

Hiding in plain sight: Yet ten more new species and five new subspecies of skink lizard from mainly southern Australia (Scincidae: *Liopholis* and *Flamoscincus*).

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ABSTRACT

In the wake of numerous new species of skink being described from south-east Australia in the past five years, new species and subspecies within the genera *Liopholis* Fitzinger, 1843 and *Flamoscincus* Wells and Wellington, 1984 are formally named in this paper.

The putative species *Liopholis montana* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), type locality: Mount Gingera, Brindabella Ranges, Australian Capital Territory (ACT), Australia, Latitude 35.35 S., Longitude 148.46 E., has long been known to consist of at least two deeply divergent lineages separated by 2.4-4.1 MYA (Chapple *et al.* 2005).

This paper formally identifies and names as a new species the divergent population from far southern New South Wales and North-east Victoria as a new species, *Liopholis adelynhoserae* sp. nov.. The south-western outlier population, currently known only from the Wombat State Forest between Bacchus Marsh and Ballarat in Victoria (upper Lerderderg River drainage, mainly on the rocky southern side) is also formally named as a new subspecies of the same species, being *L. adelynhoserae divergens* subsp. nov..

L. guthega (Donnellan, Hutchinson, Dempsey and Osborne, 2002), type locality: Charlotte Pass, New South Wales, Australia, Latitude 36.26 S., Longitude 148.19 E, is split, with the Bogong High Plains (Victoria) population formally named as a subspecies, *L. guthega warkwoolowlerensis*.

A western outlier population of putative *L. compressicauda* Quoy and Gaimard, 1824, commonly treated as *E. whitii* (LaCépède, 1804) found mainly west of the Great Dividing Range in central/north New South Wales, are also formally named herein as *L. jackyhoserae* sp. nov. based on morphological and molecular divergence.

The morphologically and genetically divergent South Australian population of *Liopholis margaretae* (Storr, 1968), type locality: Palm Valley, Northern Territory, Australia, Latitude 24.03 S., Longitude 132.42 E. is formally named as a new species *L. faaaark* sp. nov..

The northernmost outlier population of *Liopholis personata* (Storr, 1968), type locality: Wilpena Gorge, South Australia, Australia, Latitude -31.33 S., Longitude 138.34 E, from the Gammon Ranges area, including Freeling Heights, South Australia, Australia, (Latitude -30.14 S., Longitude 139.23 E.) is formally named as a new subspecies *L. personata remota* sp. nov..

A population previously ascribed to either *L. margaretae* or *L. modesta* (Storr, 1968), found in south-west New South Wales, is herein formally named as a new species *L. shanescarffi* sp. nov..

Putative species within the putative genus *Flamoscincus* Wells and Wellington, 1984 of arid Australia for which regional variation had been previously noted had specimens inspected from across their known distributions. Diagnosable unnamed forms have been herein formally named as new species and subspecies.

These are four new species associated with *F. inornata* (Rosen, 1905) and a new species and two subspecies associated with *F. striata* (Sternfeld, 1919).

South-west Australian "*Egernia pulchra* Werner, 1910" is split three ways with all being assigned to a new genus and a new species formally named as *F. perthensis* sp. nov..

Keywords: Taxonomy; nomenclature; Australia; New South Wales; Victoria; ACT; skink; Brindabella Ranges; Wombat State Forest; Bogong High Plain; *Egernia*; *Liopholis*; *Flamoscincus*; *montana*; *guthega*; *whitii*; *compressicauda*; *coplandi*; *margaretae*; *personata*; *striata*; *inornata*; *kintorei*; *webberi*; *pulchra*; *longicauda*; new genus; *Pseudoegernia*; new species; *adelynhoserae*; *jackyhoserae*; *faaaark*; *shanescarffi*; *arrernteorum*; *pitjantjatjaraorum*; *yamatjiorum*; *wiranguorum*; *kaprunorum*; *perthensis*; new subspecies; *divergans*; *warkwoolowlerensis*; *remota*; *waramunguorum*; *yamajorum*.

INTRODUCTION

For decades it has been known that species diversity in Australia's lizards has been severely under-estimated (Wells and Wellington, 1983, 1985).

To 10 August 2023, I (Raymond Hoser) have added more than 230 species of reptiles to the Australian total over the preceding two and a half decades, the bulk of these being lizards, many being skinks and yet more forms await formal description.

To get an idea of the actual diversity of reptiles in Australia, one may see the complete list of relevant papers from the last decade on "www.zoobank.org", or as examples, see Hoser (2007), Hoser (2018a) or Hoser (2023) and sources cited therein.

Hawkeswood (2021) also provides a list of relevant newly named Australian taxa to that date.

Included among the obviously unnamed species within Australia's herpetofauna, has been the population of putative *Liopholis montana* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), type locality: Mount Gingera, Brindabella Ranges, Australian Capital Territory (ACT), Australia, Latitude 35.35 S., Longitude 148.46 E. from south of the type locality in a region encompassing the snowy Mountains and nearby north-east Victoria.

L. montana has long been known to consist of at least two deeply divergent lineages (Chapple *et al.* 2005), having diverged between 2.4 to 4.1 MYA (Chapple 2005).

Therefore the putative species was inspected more closely from across the known distribution with a view to formally name the southern population (hitherto unnamed) as a new species in accordance with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999), assuming it was identifiable as such, by means of breeding isolation from the type population and consistent morphological differences.

It should be noted that similar biogeographical breaks between sibling species and subspecies found in the Brindabella Ranges to the north and Snowy Mountains to the south have been noted in other herpetofauna including within the genera *Oxyphryne* Hoser, 2020 (Hoser 2020b; Wells and Wellington 1985) (a frog genus) and *Rankinia* Wells and Wellington, 1984 (Hoser 2019c) (a lizard genus), so the concept of a similar species-level split in the *Liopholis montana* complex was not unexpected.

Chapple *et al.* (2005) also flagged two divergent populations of *L. guthoga* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), type locality: Charlotte Pass, New South Wales, Australia, Latitude 36.26 S., Longitude 148.19 E, with the Bogong High Plains (Victoria) population being more than 1 MYA divergent. Specimens from relevant locations were inspected to see if consistent identifiable features diverged, allowing subspecies-level division.

It has been noted that the two populations are allopatric and evolving as separate species.

The south-western outlier population, of putative *L. montana* currently known only from the Wombat State Forest between Bacchus Marsh and Ballarat in Victoria (upper Lerderderg River drainage, mainly on the rocky southern side) was also investigated to see if it required taxonomic recognition.

Chapple *et al.* (2005) also flagged one or two divergent populations of northern "Egernia whitii", now generally regarded as *Liopholis compressicauda* Quoy and Gaimard, 1824, *sensu* Hoser (2018a) as significantly divergent with an estimated divergence in the vicinity of at least 2 MYA.

These were from the west of the Great Dividing Range in central and central northern, New South Wales, with an intrusion along the Hunter Valley dry zone, east of the Great Dividing Range, but away from the coast, as well as a possible second outlier population from near Coonabarabran in north-west New South Wales.

These were also inspected along with other specimens from the *L. whitii* (LaCépède, 1804) complex across their known distribution to determine if they warranted species or subspecies level recognition.

The South Australian population of *Liopholis margaretae* (Storr, 1968), type locality: Palm Valley, Northern Territory, Australia, Latitude 24.03 S., Longitude 132.42 E. has long been known to be divergent from the same putative species from the Northern Territory (type form) (Storr, 1968, Chapple *et al.* 2005), and again specimens were inspected to see if they could be separated at either the species or subspecies level.

The northernmost outlier population of *Liopholis personata* (Storr, 1968), type locality: Wilpena Gorge, South Australia, Australia, Latitude -31.33 S., Longitude 138.34 E, from Freeling Heights, South Australia, Australia, Latitude -30.14 S., Longitude 139.23 E. part of the population from the Gammon Ranges, north of the main Flinders Ranges escarpment shown by Chapple *et al.* (2005) to be divergent from the rest was inspected to confirm whether or not it could be separated at the subspecies level, based on divergence found by Chapple *et al.* (2005).

A population previously ascribed to either *L. margaretae* or *L. modesta* (Storr, 1968) in the past, occurring in from south-west New South Wales was inspected to see where it would be best placed. Putative species within the putative genus *Flamoscincus* Wells and Wellington, 1984 for which regional variation had been previously noted by Storr (1968) and Wells and Wellington (1985) had specimens inspected from across their known distributions.

This was to see if there were any diagnosable unnamed forms worthy of recognition as species or subspecies.

The candidate forms included potential species and subspecies associated with putative *F. inornata* (Rosen, 1905) and *F. striata* (Sternfeld, 1919).

Hoser (2018a) also previously described two subspecies of *F. kintorei* (Stirling and Zeitz, 1893) from central Australia, for which molecular divergence had already been established.

The enigmatic "Egernia pulchra Werner, 1910" for which two described forms, as subspecies are recognized to date was inspected with a view to ascertaining genus-level placement (in light of the molecular results of

Chapple and Scott Keogh, 2004) and species-level placements of populations in light of the available distributional data (based on museum specimens to the present date) and the previous morphological analysis of the putative species by Storr (1968).

MATERIALS AND METHODS

Specimens were inspected from across the putative range for the *L. montana* complex, this being areas from the southern highlands in southern New South Wales to the higher parts of central Victoria.

Consistent differences were noted and readily matched with relevant species or subspecies.

Relevant literature as cited below was also consulted to confirm the absence of any possible synonym forms or names to the potential southern taxa.

The same methodology was done with respect of putative *L. guthoga* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), type locality: Charlotte Pass, New South Wales, Australia, Latitude 36.26 S., Longitude 148.19 E, which Chapple *et al.* (2005) found had a divergence between the nominate form and specimens from the Bogong High Plains (Victoria) of 1.1 to 1.7 MYA.

The same methodology was also done with respect of the *L. whitii* complex *sensu* Chapple *et al.* (2005) and Hoser (2018a).

In terms of the previously named putative species within *Flamoscincus* Wells and Wellington, 1984, all taxa within that genus as defined by Hoser (2018a) were audited in the same way as the above-named taxa within *Liopholis*.

The relevant references generally relevant to putative species within *Liopholis* and *Flamoscincus* were audited to help confirm the taxonomy of the relevant forms and regional populations, potential synonyms available names for various forms and other relevant matters.

Literature relevant to the taxonomic and nomenclatural decisions herein (below) included Atkins *et al.* (2020), Boulenger (1887), Chapple and Scott Keogh (2004), Chapple *et al.* (2005, 2008), Cogger (2014), Cogger *et al.* (1983), Condon (1941), Couper *et al.* (2006), Dissanayake (2020), Donnellan *et al.* (2002), Duméril and Bibron (1839), Eldridge *et al.* (2020), Farquhar *et al.* (2021), Fitzinger (1843), Ford (1963a, 1963b), Gardner *et al.* (2008), Glauert (1969), Gray (1827, 1832, 1838), Guibé (1954), Halliwell *et al.* (2017), Henle and Osborne (1986), Hickman (1960), Horner (1992), Horton (1972a, 1972b), Hoser (1989, 2007, 2018a, 2018b, 2019, 2020a, 2020b, 2023), Hutchinson (1979), Kluge (1963a, 1963b), LaCépède (1804), Lucas and Frost (1894), Michell (1950), Oliver *et al.* (2007), Quoy and Gaimard (1824), Raine (2000), Reeder (2003), Ride *et al.* (1999), Rosen (1905), Senior *et al.* (2021), Sternfeld (1919, 1925), Stirling and Zeitz (1893), Storr

(1968, 1978), Storr *et al.* (1981), Swan *et al.* (2017, 2022), Taylor *et al.* (1993), Werner (1910), Wells and Wellington (1984, 1985), Wilson and Swan (2017, 2021) and sources cited therein.

RESULTS

The original naming and placement of the relevant species "*Egernia montana*" by Donnellan, Hutchinson, Dempsey and Osborne (2002), was in error.

The genus *Egernia* Gray, 1832 has as its type species *Tiliqua cunninghami* Gray, 1832.

These are large squat spinose lizards, very different to the medium-sized generally smooth scaled-skinks (no obvious body spines) within the genus *Liopholis* Fitzinger, 1843, within which "*Egernia montana* Donnellan, Hutchinson, Dempsey and Osborne, 2002" is best placed and generally conforms with.

Hence the placement within *Liopholis* Fitzinger, 1843 for the relevant species within this paper. This also reflects the most up-to-date generic arrangement of Hoser (2018a), that paper being the major work on all Australian skinks within the genus *Egernia sensu lato* (being those species placed in the genus by Cogger *et al.* 1983 and most relevant authors predating them and postdating them, 40 years either side of 1983).

Lygosoma moniligera Duméril and Bibron, 1839, (a subjective synonym of *Scincus compressicauda* Quoy and Gaimard, 1824) part of the *Scineus* [sic] *whitii* LaCépède, 1804 species complex is the type species of the genus *Liopholis* Fitzinger, 1843.

The two clades of *Liopholis montana sensu* Donnellan, Hutchinson, Dempsey and Osborne, 2002 and Chapple *et al.* (2005) diverged 2.4 to 4.1 MYA (Chapple 2005), clearly warranting species-level recognition.

As they are morphologically divergent, allopatric, being separated across a wide relatively rock-free low altitude area, I have no hesitation in formally naming them *L. adelynhoserae sp. nov.* in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

The south-western outlier population, currently known only from the Wombat State Forest between Bacchus Marsh and Ballarat in Victoria (upper Lerderderg River drainage, mainly on the rocky southern side) is also morphologically divergent from the nearest populations of putative *L. adelynhoserae sp. nov.* (and/or *L. montana*) and is therefore formally named as a new subspecies of the same species, being *L. adelynhoserae divergens subsp. nov.*

Putative *L. guthega* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), type locality: Charlotte Pass, New South Wales, Australia, Latitude 36.26 S., Longitude 148.19 E, was found to be morphologically divergent to the Bogong High Plains (Victoria) population and combined with obvious allopatry is herein formally named as a subspecies, *L. guthega warkwoolowlerensis*.

Within *L. whitii sensu lato*, *L. whitii* clearly applies to the southern Australian populations (South Australia, Tasmania and most of Victoria, except for the far north-east of East Gippsland, Victoria), and *L. compressicauda* for the specimens previously attributed to *L. whitii* from far north-east Victoria, the Australian Capital Territory (ACT), New South Wales and far south-east Queensland, the exceptions being indicated below.

Within the New South Wales / ACT populations of putative *L. compressicauda*, the molecular data of Chapple *et al.* (2005) does not confirm or refute the taxonomic status of "*Liopholis coplandi* Wells and Wellington, 1985". I note that Donnellan *et al.* (2002) found them to be conspecific with what they identified as "*Egernia whitii*", a statement quite emphatically refuted by the molecular data of Chapple *et al.* (2005). If "*Liopholis coplandi* Wells and Wellington, 1985" is in fact conspecific with any species, it would be *L. compressicauda*, however the type form of that taxon, is significantly larger and more robust in build, (adult snout-vent length average 110 mm vs 90 mm) and diagnosable by its dorsal colour pattern, with discontinuous dark paravertebral stripes, indicating species-level divergence between both putative taxa.

In any event, "*Liopholis coplandi* Wells and Wellington, 1985" is an "eastern" New South Wales form within a clade of coastal New South Wales animals, not connected with the putative taxa from west of the Great Dividing Range in central and northern New South Wales, deemed potential candidate species at the time this paper was in preparation.

Significantly two related clades appeared to diverge from others about 2 MYA (Chapple *et al.* 2005), these being one population from the west of the Great Dividing Range in central and central northern, New South Wales, with an intrusion along the Hunter Valley dry zone, east of the Great Dividing Range, but away from the coast, as well as a second outlier population from near Coonabarabran in north-west New South Wales.

However, they are morphologically similar and herein treated as a single diagnosable species. This is formally named as *L. jackyhoserae sp. nov.*

Gongylus (Lygosoma) moniligera Duméril and Bibron, 1839 is a subjective junior synonym of *L. compressicauda* Quoy and Gaimard, 1824.

