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Dealing with a taxonomic disaster zone ... 39 new species and 11 new subspecies within *Ctenotus* Storr, 1964 *sensu lato*.

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ABSTRACT

As part of an audit of the Australian herpetofauna, the *Ctenotus* Storr, 1964 *sensu lato* currently with over 100 species recognized, was scrutinized.

39 new species and 11 new subspecies without available names were identified and are formally named in this paper.

Some had been flagged in earlier papers by others, but most had not been.

The failure of government-funded "herpetologists" to formally identify and name the relevant species some years after numerous studies have flagged them as candidate species implies that in this country some so-called herpetologists are better described as serial "grant grabbers" rather than proper scientists.

The relevant people seem to prefer to monopolize funding handouts over decades to publish tiny bites of work, rather than to execute research projects in a proper and timely manner with value for money results.

Rather than have any of the relevant taxa expire through ignorance of their existence by legitimate scientists, wildlife departments, NGO's or concerned members of the public, these taxa are quite properly formally described and named in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

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; lizard; skink; Australia; *Ctenotus*; *Kommosagogus*; *Minervascincus*; *Magnuscincus*; *Tantaloscincus*; *pallasotus*; *piankai*; *serventyi*; *ariadnae*; *quattuordecimlineatus*; *astarte*; *orientalis*; *leonhardii*; *hebetior*; *pulchellus*; *arcanus*; *essingtonii*; *vertebralis*; *lateralis*; *eutaenius*; *decaneurus*; *pantherinus*; *tantillus*; *striaticeps*; *labillardieri*; *catenifer*; *gemma*; *euclae*; *brooksi*; *taeniatus*; *calurus*; *strauchii*; *allotropis*; *varius*; *zebrilla*; *schomburgkii*; *kutjupa*; *schomburgkii*; *pallascens*; *fischeri*; new genus; *Matherus*; new species; *celerrimus*; *ieiuniummovens*; *whatdafuk*; *absconditus*; *abba*; *vultharenae*; *inveneruntusquam*; *ap*; *taxi*; *cab*; *fukdat*; *dakotabarnettae*; *merciecai*; *binghami*; *arabanoo*; *anthonyjacksoni*; *timhudsoni*; *hoserae*; *maxinehoserae*; *brianbarnetti*; *matheri*; *adelynhoserae*; *jackyhoserae*; *pailsei*; *grantturneri*; *alexanderdudleyi*; *graysonoconnori*; *rosswellingtoni*; *goreng*; *wellsei*; *trevorhawkeswoodi*; *julianassangei*; *xorum*; *muski*; *katteri*; *hattoni*; *oxyi*; *crottyi*; *sloppi*; new subspecies; *eyreensisi*; *gurindji*; *quandamooka*; *birriwirri*; *divergans*; *eromanga*; *menang*; *whadjuk*; *confusaidem*; *yinggarda*; *martu*.

INTRODUCTION

As part of a multi-decade audit of the Australian herpetofauna, the Australian and New Guinea skinks most commonly placed in the genus *Ctenotus* Storr, 1964 were scrutinized to see if there were any obviously unnamed forms.

Most herpetologists treat *Ctenotus* as one large genus encompassing a massive number of morphologically similar skinks.

As of 2024 well over 100 forms are recognized as full species, with many others as subspecies.

A lot of these subspecies have also been shown to be full species in recent molecular studies (e.g. Singhal *et al.* 2017 and others relying on the same sets of sequence data) and yet not all have been elevated to species as of 2024.

A number of wide-ranging species have also been found to be over-split, but in addition more have been uncovered by the same studies to necessitate the resurrection of forms from synonymy or even descriptions of yet more species.

This audit included a comprehensive review of the relevant literature, examination of large numbers of specimens of all currently named putative species from across the country and an assessment of likely factors causing speciation and isolation of allopatric populations (of like skinks) to confirm which species are valid entities and which are not.

As no two recently published works or papers have the same species-level taxonomy, this paper has concentrated in its mission to simply identify unnamed forms for which there are no available synonyms.

