

Before we end up with mutts! The formal diagnosis of subspecies within the Sydney basin species, *Hoplocephalus bungaroides* (Schlegel, 1837) and *Amalosia lesueurii* (Duméril and Bibron, 1836).

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ABSTRACT

It has long been known that populations of reptiles and frogs inhabiting the sandstone escarpments of the Sydney basin in south-east Australia vary, depending on whether they are found to the north, west or south of the flat central parts of Sydney.

Added to this is the southern extension of the sandstone region to the west of Nowra, New South Wales which is also disjunct from the rest and separated by a province of volcanic soils.

Hoser (2020) at pages 32-35 split the iconic Red-crowned Toadlet *Bufonella australis* (Gray, 1835) (sometimes formerly called *Pseudophryne australis*) into two species (north for *B. australis* and south to south-west for *B. hoseri* Hoser, 2020) based on morphological and molecular divergence in what was the first step in the formal dissection of locally variable sandstone endemics within the greater Sydney region.

This paper formally names divergent populations of the gecko species *Amalosia lesueurii* (Duméril and Bibron, 1836) and Broad-headed Snake *Hoplocephalus bungaroides* (Schlegel, 1837) as separate reproductively isolated subspecies, noting that in the case of the gecko taxa named a good argument could be raised for treating them as full species.

The previous work of Sumner *et al.* (2010) confirmed a divergence of 800,000 YBP for divergence between the two main populations of *H. bungaroides*.

The previous work of Dubey *et al.* (2012) established significant species-level divergences for the three main populations of *A. lesueurii* of between 1 and 3 MYA.

This paper sets out a morphological basis by which the various populations can be separated and simultaneously names the three relevant unnamed forms as subspecies.

It is noteworthy that this updated taxonomy for the two species is essential for the proper ongoing future management and conservation of these taxa.

Important is the need to avoid release and translocation of subspecies into areas inhabited by other divergent subspecies so that hybrid mongrels do not infect the populations.

Keywords: Taxonomy; nomenclature; snake; elapid; lizard; gecko; *Hoplocephalus*; *bungaroides*; *Amalosia*; *Celertenues*; *Marlenegecko*; *Fiacumminggecko*; *lesueurii*; *alexanderdudleyi*; *jacovae*; *phillipsi*; Sydney; Nowra; Blue Mountains; Royal National Park; new subspecies; *pugnax*; *noniter*; *beneabscondita*.

INTRODUCTION

As part of a wide-ranging audit of the Australian herpetofauna by myself spanning some decades, potentially undescribed forms within all Australian snakes and lizards have been inspected and if deemed sufficiently divergent, formally named as species or subspecies.

A small number have been “passed over” awaiting further inquiries, including the three newly identified taxa subject of this paper, noting that both genera, being the snake genus *Hoplocephalus* Wagler, 1830 and the lizard genus *Amalosia* Wells and Wellington, 1984 have both been subject of detailed taxonomic papers by myself (Hoser) in the relatively recent past (Hoser 2016 and Hoser 2017). The relevant Sydney basin taxa had been long ago flagged as containing divergent populations worthy of taxonomic recognition.

These were the papers of Sumner *et al.* (2010) who confirmed a divergence of 800,000 YBP for divergence between the two main populations of *H. bungaroides*, only one of which had an available name and the previous work of Dubey *et al.* (2012) established significant species-level divergences for the three main populations of *A. lesueurii* of between 1 and 3 MYA for which again there was only one available name.

Hoser (2020) at pages 32-35 split the iconic Red-crowned Toadlet *Bufo australis* (Gray, 1835) (sometimes formerly called *Pseudophryne australis*) into two species (north for *B. australis* and south to south-west for *B. hoserae* Hoser, 2020) based on morphological and molecular divergence in what was the first step in the formal dissection of locally variable sandstone endemics within the greater Sydney region.

Prior to the publication of this paper, I was able to further inspect large numbers of specimens of both putative species (*Hoplocephalus bungaroides* and *Amalosia lesueurii*) from across their relevant Sydney and nearby ranges north, west and south of central Sydney, including all populations subject of the earlier papers.

The inspection concentrated on adult specimens (due to their morphological stability) and with a view to establishing consistent differences between the populations in order to be able to separate them taxonomically.

Ultimately this proved quite easy as the differences between specimens in the populations were obvious and consistent.

With that in mind, and after confirming a lack of available synonyms via relevant texts such as Cogger *et al.* (1983), Cogger (2014) and Wells and Wellington (1984 and 1985) the decision was made to publish this paper to formally name the three relevant forms as subspecies in accordance with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended (ICZN 2012).

