they remain separated by at least 6 scales; a lower eyelid that is scaly and with an opaque scaly disc; with pentadactyle limbs; deep ear depression; separated nasals; supranasals absent; narrowly separated prefrontals; usually 2 nuchals; 6-9 supraciliaries; 7 supralabials (usually 5 is subocular); parietal shields in contact behind the interparietal; 12-16 lamellae under the fourth toes (modified from Wells and Wellington, 1985, Cogger, 2014, Farquhar (2020) and the result of inspection of more than 100 additional specimens from Western Australia, South Australia and Victoria).

A. millewae in life is depicted in Cogger (2014) on page 576 top left and online at:

<https://www.flickr.com/photos/190014189@N06/51676968242/>

and

<https://www.flickr.com/photos/euprepiosaur/52237543529/>

and

<https://www.flickr.com/photos/127392361@N04/48018287851/>

A. lami in life is depicted in Storr, Smith and Johnstone (1981) in plate 2, bottom right and online at:

<https://www.flickr.com/photos/124699310@N06/14493776395/>

and

<https://www.flickr.com/photos/127392361@N04/50704693253/>

and

<https://www.inaturalist.org/observations/125406908>

and

<https://www.inaturalist.org/observations/100386270>

and

<https://www.inaturalist.org/observations/136010452>

H. wha sp. nov. (the holotype) is depicted in life in Farquhar (2020) on page 637 in Fig. 1. And the same animal (same photo) is depicted online at:

<https://www.flickr.com/photos/126237772@N07/50651053563/>

Distribution: *A. wha sp. nov.* is only known from the type locality and can reasonably be assumed to be a Barrier Range endemic, restricted to pockets of relatively scattered suitable habitat as detailed by Farquhar (2020).

Etymology: Named in reflection of the exclamation made by the Wilyakali people (the local native inhabitants of the region) when burning highly flammable *Triodia* bushes upon seeing these small lizards wriggle out from the flames.

In the first instance they are commonly confused with young snakes, which as a rule strike fear into the local people.

PATHETICOSCINCUS AGH SP. NOV.

<https://www.zoobank.org/NomenclaturalActs/2eaa4f3d-abe6-4f83-87ba-83823909c7b4>

Holotype: A preserved male specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R119725 collected from Sampson Brook, 7 km east of Hamel, Western Australia, Australia, Latitude -32.883333 S., Longitude 115.983333 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R138001 collected 10.8 km east of Waroona, Western Australia, Australia, Latitude -32.85 S., Longitude 116.033333 E. and specimen numbers R116935 and R116936, both being females collected from 10 km south-east of Capel, Western Australia, Australia, Latitude -33.616667 S., Longitude 115.616667 E.

Diagnosis: Until now *Patheticoscincus agh sp. nov.* has been treated as a north-western population of *P. australis* (Gray, 1839), AKA *P. gracilipes* (Steindachner, 1870), a putative species from south-west Australia.

Cogger *et al.* (1983) and later authors appear to have misread the relevant provisions of the *International Code of Zoological Nomenclature*, (which happens to be the same in editions 2-4) in using the later name in preference of the earlier one, which is why I follow Storr (1967) and Wells and Wellington (1985) in using the name *P. australis* for the relevant taxon

P. australis is found from about Brooke Inlet in south-west Australia (Latitude -34.933333 S., Longitude 116.533333 E.) eastwards along the south-coastal region to Cheyne Beach, Western Australia (Latitude -34.883333 S., Longitude 118.4 E.).

P. agh sp. nov. is found from the D'Entrecasteaux National Park in the south (Latitude -34.416667 S., Longitude 115.75 E.) northwards along the coast to near Waroona (Latitude -32.85 S., Longitude 116.033333 E.) in Western Australia, Australia.

P. agh sp. nov. is readily separated from *P. australis* by having 19 midbody rows (versus 20-22 in *P. australis*), 16 subdigital lamellae under the fourth toe (versus 18-23 in *P. australis*), 5 supraciliaries (versus 6-7 in *P. australis*). In colouration, *P. agh sp. nov.* is usually somewhat darker than *P. australis* and on the tail there is two well-defined dark blackish stripes running down either side, with minimal white spots or intrusions, versus either an absence of that configuration or if present, with numerous white spots or intrusions over the black.