This includes taxa first identified by others in molecular studies as potentially distinct some years before today's date and then obviously not further investigated by those authors.

The timing of this paper is delayed in that I waited more than a decade to allow others the opportunity to name forms they had potentially identified in studies, without risk of being "scooped", by myself.

To that end, ten species were named by others in the post 2000 period, which I would have otherwise named myself.

These are:

Ctenotus halysis Horner, 2009

Ctenotus kutjupa Hutchinson, Prates and Robovsky, 2022

Ctenotus mesotes Horner, 2009

Ctenotus ora Kay and Keogh, 2012

Ctenotus pallasotus Rabosky and Doughty, 2017

Ctenotus quirinus Horner, 2007

Ctenotus rhabdotus Rabosky and Doughty, 2017

Ctenotus rosarium Couper, Amey and Kutt, 2002

Ctenotus superciliaris Rabosky, Hutchinson, Donnellan, Talaba and Lovette, 2014

Ctenotus vagus Horner, 2009

None of these authors have in the period post dating end 2022 indicated any desire to name any further species within putative *Ctenotus sensu lato*, as has been the case for all other publishing Australian herpetologists who have similarly indicated a lack of interest.

I had expected that in particular, following the publication of Singhal *et al.* (2017) it was expected that some authors would follow up the leads the paper generated to name a sizeable number of candidate species.

However just three have been named since the 2017 paper.

The vast bulk of recognized species in *Ctenotus sensu lato* were named by the late Glenn Storr of the Western Australian Museum and he died in 1990.

Since then, the people in charge of herpetology at the Western Australian Museum seem to have all but given up on doing original research and instead merely waste time and money on taxpayer funded holidays and produce little in result.

Their most notable herpetological works have been along the lines of stealing works of earlier authors, renaming the same taxa in breach of the *International Code of Zoological Nomenclature* and the Australian Copyright Act 1968, and then lying by claiming to have "discovered" the very same species.

Examples include:

1/ *Acanthophis cryptamydros* Maddock, Ellis, Doughty, Smith and Wüster, 2015.

The authors falsely alleged *Acanthophis lancasteri* Wells and Wellington, 1985 being a name properly applied to the same species for decades, did not comply with the ICZN code (Maddock *et al.* 2015, Hoser 2016g, Wellington 2016).

This clear egregious act of name theft, didn't stop the Wüster cohort from claiming to have "discovered" the species and posting this alleged "fact" all over the internet (Maddock 2015).

2/ *Gehyra arnhemica* Oliver, *et al.* 2020.

In this case the authors cited an online diatribe known as Kaiser *et al.* (2013) to ignore the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as a basis to illegally overwrite the correct name for the species *Phryia paulhorneri* Hoser, 2018.

3/ *Gehyra capensis* Kealley *et al.*, 2018.

Done by the same group as above, in a paper in which they simply effectively lifted material from an earlier paper of Hoser (2018) to rename *Dactyloperus bulliardi* Hoser, 2018 some weeks after the publication of Hoser (2018).

4/ *Suta gaikhorstorum* Maryan *et al.* 2020.

This time Brad Maryan and his cronies again cited their cohort's online diatribe known as Kaiser *et al.* (2013) to ignore the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as a basis

to illegally overwrite the correct name for the same species being *Feresuta hamersleyensis* Hoser, 2018.

5/ *Varanus citrinus* Pavón-Vázquez, Esquerré, Fitch, Maryan, Doughty, Donnellan and Scott Keogh, 2022.

On this occasion they gave no reason in their paper for their attempt at renaming *Worrellisaurus scotteipperi* Hoser, 2018 or alternatively known as *Varanus scotteipperi* (Hoser, 2018), but in an earlier paper, namely Esquerré, Maryan, Doughty, Donnellan and Scott Keogh, they cited their cohort's online diatribe known as Kaiser *et al.* (2013) to ignore the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as a basis to illegally overwrite the correct name for the same species.

These are just some of many such examples.