MATERIALS AND METHODS

The papers of Hoser (2016) for the genus *Hoplocephalus* and Hoser (2017) for the genus *Amalosia*, established the most up-to-date taxonomy and nomenclature for each genus.

The taxonomic vandalism of Conman Conrad Hoskin and his mate Patrick Couper in 2023 with respect of the genus *Amalosia* is not relevant here as it did not pertain to the species *A. lesueurii*.

In that paper (Hoskin and Couper 2023) they unlawfully created a number of junior synonyms for species named by Hoser (2017).

That rubbish paper is cited here as to not do so would be illegal under the Moral Rights provisions of the Australian Copyright Act 1968 as amended.

In terms of the Sydney basin taxa *Hoplocephalus bungaroides* (Schlegel, 1837) and *Amalosia lesueurii* (Duméril and Bibron, 1836) there were two divergent populations of the former identified by Sumner *et al.* (2010) with a divergence of about 800K years before present and in terms of *A. lesueurii* three populations were identified, all separated from one another from

1 to 3 MYA BP.

The *H. bungaroides* of the type form from Sydney, were found to have diverged from those west of Nowra about 800K ago.

Specimens of both were inspected to confirm consistent differences in morphology in adults. A literature sweep confirmed that there were no available names for the southern population.

In terms of *A. lesueurii* Sumner *et al.* (2010) found that the type population from central Sydney (Port Jackson) diverged from two other populations, with each diverged from each other over 1 MYA, with the most divergent population being that from the Royal National Park area, south of Port Hacking and the Kurnell Sand Dunes.

It is reasonable to infer that the Cumberland Plain, lower Botany Bay and the associated sand dunes in the Kurnell area have formed a rock-free biogeographical barrier for potentially millions of years, even though the straight-line distance between the type population at Cape Banks (their southern limit) and the Royal National Park population is a fraction under 10 km.

A literature sweep confirmed no available names for the populations found in the Royal National Park area or those from west of Nowra, further south in New South Wales.

Specimens of each population were inspected to confirm consistent differences in morphology in adults.

RESULTS

Consistent diagnosable morphological differences were found between the relevant populations of both *Hoplocephalus bungaroides* (Schlegel, 1837) and *Amalosia lesueurii* (Duméril and Bibron, 1836) and so each of the three unnamed forms are herein formally named as new subspecies in accordance with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended (ICZN 2012).

The differences are best quantified in terms of colouration variance between the forms and are outlined in the descriptions that follow.

INFORMATION RELEVANT TO THE FORMAL DESCRIPTIONS THAT FOLLOW

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

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

In terms of the following formal descriptions, spelling of names should not be altered in any way for any purpose unless expressly and exclusively called for by the rules governing *Zoological Nomenclature* as administered by the *International Commission of Zoological Nomenclature* (Ride *et al.* 1999 and ICZN 2012).

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 27 January 2024, unless otherwise stated and were accurate in terms of the context cited herein as of that date.

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

It is worth noting here that the colouration intensity of the relevant gecko species varies strongly with temperature, shedding cycle and diurnal / nocturnal cycles, but a normal unstressed adult gecko during daytime hours will display the colourations described herein.

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

HOPLOCEPHALUS BUNGAROIDES PUGNAX SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:BBE7E5C4-BD9A-40E1-83EC-3B50D755E232

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.74285 collected from the Yalwal area, New South Wales, Australia, Latitude -35.1 S., Longitude 150.3 E by Brian Lazell and Richard Wells.

This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.74286 collected from the Jerrawangala National Park, New South Wales, Australia, Latitude -35.1 S., Longitude 150.3 E.

Diagnosis: The subspecies *Hoplocephalus bungaroides pugnax subsp. nov.* found generally south of the line between Berrima, through Robertson and east to Kiama in New South Wales and north of Ulladulla in New South Wales is readily separated from the nominate form of *H. bungaroides* (Schlegel, 1837) (type locality Port Jackson), being found around the south and west of the immediate Sydney basin by having dull, versus bright yellow spotting on the dorsum, as well as increased black between yellow spotting on the rear lower flanks. On the head of *H. bungaroides pugnax subsp. nov.* there are longitudinal lines formed by the white lines on the head, being usually in the form of a broken line or spots, versus transverse in nominate *H. bungaroides* from the Royal National Park and nearby Blue Mountains region including lesser known reserves in these areas.

