

A new subspecies of Western Bluetongue *Tiliqua occipitalis* (Peters, 1863) from south-west Australia.

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ABSTRACT

An ongoing audit of the Australian herpetofauna has shown consistent morphological differences within populations of the iconic Australian species, the Western Bluetongue *Tiliqua occipitalis* (Peters, 1863). Those from south-west Western Australia, from about Kalbarri in the north, along the coastal strip south through Perth and South-west, Western Australia, including across the Nullarbor to Yalata in South Australia are morphologically distinct from the nominate form found elsewhere in the range of the species. Identified herein as the new subspecies *Tiliqua occipitalis bulliardi* subsp. nov., it is most easily separated from the nominate form in that it has four dark black bands on the tail and three wide dark bands on the mid-body, versus three dark black bands on the tail and two wide dark bands on the mid-body in the nominate form.

Keywords: Taxonomy; nomenclature, reptile; skink; bluetongue; Australia; Western Australia, South Australia; *Tiliqua*; *occipitalis*; *Cyclodus*; *fasciatus*; new subspecies; *bulliardi*.

INTRODUCTION

With the assistance of numerous herpetologists and naturalists, I have been conducting a detailed Australia-wide audit of the herpetofauna with a view to identifying and naming hitherto unnamed forms.

This has been to ensure that a proper baseline taxonomy and related infrastructure is in place to guide conservation in the future as the challenges of an overpopulated (by humans) Australia manifest.

Already at least one species of lizard has been extirpated due to rapid urbanisation (see Hoser 2019a, 2019b) and others appear to be similarly threatened.

In the case of the Victorian agamid lizard *Tympanocryptis lineata pinguicollis* Mitchell, 1948, the taxon was ultimately shown by Wells and Wellington (1983 and 1985) to warrant full species recognition (as *Tympanocryptis pinguicollis* (Mitchell, 1948)), a position maintained by Hoser (2007).

In spite of this scientific finding, the government business "Zoos Victoria" and organiser's of the online databases they use (e.g. Australian Faunal Directory at <https://biodiversity.org.au/afd/home>), hijacked by Wolfgang Wuster and his notorious gang of thieves (see Dubois *et al.* (2019), Hoser, (2007, 2009a, 2012a, 2012b, 2013, 2015a-f, 2019a, 2019b), ICZN (1991, 2001, 2012, 2021) and sources cited therein), pretended that *T. pinguicollis* did not in fact exist, as in it was merely a population of another putatively widespread and common species *T. lineata* Peters, 1863.

That taxon (*T. pinguicollis*) is now extinct.

To pre-empt this happening again with respect of other Australian lizard species, the urgency of identifying and naming all Australian species and subspecies of reptile has increased.

This is particularly so, noting the Federal Government policy of bringing more and more people to overpopulate Australia, the estimated intake of people being 300,000 in 2023 alone! (Karp 2023).

Backed up with an enhanced "baby bonus" and "infant payment", which as of 2023 stands at AUD \$2380.42 per baby born (see <https://www.servicesaustralia.gov.au/how-much-newborn-upfront-payment-and-newborn-supplement-you-can-get?context=22186>), which encourages breeding age women to have more kids, the long term prognosis for many Australian reptiles, including putatively common ones, is not good.

People need places to live and this includes what may well be good reptile habitat!

Although the widely distributed Bluetongue Lizards (genus *Tiliqua* Gray, 1825) have been heavily scrutinized by herpetologists over the last 200 years, it appears that no one has audited putative *Tiliqua occipitalis* (Peters, 1863), originally placed in the genus *Cyclodus* Wagler, 1828 (a subjective synonym of *Tiliqua* Gray, 1825, type species *Lacerta scincoides* White, 1790), since Cogger *et al.* (1983) recognized the species and also placed *Cyclodus fasciatus* Lütken, 1863 into synonymy with it.

Inspection of specimens from across the known range of the putative species *T. occipitalis* including Western New South Wales and Victoria, across South Australia and including the southern half of Western Australia, by myself over a period spanning more than 5 decades showed significant regional variation.

This was noted in spite of the other issues of ontogenetic changes which may obscure the observation of variation, especially when individuals are observed across a number of years and samples are limited to opportunistic observations.

MATERIALS AND METHODS

To overcome the issues outlined above, a systematic approach was taken to ascertaining if there was in fact regional variation in the putative species and if the variation conformed to species or subspecies level divergence.