I should also make it clear that the newer coined names are illegal and should never be used as correct for the relevant taxa. They can and should however appear in synonyms lists.

In other words, the correct names for the above taxa are as follows:

1/ *Acanthophis lancasteri* Wells and Wellington, 1985

2/ *Phryia paulhorneri* Hoser, 2018

3/ *Dactyloperus bulliardi* Hoser, 2018

4/ *Feresuta hamersleyensis* Hoser, 2018

5/ *Worrellisaurus scotteipperi* Hoser, 2018

As part of the Wolfgang Wüster cohort, these individuals have collectively as of May 2024 renamed over 100 taxa to create unnecessary junior synonyms in Zoology, which will in effect plague other zoologists for centuries to come.

With the exception of Wells and Wellington (1984 and 1985) all relevant publishing authors post-dating Cogger *et al.* (1983) have placed all the species subject of this paper, being small skinks, into the all-encompassing genus *Ctenotus*.

At the time Cogger *et al.* (1983) was published there was some merit in this position because all the relevant species are morphologically similar.

They are active, diurnal, fast-moving lizards of athletic form. Most species are of medium size and with stripes in some form on their body.

Counter to this, Wells and Wellington (1984, 1985) divided the genus along what they believed to be like or similar species groups, erecting four new genera.

While modern molecular studies have confirmed that all *Ctenotus*, being the group with a type species *Lacerta taeniolata* Shaw, 1790 form a monophyletic group (e.g. Pyron *et al.* 2013), the depths of some of these divergences in the same results adds reason to the divisions made by Wells and Wellington (1984-5) and so where appropriate I follow their lead here.

This is done to be consistent with generic level divisions in other Australian lizards as is done today (2024) in Australia. This means that *Ctenotus* must be split to genus level groups with a roughly similar

divergence as the other lizard genera are split.

Where published phylogenies indicate a likely 10 MYA or more split from the type lineage/s, I have opted to place them within the most appropriate genus-level grouping for which there is an available name.

In light of molecular data unavailable to Wells and Wellington in 1984 and 1985, a number of species they assigned to their various generic groupings should in fact be placed in others.

Notwithstanding this, their type species allocations did in fact capture all four of the major sub-clades within *Ctenotus sensu-lato*, meaning that if *Ctenotus sensu-lato* were split, the three relevant new Wells and Wellington names would be the ICZN priority names.

That applies if they are used as genera or subgenera.

So that people are aware of what formal names and groupings were proposed by Wells and Wellington in 1984 and 1985, I list the relevant ones here noting that the type species indicates the relevant species groups:

Kommosagogus Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839.

Magnuscincus Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866.

Minervascincus Wells and Wellington, 1984 type species: *Tiliqua essingtonii* Gray, 1842

Tantaloscincus Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863.

Singhal *et al.* (2017) in their phylogeny published in their Fig. 2. effectively confirm the generic arrangement (or if preferred subgeneric arrangement) of Wells and Wellington (1984) as correct save for the fact that it appears that *Minervascincus* should be subsumed into *Ctenotus*.

Pyron *et al.* (2013) had a similar phylogeny and inferred result.

In light of the divergences, I have opted to treat the other three preceding Wells and Wellington names as full genera for the purposes of this paper and in effect am ignoring the ICZN available name *Minervascincus*, treating it as a junior synonym of *Ctenotus*.

If one were to accept *Minervascincus* as a valid genus or subgenus, which can be argued, this would in turn necessitate other subgroups within *Ctenotus* as similarly divergent genera or subgenera, which would also require new names.

Conservatively, and in light of my previous comments, I have chosen not to do this.

I note that there was in 1987 an ultimately unsuccessful attempt by Richard Shine and the Wolfgang Wüster gang of thieves to have the *International Commission of Zoological Nomenclature* (ICZN) to formally erase the Wells and Wellington publications from the scientific record (ICZN 1991).

The plan was to erase the names of Wells and

Wellington, known to be generally correctly assigned to previously unnamed species and genera so that the Wüster gang could then rename all the same species and genera and make the false claim of "discovery".