H. bungaroides is separated from all other species in the genus *Hoplocephalus* Wagler, 1830 by being the only species with a black dorsum and spotted or banded with white or yellow, any cross-bands being irregular and rarely more than a scale in width (versus regular in other *Hoplocephalus* with bands and 2 or more scales in width). The sides of the ventrals are yellow or white.

Snakes in the genus *Hoplocephalus* are separated from all other Australian elapids by the following unique suite of characters: Smooth dorsal scales; 19-21 rows of scales at mid-body; obviously keeled ventrals; over 190 ventrals; frontal shield is noticeably longer than broad; internasals present; no suboculars; single anal; all single subcaudals; two or three solid maxillary teeth behind the fang (derived from Cogger 2014).

They are within the so-called "Notechis" group of Australian elapid snakes.

H. bungaroides of the nominate form is depicted in life in Hoser (1989) on page 159 at bottom right, and Cogger (2014) on page 901 at bottom.

Hoplocephalus bungaroides pugnax subsp. nov. is depicted in life in Swan *et al.* (2022) on page 274 at top.

Distribution: *Hoplocephalus bungaroides pugnax subsp. nov.* is found on and near sandstone escarpments generally south of the line between Berrima, through Robertson and east to Kiama in New South Wales and north of Ulladulla in New South Wales, where it hides under rock slabs in cooler weather and moves about more extensively along ridgelines in warmer seasons.

Conservation: The New South Wales government has done everything wrong with regards to this taxon and hastening its decline. Its ultimate survival will be in spite of actions by Australian governments and not because of it (see the relevant comments in Hoser 1989, Hoser 1995a-c, and more recently in Hoser 2019a-b).

Also important is that no translocation of specimens of one species to an area inhabited by another is done by government agencies or well-meaning albeit misguided individuals.

To do so could jeopardise hundreds of thousands of years of evolution by the relevant taxa in isolation from one another.

Etymology: "pugnax" is Latin for pugnacious, which in turn means willing to fight or bite; an apt description for this taxon.

AMALOSIA LESUEURII NONITER SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:FF08DEF0-BB67-4925-B92B-F47E19AEB73E

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.81182 collected from the Yalwal area, New South Wales, Australia, Latitude -34.933 S., Longitude 150.383 E., collected by Richard W. Wells and Brian Lazell.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.81183, R.81184 and R.81194 all collected from the Yalwal area, New South Wales, Australia, Latitude -34.933 S., Longitude 150.383 E., collected by Richard W. Wells and Brian Lazell.

Diagnosis: *Amalosia lesueurii noniter subsp. nov.* is a taxon found generally south of the line between Berrima, through Robertson and east to Kiama in New South Wales and north of Ulladulla in New South Wales (an identical range to that of *H. bungaroides pugnax subsp. nov.*).

It, the nominate form of *Amalosia lesueurii* (Duméril and Bibron, 1836) (type locality Port Jackson = the foreshores of Sydney Harbour, New South Wales), found there and to the region north and west of there to the northern Blue Mountains and the newly described subspecies *A. lesueurii beneabscondita subsp. nov.* from the Royal National Park (separated from the nominate subspecies by the Kurnell Sand Dunes, being a straight-line distance of just under 10 km) are separated from one another by the following unique combinations of characters:

Amalosia lesueurii of the nominate subspecies has a dorsum that has a well-defined dark brown zig-zag line down (sharply defined on the edges) either side of the dorsum, the parts of the zig-zag lines being very straight, the inner area of the dorsum being a moderate brown-grey in colour.

The flanks are greyish with scattered whitish and blackish speckling.

A. lesueurii noniter subsp. nov. is readily separated from the other two subspecies by having a strong brownish hue down the mid-section of the dorsum, effectively forming a brownish line running down the middle of the back, in a form not seen in the other subspecies. Bounding this on either side of the back is a continuous or near continuous thin wavy line, with well-defined edges (no specks or infusions on the lines). In some specimens this line breaks when closest to the midline of the dorsum. Flanks are light grey with scattered black spots, which are mainly on the lower surfaces and anterior to the front of the hind limbs.

A. lesueurii beneabscondita subsp. nov. is readily separated from the other two subspecies by having a dorsum characterised by light mid-dorsal blotches, enlarged laterally and merged with one another, being bounded by a thick purply-brown border that is not particularly well-defined on the inner or outer edges and infused with white speckling.

The flanks are dark grey, heavily overlain with numerous small to medium-sized white spots that are reasonably well defined.