The two species within *Patheticoscincus* Wells and Wellington, 1984 are separated from all other Australian skinks by the following suite of characters: Smooth scaled-elongate skink lizards, from south-west Australia; limbs so small that when adpressed, they remain separated by at least 6 scales; a lower eyelid with a small transparent disc; with pentadactyle limbs; 16-23 subdigital lamellae under the fourth toe; deep ear depression; separated nasals; supranasals absent; narrowly separated prefrontals; usually 2 nuchals; 5-7 supraciliaries; 7 supralabials; parietal shields in contact behind the interparietal; postmental contacting two infralabials on either side (modified from Wells and Wellington, 1985, Cogger, 2014, and the result of inspection of additional specimens from South-west Western Australia).

The type form of *Patheticoscincus australis* is depicted in Cogger (2014) on page 574 bottom, Storr, Smith and Johnstone (1981) in plate 17 (4) and online at:

<https://www.flickr.com/photos/136643623@N03/39792768063/>
and

<https://www.flickr.com/photos/euprepiosaur/52921552874/>
and

<https://www.flickr.com/photos/171250498@N08/52911465641/>
P. agh sp. nov. is depicted in life in Wilson and Swan (2021) on page 341 middle left.

Distribution: *P. agh sp. nov.* is found from the D'Entrecasteaux

National Park in the south (Latitude -34.416667 S., Longitude 115.75 E.) northwards along the coast to near Waroona (Latitude -32.85 S., Longitude 116.033333 E.) in Western Australia, Australia.

Etymology: The Noongars being the original inhabitants of the south-west Australian coast, where this taxon occurred, would exclaim "agh" when they saw these lizards wriggling in the substrate, often mistaking them for small snakes, which they feared greatly.

REFERENCES CITED

- Boulenger, G. A. 1887. *Catalogue of the lizards in the British Museum (Nat. Hist.) III. Lacertidae, Gerrhosauridae, Scincidae, Anelytropsidae, Dibamidae, Chamaeleontidae*. London, UK:575 pp.
- Bush, B. 1981. *Reptiles of the Kalgoorlie-Esperance Region*. B. Bush, Perth, WA, Australia:46 pp
- Ceraico, L. M. P., Aesch, E., Ah Yong, S. T., Ballerio, A., Bouchard, P., Bourgoïn, T., Dmitriev, D., Evenhüs, N., Grygier, M. J., Harvey, M. S., Kottelat, M., Kluge, N., Krell, F. T., Kojima, J., Kullander, S. O., Lucinda, P., Lyal, C. H. C., Pyle, R. L., Rheindt, F. E., Scioscia, C. L., Welter-Schultes, F., Whitmore, D., Yanega, D., Zhang, Z. Q., Zhou, H. Z. and Pape, T. (being a unanimous voice of the International Commission of Zoological Nomenclature) 2023. Renaming taxa on ethical grounds threatens nomenclatural stability and scientific communication. *Zoological Journal of the Linnean Society*, 197, 283-286.
- Cogger, H. G. 2014. *Reptiles and Amphibians of Australia* (Seventh edition), CSIRO. Sydney, Australia:1064 pp.
- Cogger, H. G., Cameron, E. E. and Cogger, H. M. 1983. *Zoological Catalogue of Australia (1): Amphibia and Reptilia*. AGPS, Canberra, ACT, Australia:313 pp.
- Copland, S. J. 1946. Geographic variation in the lizard *Hemiergis decresiensis* (Fitzinger). *Proceedings of the Linnean Society of New South Wales* 70:62-92 [1945].
- Cotton, T. 2014. Comments on *Spracklandus Hoser*, 2009 (Reptilia, Serpentes, Elapidae): request for confirmation of the availability of the generic name and for the nomenclatural validation of the journal in which it was published (Case 3601; see BZN 70: 234-237, 71: 30-38; 133-135). *Bulletin of Zoological Nomenclature* 71(3):181-182.
- Coventry, A. J. 1976. A new species of *Hemiergis* (Scincidae: Lygosominae) from Victoria. *Memoirs of the National Museum Victoria* 37:23-26.
- Cuvier, G. J. L. N. F. D. 1829. *Le Règne Animal Distribué, d'après son Organisation, par servir de base à l'Histoire naturelle des Animaux et d'introduction à l'Anatomie Comparée*. Nouvelle Edition [second edition]. Vol. 2. Les Reptiles. Déterville, Paris, i-xvi, 1-406.
- Dubois, A., Bauer, A. M., Ceriaco, L. M. P., Dusouler, F., Fretey, T., Lobl, I., Lorvelec, O., Ohler, A., Stopiglia, R. and Aesch, E. 2019. The Linz Zoo code project: a set of new proposals regarding the terminology, the Principles and Rules of zoological nomenclature. First report of activities (2014-2019). *Bionomina*, 17:1-111.
- Duméril, A. M. C. and Bibron, G. 1839. *Erpétologie Générale ou Histoire Naturelle Complète des Reptiles*. Vol. 5. Roret/Fain et Thunot, Paris, 871 pp.
- Farquhar, J. E. 2020. Range extension of the Triodia Earless Skink *Hemiergis millewae*, and first record in New South Wales. *Australian Zoologist* 40(4):636-640.
- Fitzinger, L. 1826. *Neue Classification der Reptilien nach ihren natürlichen Verwandtschaften nebst einer Verwandtschafts-Tafel und einem Verzeichnisse der Reptilien-Sammlung des K. K. Zoologischen Museums zu Wien*. J. G. Heubner, Wien:66 pp.
- Ford, J. 1963. The Reptilian Fauna of the Islands between Dongara and Lancelin, Western Australia. *Western Australian Naturalist* 8(6):135-142.
- Glauert, L. 1960. Herpetological miscellanea. XII. The family