Specimens were scrutinized opportunistically at State Museums and more importantly live specimens and photos were observed and archived into a database that ultimately included over 200 individual specimens from almost the entire range of the putative species.

In conjunction with the above, relevant literature was scrutinized to see if there were previously named forms that may potentially conform to any unnamed variants.

There was nothing in the literature flagging potential species or subspecies within putative *T. occipitalis*, other than the type form, believed to occur throughout the known range, but major texts were consulted in any event.

Key publications relevant to the taxonomic and nomenclatural conclusions herein were the following:

Bush (1981), Cogger (2014), Cogger *et al.* (1983), Glauert (1960), Gray (1838), Günther (1872), Hoser (1989, 2007, 2009a, 2009b, 2016, 2022), Lütken (1863), Peters (1863), Storr (1963, 1968), Swan *et al.* (2022), Wilson and Swan (2017), Wells and Wellington (1984, 1985) and sources cited therein, although ultimately, the final taxonomic decision relevant to this paper was based solely on comparative inspection of live specimens from across the known range of putative *T. occipitalis*.

RESULTS

Two main population groups within putative *T. occipitalis* were identified.

These were the type form from 4.5 km west of Gawler, South Australia (just north of Adelaide), being found throughout most of the range of the species. This type form included *Cyclodius fasciatus* Lütken, 1863, holotype at the Universitetets Zoologiske Museum, Copenhagen, Denmark, specimen number UZM R47563 self-evidently collected from the same general area within eastern South Australia or just across the State Border.

That was correctly synonymised by Cogger *et al.* (1983).

A second quite distinctive form was identified from south-west Australia.

It occurs in the region bounded by Kalbarri in the north, along the coastal strip south through Perth and South-west, Western Australia, including across the Nullarbor to Yalata in South Australia.

It is most easily separated from the nominate form in that it has four dark black bands on the tail and three wide dark bands on the mid-body, versus three dark black bands on the tail and two wide dark bands on the mid-body.

This distribution does broadly correspond to species level distributions in other reptile species pairs, including:

- 1/ *Nephrurus stellatus* Storr, 1968, west of the Nullarbor and *Nephrurus coreyrentoni* Hoser, 2016 east of it.
- 2/ *Pseudonaja affinis* Günther, 1872 west of the Nullarbor and *Pseudonaja charlespiersoni* (Hoser, 2012) east of it.
- 3/ *Acritoscincus trilineatus* (Gray, 1838) west of the Nullarbor and *Acritoscincus davidmerceicai* Hoser, 2022 east of it.

In the case of the three preceding pairs, there is molecular evidence cited in the later descriptions that validated the species-level designations.

In the case of the south-western population of putative *T. occipitalis*, besides the absence of molecular evidence of divergence (one way or other), there is a distributional issue as well. The divergent population appears to extend east across the southern edge of the Nullarbor Plain, the biogeographical barrier for the other species pairs. Also putative *T. occipitalis* appears to extend across Western Australia to the north of where the south-western form occurs, in effect encircling it to the north.

Because of this absence of molecular data and the somewhat

unusual distribution of the two forms, the hitherto unnamed form is herein described in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as a new subspecies *Tiliqua occipitalis bulliardii* subsp. nov..

INFORMATION RELEVANT TO THE FORMAL DESCRIPTION THAT FOLLOWS

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 a relevant staff at museums who made specimens and records available in line with international obligations.

In terms of the following formal description, 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.

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 15 January 2023, unless otherwise stated and were accurate in terms of the context cited herein as of that date.

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

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

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

Therefore attempts by taxonomic vandals like the Wolfgang Wüster gang via Kaiser (2012a, 2012b, 2013, 2014a, 2014b) and Kaiser *et al.* (2013) (as frequently amended) to unlawfully suppress the recognition of this taxon on the basis they have a personal dislike for the person who formally named it should be resisted (Dubois *et al.* 2019).

Claims by the Wüster gang against this paper and the descriptions herein will no doubt be no different to those the gang have made previously, all of which were discredited long ago as outlined by Dubois *et al.* (2019), Hoser, (2007, 2009a, 2012a, 2012b, 2013, 2015a-f, 2019a, 2019b), ICZN (1991, 2001, 2012, 2021) and sources cited therein.

TILIQUA OCCIPITALIS BULLIARDI SUBSP. NOV.

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Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, specimen number R42529, collected 1 mile west of Frenchman Peak, Cape Le Grand National Park, Western Australia, Australia, Latitude -33.966667 S., Longitude 122.15 E.