Amalosia lesueurii of the nominate subspecies is depicted in life in Hoser (1989) on page 76 at top and middle and online at: <https://www.inaturalist.org/observations/179114494>

and

<https://www.inaturalist.org/observations/176696930>

and

<https://www.inaturalist.org/observations/187226581>

A. lesueurii noniter subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/130607043>

and

<https://www.inaturalist.org/observations/56737065>

and

<https://www.inaturalist.org/observations/61375804>

A. lesueurii beneabscondita subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/133140524>

and

<https://www.inaturalist.org/observations/166027975>

and

<https://www.inaturalist.org/observations/19188054>

A. lesueurii (Duméril and Bibron, 1836) of all three subspecies has a generally greyish ground colour across most of the dorsum and flanks as opposed to brownish grey in both *A. phillipsi* Wells and Wellington, 1984 and *A. alexanderdudleyi* Hoser, 2017, being the other two most similar species in the genus *Amalosia* Wells and Wellington, 1984.

A. alexanderdudleyi and *A. lesueurii* have distinctive white patches on the upper labials which are absent in *A. phillipsi*. *A. phillipsi* is characterised by a dorsal pattern of large, pale, heart shaped blotches running down the middle of the back, most if not all separated from one another and prominently bounded by dark pigment. By contrast in *A. alexanderdudleyi* these mid-dorsal blotches are shrunken in size, being medium, with distinct brownish centres and all or mainly all, are joined to give a distinct vertebral zig-zag pattern. In *A. lesueurii* the dorsal blotches are small to medium and lack any brown in the centres of them.

The flanks of *A. phillipsi* are characterised by a noticeable pattern of irregular whiteish squares or whitish blotches or large spots and without dark centres. In *A. alexanderdudleyi* the flanks are characterised by white ocelli with some or most being characterised by dark blackish-grey spots of varying size in the centre of each, as in one dark spot in the centre of the relevant ocelli. In *A. lesueurii* the flanks consist of a relatively indistinct flecked appearance being composed of dark grey and light grey flecking, but without any obvious pattern.

Most of the upper surface of the head of *A. phillipsi* is covered in lighter pigment, even when including dark pigment concentrated near the centre of the dorsal surface. *A. alexanderdudleyi* has more dark pigment than light on the upper surface of the head. In *A. lesueurii* pigment on the head varies widely with locality and within locality, but usually hovers in the range of about half dark and half light pigment.

All three species are characterised as having vertebral zone characterised by pale blotches, zig-zag or similar, edged with dark brown or black running in combination more or less continuously. The tail is noticeably depressed. The species *A. jacobae* Couper, Keim and Hoskin, 2007 is most similar to *A. phillipsi* for which there has been speculation that it may be conspecific, but it is separated from the latter taxon by an absence of irregular whiteish squares or whitish blotches or large spots, being without dark centres on the flanks. The flanks of *A. jacobae* merely grade from dark grey to light and without any obvious spots or markings. The other species that were formerly placed in the genus *Amalosia*, that are all now placed in the genus *Celertenues* Hoser, 2017 are all readily separated from *Amalosia* including *A. jacobae* by having a tail that is cylindrical in cross section as opposed to being noticeably depressed.

The diagnosis for the genus *Amalosia* Wells and Wellington, 1984 within the subtribe *Celertenuina* Hoser, 2017 is as follows: It is a genus of the *Diplodactylidae* (*sensu* Han *et al.* 2004) distinguished from all genera in the tribe *Fiacumminggeckoini* Hoser, 2017 (these being: *Fiacumminggecko* Hoser, 2017; *Celertenues* Hoser, 2017; *Hesperoedura* Oliver, Bauer, Greenbaum, Jackman and Hobbie, 2012; *Marlenegecko* Hoser, 2017; *Nebulifera* Oliver, Bauer, Greenbaum, Jackman and Hobbie, 2012; *Oedura* Gray, 1842), by the following combination of characters:

1/ Size of less than 62 mm snout-vent,

2/ Dorsal scales are minute, granular and much smaller than the

ventrals,

3/ More than one enlarged cloacal spur,

4/ Karyotype of $2n = 36$,

5/ Dorsal pattern generally including at least a broken vertebral stripe or similar, and,

6/ Base of tail is strongly horizontally flattened.