The South Australian population of *Liopholis margaretae* (Storr, 1968), type locality: Palm Valley, Northern Territory (NT), Australia, Latitude 24.03 S., Longitude 132.42 E, was found to be easily morphologically separable from the NT population, allopatrically separated by a large zone of relatively flat and unsuitable habitat known as the Amadeus flats and so is formally named as a new species *L. faaaaark sp. nov.*

In terms of the northern South Australian specimens of putative *Liopholis margaretae* (Storr, 1968), Storr (1968) effectively flagged that they may be taxonomically distinct, which is a fact that seems to have been overlooked by all herpetologists between 1968 and 2024.

In his formal description of "*Egernia margaretae*" Storr (1968) wrote:

"Geographic variation. - The two specimens from South Australia have not been used in the above description. Their snout-vent length is 99 and 62 mm. They differ from northern specimens in the very narrow separation of nasals, wider interparietal (as wide as frontal in smaller specimen), fewer supraciliaries (6), more palpebrals (11 and 13), and fewer rows of midbody scales (32 and 36). The smaller has relatively long limbs (31 and 42% of SVL) and is patternless. The larger specimen's pattern merely consists of inconspicuous black spots suggesting the outline of a laterodorsal stripe. This population is separated from the Northern Territory populations by the arid Amadeus lowlands."

Chapple *et al.* (2005) also found evidence of the two populations being different species, but did not mention this fact in the text of their paper, take any taxonomic action or flag any.

The northernmost outlier population of *Liopholis personata* (Storr, 1968), type locality: Wilpena Gorge, South Australia, Australia, Latitude -31.33 S., Longitude 138.34 E, from Freeling Heights, South Australia, Australia, Latitude -30.14 S., Longitude 139.23 E, which includes those specimens from the greater Gammon Ranges, is also morphologically divergent from the type form and so is formally named as a new subspecies *L. personata remota sp. nov.*

A population previously ascribed to either *L. margaretae* or *L. modesta* (Storr, 1968), found in south-west New South Wales, was found to be most similar to *L. modesta* from north-east New South Wales and nearby south-east Queensland, generally west of the coastal ranges. However it was sufficiently divergent to warrant being formally named as a new species *L. shanescaffi sp. nov.*

As already mentioned, putative species within the putative genus *Flamoscincus* Wells and Wellington, 1984 for which regional variation had been previously noted had specimens inspected from across their known distributions.

Diagnosable unnamed forms were identified and have been formally named as follows:

Four new species associated with *F. inornata* (Rosen, 1905) and a new species and two subspecies associated with *F. striata* (Sternfeld, 1919). These are in addition to two subspecies of *F. kintorei* (Stirling and Zeitz, 1893) formally named in Hoser (2018a). In line with various published molecular phylogenies, including Gardner *et al.* (2008) and Pyron *et al.* (2013), the genus allocation *Flamoscincus* Wells and Wellington, 1984 is clearly appropriate for the relevant species.

Likewise for the recognition of the obviously distinct species *Flamoscincus webberi* Wells and Wellington, 1984, which has been effectively ignored by publishing herpetologists in Australia, save for Hoser (2018a).

"*Egernia pulchra* Werner, 1910" as an entity, was found to be sufficiently divergent from both type species of *Liopholis* and *Flamoscincus* to warrant being placed in a genus of its own. The genus *Pseudoegernia* gen. nov. is formally named for the first time in this paper, being the only genus-level divergence from Hoser (2018a).

This placement in effect reflects the molecular results of Chapple and Scott Keogh (2004) and the morphological divergence of the relevant taxa as well as the biogeographical reality.

"*Egernia pulchra* Werner, 1910" has until now been treated as two subspecies, namely, "*Egernia pulchra* Werner, 1910" with a type locality of Torbay, Western Australia, and the more recently named "*Egernia pulchra longicauda* Ford, 1963", both most recently placed in the genus *Liopholis*, since the publication of Wells and Wellington, 1985, being the first authors to do so in the recent period.

The putative species is split three ways with all being assigned to the new genus *Pseudoegernia* gen. nov. as full species. The new species formally named, being *P. perthensis* sp. nov., is the distinctive and separated population from the Darling Range, immediately west of Perth, Western Australia.

While there is no molecular divergence information with respect of the three geographically disjunct populations of morphologically divergent putative *Pseudoegernia* gen. nov. species, other south-west Australian herpetofaunal taxa have diverged at the species-level across the same biogeographical barriers, as noted in Hoser (2020b).

P. perthensis sp. nov. is the designated type species for the new genus *Pseudoegernia* gen. nov..

NOTES RELEVANT TO THE FORMAL DESCRIPTIONS IN THIS PAPER

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

This includes if Latinisation is wrong, apparent spelling mistakes and so on.

Any online citations within this paper, including copied emails and the like, are not as a rule cited in the references part of this paper and have the same most recent viewing and checking date of 25 January 2024 (at which time they were still online as cited).

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

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 the formal description and does not rely on material within publications not explicitly cited herein.

Formal acknowledgments of collaborators (names of people) and others who have provided valuable assistance in terms of this paper and other recent (circa last 2 decades) papers of myself are not given at the end of this and other relevant papers because members of the Wolfgang Wuster gang as detailed in Ceriaco *et al.* (2023), Cogger (2014), Cotton (2014), Dubois *et al.* (2019), Hawkeswood (2021), Hoser, (2007a-b, 2009a, 2012a, 2012b, 2013, 2015a-f, 2019a, 2019b), ICZN (1991, 2001, 2021), Mosyakin (2022), Wellington (2015) and sources cited therein, have unlawfully harassed them, including by various criminal acts including as a rule making unlawful telephone death threats and the like at strange hours (late at night), unlawful assaults at herpetological conferences, acts of theft and wilful damage to property, attacks on children and other family members, as well as militarising police and other government agents to launch unlawful

raids, including as detailed by Hawkeswood (2021) and Hoser, (2007a-b, 2009, 2012a, 2012b, 2013, 2015a-f, 2019a, 2019b). Some material within descriptions is repeated to ensure each fully complies with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended (ICZN 2012).

A SERIOUS THREAT TO THE LONG-TERM CONSERVATION OF ALL NEWLY NAMED SPECIES AND SUBSPECIES HEREIN

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.

Also refer to the relevant comments within Hoser (1989, 1991, 1993, 1996 and 2007).

Therefore attempts by taxonomic vandals like the Wolfgang Wuster 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, Hawkeswood, 2021, Mosyakin 2022 and Wellington 2015).

Claims by the Wuster 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, 2021), Mosyakin (2022), Wellington (2015) and sources cited therein.

LIOPHOLIS ADELYNHOSERAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:A87A2CED-A9B3-4172-908D-5A8FBF57C9F2

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number: R37809, collected from Rennix Gap, New South Wales, Australia, Latitude 36.22 S., Longitude 148.31 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: R37812, collected from Rennix Gap, New South Wales, Australia, Latitude 36.22 S., Longitude 148.31 E.

Diagnosis: Until now the species *Liopholis adelynhoserae* sp. nov. has been treated as a southern population (being most of the distribution) of putative *Liopholis montana* (Donnellan, Hutchinson, Dempsey and Osborne, 2022), type locality: Mount Gingera, Brindabella Ranges, Australian Capital Territory (ACT), Australia, Latitude. 35.35 S., Longitude 148.46 E.

That species is herein confined to the Brindabella Ranges area of the western edge of the Australian Capital Territory (ACT) and immediately adjacent New South Wales confined to the Brindabella Ranges upland.

Liopholis adelynhoserae sp. nov. is found in the Snowy Mountains area, generally south of Rennix Gap (the high ridge area west of Lake Jindabyne), south-west through elevated and rocky parts of north-east Victoria to the higher parts of the Yarra Ranges National Park, east of Melbourne in southern central Victoria.

An outlier population from west of Melbourne, presently only known from the Wombat State Forest (upper Lerderderg River drainage, mainly on the rocky southern side) is morphologically divergent and in this paper is formally named as a subspecies, *L. adelynhoserae divergens* subsp. nov..

That population is reproductively isolated from the more eastern populations, separated by the basalt plains of Melbourne, from which the species is absent and replaced by the aggressive *L. whitii* (LaCépède, 1804), as outlined in Hoser (2018b).

The same applies in terms of potential habitat for *L. adelynhoserae* sp. nov. north of Melbourne east of the Kilmore Gap, in areas such as Kinglake, Pheasant's Nest and Kinglake West, meaning that the western population of *L. adelynhoserae divergens* subsp. nov. is separated from the eastern population of the nominate form by about 80 km or more in a straight line.

Adult *L. adelynhoserae* sp. nov. are separated from *L. montana* by having orange on the dorsum (light grey down the midline), sometimes light marone, versus dark marone or purple in *L. montana* as well as numerous light orange or brown markings or

interspaces within the dark line of the upper flank, versus not so in *L. montana*.

Any markings on the black line of the upper flank in *D. montana* are invariably white or faded to obscurity.

Upper labials of *L. montana* and *L. adelynhoserae sp. nov.* are distinctly and uniformly dark etched, versus not so in *L. adelynhoserae divergens subsp. nov.*, where dark etching is either absent or not uniform in thickness.

L. montana is a generally darker and more greyish coloured lizard, than both subspecies of *L. adelynhoserae sp. nov.*

L. adelynhoserae divergens subsp. nov. is separated from both nominate *L. adelynhoserae sp. nov.* and *L. montana* by a general lack of dark or black markings on the head anterior to the ear and the upper flanks so faded as to lack the wide blackish zone on the upper flank as seen in the other two species. The upper flank only has scattered small faded dark brown to black blotches, (usually triangular in shape) interspersed with orange-brown on the upper flank and greyish-white on the majority of the flank, on the lower two thirds.

In the other two forms (*L. montana* and nominate *L. adelynhoserae sp. nov.*) the dark zone of the upper flank is wider than the light lower part, vs. reverse in *L. adelynhoserae divergens subsp. nov.*

Juveniles and subadults of all of *L. adelynhoserae sp. nov.*, *L. montana* and *L. adelynhoserae divergens subsp. nov.* are brightly marked with white spots and markings and quite unlike the adults and the previous diagnostic information does not apply to them.

L. adelynhoserae sp. nov., *L. montana* and *L. adelynhoserae divergens subsp. nov.* as a trio are separated from all other species within *Liopholis* by the following unique combination of characters: adult snout-vent length of 110 mm, versus 90 cm for all other species in the *L. whitii* complex (excluding *L. compressicauda* (Quoy and Gaimard, 1824) from the NSW Central Coast region); smooth dorsal scales, dorsum including a light to medium greyish but ill-defined mid-lateral stripe, bounded by darker on the sides of the dorsum, forming to two orangish to purple or marone lines down either side of the back; usually, but not always a reasonably well-defined blackish line on the upper lateral surface enclosing white, orange or yellow spots or blotches, often ill defined; a normally proportioned interparietal and smooth subdigital lamellae.

Longitudinal scale rows at midbody number 31-37; scales smooth; 57-62 paravertebral scales; 19-25 subdigital lamellae under fourth toe; lamellae undivided and palms and soles smooth. Nasals separated. Prefrontals in point to broad contact, rarely separated; frontoparietals paired. Interparietal distinctly narrower than frontal, much longer than wide, separating parietals.

Each parietal bordered posteriorly by an enlarged nuchal scale and laterally by an elongate upper secondary temporal scale, this scale separated from the nuchal by a smaller tertiary temporal contacting the posterolateral corner of the parietal. Supraciliaries 7-9, usually 8. Supralabials 8, rarely 7, the sixth and seventh subocular. Subocular supralabials separated from granular scales of the eyelid by a row of small subocular scales (largely modified from Donnellan *et al.* (2002).

The morphologically similar species *L. guthaga* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), of both subspecies is separated from other species in the *L. whitii* complex by the following suite of characters: The presence of a blackish upper lateral stripe usually overlain by two or three roughly longitudinal series of light, whitish grey, cream, yellow or light orange dots. Adults with a complex back pattern similar to that of other species in the *L. whitii* complex including *L. compressicauda* (Quoy and Gaimard, 1824) and *L. coplandi* Wells and Wellington, 1985, but with only two main colours, a greyish background colour and blackish brown pattern. Further distinguished by the low numbers of subdigital lamellae (mode <20, versus >20 for *L. montana* and all others in the *L. whitii* complex) and shorter tail (<140% SVL, versus >140% SVL) (largely modified from Donnellan *et al.* 2002).

The putative taxon, *Liopholis coplandi* Wells and Wellington, 1985, is of the *L. whitii* complex as stated by Wells and Wellington in their paper. Significantly, this is confirmed by the molecular results of Chapple *et al.* (2005), who notably had molecular results for specimens from both the type locality and near Adaminaby, New South Wales, another cited location for the same taxon.

If their taxon is in fact distinct from *L. compressicauda* Quoy and Gaimard, 1824, as stated by Wells and Wellington, 1985, it is evidently most closely related to it and not either *L. montana* or *L. adelynhoserae sp. nov.*

The molecular results of Chapple *et al.* (2005), confirms that *L. coplandi* Wells and Wellington, 1985 is neither *L. montana* or *L. adelynhoserae sp. nov.*. However they do not settle the question as to whether or not it is in fact conspecific with *L. compressicauda*. *L. montana* in life is depicted in Swan *et al.* (2022) on page 192 and online at:

<https://canberra.naturemapr.org/species/7770>

and

<https://www.flickr.com/photos/136643623@N03/37534007882>

L. adelynhoserae sp. nov. is depicted in life in Wilson and Swan (2021) on page 397 bottom, Brown (2014) on page 511, second from bottom on right and online at:

<https://www.flickr.com/photos/88708273@N03/52838574805/>

L. adelynhoserae divergens subsp. nov. is depicted online at: <https://www.flickr.com/photos/julesfarquhar/51247943593/>

and

<https://www.flickr.com/photos/88708273@N03/52857508700/>

Distribution: *Liopholis adelynhoserae sp. nov.* is found in the Snowy Mountains area, generally south of Rennix Gap (the high ridge area west of Lake Jindabyne), south-west through elevated and rocky parts of north-east Victoria to the higher parts of the Yarra Ranges National Park, east of Melbourne in southern central Victoria.

Liopholis montana (Donnellan, Hutchinson, Dempsey and Osborne, 2022), type locality: Mount Gingera, Brindabella Ranges, ACT, Australia, Latitude: 35.35 S., Longitude 148.46 E., is herein confined to the Brindabella Ranges area of western Australian Capital Territory and immediately adjacent New South Wales being confined to the Brindabella Ranges upland.

An outlier population from west of Melbourne, presently only known from the Wombat State Forest (upper Lerderderg River drainage, mainly on the rocky southern side) is morphologically divergent and in this paper is formally named as a subspecies, *L. adelynhoserae divergens subsp. nov.*

Conservation: Most known populations (of the nominate form) of *Liopholis adelynhoserae sp. nov.* are within National Parks and other protected areas.

There is little potential demand from the reptile keeping hobby or pet trade and excess regulation of this taxon would be a waste of tax-payer's money.

This remains the case unless and until some currently unknown threat is detected or emerges.

Government money should not be unnecessarily spent on this taxon when more critically endangered or threatened species deserve government funds and attention.

A caveat to this is that all east Victorian populations of this putative species are in fact of the same species taxon.

It would make sense for DNA to be taken from all known Victorian populations to confirm that they are of the same species-level taxon.

Etymology: *L. adelynhoserae sp. nov.* is named in honour of my daughter, Adelyn Hoser, AKA Snake Girl, born in Box Hill, Melbourne, Victoria, Australia in recognition of her many contributions to wildlife conservation over 25 years.

Contrary to reports on a Wikipedia hate page and other parts of the internet, she did not die in 2011 from the bite of a venomoid inland Taipan that had (allegedly) regenerated venom.

There is no truth to the false and defamatory claim whatsoever.

Venomoid snakes by definition cannot possibly regenerate venom (Hoser, 2004a, 2004b).