- Scincidae in Western Australia. Pt. 2. The genus *Lygosoma*. *Western Australian Naturalist* 7(4):81-99.
- Gray, J. E. 1831. A synopsis of the species of Class Reptilia. In: Griffith, E and Pidgeon, E.: *The animal kingdom arranged in conformity with its organisation by the Baron Cuvier with additional descriptions of all the species hither named, and of many before noticed*. V. Whittaker, Treacher and Co., London, UK: 481 + 110 pp. [1830].
- Gray, J. E. 1839. Catalogue of the slender-tongued saurians, with descriptions of many new genera and species. *Annals and Magazine of Natural History* 2(11):331-337.
- Greenbaum, E. 2000. Herpetofaunal observations in disparate habitats in South Australia, New South Wales and Queensland, Australia. *Herpetological Bulletin* (72):6-16.
- Greer, A. E. 1985. A new species of *Sphenomorphus* from northeastern Queensland. *Journal of Herpetology* 19(4):469-473.
- Hammer, T. A. and Thiele, K. R. 2021. Proposals to amend Articles 51 and 56 and Division III, to allow the rejection of culturally offensive and inappropriate names. *Taxon* 70(6):1392-1394.
- Hawkeswood, T. J. 2021. Time to end taxonomic vandalism by Wolfgang Wuster *et al.*: The Snakeman, Raymond Hoser's publications are validly published and his names available according to the ICZN: Objective investigation finds Hoser's taxonomic works as scientific best practice and in every relevant case identifies valid entities. *Calodema* 860:1-59.
- Hoser, R. T. 1996. Herping in the Australian State of South Australia. *The Reptilian* (UK), 4(7), pages 23-35 and front cover.
- Hoser, R. T. 2007a. Wells and Wellington - It's time to bury the hatchet. *Calodema* Supplementary Paper 1:1-9.
- Hoser, R. T. 2007b. Call to outlaw the use of Tongs for catching and handling deadly snakes. *Bulletin of the Chicago Herpetological Society* 42(6):92-95.
- Hoser, R. T. 2009. Creationism and contrived science: A review of recent python systematics papers and the resolution of issues of taxonomy and nomenclature. *Australasian Journal of Herpetology* 2:1-34. (3 February).
- Hoser, R. T. 2012a. Exposing a fraud! *Afronaja* Wallach, Wüster and Broadley 2009, is a junior synonym of *Spracklandus* Hoser 2009! *Australasian Journal of Herpetology* 9 (3 April 2012):1-64.
- Hoser, R. T. 2012b. Robust taxonomy and nomenclature based on good science escapes harsh fact-based criticism, but remains unable to escape an attack of lies and deception. *Australasian Journal of Herpetology* 14:37-64.
- Hoser, R. T. 2013. The science of herpetology is built on evidence, ethics, quality publications and strict compliance with the rules of nomenclature. *Australasian Journal of Herpetology* 18:2-79.
- Hoser, R. T. 2015a. Dealing with the "truth haters" ... a summary! Introduction to Issues 25 and 26 of *Australasian Journal of Herpetology*. Including "A timeline of relevant key publishing and other events relevant to Wolfgang Wüster and his gang of thieves." and a "Synonyms list". *Australasian Journal of Herpetology* 25:3-13.
- Hoser, R. T. 2015b. The Wüster gang and their proposed "Taxon Filter": How they are knowingly publishing false information, recklessly engaging in taxonomic vandalism and directly attacking the rules and stability of zoological nomenclature. *Australasian Journal of Herpetology* 25:14-38.
- Hoser, R. T. 2015c. Best Practices in herpetology: Hinrich Kaiser's claims are unsubstantiated. *Australasian Journal of Herpetology* 25:39-64.
- Hoser, R. T. 2015d. PRINO (Peer reviewed in name only) journals: When quality control in scientific publications fails. *Australasian Journal of Herpetology* 26:3-64.