Characters 1-2 and 4-5 all specifically diagnose this genus from all others within the tribe *Fiacumminggeckoini*, except for the recently named genus *Celertenues* Hoser, 2017 which is separated from *Amalosia* by having a tail that is either not strongly horizontally flattened or only slightly so

Distribution: *Amalosia lesueurii noniter* subsp. nov. is found on and near sandstone escarpments generally south of the line between Berrima, through Robertson and east to Kiama in New South Wales and north of Ulladulla in New South Wales, where it hides under rock slabs in cooler weather and otherwise very close to these in warmer weather but staying on or near the same escarpment sites.

Conservation: As for *H. bungaroides pugnax* subsp. nov. save for the fact that unlike *H. bungaroides* in general, there is effectively no pet trade or hobbyist interest in this species or subspecies.

The most serious threat may well be cross-contamination of populations with specimens of other subspecies from other areas.

Etymology: “*non iter*” is Latin for “does not travel” which refers to the strong site fidelity of adults and juveniles of this species as detailed by Dubey *et al.* (2012).

AMALOSIA LESUEURII BENEABSCONDIRA SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:22C192D8-5356-4FED-A781-38DB1EA043C1

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.81235 collected from Waterfall, New South Wales, Australia, Latitude -34.133 S., Longitude 151.0 E., collected by Brian Lazell.

This government-owned facility allows access to its holdings.

Paratypes: Nine preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.15612, R.27679, R.80010, R.81215, R.81230, R.81232, R.81233, R.81236 and R.81258 all collected from Waterfall, New South Wales, Australia, Latitude -34.133 S., Longitude 151.0 E.

Diagnosis: *Amalosia lesueurii noniter* subsp. nov. is a taxon found generally south of the line between Berrima, through Robertson and east to Kiama in New South Wales and north of Ulladulla in New South Wales (an identical range to that of *H. bungaroides pugnax* subsp. nov.).

It, the nominate form of *Amalosia lesueurii* (Duméril and Bibron, 1836) (type locality Port Jackson = the foreshores of Sydney Harbour, New South Wales), found there and to the region north and west of there to the northern Blue Mountains and the newly described subspecies *A. lesueurii beneabscondita* subsp. nov. from the Royal National Park (separated from the nominate subspecies by the Kurnell Sand Dunes, being a straight-line distance of just under 10 km) are separated from one another by the following unique combinations of characters:

Amalosia lesueurii of the nominate subspecies has a dorsum that has a well-defined dark brown zig-zag line down (sharply defined on the edges) either side of the dorsum, the parts of the zig-zag lines being very straight, the inner area of the dorsum being a moderate brown-grey in colour.

The flanks are greyish with scattered whitish and blackish speckling.

A. lesueurii noniter subsp. nov. is readily separated from the other two subspecies by having a strong brownish hue down the mid-section of the dorsum, effectively forming a brownish line

running down the middle of the back, in a form not seen in the other subspecies. Bounding this on either side of the back is a continuous or near continuous thin wavy line, with well-defined edges (no specks or infusions on the lines). In some specimens this line breaks when closest to the midline of the dorsum. Flanks are light grey with scattered black spots, which are mainly on the lower surfaces and anterior to the front of the hind limbs.

A. lesueurii beneabscondita subsp. nov. is readily separated from the other two subspecies by having a dorsum characterised by light mid-dorsal blotches, enlarged laterally and merged with one another, being bounded by a thick purple-brown border that is not particularly well-defined on the inner or outer edges and infused with white specking.

The flanks are dark grey, heavily overlain with numerous small to medium-sized white spots that are reasonably well defined.

Amalosia lesueurii of the nominate subspecies is depicted in life in Hoser (1989) on page 76 at top and middle and online at: <https://www.inaturalist.org/observations/179114494>

and

<https://www.inaturalist.org/observations/176696930>

and

<https://www.inaturalist.org/observations/187226581>

A. lesueurii noniter subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/130607043>

and

<https://www.inaturalist.org/observations/56737065>

and

<https://www.inaturalist.org/observations/61375804>

A. lesueurii beneabscondita subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/133140524>

and

<https://www.inaturalist.org/observations/166027975>

and

<https://www.inaturalist.org/observations/19188054>

A. lesueurii (Duméril and Bibron, 1836) of all three subspecies has a generally greyish ground colour across most of the dorsum and flanks as opposed to brownish grey in both *A. phillipsi* Wells and Wellington, 1984 and *A. alexanderdudleyi* Hoser, 2017, being the other two most similar species in the genus *Amalosia* Wells and Wellington, 1984.