LIOPHOLIS ADELYNHOSERAEE DIVERGANS SUBSP. NOV.
LSIDDurn:lsid:zoobank.org:act:803FE469-B3AD-4A2E-87CD-4E8109CAC671

Holotype: An adult specimen depicted in life online at:

<https://www.thecourier.com.au/story/7364272/what-are-you-doing-here-new-population-of-mountain-skinks-discovered-in-forest/> from from Wombat State Forest, Victoria, Australia.

Paratype: A live specimen depicted online at:

<https://www.flickr.com/photos/88708273@N03/52857119756/> from from Wombat State Forest, Victoria, Australia.

Diagnosis: Until now the species *Liopholis adelynhoserae* sp. nov. has been treated as a southern population (being most of the distribution) of putative *Liopholis montana* (Donnellan, Hutchinson, Dempsey and Osborne, 2022), type locality: Mount Gingera, Brindabella Ranges, Australian Capital Territory (ACT), Australia, Latitude. 35.35 S., Longitude 148.46 E..

That species is herein confined to the Brindabella Ranges area of the western edge of the Australian Capital Territory (ACT) and immediately adjacent New South Wales confined to the Brindabella Ranges upland.

Liopholis adelynhoserae sp. nov. is found in the Snowy Mountains area, generally south of Rennix Gap (the high ridge area west of Lake Jindabyne), south-west through elevated and rocky parts of north-east Victoria to the higher parts of the Yarra Ranges National Park, east of Melbourne in southern central Victoria.

An outlier population from west of Melbourne, presently only known from the Wombat State Forest (upper Lerderberg River drainage, mainly on the rocky southern side) is morphologically divergent and in this paper is formally named as a subspecies, *L. adelynhoserae divergens* subsp. nov..

That population is reproductively isolated from the more eastern populations, separated by the basalt plains of Melbourne, from which the species is absent and replaced by the aggressive *L. whitii* (LaCépède, 1804), as outlined in Hoser (2018b).

The same applies in terms of potential habitat for *L. adelynhoserae* sp. nov. north of Melbourne east of the Kilmore Gap, in areas such as Kinglake, Pheasant's Nest and Kinglake West, meaning that the western population of *L. adelynhoserae divergens* subsp. nov. is separated from the eastern population of the nominate form by about 80 km or more in a straight line.

Adult *L. adelynhoserae* sp. nov. are separated from *L. montana* by having orange on the dorsum (light grey down the midline), sometimes light marone, versus dark marone or purple in *L. montana* as well as numerous light orange or brown markings or interspaces within the dark line of the upper flank, versus not so in *L. montana*.

Any markings on the black line of the upper flank in *L. montana* are invariably white or faded to obscurity.

Upper labials of *L. montana* and *L. adelynhoserae* sp. nov. are distinctly and uniformly dark etched, versus not so in *L. adelynhoserae divergens* subsp. nov., where dark etching is either absent or not uniform in thickness.

L. montana is a generally darker and more greyish coloured lizard, than both subspecies of *L. adelynhoserae* sp. nov..

L. adelynhoserae divergens subsp. nov. is separated from both nominate *L. adelynhoserae* sp. nov. and *L. montana* by a general lack of dark or black markings on the head anterior to the ear and the upper flanks so faded as to lack the wide blackish zone on the upper flank as seen in the other two species. The upper flank only has scattered small faded dark brown to black blotches, (usually triangular in shape) interspersed with orange-brown on the upper flank and greyish-white on the majority of the flank, on the lower two thirds.

In the other two forms (*L. montana* and nominate *L. adelynhoserae* sp. nov.) the dark zone of the upper flank is wider than the light lower part, versus the reverse in *L. adelynhoserae divergens* subsp. nov..

Juveniles and subadults of all of *L. adelynhoserae* sp. nov., *L. montana* and *L. adelynhoserae divergens* subsp. nov. are brightly marked with white spots and markings and quite unlike the adults and the previous diagnostic information does not apply to them.

L. adelynhoserae sp. nov., *L. montana* and *L. adelynhoserae divergens* subsp. nov. as a trio are separated from all other species within *Liopholis* by the following unique combination of characters: adult snout-vent length of 110 mm, versus 90 cm for all other species in the *L. whitii* complex (excluding *L. compressicauda* (Quoy and Gaimard, 1824) from the NSW Central Coast region); smooth dorsal scales, dorsum including a light to medium greyish but ill-defined mid-lateral stripe, bounded by darker on the sides of the dorsum, forming to two orangish to purple or marone lines down either side of the back; usually, but not always a reasonably well-

defined blackish line on the upper lateral surface enclosing white, orange or yellow spots or blotches, often ill defined; a normally proportioned interparietal and smooth subdigital lamellae.

Longitudinal scale rows at midbody number 31-37; scales smooth; 57-62 paravertebral scales; 19-25 subdigital lamellae under fourth toe; lamellae undivided and palms and soles smooth. Nasals separated. Prefrontals in point to broad contact, rarely separated; frontoparietals paired. Interparietal distinctly narrower than frontal, much longer than wide, separating parietals.

Each parietal bordered posteriorly by an enlarged nuchal scale and laterally by an elongate upper secondary temporal scale, this scale separated from the nuchal by a smaller tertiary temporal contacting the posterolateral corner of the parietal. Supraciliaries 7-9, usually 8. Supralabials 8, rarely 7, the sixth and seventh subocular. Subocular supralabials separated from granular scales of the eyelid by a row of small subocular scales (Largely modified from Donnellan *et al.* (2002).

The morphologically similar species *L. guthoga* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), of both subspecies is separated from other species in the *L. whitii* complex by the following suite of characters: The presence of a blackish upper lateral stripe usually overlain by two or three roughly longitudinal series of light, whitish grey, cream, yellow or light orange dots. Adults with complex back pattern similar to that of other species in the *L. whitii* complex including *L. compressicauda* (Quoy and Gaimard, 1824) and *L. coplandi* Wells and Wellington, 1985, but with only two main colours, a greyish background colour and blackish brown pattern. Further distinguished by the low numbers of subdigital lamellae (mode <20, versus >20 for *L. montana* and all others in the *L. whitii* complex) and shorter tail (<140% SVL, versus >140% SVL) (largely modified from Donnellan *et al.* 2002).

The putative taxon, *Liopholis coplandi* Wells and Wellington, 1985, is of the *L. whitii* complex as stated by Wells and Wellington in their paper. Significantly, this is confirmed by the molecular results of Chapple *et al.* (2005), who notably had molecular results for specimens from both the type locality and near Adaminaby, New South Wales, another cited location for the same taxon.

If their taxon is in fact distinct from *L. compressicauda* Quoy and Gaimard, 1824, as stated by Wells and Wellington, 1985, it is evidently most closely related to it and not either *L. montana* or *L. adelynhoserae* sp. nov..

The molecular results of Chapple *et al.* (2005), confirms that *L. coplandi* Wells and Wellington, 1985 is neither *L. montana* or *L. adelynhoserae* sp. nov.. However they do not settle the question as to whether or not it is in fact conspecific with *L. compressicauda*.

L. adelynhoserae divergens subsp. nov. is depicted online at: <https://www.flickr.com/photos/julesfarquhar/51247943593/> and

<https://www.flickr.com/photos/88708273@N03/52857508700/>

L. montana in life is depicted in Swan *et al.* (2022) on page 192 and online at:

<https://canberra.naturemapr.org/species/7770> and

<https://www.flickr.com/photos/136643623@N03/37534007882>

L. adelynhoserae sp. nov. is depicted in life in Wilson and Swan (2021) on page 397 bottom, Brown (2014) on page 511, second from bottom on right and online at:

<https://www.flickr.com/photos/88708273@N03/52838574805/>

Distribution: *Liopholis adelynhoserae* sp. nov. is found in the Snowy Mountains area, generally south of Rennix Gap (being the very high ridge area west of Lake Jindabyne), south-west through elevated and rocky parts of north-east Victoria to the higher parts of the Yarra Ranges National Park, east of Melbourne in southern central Victoria.

Liopholis montana (Donnellan, Hutchinson, Dempsey and Osborne, 2022), type locality: Mount Gingera, Brindabella Ranges, ACT, Australia, Latitude. 35.35 S., Longitude 148.46 E., is herein confined to the Brindabella Ranges area of western Australian Capital Territory and immediately adjacent New South Wales confined to the Brindabella Ranges upland.

An outlier population from west of Melbourne, presently only known from the Wombat State Forest (upper Lerderberg River drainage,

mainly on the rocky southern side) is morphologically divergent and in this paper is formally named as a subspecies, *L. adelynhoserae divergens subsp. nov.*

Conservation: The only known distribution for the subspecies *L. adelynhoserae divergens subsp. nov.* is the Wombat State Forest, north-east of Ballarat, Victoria and north-west of Bacchus Marsh, Victoria. To better protect this isolated population, this State Forest should be incorporated within the adjoining Lerderderg State Park, an area also likely to have this subspecies present.

State forests do not have the same protections for wildlife as National Parks, although it is noted that this species has been found in areas previously logged and/or burnt in bushfires within the Wombat State Forest.

Other species of *Liopholis* in Eastern Australia seem able to survive in heavily degraded habitat and it is likely that the greatest risk to this species probably comes from aggressive actions from other species within this genus or morphologically similar species, such as species within *Eulamprus* Fitzinger, 1843, also common in the same State Forest (namely *E. tympanum* Lönnberg and Andersson, 1915).

Etymology: *L. adelynhoserae divergens subsp. nov.* is named in reflection of the fact that it is divergent from the populations of the putative species, *L. adelynhoserae sp. nov.*, warranting taxonomic recognition.

The choice of spelling is deliberate to avoid the possibility of the inadvertent creation of any homonyms and should not be emended or changed.

LIOPHOLIS GUTHEGA WARKWOOLWLERENSIS SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:993F89D7-3589-473F-A249-8EE6D2426772

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R56035 collected from Falls Creek, (near the ruined Castle Ski Run) Victoria, Australia, Latitude 36.86 S., Longitude 147.27 E.

This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia, specimen number D76839 collected from Falls Creek, Victoria, Australia, Latitude 36.86 S., Longitude 147.27 E.

Diagnosis: *L. guthega warkwoolwlerensis subsp. nov.* from the Bogong High Plains in Victoria, is readily separated from the nominate form of *L. guthega* (Donnellan, Hutchinson, Dempsey and Osborne, 2002), type locality of Charlotte's Pass, New South Wales, Australia, Latitude -36.26 S., Longitude 148.19 E, being confined to the Snowy Mountains area of New South Wales, by the fact that the spotting on the dorsum and flanks in all but old specimens is cream to light yellow, versus dark yellow to light orange in *L. Guthega*. Spotting on the flanks of *L. guthega* is bold and the spots are of medium size and generally more-or-less circular in shape. By contrast in *L. guthega warkwoolwlerensis subsp. nov.* the spots are relatively small and somewhat irregular in shape.

Three brown stripes down the back of adult *L. guthega* are distinct, versus semi-distinct in *L. guthega warkwoolwlerensis subsp. nov.* Upper labials of *L. guthega* are usually yellowish in colour, versus cream to white in *L. guthega warkwoolwlerensis subsp. nov.*

L. guthega (Donnellan, Hutchinson, Dempsey and Osborne, 2002), of both subspecies is separated from all other species in the *L. whitii* (LaCépède, 1804) complex by the following suite of characters: The presence of a blackish upper lateral stripe usually overlain by two or three roughly longitudinal series of light, whitish grey, cream, yellow or light orange dots. Adults with complex back pattern similar to that of other species in the *L. whitii* complex including *L. compressicauda* (Quoy and Gaimard, 1824) and *L. coplandi* Wells and Wellington, 1985, but with only two main colours, a greyish background colour and blackish brown pattern. Further distinguished by the low numbers of subdigital lamellae (mode <20, versus >20 for *L. montana* and all others in the *L. whitii* complex) and shorter tail (<140% SVL, versus >140% SVL) (largely modified from Donnellan *et al.* 2002).

Chapple *et al.* (2005) found a 1.1 to 1-7 MYA divergence between the two populations of *L. Guthega*, each separated by a low valley

region of unsuitable habitat, which was found by Hoser (2020a) to be similarly blocking gene flow between populations of putative *Burrarmys parvus*.

These were also split by Hoser (2020a) at the subspecies level, confirming the sensibility of the taxonomic decision herein to formally name the Victorian population of *L. guthega* as *L. guthega warkwoolwlerensis subsp. nov.*

L. guthega warkwoolwlerensis subsp. nov. is depicted in life in Brown (2014) on page 511, second from bottom on left and online at:

<https://www.flickr.com/photos/whawha88/23160916463/> and

<https://www.flickr.com/photos/whawha88/23160799333/>

Nominate *L. guthega* (Donnellan, Hutchinson, Dempsey and Osborne, 2002) is depicted in life in Swan *et al.* (2022) on page 189, Wilson and Swan (2021) on page 395 middle, Cogger (2014) page 637, top left and online at:

<https://www.flickr.com/photos/moloch05/46100177461/> and

<https://www.flickr.com/photos/moloch05/44283843530/> and

<https://www.flickr.com/photos/whawha88/23705377711/> and

<https://www.flickr.com/photos/whawha88/23705377711/> and

<https://www.flickr.com/photos/whawha88/23705377711/> and

<https://www.flickr.com/photos/whawha88/23705377711/> and

<https://www.flickr.com/photos/189037423@N06/52063030404/>

Distribution: *L. guthega warkwoolwlerensis subsp. nov.* is only known from the Bogong High Plains region of Victoria generally near the ski resorts of Mount Hotham and Falls Creek.

Nominate *L. guthega* (Donnellan, Hutchinson, Dempsey and Osborne, 2002) is confined to the vicinity of the ski resort areas near the Mount Kosciuszko National Park.

Conservation: Fortunately all or most of the entire known distribution for this taxon is within National Parks and conservation areas of Victoria and so their habitat is largely protected.

There are no known threats at this stage to the survival of the subspecies, short of long-term issues such as competing species, climate change, invasive pests that may alter habitat, unknown pathogens and the like, meaning that the only immediate conservation action required for the taxon is monitoring of populations on a semi-regular basis.

Significant conservation funds are otherwise better spent elsewhere.

Etymology: *L. guthega warkwoolwlerensis subsp. nov.* is named in reflection of where the subspecies occurs. In the native Australian Aboriginal tribes languages, Waywuru and Dhudhuroa, Mount Bogong is named Warkwoolwler, meaning the mountain where Aboriginal people collected the Bogong Moths.

LIOPHOLIS JACKYHOSERAЕ SP. NOV.

LSIDurn:lsid:zoobank.org:act:77CF9081-FEFB-424A-A2F9-B900A800F0A7

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R34757 collected from "Tibuc", 16 km West of Coonabarabran, New South Wales (NSW), Australia, Latitude -31.25 S., Longitude 149.53 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J26043-J26045 all collected 16 km west of the Warrumbungles, in New South Wales, Australia, Latitude -31.216667 S., Longitude 149.083333 E.

Diagnosis: *Liopholis jacksoni* sp. nov. from immediately west of the Great Dividing Range in central and northern New South Wales, Australia, has until now been treated as a population of *L. compressicauda* (Quoy and Gaimard, 1824) a taxon from eastern New South Wales, including far south-east Queensland and far north-east Victoria, or the better-known *Liopholis whitii* LaCépède, 1804, from most parts of Victoria, very far west New South Wales, Tasmania and nearby parts of south-east South Australia with which it shares most morphological features.

L. jacksoni sp. nov. is however readily separated from those species (as well as the morphologically similar *L. coplandi* Wells and Wellington, 1985, in turn most similar to *L. compressicauda*) by the following combination of characters: The dorsolateral edge is

bound by a relatively bold whitish-grey line and on the flanks proper there are black edged, white blotches, in which the white dominates the black (occupies a greater area), versus no bold whitish-grey line on the dorso-lateral edge (some specimens with a faint one), and on the flanks proper, the white spots are heavily bounded with dark black (dominating) in the other species. On the dorsum of *L. jackyhoserae* sp. nov. the white spots are barely distinct, being faded or greyish-red, versus white and prominent in spotted adults of the other species.

The other species also have an adult morph which is unspotted dorsally, for which the last diagnostic difference does not apply. However this morph is rare in *L. jackyhoserae* sp. nov..