See the example of the renaming of *Acanthophis lancesteri* Wells and Wellington, 1985 by the cohort as detailed above and there are numerous other examples with respect of the Wells and Wellington (1984, 1985) papers and names within them.

Following the defeat of the gang in their application in 1991, the same gang had another attempt at suppressing the Wells and Wellington names and failed again (ICZN 2001).

In 2021, the Wüster gang of thieves lost a third application along similar lines (ICZN 2021), this time trying to erase my own publications which had quite appropriately adopted and used the Wells and Wellington taxonomy and nomenclature when seen as the correct concepts (which in fact applied to the overwhelming bulk of their works).

As mentioned already, in the case of the genus *Ctenotus sensu lato*, the works of Pyron *et al.* (2013) and Singhal *et al.* (2017) in their phylogeny published in their Fig. 2. effectively confirmed the broad generic arrangement (or if preferred subgeneric arrangement) of Wells and Wellington (1984) as correct.

The argument against the Wells and Wellington action of dividing *Ctenotus sensu lato* that "all the species are monophyletic" is a ridiculous one in that everything is monophyletic if you go back far enough!

Cogger *et al.* (1983) published their catalogue of Australia's herpetology, including known species, genera and synonymies.

In general, when in doubt, Cogger *et al.* (1983), would synonymise entities. This was done to appease associates he worked with and at time in defiance of biogeographic realities.

Notwithstanding this, the near comprehensive bibliography published by Cogger *et al.* (1983) was and remains one of the most valuable bits of published infrastructure for ongoing work on the taxonomy of Australia's reptiles and frogs.

Much to the chagrin of Cogger and others in the Australian herpetological community, Wells and Wellington published two major papers (Wells and Wellington, 1984, 1985) which forensically went through the Cogger *et al.* (1983) document and combined it with their own extensive knowledge of Australia's herpetology and biogeography to effectively rewrite the taxonomy and nomenclature of Australia's herpetology.

They named hundreds of new genera and species, almost all being done on the basis of splitting larger entities.

That the pair were generally correct in their assessment was well known at the time and because the two men, Wells and Wellington, had, or so it

seemed, named pretty much everything previously unnamed in Australian herpetology (especially at the genus level), other Australians aspiring to be recognized taxonomists saw their future dreams shattered by the actions of Wells and Wellington.

The work of Cogger *et al.* (1983) was also made effectively redundant within 24 months of publication in that anyone working on the taxonomy of Australian reptiles and frogs would be forced to consult both Cogger *et al.* (1983) and Wells and Wellington (1984 and 1985) for synonymies and available names for taxa before daring to attempt to name anything new in Australian herpetology.

Mention of all this is to draw attention to the fact that in the few paragraphs that deal with the taxonomy and nomenclature of *Ctenotus sensu lato* in Wells and Wellington (1984 and 1985), these authors were alone in presenting an accurate and proper taxonomy and nomenclature for both species and genera.

Those papers also named new and valid species, which I note have been ignored as "non-existent" ever since by the majority of herpetologists in Australia.

One of these is *Kommosagopus hickmani* Wells and Wellington, 1985 which appears to be a valid species-level taxon based on several factors.

Another is "*Minervascincus monaro* Wells and Wellington, 1985", which appears to be an obvious species based on the biogeographic reality of its distribution and morphological divergence from its nearest previously named relative.

In order to encourage one or more other people to create an unwanted junior synonym of "*M. hickmani*" the Wolfgang Wüster gang of thieves through their agent Peter Uetz and his "The Reptile Database" have pretended that the taxon does not exist.

It is not listed in any way on their allegedly complete online database of reptile species and names.

On the most relevant page, that for "*Ctenotus catenifer* STORR, 1974" posted at:

https://reptile-database.reptarium.cz/species?genus=Ctenotus&species=catenifer&search_param=%28%28genus%3D%27CTENOTUS%27%29%29

there is no reference to the Wells and Wellington *Kommosagopus hickmani* name in any way, or even as a synonym.