This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, specimen number R22942, collected from Pink Lake, Esperance, Western Australia, Australia, Latitude -33.85 S., Longitude 121.83 E.

Diagnosis: *Tiliqua occipitalis bulliardii* subsp. nov. is readily separated from nominate *Tiliqua occipitalis* (Peters, 1863) by having four dark black bands on the tail and three (sometimes four) wide dark bands on the mid-body, versus three dark black bands on the tail and two wide dark bands on the mid-body in the nominate form.

Nominate *Tiliqua occipitalis* (Peters, 1863) in life is depicted in Hoser (1989) on page 11 (top), Swan *et al.* (2022) on page 217 at top.

Tiliqua occipitalis bulliardii subsp. nov. in life is depicted in Storr, Smith and Johnstone (1981) in plate 20 (bottom left), Bush

(1981), page 24 in Fig. 32 and Wilson and Swan (2017) on page 401, bottom.

The diagnosis of Glauert (1960) for *T. occipitalis* is in fact of this subspecies, *T. occipitalis bulliardii* subsp. nov..

It read as follows:

"This larger member of the genus, which may attain a length of 18 in., is the most strongly marked species owing to the sharp contrast between the pale brown body colour and the bone brown crossbands on the body and tail. There are 38 to 42 rows of scales round the middle of the body, all smooth and shining. Behind the parietals there are 3 or 4 series of enlarged scales, some of them much longer than wide, to which the lizard probably owes its specific name. The scales on the nape by contrast are much reduced in size and markedly wider than long. In due course these are succeeded by larger transverse scales slightly obliquely placed and increasing in size somewhat towards and on the tail. The limbs are short, not meeting when adpressed; the fore limb is as long as the head and about 3 times in the distance between the axilla and the groin. The tail is short, tapering and pointed, much shorter than the head and body, with four dark cross bands and a dark tip. A dark stripe along the side of the head, from the eye to over the ear, is very pronounced on all specimens examined."

Cogger (2014) at page 689 provides a composite diagnosis of both subspecies. On the same page at the bottom, he has a colour image of the nominate form of *Tiliqua occipitalis* (Peters, 1863).

There are large numbers of images of both subspecies online in photo sharing websites such as www.flickr.com and www.inaturalist.org. They can be found under the relevant search terms, such as "Western Bluetongue" or "Tiliqua occipitalis".

There is a strong likelihood that DNA analysis will necessitate the elevation of this taxon, *T. occipitalis bulliardii* subsp. nov. to full species status.

Distribution: *Tiliqua occipitalis bulliardii* subsp. nov. occurs in the region bounded by Kalbarri in the north, along the coastal strip south through Perth and South-west, Western Australia, including across the Nullarbor to Yalata in South Australia. It appears to be bounded in the north and east by nominate *Tiliqua occipitalis* (Peters, 1863), which is otherwise found in arid and semi-arid parts of Australia from western Australia in the west, east to western New South Wales and nearby north-west Victoria.

Etymology: *Tiliqua occipitalis bulliardii* subsp. nov. is named in honour of Kaj-erik Bulliard of Esperance, Western Australia, previously of Perth, Western Australia, and before that, of Sydney, NSW, Australia in recognition of a contribution to herpetology in Australia spanning some decades.

CONSERVATION THREATS TO *T. OCCIPITALIS BULLIARDII* SUBSP. NOV.

There are no known significant immediate conservation threats to this subspecies, although the best part of the habitat for this taxon has been effectively erased by the creation of endless expanses of wheat-growing monoculture.

As already mentioned, if the Australian government persists with its "Big Australia Policy", (see for example Saunders 2019 or Zaczek 2019), that being a long-term aim to increase the human population in Australia to over 100 million people by year 2150 (from the present 26 million as of 2022/3), all sorts of unforeseen threats to the survival of this lizard taxon may emerge.

Due to unforeseen potential threats I recommend further research on the relevant subspecies and including means to identify likely threats.

These may include direct human activities (e.g. land clearing for homes or farming activities), as well as potential threats caused by changed vegetation regimes, introduced pests and potential pathogens, including those introduced via the legal importation of foreign reptiles and amphibians by government-owned zoos and other government backed commercial enterprises.

Denial of the existence of the relevant taxon *sensu* Wüster et

al. as outlined by Hoser (2019a, 2019b), could ultimately cause extinction of this taxon in the same way it caused one or more earlier extinctions as documented by Hoser (2019a, 2019b).

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CONFLICTS OF INTEREST - NONE

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