All the preceding species are separated from all other species within the genus *Liopholis* Fitzinger, 1843 by the following suite of characters: smooth dorsal scales, an ocellate lateral pattern, in which the upper flank is not distinctively darker than the lower, dorsal pattern (when present) including a rusty brown vertebral stripe and blackish dorsolateral stripes enclosing a single series of cream or whitish spots or dashes, 30-43 midbody scale rows, normally proportioned interparietal; the smooth subdigital lamellae under the fourth toe number 17-20; lamellae often paired under basal phalanx; palms and soles smooth to weakly granular smooth subdigital lamellae. Nasals separated. Prefrontals separated or in point to broad contact. Frontoparietals paired. Interparietal similar in shape and only slightly smaller than frontal, much longer than wide, separating parietals. Each parietal bordered posteriorly by an enlarged nuchal scale and laterally by an elongate upper secondary temporal scale, this scale separated from the nuchal by a smaller tertiary temporal contacting the posterolateral corner of the parietal. Supraciliaries 5-9, usually 8; supralabials 7-9, the sixth and seventh subocular. Subocular supralabials separated from granular scales of the eyelid by a row of small subocular scales (largely modified from Donnellan et al. 2002).

L. jackyhoserae sp. nov. is depicted in life online at: <https://www.inaturalist.org/observations/146683277> and

<https://www.inaturalist.org/observations/11364284> and

<https://www.inaturalist.org/observations/153239189>

L. compressicauda in life is depicted in Hoser (1989) on page 94 on bottom right.

L. whitii in life is depicted online at:

<https://www.inaturalist.org/observations/25659329>

Distribution: *Liopholis jackyhoserae* sp. nov. occurs immediately west of the Great Dividing Range in central and northern New South Wales, Australia, in a general region commencing west of the Australian capital Territory and extending north of the Hunter Valley, west of the New England Tableland, with an easterly intrusion down the Hunter Valley.

L. compressicauda, generally occurs east of this area including most of the coast and near ranges of New South Wales and including far north-east Victoria and south-east Queensland.

Liopholis whitii LaCépède, 1804, occurs in most parts of Victoria, very far west New South Wales, Tasmania and nearby parts of south-east South Australia.

Conservation: Significant populations are within National Parks and similar conservation zones. The species is not regarded as rare, uncommon or hard to find and catch. Therefore it is not of immediate conservation concern.

Etymology: *L. jackyhoserae* sp. nov. is named in honour of my younger daughter, Jacky Hoser, born in 2001 in recognition of over 20 years of services to herpetology and wildlife conservation in general.

LIOPHOLIS FAAAAAARK SP. NOV.

LSIDurn:lsid:zoobank.org:act:4B15ED4F-FF8D-48E8-86CF-49618271EFD0

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R51590 collected from 36.5 km south east of Amata, South Australia, Australia, Latitude -26.2558 S., Longitude 131.4933 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Australian Museum,

Sydney, New South Wales, Australia, specimen number R.17456 collected from the Erliwunyawunya Rockhole, Musgrave Ranges, South Australia, Australia, Latitude -26.35833 S., Longitude 131.72499 E.

2/ A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R60802 collected from approximately 10km north of Ernabella (now called Pukatja), South Australia, Australia, Latitude -26.1917 S., Longitude 132.1458 E.

3/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.17271 collected from the Piltadi Rockhole in South Australia, Australia, Latitude -26.116 S., Longitude 130.283 E.

Diagnosis: Since Glen Storr's original description of "*Egernia margaretae*" in 1968, the South Australian population of *Liopholis margaretae* (Storr, 1968) as it is now known, type locality: Palm Valley, Northern Territory (NT), Australia, Latitude 24.03 S., Longitude 132.42 E. has been treated by all Australian herpetologists until now as the same species.

However the concept of the South Australian population being of the same species is biogeographically untenable.

Therefore it is formally described herein as *Liopholis faaaaaark* sp. nov..

L. faaaaaark sp. nov. is readily separated from *L. margaretae* by the very narrow separation of nasals (versus wide), wider interparietal (more-or-less as wide as the frontal), versus not so in *L. margaretae*, fewer supraciliaries (6) versus 7-9 (usually 8) in *L. margaretae*, usually more upper palpebrals (11 to 13) versus 10-12 in *L. margaretae*, and on average fewer rows of midbody scales (32 to 36), versus 34-38 in *L. margaretae*. The relatively long limbs are about 31 and 42 percent of SVL (versus 22-28% and 31-38% in *L. margaretae*).

Colouration of both *L. margaretae* and *L. faaaaaark* sp. nov. is olive brown dorsally with reddish-brown anteriorly and paler on the tail. In *L. margaretae* there is black spotting on the back and tail that is irregularly distributed, but tending towards longitudinal alignment. Small black spots are scattered on the top and side of the head. Sutures of chin shields are irregularly margined with black. There are dark brownish grey spots or short wavy lines on the throat. In about a third of specimens black markings are almost or completely lacking.

L. faaaaaark sp. nov. generally lacks patterning on the dorsum in adults. Sometimes there are faded black spots, these being the remnants of a laterodorsal stripe that is better defined in juveniles.

Both preceding species have a narrow to moderately-wide ear aperture, 3-5 lobules, usually obtuse, sometimes rectangular, rarely acute. Snout-vent length averages about 95 mm in adults and a snout that is no more depressed than the rest of the head (versus strongly depressed and concave in plan in the closely related species *M. personata* (Storr, 1968), the latter being found in more southern parts of South Australia, generally in or around the Flinders Ranges district.

The three preceding species are separated from all others in the genus *Liopholis* Fitzinger, 1843 by the presence of smooth dorsal scales, the presence of conspicuous black callus along the free edge of the subdigital lamellae and the scales of the soles and palms each with a prominent black tubercle.

L. faaaaaark sp. nov. from hilly country in far north South Australia, is separated from the Northern

Territory population of *L. margaretae* with a distribution centred on the central ranges of central Australia by the Amadeus Lowlands, a well-known biogeographical barrier.

A molecular phylogeny of Oliver et al. (2007) at fig. 3. found that centralian populations of geckos in the genus *Diplodactylus* subgenus *Yankunytjatjaragecko* Hoser, 2023, namely *D. (Yankunytjatjaragecko) galeatus* Kluge, 1963 from the Coober Pedy area of South Australia, *D.*

(Yankunytjatjaragecko) aah Hoser, 2023 from the Macdonell Ranges of central Australia and *D. (Yankunytjatjaragecko)* ooh Hoser, 2023 from the Bagot and Beddoma Ranges in northern South Australia, diverged from one another between 5 and 10 MYA. A similar divergence between *L. faaaaaark* sp. nov. and *L. margaretae* can therefore also be reasonably expected.

This is more than sufficient divergence for species-level recognition. *L. faaaaark sp. nov.* is depicted in life in Cogger (2014) on page 639 bottom left.

L. margaretae in life is depicted in Wilson and Swan (2021) on page 397, second image from top and Brown (2014) on page 513, second from top on right.

Distribution: *L. faaaaark sp. nov.* is confined the hilly region in the north-west of South Australia, just south of the NT/SA border. It is separated from the Centralian population of the closely related species *L. margaretae* by the Amadeus Lowlands, a well-known biogeographical barrier.

Conservation: While this taxon is relatively range restricted by virtue of relevant biogeographical barriers, the remoteness of the region in terms of human activity offers the species significant protection.

Long-term habitat destruction by feral or native animals is perhaps the biggest potential issue facing this taxon in the foreseeable future and to that extent populations of this and other species and subspecies restricted to this region, such as the recently described range restricted gecko *Diplodactylus (Yankunytjatjaragecko) ooh* Hoser, 2023 should have their populations monitored at regular intervals.

Etymology: In 1983, when searching for the newly named species in far north-west South Australia, I recruited the assistance of some native Pitjantjatjara children who said they knew where and how to find them. When a child saw a lizard scuttle under a boulder he yelled out "FAAAAAARK", giving this species its scientific name.

LIOPHOLIS PERSONATA REMOTA SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:11B0F5BF-0E67-4AC5-AFBA-6E899320AA53

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R52989 collected from 4.6 km north-east of Freeling Heights, Arkaroola, South Australia, Australia, Latitude -30.1108 S., Longitude 139.4158 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R52978 collected from 4.6 km north-east of Freeling Heights, Arkaroola, South Australia, Australia, Latitude -30.1108 S., Longitude 139.4158 E.

2/ Three preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, specimen numbers R8724-8726 collected from North Tusk, Gammon Ranges, South Australia, Australia.

Diagnosis: *Liopholis personata remota subsp. nov.* is the Gammon Ranges region outlier population of *L. personata* (Storr, 1968), type locality: Wilpena Gorge, South Australia, Australia, Latitude -31.33 S., Longitude 138.34 E, a taxon with a centre of distribution in the central Flinders Ranges.

L. personata remota subsp. nov. is readily separated from the nominate form of *L. personata* by the presence of about 60 small but distinct, well scattered white spots on either flank. These are usually absent in *L. personata* or if present, very faded. For *L. personata remota subsp. nov.* on the distinct or semi-distinct darker stripes running longitudinally down the sides of the dorsum, are small whitish spots. These are absent in the nominate form of *L. personata*.

L. personata remota subsp. nov. has whitish or yellowish upper labials, as opposed to having a pink, orange or reddish flush in the nominate form of *L. personata*.

Both preceding subspecies have a snout that is narrow, strongly depressed and concave in plan; wide ear aperture, 2-4 lobules, usually decreasing in size downwards. Snout-vent length averages about 95 mm in adults.

The two preceding subspecies are separated from the closely related taxa *L. margaretae* (Storr, 1978) and *L. faaaaark sp. nov.* by having a snout that is narrow, strongly depressed and concave in plan, versus a somewhat wider snout that is no more depressed than the rest of the head.

The three preceding species are separated from all others in the genus *Liopholis* Fitzinger, 1843 by the presence of smooth dorsal scales, the presence of conspicuous black callus along the free

edge of the subdigital lamellae and the scales of the soles and palms each with a prominent black tubercle.

L. personata remota subsp. nov. is depicted in life online at: <https://www.flickr.com/photos/jamesn48/8058092314/> and

<https://www.inaturalist.org/observations/133862787> and

<https://www.inaturalist.org/observations/161542637> and

<https://www.inaturalist.org/observations/141478800>

Nominate *L. personata personata* is depicted in life in Brown (2014) on page 513, second from top on left and online at:

<https://www.flickr.com/photos/58349528@N02/32111722212/> and

<https://www.flickr.com/photos/bassia09/10552712834/> and

<https://www.inaturalist.org/observations/98861242> and

<https://www.inaturalist.org/observations/15973888> and

<https://www.inaturalist.org/observations/188501000>

Distribution: *Liopholis personata remota subsp. nov.* is found in the northern Flinders Ranges region of South Australia, with a distribution centred on the Gammon Ranges.

L. personata (Storr, 1968), type locality: Wilpena Gorge, South Australia, Australia, Latitude -31.33 S., Longitude 138.34 E, is a taxon with a centre of distribution in the central Flinders Ranges.

Conservation: While the subspecies *L. personata remota subsp. nov.* is relatively range restricted by virtue of relevant biogeographical barriers, the remoteness of the region in terms of human activity offers the species significant protection.

Long-term habitat destruction by feral or native animals is perhaps the biggest potential issue facing this taxon in the foreseeable future and to that extent populations of this and other species and subspecies restricted to this region, should have their populations monitored at regular intervals.

Etymology: The subspecies name "*remota*", reflects the relatively remote location that this taxon occurs.

LIOPHOLIS SHANESCARFFI SP. NOV.

LSIDurn:lsid:zoobank.org:act:F4E72E4A-9837-4D79-AADB-AAB5F790C18D

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R39172 collected from 16 km west of Retreat, New South Wales, Australia, Latitude 32.90 S., Longitude 143.30 E.

This government-owned facility allows access to its holdings.

Diagnosis: *Liopholis shanescaffii sp. nov.* has most recently been treated as an isolated south-west New South Wales population of *L. modesta* (Storr, 1968), type locality of Chinchilla, Queensland, e.g. Swan *et al.* (2022), from which it can be separated as follows:

A complete lack of spotting on the flanks (rarely faded), in mature adults, versus anterior spotting at least, in adult *L. modesta* of both Queensland type form and that from north-east New South Wales; a dorsum which is more greyish, than brownish or olive in general background colouration and a dorsum in which the outer edging of the scales forms prominent darker longitudinal lines, versus either absent or only semi-distinct in other putative *L. modesta*.

Within the two main populations of *L. modesta* from north-east New South Wales (including the border ranges area of Queensland) and south-east Queensland, generally north and west of Toowoomba (being the type form of that species), the two populations are separated as follows:

Adults of type *L. modesta* have scattered spots on the flanks continuous along it, versus not so in the north-east New South Wales lizards.

These spots are invariably faded in aged specimens.

The name "*Egernia geophana* Horton, 1968" may be applicable to the North-east New South Wales population of putative *E. modesta* (Cogger *et al.* 1983).

Both *L. shanescaffii sp. nov.* as well as the North-east New South Wales and southern Queensland populations of putative *L.*

modesta, are separated from all other species within the *Liopholis whitii* LaCépède, 1804 species group as detailed in the description of *Liopholis jackyhoserae* sp. nov. above in this paper (being *L. jackyhoserae* sp. nov., *L. compressicauda* (Quoy and Gaimard, 1824), *L. coplandi* Wells and Wellington, 1985 and *Liopholis whitii* LaCépède, 1804), by the proportionately more elongated body, shorter limbs, and longer tail (foreleg is 23-33 percent of snout-vent length, hindleg is 33-43 percent of snout-vent length and tail is 151-177 percent of the snout-vent length); little or no colour pattern in aged adults, narrowly separated nasals and tubercular calli on proximal subdigital lamellae (modified from Storr, 1968).

All the preceding identified species, being *L. shanescarffii* sp. nov., *L. modesta* and those in the *L. whitii* group, being *L. jackyhoserae* sp. nov., *L. compressicauda* (Quoy and Gaimard, 1824), *L. coplandi* Wells and Wellington, 1985 and *Liopholis whitii* LaCépède, 1804 are separated from all other species within the genus *Liopholis* Fitzinger, 1843 by the following suite of characters: smooth dorsal scales, an ocellate lateral pattern (at least in juveniles), in which the upper flank is not distinctively darker than the lower, dorsal pattern (when present) including a rusty brown vertebral stripe and blackish dorsolateral stripes enclosing a single series of cream or whitish spots or dashes, 30-43 midbody scale rows, normally proportioned interparietal; the smooth subdigital lamellae under the fourth toe number 17-20; lamellae often paired under basal phalanx; palms and soles smooth to weakly granular smooth subdigital lamellae. Nasals separated. Prefrontals separated or in point to broad contact. Frontoparietals paired. Interparietal similar in shape and only slightly smaller than frontal, much longer than wide, separating parietals. Each parietal bordered posteriorly by an enlarged nuchal scale and laterally by an elongate upper secondary temporal scale, this scale separated from the nuchal by a smaller tertiary temporal contacting the posterolateral corner of the parietal. Supraciliaries 5-9, usually 8; supralabials 7-9, the sixth and seventh subocular. Subocular supralabials separated from granular scales of the eyelid by a row of small subocular scales (largely modified from Donnellan *et al.* 2002).

E. modesta of the type form (adult) is depicted in life in Wilson and Swan (2021) on page 397 second from bottom and in Brown (2014) page 513 second from bottom on right.

Distribution: *L. shanescarffii* sp. nov. is, as far as is known, confined to the immediate vicinity of the type locality, being Retreat, New South Wales, Australia, Latitude 32.90 S., Longitude 143.30 E, just south of Ivanhoe in the south-west of the State.

Etymology: *L. shanescarffii* sp. nov. is named in honour of Shane Scarff of Heckenberg, New South Wales, (a suburb 36 km from the CBD in south-western Sydney), Australia, owner of "Shane's Aussie Pythons" in recognition of his excellent work in breeding many species of Australian pythons over some decades, reducing pressure on wild populations by the expanding private pet trade.

