

Accidentally left out in the rain ... The east Australian tree frog *Pengilleyia tyleri* (Martin, Watson, Gartside, Littlejohn, and Loftus-Hills, 1979) is split.

LSIDURN:LSID:ZOOBANK.ORG:PUB:9B7DB9BA-0793-488A-9CBD-3A35E811032E

RAYMOND T. HOSER

LSIDURN:LSID:ZOOBANK.ORG:AUTOR:F9D74EB5-CFB5-49A0-8C7C-9F993B8504AE

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

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

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ABSTRACT

As part of an audit of the Australasian herpetofauna, the Australian tree frogs were scrutinized by Hoser in a monograph published in 2020, that paper naming 62 new species and 12 new subspecies.

A taxon accidentally omitted from that work was one closely associated with *Pengilleyia tyleri* (Martin, Watson, Gartside, Littlejohn, and Loftus-Hills, 1979), a species with a type locality of near Huskisson, New South Wales.

The northern population of that putative taxon, being found in south-east Queensland and nearby north-east New South Wales is quite divergent and most likely a separate species.

However, in the absence of molecular evidence, it is conservatively named herein as a new subspecies, *Pengilleyia tyleri aboveia* subsp. nov. in accordance with the *International Code of Zoological Nomenclature* (Ride et al. 1999).

P. tyleri aboveia subsp. nov. is separated from the nominate form of *P. tyleri* by having a lot of green spotting and blotching on the dorsum in males, versus spotting smaller in size and quantity in nominate *P. tyleri* males, heavy green spotting on the upper surfaces of the limbs, versus little or none in *P. tyleri* and an absence of small greyish spots on the interface between the dark lateral and light ventral interface (in males). Conservation of Australian fauna cannot be properly executed in the absence of a full inventory of species and this paper represents an important step in that direction.

Keywords: Taxonomy; nomenclature; frog; tree frog; Australia; Queensland; New South Wales; *Litoria*; *Pengilleyia*; *tyleri*; new subspecies; *aboveia*.

INTRODUCTION

As part of an audit of the Australasian herpetofauna, the tree frogs *sensu lato* was scrutinized by Hoser (2020a), that paper naming 62 new species and 12 new subspecies.

An unnamed taxon inadvertently omitted from being named in that paper is named herein.

In effect it was accidentally left out in the rain!

Pengilleyia tyleri aboveia subsp. nov. which is formally described below in accordance with the *International Code of Zoological Nomenclature* (Ride et al. 1999) occurs in south-east Queensland, Australia as well as nearby northern New South Wales and has until now been treated as the northernmost population of the species *Pengilleyia tyleri* (Martin, Watson, Gartside, Littlejohn, and Loftus-Hills, 1979), a species with a type locality of near Huskisson, New South Wales south coast.

Because of the absence of genetic evidence separating the divergent northern population of putative *P. tyleri* from the type form, the newly named taxon is conservatively named herein as a new subspecies rather than a full species.

This is done in accordance with the *International Code of Zoological Nomenclature* (Ride et al. 1999).

This is in line with what was done by myself in Hoser (2020) with respect of the divergent taxon *Colleeneremia* (*Balatusrana*) *dentata toowoombaensis* Hoser, 2020.

That taxon was illegally renamed in 2021 as "*Litoria balatus* Rowley, Mahony, Hines, Myers, Price, Shea and Donnellan, 2021" based on molecular data published at the same time. The authors acted in breach of the *International code of Zoological Nomenclature* (Ride et al. 1999), as well as the Australian Copyright Act (1968).

Their data did however confirm that "*Colleeneremia* (*Balatusrana*) *dentata toowoombaensis* Hoser, 2020" should be elevated to the status of full species.

As "*Litoria balatus*" is a junior synonym of *Colleeneremia* (*Balatusrana*) *dentata toowoombaensis* Hoser, 2020, the correct nomen for the species is *C. toowoombaensis* (Hoser, 2020).