- Hoser, R. T. 2015e. Rhodin *et al.* 2015, Yet more lies, misrepresentations and falsehoods by a band of thieves intent on stealing credit for the scientific works of others. *Australasian Journal of Herpetology* 27:3-36.
- Hoser, R. T. 2015f. Comments on *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, ELAPIDAE): request for confirmation of the availability of the generic name and for the nomenclatural validation of the journal in which it was published (Case 3601; see *BZN* 70: 234-237; comments *BZN* 71:30-38, 133-135). *Australasian Journal of Herpetology* 27:37-54.
- Hoser, R. T. 2016. Carphodactylidae reviewed: Four new genera, four new subgenera, nine new species and four new subspecies within the Australian gecko family (Squamata: Sauria). *Australasian Journal of Herpetology* 32:3-25.
- Hoser, R. T. 2017. A further break-up of the Australian gecko genus *Oedura* Gray, 1842 *sensu lato* as currently recognized, from four to seven genera, with two new subgenera defined, description of fourteen new species, four new subspecies and formalising of one tribe and five subtribes. *Australasian Journal of Herpetology* 34:3-35.
- Hoser, R. T. 2018. New Australian lizard taxa within the greater *Egernia* Gray, 1838 genus group of lizards and the division of *Egernia sensu lato* into 13 separate genera. *Australasian Journal of Herpetology* 36:49-64.
- Hoser, R. T. 2019a. 11 new species, 4 new subspecies and a subgenus of Australian Dragon Lizard in the genus *Tympanocryptis* Peters, 1863, with a warning on the conservation status and long-term survival prospects of some newly named taxa. *Australasian Journal of Herpetology* 39:23-52.
- Hoser, R. T. 2019b. Richard Shine *et al.* (1987), Hinrich Kaiser *et al.* (2013), Jane Melville *et al.* (2018 and 2019): Australian Agamids and how rule breakers, liars, thieves, taxonomic vandals and law breaking copyright infringers are causing reptile species to become extinct. *Australasian Journal of Herpetology* 39:53-63.
- Hoser, R. T. 2020. 3 new tribes, 3 new subtribes, 5 new genera, 3 new subgenera, 39 new species and 11 new subspecies of mainly small ground-dwelling frogs from Australia. *Australasian Journal of Herpetology* 50-51: 1-128.
- Hoser, R. T. 2022. 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. *Australasian Journal of Herpetology* 56:3-21.
- Hutchinson, M. N., Couper, P., Amey, A. and Wilmer, J. W. 2021. Diversity and Systematics of Limbless Skinks (*Anomalopus*) from Eastern Australia and the Skeletal Changes that Accompany the Substrate Swimming Body Form. *Journal of Herpetology* 55(4):361-384.
- International Commission of Zoological Nomenclature (ICZN) 1991b. Decision of the commission. Three works by Richard W. Wells and C. Ross Wellington: proposed suppression for nomenclatural purposes. *Bulletin of Zoological Nomenclature* 48(4):337-338.
- International Commission of Zoological Nomenclature (ICZN) 2001. Opinion 1970. *Bulletin of Zoological Nomenclature* 58(1):74, (30 March 2001).
- International Commission of Zoological Nomenclature (ICZN) 2012. Amendment of Articles 8, 9, 10, 21 and 78 of the *International Code of Zoological Nomenclature* to expand and refine methods of publication. *Zootaxa* (PRINO) (Online) 3450:1-7.
- International Commission of Zoological Nomenclature (ICZN) 2021. Opinion 2468 (Case 3601) - *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, Elapidae) and *Australasian Journal of Herpetology* issues 1-24: confirmation of availability declined; Appendix A (Code of Ethics): not adopted as a formal criterion for ruling on Cases. *Bulletin of Zoological Nomenclature* 78 (30 April 2021):42-45.
- Kaiser, H. 2012a. SPAM email sent out to numerous recipients on 5 June 2012.