FLAMOSCINCUS ARRENTEORUM SP. NOV.

LSIDurn:lsid:zoobank.org:act:E5B2AE54-0A7C-4DF0-982D-A21EEC3E97DC

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.25794 collected from the Alice Springs District, central Australia, Northern Territory, Australia, Latitude 23.6980 S., Longitude 133.8807 E. This government-owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.52084 collected from Orange Creek, Stuart Highway, Central Australia, Northern Territory, Australia, Latitude -24.016 S. Longitude 133.633 E.

2/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.60167 collected from 72km south-west of Alice Springs on the Stuart Highway, Northern Territory, Australia, Latitude -24.283 S., Longitude 133.46 E.

Diagnosis: Until now, almost all publishing herpetologists have viewed "*Egernia inornata* Rosen, 1905" as a single species, although in the past decade, most authors have placed the putative taxon within the genus *Liopholis* Fitzinger, 1843.

Contrary to this position, Wells and Wellington, 1985 regarded the putative species as composite and formally named the west New South Wales population (extending into nearby parts of South

Australia and north-west Victoria) as a new species which they placed into the genus *Flamoscincus* Wells and Wellington, 1984, with a closely related type species of "*Egernia kintorei* Stirling and Zietz, 1893".

The position of Wells and Wellington (1984, 1985) has been confirmed as correct following this assessment of published molecular evidence (e.g. Chapple *et al.* 2004, 2005 and 2008, Donnellan *et al.* 2002, Pyron *et al.* 2013 and others), assessment of well-known biogeographical barriers within the range of the putative taxon/taxa (e.g. the Flinders Ranges and various flood plains) as well as a reassessment of morphological divergences between populations, including those flagged by Glenn Storr in Storr (1968). This paper recognizes six species in the complex including *Flamoscincus inornata* (Rosen, 1905), herein restricted to the region near the Goldfields in inland south-east Western Australia, *F. webberi* Wells and Wellington, 1985 from the region encompassing south-west New South Wales, nearby parts of South Australia (east of the Flinders Ranges) as well as north-west Victoria and four newly named species.

These are: *F. arreneteorum* sp. nov. from the Macdonnell Ranges area of central Australia; *F. pitjantjatjaraorum* sp. nov. from the Musgrave Ranges area in north-west South Australia and nearby east Western Australia, generally south of the Amadeus basin in the far south-west of the Northern Territory, *F. yamatjiorum* sp. nov. from the far central west of Western Australia and *F. wiranguorum* sp. nov. from the Eyre Peninsula and nearby parts of South Australia, generally east of the Nullarbor, west of the Eyre Peninsula and south of the Eyrean and Centralian flood plains.

The six species are separated from one another by the following unique combinations of characters:

F. inornata is a light yellowish, creamy beige coloured lizard with scattered blackish spots on the dorsum and upper flanks, these spots are of irregular shape, but usually elongated in a dorso-posterior direction, more densely spaced on the dorsum than on the upper flank (absent on the lower flank) with those on the dorsum tending to form longitudinal lines.

Upper labials have 2 or 3 prominent black spots, slightly curved and elongated in an up-down manner; iris is beige and there are 38-42 midbody rows.

This species is larger than all others in the complex, having an adult snout vent length of 79-84 mm, versus below 79 mm for all other species.

It is also more elongated and adapted to burrowing than the other species having a relatively longer tail (original) and proportionately shorter than average foreleg, being about 28 percent of the snout-vent length, versus 29-30 per cent for all the other species (as a group).

F. webberi is similar to *F. inornata* as described above, but readily separated from that species by having dense black spotting on the majority of the flanks (being the upper two thirds), coalesced to form semi-broken irregular bands, while on the dorsum there is a much lesser number of black spots, also tiny in size (meaning far more black on the flanks than on the dorsum), the tiny black spots well-spaced apart and tending to be in a longitudinal arrangement, being most prominent on the rear of the neck and body and absent from the head and tail. Iris is light grey-brown to greyish-beige in colour. Usually four ear lobules.

The dorsum has a slight, brownish-orange tinge to the otherwise yellowish colour, generally slightly darker in colour than the preceding species (*F. inornata*).

F. arreneteorum sp. nov. is a light reddish-orange lizard, with a distinctive concentration of black speckling and pigment on the upper flank along the dorso-lateral line, extending to the venter as a series of well-defined broken or unbroken lines around the region of the back of the neck and front limb. Iris is orange in colour. Usually four ear lobules.

Compared to all other species in the complex, *F. arreneteorum* sp. nov. have a shorter than average tail, being 119.9 per cent of the snout-vent length, fewer subdigital lamellae under the fourth toe being an average of 22.2 and a lesser average number of palpebrals being 10.1.

F. pitjantjatjaraorum sp. nov. is separated from the other species in the *F. inornata* complex by their longer than average hindleg being

about 38 percent of snout-vent length, versus 37 per cent in the other species in the complex, 34-38 mid-body rows, versus 37-44 in all other species in the complex; an average of 24.5 subdigital lamellae versus 23 in the rest of the complex (as a group) and an average of 11.4 upper palpebrals versus 10.4 for the rest of the complex (as a group). Iris is light yellow-brown.

F. yamatjiorum sp. nov. has a yellowish-brown dorsum and light orange iris. Black spotting coalesces on both dorsum and flanks and is of similar amounts on both, all of which extends some distance down the original tail. Usually three ear lobules (rarely four). Black spotting extends down the flank to beyond the demarcation line of the whitish lower flank. While all species in the complex have an elongated rectangular-shaped ear opening, in *F. yamatjiorum sp. nov.* this elongation is reduced as compared to all other species in the complex.

F. wiranguorum sp. nov. is readily separated from all other species in the complex by its distinctive light creamish-grey dorsal colouration, versus yellows, browns, orangish or reddish in the other species. Iris is dull grey-brown.

The black spotting is relatively dense and even in concentration on both dorsum and flanks and relative to each other. Exceptional to this is the banding that forms on the neck, which in this species also extends down the flanks of the body. The bands on the flanks extends down the lower flank and across the whitish lower flank interface to intrude the whitish lower flank.

All the six preceding species within the *F. inornata* complex, being *F. inornata*, *F. webberi*, *F. arremteorum sp. nov.*, *F. pitjantjatjaraorum sp. nov.*, *F. yamatjiorum sp. nov.* and *F. wiranguorum sp. nov.* are readily separated from all other species within *Liopholis* Fitzinger, 1843 and *Flamoscincus* Wells and Wellington, 1984, by the following unique combination of characters:

Dorsum ranges from greyish, yellow, light brown to orangish or reddish, but generally similar to the local substrate with irregular black spotting on the body, at least on the upper flanks; black around the orbit; circular or near circular pupil, sometimes slightly narrower than high; vertically elongated ear opening with uncommonly 3, or more often 4 ear lobules; maximum snout-vent length under 85 mm; head and body deep in form; tail is 1 to 1.5 times as long as the snout-vent length (largely modified from Storr 1968).

Skinks in the genus *Flamoscincus* are separated from those in the genus *Liopholis (sensu-lato)* by having a dorsal colouration that is light rather than dark and dull; without a distinctive pattern of black longitudinal lines, stripes or rows of distinctive large well-formed and arranged blotches (those being diagnostic of *Liopholis*); ventral surfaces white rather than greyish (in *Liopholis*), a head that is deep, rather than either deep or flattened; a tail that is 1 to 1.5 times as long as the snout-vent length, versus one that is 1-2.2 times as long as the snout-vent length in *Liopholis*.

F. inornata in life is depicted in Storr, Smith and Johnstone (1981) on plate 12, picture 8, Brown (2014) on page 512 at top right and online at:

<https://www.flickr.com/photos/27897324@N07/8643603735/>
and

<https://www.inaturalist.org/observations/154800471>

F. webberi is depicted in life in Swan *et al.* (2022) on page 190, Cogger (2014) on page 637 top right, Brown (2014) on page 512, second from top on left and online at:

<https://www.flickr.com/photos/jono-dashper/52944108999/>
and

<https://www.flickr.com/photos/kristianbell/49068161166/>
and

<https://www.inaturalist.org/observations/193928138>

and

<https://www.inaturalist.org/observations/138471246>

and

<https://www.inaturalist.org/observations/146359704>

and

<https://www.inaturalist.org/observations/144336199>

F. arremteorum sp. nov. is depicted in life online at:

<https://central-barkley-nt.naturemapr.org/sightings/4521640>
and

<https://www.inaturalist.org/observations/153548243>
and

<https://www.flickr.com/photos/whawha88/9432274553/>

F. yamatjiorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/24764589>

F. wiranguorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/97504181>

and

<https://www.inaturalist.org/observations/67092211>

and

<https://www.inaturalist.org/observations/149232330>

Distribution: *F. arremteorum sp. nov.* is a taxon associated with the Macdonnell Ranges area of central Australia, Northern Territory, Australia, apparently endemic to that State, being separated from other species in the complex further south by the Amadeus basin in the far south-west of the Northern Territory.

Conservation: While *F. arremteorum sp. nov.* is relatively range restricted by virtue of relevant biogeographical barriers, the remoteness of the region in terms of human activity offers the species significant protection.

Long-term habitat destruction by feral or native animals is perhaps the biggest potential issue facing this taxon in the foreseeable future and to that extent populations of this and other species and subspecies restricted to this region, such as the recently described range restricted gecko *Diplodactylus (Yankunytjatjara) aah* Hoser, 2023 should have their populations monitored at regular intervals.

Etymology: *F. arremteorum sp. nov.* is named in reflection of the Arrernte people, sometimes referred to as the Aranda, Arunta or Arrarnta. They are a group of native Aboriginal Australian peoples who have lived in the Arrernte lands, at Mparntwe (AKA Alice Springs) and nearby areas of the Central Australia region for many thousands of years. Racist "white" police officers in the Northern Territory still regularly kill these people for entertainment.

FLAMOSCINCUS PITJANTJATJARAORUM SP. NOV.
LSIDurn:lsid:zoobank.org:act:BE0F41CA-8869-449A-97FD-C9D478B9D739

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R7215 collected from 5 miles north of Mount Caroline, Musgrave Park, South Australia, Australia, Latitude -26.27 S., Longitude 130.83 E. This government-owned facility allows access to its holdings.

Paratypes: Eight preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, specimen numbers R7213, R7219, R7225, R7226, R7242, R7244, R7247 and R7685 all collected from Musgrave Park, South Australia, Australia.

Diagnosis: Until now, almost all publishing herpetologists have viewed "*Egernia inornata* Rosen, 1905" as a single species, although in the past decade, most authors have placed the putative taxon within the genus *Liopholis* Fitzinger, 1843.

Contrary to this position, Wells and Wellington, 1985 regarded the putative species as composite and formally named the west New South Wales population (extending into nearby parts of South Australia and north-west Victoria) as a new species which they placed into the genus *Flamoscincus* Wells and Wellington, 1984, with a closely related type species of *Egernia kintorei* Stirling and Zietz, 1893.

The position of Wells and Wellington (1985, 1985) has been confirmed as correct following this assessment of published molecular evidence (e.g. Chapple *et al.* 2004, 2005 and 2008, Donnellan *et al.* 2002, Pyron *et al.* 2013 and others), assessment of well-known biogeographical barriers within the range of the putative taxon/taxa (e.g. the Flinders Ranges and various flood plains) as well as a reassessment of morphological divergences between populations, including those flagged by Glenn Storr in Storr (1968). This paper recognizes six species in the complex including *Flamoscincus inornata* (Rosen, 1905), herein restricted to the region near the Goldfields in inland south-east Western Australia, *F. webberi* Wells and Wellington, 1985 from the region encompassing south-west New South Wales, nearby parts of South Australia (east of the Flinders Ranges) as well as north-west Victoria and four newly named species.

These are: *F. pitjantjatjaraorum sp. nov.* from the Musgrave Ranges area in north-west South Australia and nearby east Western Australia, generally south of the Amadeus basin in the far south-west of the Northern Territory; *F. arremteorum sp. nov.* from the Macdonnell Ranges area of central Australia; *F. yamatjiorum sp. nov.* from the far central west of Western Australia and *F. wiranguorum sp. nov.* from the Eyre Peninsula and nearby parts of South Australia, generally east of the Nullarbor, west of the Eyre Peninsula and south of the Eyrean and Centralian flood plains.

The six species are separated from one another by the following unique combinations of characters:

F. inornata is a light yellowish, creamy beige coloured lizard with scattered blackish spots on the dorsum and upper flanks, these spots are of irregular shape, but usually elongated in a dorso-posterior direction, more densely spaced on the dorsum than on the upper flank (absent on the lower flank) with those on the dorsum tending to form longitudinal lines.

Upper labials have 2 or 3 prominent black spots, slightly curved and elongated in an up-down manner; iris is beige and there are 38-42 midbody rows.

This species is larger than all others in the complex, having an adult snout-vent length of 79-84 mm, versus below 79 mm for all other species.

It is also more elongated and adapted to burrowing than the other species having a relatively longer tail (original) and proportionately shorter than average foreleg, being about 28 percent of the snout-vent length, versus 29-30 per cent for the other species (as a group).

F. webberi is similar to *F. inornata* as described above, but readily separated from that species by having dense black spotting on the majority of the flanks (being the upper two thirds), coalesced to form semi-broken irregular bands, while on the dorsum there is a much lesser number of black spots, also tiny in size (meaning far more black on the flanks than on the dorsum), the tiny black spots well-spaced apart and tending to be in a longitudinal arrangement, being most prominent on the rear of the neck and body and absent from the head and tail. Iris is light grey-brown to greyish-beige in colour. Usually four ear lobules.

The dorsum has a slight, brownish-orange tinge to the otherwise yellowish colour, generally slightly darker in colour than the preceding species (*F. inornata*).

F. arremteorum sp. nov. is a light reddish-orange lizard, with a distinctive concentration of black speckling and pigment on the upper flank along the dorso-lateral line, extending to the venter as a series of well-defined broken or unbroken lines around the region of the back of the neck and front limb. Iris is orange in colour. Usually four ear lobules.

Compared to all other species in the complex, *F. arremteorum sp. nov.* have a shorter than average tail, being 119.9 per cent of the snout-vent length, fewer subdigital lamellae under the fourth toe being an average of 22.2 and a lesser average number of palpebrals being 10.1.

F. pitjantjatjaraorum sp. nov. is separated from the other species in the *F. inornata* complex by their longer than average hindleg being about 38 percent of snout-vent length, versus 37 per cent in the other species in the complex, 34-38 mid-body rows, versus 37-44 in all other species in the complex; an average of 24.5 subdigital lamellae versus 23 in the rest of the complex (as a group) and an average of 11.4 upper palpebrals versus 10.4 for the rest of the complex (as a group). Iris is light yellow-brown.

F. yamatjiorum sp. nov. has a yellowish-brown dorsum and light orange iris. Black spotting coalesces on both dorsum and flanks and is of similar amounts on both, all of which extends some distance down the original tail. Usually three ear lobules (rarely four). Black spotting extends down the flank to beyond the demarcation line of the whitish lower flank. While all species in the complex have an elongated rectangular-shaped ear opening, in *F. yamatjiorum sp. nov.* this elongation is reduced as compared to all other species in the complex.

F. wiranguorum sp. nov. is readily separated from all other species in the complex by its distinctive light creamish-grey dorsal colouration, versus yellows, browns, orangish or reddish in the other species. Iris is dull grey-brown.

The black spotting is relatively dense and even in concentration on both dorsum and flanks and relative to each other. Exceptional to this is the banding that forms on the neck, which in this species also extends down the flanks of the body. The bands on the flanks extends down the lower flank and across the whitish lower flank interface to intrude the whitish lower flank.

All the six preceding species within the *F. inornata* complex, being *F. inornata*, *F. webberi*, *F. arremteorum sp. nov.*, *F. pitjantjatjaraorum sp. nov.*, *F. yamatjiorum sp. nov.* and *F. wiranguorum sp. nov.* are readily separated from all other species within *Liopholis* Fitzinger, 1843 and *Flamoscincus* Wells and Wellington, 1984, by the following unique combination of characters:

Dorsum ranges from greyish, yellow, light brown to orangish or reddish, but generally similar to the local substrate with irregular black spotting on the body, at least on the upper flanks; black around the orbit; circular or near circular pupil, sometimes slightly narrower than high; vertically elongated ear opening with uncommonly 3, or more often 4 ear lobules; maximum snout-vent length under 85 mm; head and body deep in form; tail is 1 to 1.5 times as long as the snout-vent length (largely modified from Storr 1968).