The molecular basis for the recognition of *Colleeneremia* is laid out in Hoser (2020a).

Conservation of Australian fauna cannot be properly executed in the absence of a full inventory of species and this paper represents another important step in that direction.

MATERIALS, METHODS AND RESULTS

All are as for Hoser (2020a).

The relevant subspecies named in this paper *Pengilleyia tyleri aboveia* subsp. nov. while morphologically most similar to *Pengilleyia tyleri* (Martin, Watson, Gartside, Littlejohn, and Loftus-Hills, 1979), a species with a type locality of near Huskisson, New South Wales south coast and until now treated by all publishing authors as conspecific is both morphologically divergent and geographically distant in range.

While the current distribution of putative *P. tyleri* appears to be more-or-less continuous from the south coast of New South Wales, along the coast of New South Wales to south-east Queensland, this including the range of *Pengilleyia tyleri aboveia* subsp. nov. it is likely that the two subspecies may have been distributionally disjunct and that the ranges of each taxon have expanded in recent geological times to effectively merge.

The blocking factor causing divergence between northernmost and southernmost populations is almost certainly one involving a related species, namely *P. peronii* (Tschudi, 1838).

That species has near identical habitat requirements and preferences throughout the range of putative *P. tyleri* and clearly outcompetes it in some habitats, notably including drier areas.

Even when both are sympatric, one species is generally far more abundant than the other.

PENGILLEYIA TYLERI ABOVEIA SP. NOV.

LSIDurn:lsid:zoobank.org:act:67533C4E-0B6C-4C98-8986-99DD52C87178

Holotype: A preserved adult male specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J13625 collected from Scenic Reserve, Maroochy Regional District, 6 miles south of Nambour, Queensland, Australia, Latitude -26.766667 S., Longitude -26.766667 S.

This government-owned facility allows access to its holdings.

Paratype: Two preserved adult male specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J13626 and J13627 collected from Scenic Reserve, Maroochy Regional District, 6 miles south of Nambour, Queensland, Australia, Latitude -26.766667 S., Longitude -26.766667 S.

Diagnosis: *Pengilleyia tyleri aboveia* subsp. nov. is separated from the nominate form of *P. tyleri* by having a lot of green spotting and blotching on the dorsum in males, versus spotting smaller in size and quantity in nominate *P. tyleri* males (as in only a moderate amount), heavy green spotting on the upper surfaces of the limbs, versus little or none in *P. tyleri* and an absence of small greyish spots on the interface between the dark lateral and light ventral interface (in males).

The yellow between the toes in *Pengilleyia tyleri aboveia* subsp. nov. occupies a relatively larger area than seen in nominate *P. tyleri*, which in turn is more than in *P. peronii*, in which many specimens have greyish skin between the toes.

The only species likely to be confused with *P. tyleri* is *P. peronii* (Tschudi, 1838). *P. peronii* has a thin black line along the skin fold from behind the eye to the top of the arm, which is absent in *P. tyleri* (both forms). Compared to *P. tyleri*, *P. peronii* is also heavier in build and shape, has less yellow between the fingers and the toes, and breeding males of *P. peronii* have less yellow all over the body. *P. peronii* has more black and yellow marbling in the armpit and more black patterning at the back of the thigh and also has generally more granular skin.

No other species of *Pengilleyia* Wells and Wellington, 1985 is sympatric with *P. tyleri* besides *P. peronii*.

The genera *Pengilleyia* Wells and Wellington, 1985 as defined within Hoser (2020a) and adopted herein and *Kumanjayiwalkerus* Hoser, 2020 are as a pair, both readily separated from all other Australasian Tree Frogs (Pelodyadidae) by the following unique suite of characters:

Vomerine teeth present; fingers with conspicuous webbing reaching at least as far as the base of the

penultimate phalanx of the fourth finger; hind edge of forearm is smooth, or with at most a few low,

discontinuous tubercles; hind edge of foot is smooth; hind side of thighs with contrasting black and yellow bars or marbling, at least dorsally.