- Kaiser, H. 2012b. Point of view. Hate article sent as attachment with SPAM email sent out on 5 June 2012.
- Kaiser, H. 2013. The Taxon Filter, a novel mechanism designed to facilitate the relationship between taxonomy and nomenclature, vis-à-vis the utility of the Code's Article 81 (the Commission's plenary power). *Bulletin of Zoological Nomenclature* 70(4) December 2013:293-302.
- Kaiser, H. 2014a. Comments on *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, Elapidae): request for confirmation of the availability of the generic name and for the nomenclatural validation of the journal in which it was published. *Bulletin of Zoological Nomenclature*, 71(1):30-35.
- Kaiser, H. 2014b. Best Practices in Herpetological Taxonomy: Errata and Addenda. *Herpetological Review*, 45(2):257-268.
- Kaiser, H., Crother, B. L., Kelly, C. M. R., Luiselli, L., O'Shea, M., Ota, H., Passos, P., Schleip, W. D. and Wüster, W. 2013. Best practices: In the 21st Century, Taxonomic Decisions in Herpetology are Acceptable Only When supported by a body of Evidence and Published via Peer-Review. *Herpetological Review* 44(1):8-23.
- Kinghorn, J. R. 1924. Reptiles and batrachians from south and south-west Australia. *Rec. of the Australian Mus.* 14(3):163-183.
- Loveridge, A. 1934. Australian reptiles in the Museum of Comparative Zoology, Cambridge, Massachusetts. *Bulletin of the Museum of Comparative Zoology Harvard* 77:243-383.
- Lucas, A. H. S. and Frost, C. 1894. The lizards indigenous to Victoria. *Proc. of the Royal Soc. of Victoria (New Series)* 6:24-92.
- Lucas, A. H. S. and Frost, C. 1902. Descriptions of some new lizards from Western Australia. *Proceedings of the Royal Society of Victoria* 15:76-79.
- Mecke, S., Dougherty, P. and Donnellan, S. C. 2009. A new species of *Eremiascincus* (Reptilia: Squamata: Scincidae) from the Great Sandy Desert and Pilbara Coast, Western Australia and reassignment of eight species from *Glaphyromorphus* to *Eremiascincus*. *Zootaxa* (PRINO) (Online) 2246:1-20.
- Mosyakin, S. L. 2022. If "Rhodes-" must fall, who shall fall next? *Taxon* 71:49-255.
- Pyron, R. A., Burbrink, F. T. and Weins, J. J. 2013. A phylogeny and revised classification of Squamata, including 4161 species of lizards and snakes. *BMC Evol. Biol.* 13, 93. Published online at: <http://www.biomedcentral.com/1471-2148/13/93>.
- Rabosky, D. L., Donnellan, S. C., Grundler, M. and Lovette, I. J. 2014. Analysis and Visualization of Complex Macroevolutionary Dynamics: An Example from Australian Scincid Lizards. *Syst Biol* 63:610-627.
- Reeder, T. W. 2003. A phylogeny of the Australian *Sphenomorphus* group (Scincidae: Squamata) and the phylogenetic placement of the crocodile skinks (*Tribolonotus*): Bayesian approaches to assessing congruence and obtaining confidence in maximum likelihood inferred relationships. *Molecular Phylogenetics and Evolution* 27:384-397.
- Reeder, T. W. and Reichert, J. D. 2011. Phylogenetic Relationships within the Australian Limb-Reduced Lizard Genus *Hemiergis* (Scincidae: Squamata) as Inferred from the Bayesian Analysis of Mitochondrial rRNA Gene Sequences. *Copeia* 2011(1):113-120.
- Rhodin, A. *et al.* (70 listed authors, with some later publishing that they had never read the document they allegedly co-authored) 2015. Comment on *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, Elapidae): request for confirmation of the availability of the generic name and for the nomenclatural validation of the journal in which it was published (Case 3601; see *BZN* 70: 234-237; 71: 30-38, 133-135, 181-182, 252-253). *Bulletin of Zoological Nomenclature* 72(1)65-78.
- Ride, W. D. L. (ed.) *et al.* (on behalf of the International Commission on Zoological Nomenclature) 1999. *International code of Zoological Nomenclature*. The Natural History Museum - Cromwell Road, London SW7 5BD, UK.