Skinks in the genus *Flamoscincus* are separated from those in the genus *Liopholis (sensu lato)* by having a dorsal colouration that is light rather than dark and dull; without a distinctive pattern of black longitudinal lines, stripes or rows of distinctive large well-formed and arranged blotches (those being diagnostic of *Liopholis*); ventral surfaces white rather than greyish (in *Liopholis*), a head that is deep, rather than either deep or flattened; a tail that is 1 to 1.5 times as long as the snout-vent length, versus one that is 1-2.2 times as long as the snout-vent length.

F. inornata in life is depicted in Storr, Smith and Johnstone (1981) on plate 12, picture 8, Brown (2014) on page 512 at top right and online at:

<https://www.flickr.com/photos/27897324@N07/8643603735/> and

<https://www.inaturalist.org/observations/154800471>

F. webberi is depicted in life in Swan *et al.* (2022) on page 190, Cogger (2014) on page 637 top right, Brown (2014) on page 512, second from top on left and online at:

<https://www.flickr.com/photos/jono-dashper/52944108999/> and

<https://www.flickr.com/photos/kristianbell/49068161166/> and

<https://www.inaturalist.org/observations/193928138>

and <https://www.inaturalist.org/observations/138471246>

and <https://www.inaturalist.org/observations/146359704>

and <https://www.inaturalist.org/observations/144336199>

F. arremteorum sp. nov. is depicted in life online at:

<https://central-barkley-nt.naturemapr.org/sightings/4521640> and

<https://www.inaturalist.org/observations/153548243>

and <https://www.flickr.com/photos/whawha88/9432274553/>

F. yamatjiorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/24764589>

F. wiranguorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/97504181>

and <https://www.inaturalist.org/observations/67092211>

and <https://www.inaturalist.org/observations/149232330>

Distribution: *F. pitjantjatjaraorum sp. nov.* is a taxon associated with the Musgrave Ranges area in north-west South Australia and nearby east Western Australia, generally south of the Amadeus basin in the far south-west of the Northern Territory.

Conservation: While *F. pitjantjatjaraorum sp. nov.* is relatively range restricted by virtue of relevant biogeographical barriers, the remoteness of the region in terms of human activity offers the

species significant protection.

Long-term habitat destruction by feral or native animals is perhaps the biggest potential issue facing this taxon in the foreseeable future and to that extent populations of this and other species and subspecies restricted to this region, such as the recently described range restricted gecko *Diplodactylus (Yankunytjatjaragecko) ooh* Hoser, 2023 should have their populations monitored at regular intervals.

Etymology: *F. pitjantjatjaraorum* sp. nov. is named in reflection of the Pitjantjatjara people.

They are a group of native Aboriginal Australian peoples who have lived in the relevant part of South Australia for many thousands of years.

Between 1956 and 1963, the United Kingdom and their subservient Australian government conducted seven atomic bomb tests at the Maralinga site in north-west South Australia.

The radioactive clouds subsequently covered the lands of the Pitjantjatjara people with toxic nuclear waste, causing countless deaths, birth defects and ongoing sickness among the Pitjantjatjara people. Survivors continue to suffer the after effects of this damage generations on and without substantive compensation by the British and subservient Australian governments in breach of international laws.

FLAMOSCINCUS YAMATJIORUM SP. NOV.

LSIDDurn:lsid:zoobank.org:act:77885EDB-20A8-44D1-8786-7567791BAEE9

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R43655 collected from the Buntine Nature reserve, Buntine, 6613, Western Australia, Australia, Latitude -29.983333 S., Longitude 116.6 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, being specimen number R60037 collected from 6 km east of Buntine, Western Australia, Australia, Latitude -29.983333 S., Longitude 116.616667 E. and specimen number R58201 collected from 20 km north-east of Dalwallinu, Western Australia, Australia, Latitude -30.183333 S., Longitude 116.883333 E.

Diagnosis: Until now, almost all publishing herpetologists have viewed "*Egernia inornata* Rosen, 1905" as a single species, although in the past decade, most authors have placed the putative taxon within the genus *Liopholis* Fitzinger, 1843.

Contrary to this position, Wells and Wellington, 1985 regarded the putative species as composite and formally named the west New South Wales population (extending into nearby parts of South Australia and north-west Victoria) as a new species which they placed into the genus *Flamoscincus* Wells and Wellington, 1984, with a closely related type species of *Egernia kintorei* Stirling and Zietz, 1893.

The position of Wells and Wellington (1985, 1985) has been confirmed as correct following this assessment of published molecular evidence (e.g. Chapple *et al.* 2004, 2005 and 2008, Donnellan *et al.* 2002, Pyron *et al.* 2013 and others), assessment of well-known biogeographical barriers within the range of the putative taxon/taxa (e.g. the Flinders Ranges and various flood plains) as well as a reassessment of morphological divergences between populations, including those flagged by Glenn Storr in Storr (1968). This paper recognizes six species in the complex including *Flamoscincus inornata* (Rosen, 1905), herein restricted to the region near the Goldfields in inland south-east Western Australia, *F. webberi* Wells and Wellington, 1985 from the region encompassing south-west New South Wales, nearby parts of South Australia (east of the Flinders Ranges) as well as north-west Victoria and four newly named species.

These are: *F. yamatjiorum* sp. nov. from the far central west of Western Australia being found generally west of Lake Moore, *F. pitjantjatjaraorum* sp. nov. from the Musgrave Ranges area in north-west South Australia and nearby east Western Australia, generally south of the Amadeus basin in the far south-west of the Northern Territory, *F. arremteorum* sp. nov. from the Macdonnell Ranges area of central Australia and *F. wiranguorum* sp. nov. from the Eyre Peninsula and nearby parts of South Australia, generally east of the

Nullarbor, west of the Eyre Peninsula and south of the Eyrean and Centralian flood plains.

The six species are separated from one another by the following unique combinations of characters:

F. inornata is a light yellowish, creamy beige coloured lizard with scattered blackish spots on the dorsum and upper flanks, these spots are of irregular shape, but usually elongated in a dorso-posterior direction, more densely spaced on the dorsum than on the upper flank (absent on the lower flank) with those on the dorsum tending to form longitudinal lines.

Upper labials have 2 or 3 prominent black spots, slightly curved and elongated in an up-down manner; iris is beige and there are 38-42 midbody rows.

This species is larger than all others in the complex, having an adult snout-vent length of 79-84 mm, versus below 79 mm for all other species.

It is also more elongated and adapted to burrowing than the other species having a relatively longer tail (original) and proportionately shorter than average foreleg, being about 28 percent of the snout-vent length, versus 29-30 per cent for the other species (as a group).

F. webberi is similar to *F. inornata* as described above, but readily separated from that species by having dense black spotting on the majority of the flanks (being the upper two thirds), coalesced to form semi-broken irregular bands, while on the dorsum there is a much lesser number of black spots, also tiny in size (meaning far more black on the flanks than on the dorsum), the tiny black spots well-spaced apart and tending to be in a longitudinal arrangement, being most prominent on the rear of the neck and body and absent from the head and tail. Iris is light grey-brown to greyish-beige in colour. Usually four ear lobules.

The dorsum has a slight, brownish-orange tinge to the otherwise yellowish colour, generally slightly darker in colour than the preceding species (*F. inornata*).

F. arremteorum sp. nov. is a light reddish-orange lizard, with a distinctive concentration of black speckling and pigment on the upper flank along the dorso-lateral line, extending to the venter as a series of well-defined broken or unbroken lines around the region of the back of the neck and front limb. Iris is orange in colour. Usually four ear lobules.

Compared to all other species in the complex, *F. arremteorum* sp. nov. have a shorter than average tail, being 119.9 per cent of the snout-vent length, fewer subdigital lamellae under the fourth toe being an average of 22.2 and a lesser average number of palpebrals being 10.1.

F. pitjantjatjaraorum sp. nov. is separated from the other species in the *F. inornata* complex by their longer than average hindleg being about 38 percent of snout-vent length, versus 37 per cent in the other species in the complex, 34-38 mid-body rows, versus 37-44 in all other species in the complex; an average of 24.5 subdigital lamellae versus 23 in the rest of the complex (as a group) and an average of 11.4 upper palpebrals versus 10.4 for the rest of the complex (as a group). Iris is light yellow-brown.

F. yamatjiorum sp. nov. has a yellowish-brown dorsum and light orange iris. Black spotting coalesces on both dorsum and flanks and is of similar amounts on both, all of which extends some distance down the original tail. Usually three ear lobules (rarely four). Black spotting extends down the flank to beyond the demarcation line of the whitish lower flank. While all species in the complex have an elongated rectangular-shaped ear opening, in *F. yamatjiorum* sp. nov. this elongation is reduced as compared to all other species in the complex.

F. wiranguorum sp. nov. is readily separated from all other species in the complex by its distinctive light creamish-grey dorsal colouration, versus yellows, browns, orangish or reddish in the other species. Iris is dull grey-brown.

The black spotting is relatively dense and even in concentration on both dorsum and flanks and relative to each other. Exceptional to this is the banding that forms on the neck, which in this species also extends down the flanks of the body. The bands on the flanks extends down the lower flank and across the whitish lower flank interface to intrude the whitish lower flank.

All the six preceding species within the *F. inornata* complex, being

F. inornata, *F. webberi*, *F. arremteorum* sp. nov., *F. pitjantjatjaraorum* sp. nov., *F. yamatjiorum* sp. nov. and *F. wiranguorum* sp. nov. are readily separated from all other species within *Liopholis* Fitzinger, 1843 and *Flamoscincus* Wells and Wellington, 1984, by the following unique combination of characters:

Dorsum ranges from greyish, yellow, light brown to orangish or reddish, but generally similar to the local substrate with irregular black spotting on the body, at least on the upper flanks; black around the orbit; circular or near circular pupil, sometimes slightly narrower than high; vertically elongated ear opening with uncommonly 3, or more often 4 ear lobules; maximum snout-vent length under 85 mm; head and body deep in form; tail is 1 to 1.5 times as long as the snout-vent length (largely modified from Storr 1968).

Skinks in the genus *Flamoscincus* are separated from those in the genus *Liopholis* (*sensu lato*) by having a dorsal colouration that is light rather than dark and dull; without a distinctive pattern of black longitudinal lines, stripes or rows of distinctive large well-formed and arranged blotches (those being diagnostic of *Liopholis*); ventral surfaces white rather than greyish (in *Liopholis*), a head that is deep, rather than either deep or flattened; a tail that is 1 to 1.5 times as long as the snout-vent length, versus one that is 1-2.2 times as long as the snout-vent length.

F. inornata in life is depicted in Storr, Smith and Johnstone (1981) on plate 12, picture 8, Brown (2014) on page 512 at top right and online at:

<https://www.flickr.com/photos/27897324@N07/8643603735/> and

<https://www.inaturalist.org/observations/154800471>

F. webberi is depicted in life in Swan *et al.* (2022) on page 190, Cogger (2014) on page 637 top right, Brown (2014) on page 512, second from top on left and online at:

<https://www.flickr.com/photos/jono-dashper/52944108999/> and

<https://www.flickr.com/photos/kristianbell/49068161166/> and

<https://www.inaturalist.org/observations/193928138> and

<https://www.inaturalist.org/observations/138471246> and

<https://www.inaturalist.org/observations/146359704> and

<https://www.inaturalist.org/observations/144336199>

F. arremteorum sp. nov. is depicted in life online at: <https://central-barkley-nt.naturemapr.org/sightings/4521640> and

<https://www.inaturalist.org/observations/153548243> and

<https://www.flickr.com/photos/whawha88/9432274553/>

F. yamatjiorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/24764589>

F. wiranguorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/97504181> and

<https://www.inaturalist.org/observations/67092211> and

<https://www.inaturalist.org/observations/149232330>

Distribution: *F. yamatjiorum* sp. nov. occurs in the far central west of Western Australia, generally west of Lake Moore. Populations from near Shark Bay are also tentatively referred to this species.

Conservation: While *F. yamatjiorum* sp. nov. is potentially relatively range restricted by virtue of relevant biogeographical barriers, the remoteness of the region in terms of human activity offers the species significant protection.

Long-term habitat destruction by feral or native animals is perhaps the biggest potential issue facing this taxon in the foreseeable future and to that extent populations of this and other species and subspecies restricted to this region should have their populations monitored at regular intervals.

Etymology: *F. yamatjiorum* sp. nov. is named in reflection of the Yamatji nation being the original indigenous inhabitants of the

region.

They had a continuous association with the relevant lands for many thousands of years before British colonizers committed a genocide on the people in the 1800's.

The survivors now eke out a miserable existence at the fringes of towns or in remote "settlements", living under discarded sheets of tin and scavenging what they can from the trash of the British invaders.

FLAMOSCINCUS WIRANGUORUM SP. NOV.

LSIDurn: [lsid:zoobank.org/act:BB950496-A017-4349-ADC6-01C84942778A](https://zoobank.org/act:BB950496-A017-4349-ADC6-01C84942778A)

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R3057 collected from Jungle Paddock, Yudnapinna, South Australia, Australia, Latitude -32.12 S., Longitude 137.15 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R3041 collected from Jungle Paddock, Yudnapinna, South Australia, Australia, Latitude -32.12 S., Longitude 137.15 E. 2/ A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R19917 collected from Cariewerloo Station, Eyre Peninsula, South Australia, Australia, Latitude -32.40 S., Longitude 137.23 E.

Diagnosis: Until now, almost all publishing herpetologists have viewed "*Egernia inornata* Rosen, 1905" as a single species, although in the past decade, most authors have placed the putative taxon within the genus *Liopholis* Fitzinger, 1843.

Contrary to this position, Wells and Wellington, 1985 regarded the putative species as composite and formally named the west New South Wales population (extending into nearby parts of South Australia and north-west Victoria) as a new species which they placed into the genus *Flamoscincus* Wells and Wellington, 1984, with a closely related type species of *Egernia kintorei* Stirling and Zietz, 1893.

The position of Wells and Wellington (1985, 1985) has been confirmed as correct following this assessment of published molecular evidence (e.g. Chapple *et al.* 2004, 2005 and 2008, Donnellan *et al.* 2002, Pyron *et al.* 2013 and others), assessment of well-known biogeographical barriers within the range of the putative taxon/taxa (e.g. the Flinders Ranges and various flood plains) as well as a reassessment of morphological divergences between populations, including those flagged by Glenn Storr in Storr (1968). This paper recognizes six species in the complex including *Flamoscincus inornata* (Rosen, 1905), herein restricted to the region near the Goldfields in inland south-east Western Australia, *F. webberi* Wells and Wellington, 1985 from the region encompassing south-west New South Wales, nearby parts of South Australia (east of the Flinders Ranges) as well as north-west Victoria and four newly named species.

These are: *F. wiranguorum* sp. nov. from the Eyre Peninsula and nearby parts of South Australia, generally east of the Nullarbor, west of the Eyre Peninsula and south of the Eyrean and Centralian flood plains, *F. yamatjiorum* sp. nov. from the far central west of Western Australia being found generally west of Lake Moore, *F. pitjantjatjaraorum* sp. nov. from the Musgrave Ranges area in north-west South Australia and nearby east Western Australia, generally south of the Amadeus basin in the far south-west of the Northern Territory and *F. arremteorum* sp. nov. from the Macdonnell Ranges area of central Australia.

The six species are separated from one another by the following unique combinations of characters:

F. inornata is a light yellowish, creamy beige coloured lizard with scattered blackish spots on the dorsum and upper flanks, these spots are of irregular shape, but usually elongated in a dorso-posterior direction, more densely spaced on the dorsum than on the upper flank (absent on the lower flank) with those on the dorsum tending to form longitudinal lines.