A. alexanderdudleyi and *A. lesueurii* have distinctive white patches on the upper labials which are absent in *A. phillipsi*. *A. phillipsi* is characterised by a dorsal pattern of large pale heart shaped blotches running down the middle of the back, most if not all separated from one another and prominently bounded by dark pigment. By contrast in *A. alexanderdudleyi* these mid-dorsal blotches are shrunken in size, being medium, with distinct brownish centres and all or mainly joined to give a distinct vertebral zig-zag pattern. In *A. lesueurii* the dorsal blotches are small to medium and lack any brown in the centres of them.

The flanks of *A. phillipsi* are characterised by a noticeable pattern of irregular whiteish squares or whitish blotches or large spots and without dark centres. In *A. alexanderdudleyi* the flanks are characterised by white ocelli with some or most being characterised by dark blackish-grey spots of varying size in the centre of each, as in one dark spot in the centre of the relevant ocelli. In *A. lesueurii* the flanks consist of a relatively indistinct flecked appearance being composed of dark grey and light grey flecking but without any obvious pattern.

Most of the upper surface of the head of *A. phillipsi* is covered in lighter pigment, even when including dark pigment concentrated near the centre of the dorsal surface. *A. alexanderdudleyi* has more dark pigment than light on the upper surface of the head.

In *A. lesueurii* pigment on the head varies widely with locality and within locality, but usually hovers in the range of about half dark and half light pigment.

All three species are characterised as having vertebral zone characterised by pale blotches, zig-zag or similar, edged with dark brown or black running in combination more or less continuously. The tail is noticeably depressed. The species *A. jacovae* Couper, Keim and Hoskin, 2007 is most similar to *A.*

phillipsi for which there has been speculation that it may be conspecific, but it is separated from the latter taxon by an absence of irregular whiteish squares or whitish blotches or large spots, being without dark centres on the flanks. The flanks of *A. jacovae* merely grade from dark grey to light and without any obvious spots or markings. The other species that were formerly placed in the genus *Amalosia*, that are all now placed in the genus *Celertenues* Hoser, 2017 are all readily separated from *Amalosia* including *A. jacovae* by having a tail that is cylindrical in cross section as opposed to being noticeably depressed.

The diagnosis for the genus *Amalosia* Wells and Wellington, 1984 within the subtribe *Celertenuina* Hoser, 2017 is as follows: It is a genus of the Diplodactylidae (*sensu* Han *et al.* 2004) distinguished from all genera in the tribe *Fiacumminggeckoini* Hoser, 2017 (these being: *Fiacumminggecko* Hoser, 2017; *Celertenues* Hoser, 2017; *Hesperoedura* Oliver, Bauer, Greenbaum, Jackman and Hobbie, 2012; *Marlenegecko* Hoser, 2017; *Nebulifera* Oliver, Bauer, Greenbaum, Jackman and Hobbie, 2012; *Oedura* Gray, 1842), by the following combination of characters:

1/ Size of less than 62 mm snout-vent,

2/ Dorsal scales are minute, granular and much smaller than the ventrals,

3/ More than one enlarged cloacal spur,

4/ Karyotype of $2n = 36$,

5/ Dorsal pattern generally including at least a broken vertebral stripe or similar, and,

6/ Base of tail is strongly horizontally flattened.

Characters 1-2 and 4-5 all specifically diagnose this genus from all others within the tribe *Fiacumminggeckoini*, except for the recently named genus *Celertenues* Hoser, 2017 which is separated from *Amalosia* by having a tail that is either not strongly horizontally flattened or only slightly so

Distribution: *A. lesueurii beneabscondita* subsp. nov. is a taxon from the Royal National Park, about 20 km south of the Sydney central business district, as well as nearby national parks (e.g. Heathcote State Park). It is separated from the nominate subspecies of *A. lesueurii* to the north by the Kurnell Sand Dunes, being a straight-line distance of just under 10 km.

The other newly named subspecies *Amalosia lesueurii noniter* subsp. nov. is found on and near sandstone escarpments generally south of the line between Berrima, through Robertson and east to Kiama in New South Wales and north of Ulladulla in New South Wales, where it hides under rock slabs in cooler weather and otherwise very close to these in warmer weather but staying on or near the same escarpment sites.

Conservation: As for *H. bungaroides pugnax* subsp. nov. save for the fact that unlike *H. bungaroides* in general, there is effectively no pet trade or hobbyist interest in this species or subspecies.

The most serious threat may well be cross-contamination of populations with specimens of other subspecies from other areas.

Etymology: “*bene abscondita*” is Latin for “well hidden” which refers to the fact that this taxon remained hidden and unrecognized by science for so long.

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CONFLICT OF INTEREST

None.

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