- Singhal, S., Huang, H., Grundler, M. R., Marchán-Rivadeneira, M. R., Holmes, I., Title, P. O., Donnellan, S. C. and Rabosky, D. L. 2018. Does Population Structure Predict the Rate of Speciation? A Comparative Test across Australia's Most Diverse Vertebrate Radiation. *The American Naturalist* 192(4):432-447.
- Skinner, A., Hutchinson, M. N. and Lee, M. S. Y. 2013. Phylogeny and Divergence Times of Australian *Sphenomorphus* Group Skinks (Scincidae, Squamata). *Molecular Phylogenetics and Evolution* 69(3):906-918.
- Smith, H. M. 1939. A new Australian lizard, with a note on *Hemiergis*. *Field Museum of Natural History Zool. Ser.* 24:11-14.
- Smith, M. A. 1927. Contribution to the herpetology of the Indo-Australian Region. *Proceedings of the Zoological Society of London*, 1:199-225.
- Smith, M. A. 1937. A review of the genus *Lygosoma* (Scincidae: Reptilia) and its allies. *Records of the Indian Museum* 39(3):213-234.
- Smyth, M. 1968. The distribution and life history of the skink, *Hemiergis peronii* (Fitzinger). *Transactions of the Royal Society of South Australia* 92:51-58.
- Steindachner, F. 1870. Herpetologische Notizen (II). Reptilien gesammelt Während einer Reise in Sengambien. *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien*, 62:326-348.
- Storr, G. M. 1967. The genus *Sphenomorphus* (Lacertilia, Scincidae) in Western Australia and the Northern Territory. *Journal of the Royal Society of Western Australia* 50(1):10-20.
- Storr, G. M. 1975. The genus *Hemiergis* (Lacertilia: Scincidae) in Western Australia. *Rec. of the West. Australian Mus.* 3:251-260.
- Storr, G. M., Smith, L. A. and Johnstone, R. E. 1981. *Lizards of Western Australia. I. Skinks*. Western Australian Museum, Perth, Western Australia, Australia:200 pp.
- Swan, G., Sadler, R. and Shea, G. 2017. *A field guide to reptiles of New South Wales*. Reed New Holland, Australia:328 pp.
- Thiele, K. R., Oliver, P. M., Bauer, A. M., Doughty, P., Kraus, F., Rix, M. G. and Kaiser, H. 2020. Case 3824 - A special proposal to suppress certain names under the plenary powers of the Commission. *Bulletin of Zoological Nomenclature* 77:78 (title only). The full submission to the ICZN was sent out as a SPAM email to thousands of recipients, is a rambling 71 page pdf and is widely available online.
- Tschudi, J. J. von. 1838. *Classification der Batrachier mit Berücksichtigung der fossilen Thiere dieser Abtheilung der Reptilien*. Neuchâtel: Petitpierre.
- Wagler, J. G. 1830. *Natürliches System der Amphibien, mit vorangehender Classification der Säugetiere und Vögel. Ein Beitrag zur vergleichenden Zoologie*. 1.0. Cotta, München, Stuttgart, and Tübingen, 354 pp. [1830-1832]
- Wellington, R. W. 2015. Comment on the proposed confirmation of the availability of the generic name *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, Elapidae) and for the nomenclatural validation of the journal in which it was published. *Bulletin of Zoological Nomenclature* 72(3):222-226.
- Wells, R. W. and Wellington, C. R. 1984. A synopsis of the class Reptilia in Australia. *Australian Journal of Herpetology* 1(3-4):73-129.
- Wells, R. W. and Wellington, C. R. 1985. A classification of the Amphibia and Reptilia of Australia. *Australian Journal of Herpetology Supplementary Series* 1:1-61.
- Wermuth, H. (1965). Liste der rezenten Amphibien und Reptilien. Gekkonidae, Pygopodidae, Xantusiidae. *Das Tierreich* No. 80:1-246.
- Werner, F. 1910. Reptilia (Gekkonidae und Scincidae). , pp. 451-493 in: Michaelsen, W. and Hartmeyer, R.: *Die Fauna Südwest-Australiens*. Vol. 2. G. Fischer, Jena.
- Wilson, S. and Swan, G. 2021. *A complete guide to reptiles of Australia*. (Sixth edition), Reed / New Holland, Sydney, Australia:688 pages.

CONFLICT OF INTEREST - NONE.