Upper labials have 2 or 3 prominent black spots, slightly curved and elongated in an up-down manner; iris is beige and there are 38-42 midbody rows.

This species is larger than all others in the complex, having an adult snout-vent length of 79-84 mm, versus below 79 mm for all other

species.

It is also more elongated and adapted to burrowing than the other species having a relatively longer tail (original) and proportionately shorter than average foreleg, being about 28 percent of the snout-vent length, versus 29-30 per cent for the other species (as a group).

F. webberi is similar to *F. inornata* as described above, but readily separated from that species by having dense black spotting on the majority of the flanks (being the upper two thirds), coalesced to form semi-broken irregular bands, while on the dorsum there is a much lesser number of black spots, also tiny in size (meaning far more black on the flanks than on the dorsum), the tiny black spots well-spaced apart and tending to be in a longitudinal arrangement, being most prominent on the rear of the neck and body and absent from the head and tail. Iris is light grey-brown to greyish-beige in colour. Usually four ear lobules.

The dorsum has a slight, brownish-orange tinge to the otherwise yellowish colour, generally slightly darker in colour than the preceding species (*F. inornata*).

F. arremteorum sp. nov. is a light reddish-orange lizard, with a distinctive concentration of black speckling and pigment on the upper flank along the dorso-lateral line, extending to the venter as a series of well-defined broken or unbroken lines around the region of the back of the neck and front limb. Iris is orange in colour. Usually four ear lobules.

Compared to all other species in the complex, *F. arremteorum sp. nov.* have a shorter than average tail, being 119.9 per cent of the snout-vent length, fewer subdigital lamellae under the fourth toe being an average of 22.2 and a lesser average number of palpebrals being 10.1.

F. pitjantjatjaraorum sp. nov. is separated from the other species in the *F. inornata* complex by their longer than average hindleg being about 38 percent of snout-vent length, versus 37 per cent in the other species in the complex, 34-38 mid-body rows, versus 37-44 in all other species in the complex; an average of 24.5 subdigital lamellae versus 23 in the rest of the complex (as a group) and an average of 11.4 upper palpebrals versus 10.4 for the rest of the complex (as a group). Iris is light yellow-brown.

F. yamatjiorum sp. nov. has a yellowish-brown dorsum and light orange iris. Black spotting coalesces on both dorsum and flanks and is of similar amounts on both, all of which extends some distance down the original tail. Usually three ear lobules (rarely four). Black spotting extends down the flank to beyond the demarcation line of the whitish lower flank. While all species in the complex have an elongated rectangular-shaped ear opening, in *F. yamatjiorum sp. nov.* this elongation is reduced as compared to all other species in the complex.

F. wiranguorum sp. nov. is readily separated from all other species in the complex by its distinctive light creamish-grey dorsal colouration, versus yellows, browns, orangish or reddish in the other species. Iris is dull grey-brown.

The black spotting is relatively dense and even in concentration on both dorsum and flanks and relative to each other. Exceptional to this is the banding that forms on the neck, which in this species also extends down the flanks of the body. The bands on the flanks extends down the lower flank and across the whitish lower flank interface to intrude the whitish lower flank.

All the six preceding species within the *F. inornata* complex, being *F. inornata*, *F. webberi*, *F. arremteorum sp. nov.*, *F. pitjantjatjaraorum sp. nov.*, *F. yamatjiorum sp. nov.* and *F. wiranguorum sp. nov.* are readily separated from all other species within *Liopholis* Fitzinger, 1843 and *Flamoscincus* Wells and Wellington, 1984, by the following unique combination of characters:

Dorsum ranges from greyish, yellow, light brown to orangish or reddish, but generally similar to the local substrate with irregular black spotting on the body, at least on the upper flanks; black around the orbit; circular or near circular pupil, sometimes slightly narrower than high; vertically elongated ear opening with uncommonly 3, or more often 4 ear lobules; maximum snout-vent length under 85 mm; head and body deep in form; tail is 1 to 1.5 times as long as the snout-vent length (largely modified from Storr 1968).

Skins in the genus *Flamoscincus* are separated from those in

the genus *Liopholis (sensu-lato)* by having a dorsal colouration that is light rather than dark and dull; without a distinctive pattern of black longitudinal lines, stripes or rows of distinctive large well-formed and arranged blotches (those being diagnostic of *Liopholis*); ventral surfaces white rather than greyish (in *Liopholis*), a head that is deep, rather than either deep or flattened; a tail that is 1 to 1.5 times as long as the snout-vent length, versus one that is 1-2.2 times as long as the snout-vent length.

F. inornata in life is depicted in Storr, Smith and Johnstone (1981) on plate 12, picture 8, Brown (2014) on page 512 at top right and online at:

<https://www.flickr.com/photos/27897324@N07/8643603735/> and

<https://www.inaturalist.org/observations/154800471>

F. webberi is depicted in life in Swan *et al.* (2022) on page 190, Cogger (2014) on page 637 top right, Brown (2014) on page 512, second from top on left and online at:

<https://www.flickr.com/photos/jono-dashper/52944108999/> and

<https://www.flickr.com/photos/kristianbell/49068161166/> and

<https://www.inaturalist.org/observations/193928138> and

<https://www.inaturalist.org/observations/138471246> and

<https://www.inaturalist.org/observations/146359704> and

<https://www.inaturalist.org/observations/144336199>

F. arremteorum sp. nov. is depicted in life online at:

<https://central-barkley-nt.naturemapr.org/sightings/4521640> and

<https://www.inaturalist.org/observations/153548243> and

<https://www.flickr.com/photos/whawha88/9432274553/>

F. yamatjiorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/24764589>

F. wiranguorum sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/97504181> and

<https://www.inaturalist.org/observations/67092211> and

<https://www.inaturalist.org/observations/149232330>

Distribution: *F. wiranguorum sp. nov.* occurs on the Eyre Peninsula and nearby parts of South Australia, generally east of the Nullarbor, west of the Eyre Peninsula and south of the Eyrean and Centralian flood plains.

Conservation: While *F. wiranguorum sp. nov.* is potentially relatively range restricted by virtue of relevant biogeographical barriers, the remoteness of the region in terms of human activity offers the species significant protection.

Long-term habitat destruction by feral or native animals is perhaps the biggest potential issue facing this taxon in the foreseeable future and to that extent populations of this and other species and subspecies restricted to this region should have their populations monitored at regular intervals.

Etymology: *F. wiranguorum sp. nov.* is named in reflection of the Wirangu people, being the original aboriginal inhabitants of the Eyre Peninsula region of South Australia, who share a strong bond with the land, going back thousands of years. After the genocide in the 1800's the British invaders rounded up the survivors and housed the majority of them in squalid conditions in so-called "settlements" away from the major towns and agricultural lands.

FLAMOSCINCUS STRIATA WARAMUNGUORUM SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:9C7D1143-49C0-424E-AC0F-8C485667C0CE

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R21459 collected from between 13 and 38 miles south of Tennant Creek in the Northern Territory, Australia.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Western Australian

Museum, Perth, Western Australia, Australia, specimen numbers R21460 and R21461 collected from between 13 and 38 miles south of Tennant Creek in the Northern Territory, Australia.

Diagnosis: The putative species originally described as "*Egernia striata* Sternfeld, 1919" as currently recognized by publishing herpetologists in Australia and elsewhere is in fact a composite of species and subspecies, the unnamed forms all of which are described within this paper.

The relevant taxa are best placed in the genus *Flamoscincus* Wells and Wellington, 1984 on the basis of divergence from the type species within the genus *Egernia* Gray, 1832 and *Liopholis* Fitzinger, 1843.

The relevant species and subspecies are as follows:

Flamoscincus striata of the type subspecies, with a type locality of Hermannsburg in the Northern Territory is a taxon confined to the Macdonnell Ranges region of central Australia, including ranges to the immediate west and north to about Ti Tree in the Northern Territory.

F. striata warumungourum *subsp. nov.* is restricted to the region north of Wauchope in the Northern Territory.

F. striata yamajorum *subsp. nov.* is a taxon from the Pilbara region of north-west Australia and nearby parts of the central west of Western Australia.

F. kaprunorum *sp. nov.* is a taxon from the Goldfields region and adjacent parts of south-eastern Western Australia.

The preceding taxa are separated from one another by the following combinations of characters:

Nominate *F. striata* has a dorsum and upper flanks a dark reddish orange colour with longitudinal stripes caused by darkening of the lateral edges of the scales, present on the mid dorsum only (usually three lines being vertebral and paravertebral), these same lines being broken as one moves to the outer edges of the dorsum and upper flank. Iris is a dark reddish brown. There is obvious darker reddish-brown spotting on the anterior surface of the top of the head on top of the otherwise lighter reddish-brown background. Upper labials are mainly white, but with dull pinkish-orange on the anterior edges, usually more-so near the lower edge. 39-41 mid-body rows (separating it from *F. kaprunorum* *sp. nov.* with 41-43 mid-body rows) 13-15 upper palpebrals; 8-9 supralabials.

F. striata warumungourum *subsp. nov.* is very similar to the nominate form of *F. striata* but usually a lighter orangish colour above. It is separated from *F. striata* and all other subspecies and species within the complex by having particularly thick and bold vertebral and paravertebral lines, combined with significantly reduced density of darker spotting on the sides of the dorsum and upper flank as compared to *F. striata*.

F. striata warumungourum *subsp. nov.* also has reduced dark on the anterior edges of the upper labials, making them almost wholly white, with white patches also present on scales behind the eye and above the labials. Iris is a bright orange colour.

F. striata yamajorum *subsp. nov.* is separated from the other taxa in the complex by the bright orange dorsum, an iris that is orange at the centre and from top to bottom and being bounded by yellow on the outer edges laterally. Upper labials are wholly white at the lower edge and demarcated orange on the upper edge. There are scattered white markings (smudges) on the rear of the sides of the head and on the supraciliaries, where they commonly appear as small white spots. The ear opening is more than half as wide as high, versus not so in the other species and subspecies in the complex.

Lower flanks are white.

F. kaprunorum *sp. nov.* is separated from all subspecies of *F. striata* by its faintly striped pale pinkish-brown dorsum, white lower flanks and having 41-43 mid-body rows, versus 39-41 in all subspecies of *F. striata*.

In appearance, this species is superficially similar to *F. kintorei* (Stirling and Zietz, 1893), but agrees more with *F. striata* in that it has 7 upper labials (versus 8 in *F. kintorei*), a maximum snout-vent length of under 120 mm, versus over 150 mm in *F. kintorei*, less than the 46 or more mid-body-rows seen in *F. kintorei* and triangular ear lobules (versus truncate in *F. kintorei*).

Iris of *F. kaprunorum* *sp. nov.* is dull orangish-brown.

F. striata of all subspecies and *F. kaprunorum* *sp. nov.* are

separated from all other species within the genus *Flamoscincus* Wells and Wellington, 1984 by the following suite of characters: Snout-vent length less than 120 mm, strongly vertically elliptical pupil; dorsum pinkish, orangish or reddish-brown, with at least three longitudinal stripes of darker colour (not black or blackish); no black or blackish pigment of any sort on the dorsum or flanks; flanks gradually lightening on the lower surfaces to become either whitish or yellow; usually 7 upper labials; 2 presuboculars; less than 44 mid-body rows; adult snout-vent length of between 90 and 115 mm. Skinks in the genus *Flamoscincus* are separated from the morphologically similar genus *Liopholis* Fitzinger, 1843 by the absence of a dorsal pattern that is dark and dull, (versus pale and/or bright, e.g. orangish or pink) and absence of a well patterned dorsum and flanks with longitudinal lines, stripes, or rows of well-defined and edged blotches; an absence of grey ventral surfaces (versus whitish or yellow in *Flamoscincus*). Head and body in *Flamoscincus* species are always deep, versus not so in *Liopholis*. Tail in *Flamoscincus* species is 1 to 1.5 times the length of the snout vent (body), versus 1-2 times in *Liopholis*.

F. striata of the type subspecies in life is depicted in Brown 2014 on page 511, bottom two images and online at:

<https://www.inaturalist.org/observations/190394717>

and

<https://www.inaturalist.org/observations/145551052>

and

<https://www.inaturalist.org/observations/68722829>

F. kaprunorum *sp. nov.* in life is depicted in Cogger (2014) on page 642 at top left as well as in Storr, Smith and Johnstone (1981) plate 12, image 8.

F. striata warumungourum *subsp. nov.* is depicted in life online at: <https://www.inaturalist.org/observations/89404393>

Distribution: *F. striata warumungourum* *subsp. nov.* is restricted to the region north of Wauchope in the Northern Territory including Tennant Creek and environs, but not extending to the tropics or into the Barkly Tableland.

Conservation: The arid habitat, being of little use to humans and remote location where this taxon occurs, makes it of little immediate conservation concern.

Etymology: *F. warumungourum* *sp. nov.* is named in honour of the Waramungu people, the original native inhabitants of the region around Tennant Creek, being the general area these lizards are found.

In January 1983, with fellow herpetologist Charles Acheson, we camped on the side of the main Stuart Highway to sleep. We slept in the back of a large van. The following morning we woke to find a heavenly "tin spot" with sheets of metal strewn across the surrounding semi-arid lands.

We lifted bits of metal finding *F. warumungourum* *sp. nov.* and other species of herpetofauna, only to be bailed up by some Waramungu people who complained that we were wrecking their home! They were living and sleeping under some of the bits of tin.

After convincing the natives that we did not want to kill them, the Aboriginals befriended us and took us to yet more "tin spots" where we were able to find even more herpetofauna.

FLAMOSCINCUS STRIATA YAMAJIURUM SUBSP. NOV.

LSIDDurn:lsid:zoobank.org:act:FFB6C06A-8918-4F7C-801E-B97E5A62A97F

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R13088 collected from Woodstock, near Marble Bar, Pilbara Region, Western Australia, Australia, Latitude -21.617 S., Longitude 118.950 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R13089 and R13455 collected from Woodstock, near Marble Bar, Pilbara Region, Western Australia, Australia, Latitude -21.617 S., Longitude 118.950 E., and 2/ Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R25136 and R25137 collected from 3 km south-east of Turee Creek, Western Australia, Australia, Latitude -23.633333 S., Longitude 118.666667 E.

Diagnosis: The putative species originally described as “*Egernia striata* Sternfeld, 1919” as currently recognized by publishing herpetologists in Australia and elsewhere is in fact a composite of species and subspecies, the unnamed forms all of which are described within this paper.

The relevant taxa are best placed in the genus *Flamoscincus* Wells and Wellington, 1984 on the basis of divergence from the type species within the genus *Egernia* Gray, 1832 and *Liopholis* Fitzinger, 1843.

The relevant species and subspecies are as follows:

Flamoscincus striata of the type subspecies, with a type locality of Hermannsburg in the Northern Territory is a taxon confined to the Macdonnell Ranges region of central Australia, including ranges to the immediate west and north to about Ti Tree in the Northern Territory.

F. striata warumungourum subsp. nov. is restricted to the region north of Wauchope in the Northern Territory.

F. striata yamajorum subsp. nov. is a taxon from the Pilbara region of north-west Australia and nearby parts of central west of Western Australia.

F. kaprunorum sp. nov. is a taxon from the Goldfields region and adjacent parts of south-eastern Western Australia.

The preceding taxa are separated from one another by the following combinations of characters:

Nominate *F. striata* has a dorsum and upper flanks a dark reddish orange colour with longitudinal stripes caused by darkening of the lateral edges of the scales, present on the mid dorsum only (usually three lines being vertebral and paravertebral), these same lines being broken as one moves to the outer edges of the dorsum and upper flank. Iris is a dark reddish brown. There is obvious darker reddish-brown spotting on the anterior surface of the top of the head on top of the otherwise lighter reddish-brown background. Upper labials are mainly white, but with dull pinkish-orange on the anterior edges, usually more-so near the lower edge. 39-41 mid-body rows (separating it from *F. kaprunorum sp. nov.* with 41-43 mid-body rows) 13-15 upper palpebrals; 8-9 supralabials.