The genus *Pengilleyia* Wells and Wellington, 1985 is readily separated from the genus *Kumanjayiwalkerus* Hoser, 2020 by having a back that is either very warty or moderately warty, versus virtually smooth or with well scattered small, pointed tubercles on an otherwise smooth body in *Kumanjayiwalkerus* Hoser, 2020.

Furthermore, species within *Pengilleyia* invariably have green spots, flecks or blotches on the back versus none in *Kumanjayiwalkerus* Hoser, 2020.

Kumanjayiwalkerus Hoser, 2020 has a strongly contrasting reddish-brown upper iris, with grey below, versus either weakly contrasting reddish-brown upper iris or the iris being grey all over in *Pengilleyia*.

Duellman *et al.* (2016) found that the species within each of *Pengilleyia* and *Kumanjayiwalkerus* Hoser, 2020 diverged from one another 16.7 MYA and these two genera in turn diverged from their nearest living relatives 23.2 MYA.

In terms of the species within the genus *Kumanjayiwalkerus* Hoser, 2020, it is worth noting that *Litoria ridibunda* Donnellan, Catullo, Rowley, Doughty, Price, Hines and Richards, 2023 is an illegally coined junior synonym of *Kumanjayiwalkerus kumanjayi* Hoser, 2020.

Because of the ICZN rule of priority the correct nomen for the species is *Kumanjayiwalkerus kumanjayi* Hoser, 2020.

Donnellan, Catullo, Rowley, Doughty, Price, Hines and Richards merely stole the work of Hoser (2020a) and have dishonestly claimed to have "discovered" the species since.

The same cohort did the same taxonomic vandalism caper with respect of *Geocrinia otwaysensis* (Hoser, 2020) (citation is Hoser 2020b), which they illegally tried to rename as "*Geocrinia sparsiflora* Parkin, Donnellan, Parkin, Shea, and Rowley, 2023" and have tried the same with other taxa (see Hoser 2024).

Pengilleyia tyleri aboveia subsp. nov. is depicted in life in Anstis (2013) on page 324 bottom right.

P. tyleri of the nominate type form is also depicted in life in Anstis (2013) on page 324 top right.

In passing I note that *Mahonabatrachus marionanstisae* Hoser, 2020 was named in honour of Marion Anstis, author of Anstis (2013).

Walmsleyus anstisae Hoser, 2014 also formally named by Hoser in honour of Marion Anstis.

Anstisia Webster and Bool, 2022 is an unlawfully created junior synonym of *Wellingtondella* Hoser, 2020, meaning that the 2022 name should not be used.

Distribution: *Pengilleyia tyleri aboveia* subsp. nov. appears to be a taxon from generally north of about the Hunter Valley in New South Wales.

Nominate *P. tyleri* occurs from about Newcastle, New South Wales south to the south coast of New South Wales, with a few specimens reported from the Victorian side of the NSW border, being found only along the coast and immediately proximal ranges.

P. peronii is co-distributed in the same area and also is found in most other parts of New South Wales, Victoria, south-east south Australia and south-east Queensland, including the Murray/Darling Basin and southern Victoria.

Etymology: The subspecies name "*aboveia*" is in reference to the habit of frogs resting in and males calling from, vegetation and hides (e.g. under bark exfoliations) that sit above the dams, swamps and watercourses that they prefer to breed and spawn in.

The spelling should not be changed and is intentional.

Conservation: There are no known threats to the subspecies

Pengillyia tyleri aboveia subsp. nov. and there is no need for separate conservation action or regulation of the species at all. However, in line with all native species, they may be under threat from factors or pathogens as yet unknown.

General monitoring of populations over long periods is the only immediate conservation action required.

Any other money likely to be spent, is better spent elsewhere!

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CONFLICT OF INTEREST

None.

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