F. striata warumungourum subsp. nov. is very similar to the nominate form of *F. striata* but usually a lighter orangish colour above. It is separated from *F. striata* and all other subspecies and species within the complex by having particularly thick and bold vertebral and paravertebral lines, combined with significantly reduced density of darker spotting on the sides of the dorsum and upper flank as compared to *F. striata*.

F. striata warumungourum subsp. nov. also has reduced dark on the anterior edges of the upper labials, making them almost wholly white, with white patches also present on scales behind the eye and above the labials. Iris is a bright orange colour.

F. striata yamajorum subsp. nov. is separated from the other taxa in the complex by the bright orange dorsum, an iris that is orange at the centre and from top to bottom and being bounded by yellow on the outer edges laterally. Upper labials are wholly white at the lower edge and demarcated orange on the upper edge. There are scattered white markings (smudges) on the rear of the sides of the head and on the supraciliaries, where they commonly appear as small white spots. The ear opening is more than half as wide as high, versus not so in the other species and subspecies in the complex.

Lower flanks are white.

F. kaprunorum sp. nov. is separated from all subspecies of *F. striata* by its faintly striped pale pinkish-brown dorsum, white lower flanks and having 41-43 mid-body rows, versus 39-41 in all subspecies of *F. striata*.

In appearance, this species is superficially similar to *F. kintorei* (Stirling and Zietz, 1893), but agrees more with *F. striata* in that it has 7 upper labials (versus 8 in *F. kintorei*), a maximum snout-vent length of under 120 mm, versus over 150 mm in *F. kintorei*, less than the 46 or more mid-body-rows seen in *F. kintorei* and triangular ear lobules (versus truncate in *F. kintorei*).

Iris of *F. kaprunorum sp. nov.* is dull orangish-brown.

F. striata of all subspecies and *F. kaprunorum sp. nov.* are separated from all other species within the genus *Flamoscincus* Wells and Wellington, 1984 by the following suite of characters: Snout-vent length less than 120 mm, strongly vertically elliptical

pupil; dorsum pinkish, orangish or reddish-brown, with at least three longitudinal stripes of darker colour (not black or blackish); no black or blackish pigment of any sort on the dorsum or flanks; flanks gradually lightening on the lower surfaces to become either whitish or yellow; usually 7 upper labials; 2 presuboculars; less than 44 mid-body rows; adult snout-vent length of between 90 and 115 mm.

Skinks in the genus *Flamoscincus* are separated from the morphologically similar genus *Liopholis* Fitzinger, 1843 by the absence of a dorsal pattern that is dark and dull, (versus pale and/or bright, e.g. orangish or pink) and absence of a well patterned dorsum and flanks with longitudinal lines, stripes, or rows of well-defined and edged blotches; an absence of grey ventral surfaces (versus whitish or yellow in *Flamoscincus*). Head and body in *Flamoscincus* species are always deep, versus not so in *Liopholis*. Tail in *Flamoscincus* species is 1 to 1.5 times the length of the snout vent (body), versus 1-2 times in *Liopholis*.

F. striata of the type subspecies in life is depicted in Brown 2014 on page 511, bottom two images and online at:

<https://www.inaturalist.org/observations/190394717>

and

<https://www.inaturalist.org/observations/145551052>

and

<https://www.inaturalist.org/observations/68722829>

F. kaprunorum sp. nov. in life is depicted in Cogger (2014) on page 642 at top left as well as in Storr, Smith and Johnstone (1981) plate 12, image 8.

F. striata warumungourum subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/89404393>

Distribution: *F. striata yamajorum subsp. nov.* is a taxon from the Pilbara region of north-west Australia and nearby parts of central west of Western Australia.

Conservation: The arid habitat, being of little use to humans and remote location where this taxon occurs, makes it of little immediate conservation concern.

Etymology: *F. striata yamajorum subsp. nov.* is named in honour of the Yamaji people, being some of the original Aboriginal inhabitants of the Pilbara region of north-west Australia.

FLAMOSCINCUS KAPRUNORUM SP. NOV.

LSIDurn:lsid:zoobank.org:act:96845A8C-7799-4064-B8B5-8FC452228133

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R13027 collected from Jumia Hill, Western Australia, Australia, Latitude -30.9 S., Longitude 127.733333 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R146984 and R146969 collected from Ora banda, Western Australia, Australia, Latitude -30.393333 S., Longitude 121.1675 E.

Diagnosis: The putative species originally described as “*Egernia striata* Sternfeld, 1919” as currently recognized by publishing herpetologists in Australia and elsewhere is in fact a composite of species and subspecies, the unnamed forms all of which are described within this paper.

The relevant taxa are best placed in the genus *Flamoscincus* Wells and Wellington, 1984 on the basis of divergence from the type species within the genus *Egernia* Gray, 1832 and *Liopholis* Fitzinger, 1843.

The relevant species and subspecies are as follows:

Flamoscincus striata of the type subspecies, with a type locality of Hermannsburg in the Northern Territory is a taxon confined to the Macdonnell Ranges region of central Australia, including ranges to the immediate west and north to about Ti Tree in the Northern Territory.

F. striata warumungourum subsp. nov. is restricted to the region north of Wauchope in the Northern Territory.

F. striata yamajorum subsp. nov. is a taxon from the Pilbara region of north-west Australia and nearby parts of central west of Western Australia.

F. kaprunorum sp. nov. is a taxon from the Goldfields region and adjacent parts of south-eastern Western Australia.

The preceding taxa are separated from one another by the

following combinations of characters:

Nominate *F. striata* has a dorsum and upper flanks a dark reddish orange colour with longitudinal stripes caused by darkening of the lateral edges of the scales, present on the mid dorsum only (usually three lines being vertebral and paravertebral), these same lines being broken as one moves to the outer edges of the dorsum and upper flank. Iris is a dark reddish brown. There is obvious darker reddish-brown spotting on the anterior surface of the top of the head on top of the otherwise lighter reddish-brown background. Upper labials are mainly white, but with dull pinkish-orange on the anterior edges, usually more-so near the lower edge. 39-41 mid-body rows (separating it from *F. kaprunorum sp. nov.* with 41-43 mid-body rows) 13-15 upper palpebrals; 8-9 supralabials.

F. striata warumungourum subsp. nov. is very similar to the nominate form of *F. striata* but usually a lighter orangish colour above. It is separated from *F. striata* and all other subspecies and species within the complex by having particularly thick and bold vertebral and paravertebral lines, combined with significantly reduced density of darker spotting on the sides of the dorsum and upper flank as compared to *F. striata*.

F. striata warumungourum subsp. nov. also has reduced dark on the anterior edges of the upper labials, making them almost wholly white, with white patches also present on scales behind the eye and above the labials. Iris is a bright orange colour.

F. striata yamajorum subsp. nov. is separated from the other taxa in the complex by the bright orange dorsum, an iris that is orange at the centre and from top to bottom and being bounded by yellow on the outer edges laterally. Upper labials are wholly white at the lower edge and demarcated orange on the upper edge. There are scattered white markings (smudges) on the rear of the sides of the head and on the supraciliaries, where they commonly appear as small white spots. The ear opening is more than half as wide as high, versus not so in the other species and subspecies in the complex.

Lower flanks are white.

F. kaprunorum sp. nov. is separated from all subspecies of *F. striata* by its faintly striped pale pinkish-brown dorsum, white lower flanks and having 41-43 mid-body rows, versus 39-41 in all subspecies of *F. striata*.

In appearance, this species is superficially similar to *F. kintorei* (Stirling and Zietz, 1893), but agrees more with *F. striata* in that it has 7 upper labials (versus 8 in *F. kintorei*), a maximum snout-vent length of under 120 mm, versus over 150 mm in *F. kintorei*, less than the 46 or more mid-body-rows seen in *F. kintorei* and triangular ear lobules (versus truncate in *F. kintorei*).

Iris of *F. kaprunorum sp. nov.* is dull orangish-brown.

F. striata of all subspecies and *F. kaprunorum sp. nov.* are separated from all other species within the genus *Flamoscincus* Wells and Wellington, 1984 by the following suite of characters: Snout-vent length less than 120 mm, strongly vertically elliptical pupil; dorsum pinkish, orangish or reddish-brown, with at least three longitudinal stripes of darker colour (not black or blackish); no black or blackish pigment of any sort on the dorsum or flanks; flanks gradually lightening on the lower surfaces to become either whitish or yellow; usually 7 upper labials; 2 presuboculars; less than 44 mid-body rows; adult snout-vent length of between 90 and 115 mm. Skinks in the genus *Flamoscincus* are separated from the morphologically similar genus *Liopholis* Fitzinger, 1843 by the absence of a dorsal pattern that is dark and dull, (versus pale and/or bright, e.g. orangish or pink) and absence of a well patterned dorsum and flanks with longitudinal lines, stripes, or rows of well-defined and edged blotches; an absence of grey ventral surfaces (versus whitish or yellow in *Flamoscincus*). Head and body in *Flamoscincus* species are always deep, versus not so in *Liopholis*. Tail in *Flamoscincus* species is 1 to 1.5 times the length of the snout vent (body), versus 1-2 times in *Liopholis*.

F. kaprunorum sp. nov. in life is depicted in Cogger (2014) on page 642 at top left as well as in Storr, Smith and Johnstone (1981) plate 12, image 8.

F. striata of the type subspecies in life is depicted in Brown 2014 on page 511, bottom two images and online at:

<https://www.inaturalist.org/observations/190394717>
and

<https://www.inaturalist.org/observations/145551052>
and

<https://www.inaturalist.org/observations/68722829>

F. striata warumungourum subsp. nov. is depicted in life online at: <https://www.inaturalist.org/observations/89404393>

Distribution: *F. kaprunorum sp. nov.* is a taxon from the Goldfields region and adjacent parts of south-eastern Western Australia.

Conservation: The arid habitat, being of little use to humans and remote location where this taxon occurs, makes it of little immediate conservation concern.

Etymology: *F. kaprunorum sp. nov.* is named in recognition of the Kaprun people, being some of the original Aboriginal inhabitants of the Goldfields region and adjacent parts of south-eastern Western Australia.

PSEUDOEGERNIA GEN. NOV.

LSIDurn:lsid:zoobank.org:act:559074D9-35B0-45ED-B001-E2207C11C2B6

Type species: *Pseudoegernia perthensis sp. nov.* (this paper).

Diagnosis: The three species within the genus *Pseudoegernia gen. nov.* are separated from all other species within *Egernia sensu lato* as outlined by Hoser (2018a), being all the species listed in the table in that paper on page 52 and including the genus *Woolfscincus* Hoser, 2018 by conforming to the diagnosis for species within the *Liopholis whitii* LaCépède, 1804 species group as detailed in this paper in the description of *Liopholis jackyhoserae sp. nov.* above in this paper (being *L. jackyhoserae sp. nov.*, *L. compressicauda* (Quoy and Gaimard, 1824), *L. coplandi* Wells and Wellington, 1985 and *Liopholis whitii* LaCépède, 1804), but instead having well keeled rather than slightly keeled or (more usually) smooth dorsal scales, as well as a moderately depressed head and body (versus one that is not so in all other *Liopholis* Fitzinger, 1843 and the associated genus *Flamoscincus* Wells and Wellington, 1984).

Further description of this genus (as defined above) can be found in Storr (1968) (also based on the species content below, being the two taxa named at the time of Storr, 1968), under the heading "*Egernia pulchra pulchra*" on pages 53-54 of that paper.

Distribution: Cooler and/or moister and nearby hilly parts of far south-west Australia including some offshore islands.

Etymology: The name "*Pseudoegernia*" means not a genuine "*Egernia*".

Genuine *Egernia*, type species being "*Tiliqua cunninghami* Gray, 1832" is a large spinose, saxicoline genus comprising several species (those species being correctly identified and named by Wells and Wellington in 1984 and 1985) confined to south-east Australia, between the Granite Belt of far south-east Queensland and the ranges of far south-east South Australia, including New South Wales and Victoria, mainly in the hilly parts of the western rain shadow of the Great Dividing Range and excluding Tasmania.

Content: *Pseudoegernia perthensis sp. nov.* (type species); *P. pulchra* (Werner, 1910); *P. longicauda* (Ford, 1963).

PSEUDOEGERNIA PERTHENSIS SP. NOV.

LSIDurn:lsid:zoobank.org:act:639B205D-1208-4F76-926F-481E86A6FF28

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R16784 collected at Mount William in the Darling Range of Western Australia, Australia, Latitude -32.933333 S., Longitude 116.016667 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R16785 and R16786 both collected at Mount William in the Darling Range of Western Australia, Australia, Latitude -32.933333 S., Longitude 116.016667 E.

Diagnosis: Until now, *Pseudoegernia perthensis sp. nov.* has been treated as a northern population of *P. pulchra* (Werner, 1910), type locality Torbay, Western Australia, Australia a species originally placed by Werner in the genus *Egernia* Gray, 1832 and More recently placed in the genus *Liopholis* Fitzinger, 1843 by publishing authors in Australia, since about 1984, 1985, following from the works of Wells and Wellington (1984, 1985), *sensu* Cogger (2014).

The taxon formally described as “*Egernia pulchra longicauda* Ford, 1963”, type locality, Favourite Island, Jurian Bay, Western Australia, Australia is herein recognized as a distinct species as well.

The three preceding named taxa comprise the entirety of the genus *Pseudoegernia* gen. nov. for which *P. perthensis* sp. nov. is the type species.

P. longicauda (Ford, 1963) is separated from the other two species by the tail being 180-210 percent of the snout-vent length, versus 150-179 percent in *P. perthensis* sp. nov. and *P. pulchra* (Werner, 1910); an ear opening that is suffused with orange as well as an orange abdomen.

P. perthensis sp. nov. and *P. pulchra* have separated nasals, versus in contact in *P. longicauda*.

P. perthensis sp. nov. is separated from *P. pulchra* by having a longer hindleg being 39-41 percent of the snout-vent length, versus 33-38 percent of the snout-vent length in *P. pulchra* and 8 supraciliaries, versus 6-7.

The three preceding species being all the species within the genus *Pseudoegernia* gen. nov. are separated from all other species within *Egernia sensu lato* as outlined by Hoser (2018a), being all the species listed in the table in that paper on page 52 and including the genus *Woolfscincus* Hoser, 2018 by conforming to the diagnosis for species within the *Liopholis whitii* LaCépède, 1804 species group as detailed in this paper in the description of *Liopholis jackyhoseræ* sp. nov. above in this paper (being *L. jackyhoseræ* sp. nov., *L. compressicauda* (Quoy and Gaimard, 1824), *L. coplandi* Wells and Wellington, 1985 and *Liopholis whitii* LaCépède, 1804), but instead having well keeled rather than slightly keeled or (more usually) smooth dorsal scales, as well as a moderately depressed head and body (versus one that is not so in all other *Liopholis* Fitzinger, 1843 and the associated genus *Flamoscincus* Wells and Wellington, 1984).

Further description of this genus (as defined above) can be found in Storr (1968) (also based on the species content below, being the two taxa named at the time of Storr, 1968), under the heading “*Egernia pulchra pulchra*” on pages 53-54 of that paper.

L. perthensis sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/jaricornelis/52461682672/>

L. pulchra is depicted in life in Storr, Smith and Johnstone (1981) on plate 12 in picture 2, Wilson and Swan (2021) on page 399 middle right and Cogger (2014) on page 641 at top right and online at: <https://biocache.ala.org.au/occurrences/e568b934-5c12-47c9-9703-f30d70902216>

and https://www.flickr.com/photos/zimny_anders/52445225598/

and <https://www.flickr.com/photos/mattsummerville/52361688219/>

and <https://www.inaturalist.org/observations/198282766>

and <https://www.inaturalist.org/observations/143547401>

L. longicauda is depicted in life in Storr, Smith and Johnstone (1981) on plate 12, in picture 1 and Wilson and Swan (2021) on page 399 middle left and online at:

<https://www.nacc.com.au/threatenedspecies-week-jurien-bay-skink-liopholis-pulchra-longicauda/>

Distribution: *P. perthensis* sp. nov. appears to be confined to the Darling Range area west of the Perth sand dunes, in south-west Western Australia, Australia.

Etymology: Named in reflection of the environs of where it occurs.

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CONFLICTS OF INTEREST - NONE.