There is no reference to their 1984 or 1985 papers and of course Uetz does not have a page for the species either.

Put simply, they are scandalously pretending that the Wells and Wellington papers and putative species and available name for it, does not even exist.

The issue here is that the putative species has a limited distribution in an area of intense human population growth and activity, and it would be a tragedy if it became extinct due to the reckless actions of Wüster and his agent Peter Uetz (Hoser, 2019a, 2019b).

Other relevant Wells and Wellington names are simply either ignored or otherwise generally listed in synonymies on "The Reptile Database" as "*nomen nudum*", which when cross-referenced with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) is invariably simply not the case.

The occasional use of a few Wells and Wellington names on the Uetz site is a deliberate ploy to recklessly lead people to believe that all their names on there when most are not!

Uetz employs the same reckless behaviour with respect of "Hoser names" as an act to encourage others to rename entities he and the Wüster gang of thieves knows have already been named (see Hoser 2007, 2009, 2012a, 2012b, 2013, 2015a-f, 2016, 2019a-b).

The creation of dozens of unusable junior synonyms as a result will clutter up the biological sciences through excessive synonym lists for centuries to come!

In my own audit of the relevant lizards within *Ctenotus sensu lato* some 39 years later and with the added benefits of molecular studies not available to Wells and Wellington more than 39 years back, I found that alone among Australian herpetologists, Wells and Wellington (1984 and 1985) had got the genus and species level taxonomy of the group largely correct and to a degree no other Australian herpetologists came close to.

My relatively broad adoption of the Wells and Wellington taxonomy as relevant in this paper is not a favour to them or done because of any personal attachment.

Quite the opposite in fact.

In the early stages, it was apparent and self-evident that there were divergent apparently unrecognized species and genus groups with *Ctenotus sensu lato*.

Had Wells and Wellington not reassigned some to other genera which they named, I would have done so much the same here and people would have "Hoser" names instead.

The accuracy of the Wells and Wellington (1984 and 1985) taxonomy is seen in that they recognized five main genus groups, naming four and this has in effect been validated by the phylogenies of Pyron *et al.* (2013), Singhal *et al.* (2017) in their phylogeny published in their Fig. 2 and others, save for the erection of *Minervascincus*.

Under the direction of his master in crime Wolfgang Wüster, Peter Uetz regularly erases scientific names and authors from his "The reptile database" and recently removed over 1000 Russian names and papers from his database in protest at the Ukrainian war.

He called the taxonomic and nomenclatural chaos he created "*collateral damage*" (Uetz 2022a-b).

More recently in March 2024, it was suggested Uetz was intending to remove all names and publications of, or honouring Jewish scientists on his database, being

a few thousand more entries, this time in protest of the Israeli Defence Forces (IDF) bombing kidnappers hiding in hospitals, schools and Mosques in the Gaza Strip.

To get a general idea of the kind of people who are in the Wolfgang Wüster gang of thieves, see Mackay (2024) who details the unlawful actions of gang member Adam Britton.

Among other things, Britton pled guilty in 2023 to raping people's pet dogs and after anal intercourse, posting the videos on the internet. He was also dealing in kiddie porn.

Another member of the Wüster cohort was found by a judge in Australia to have raped and bashed women and children more than 1,000 times, but his name has been suppressed by a later judge on application for a suppression order by the same person.

Another member of the cohort, Jamie Benbow, has been convicted of large-scale drug trafficking, committed wildlife crime and after a stint in jail is now back on the streets and out at large creating more yet more damage.

Two other members of the gang, Don Broadley and Bil Branch procured little black African boys for anal sex for years.

David John Williams, Wüster gang member, has a sordid past including being convicted and fined \$7500 for egregious acts of wildlife trafficking and animal abuse (see also Hoser, 1993, 1994, 1996, 1999a-b).

Another gang member, Seth Pywell was convicted of shooting an aboriginal, which is rare in Australia.

The act of shooting an aboriginal is not uncommon in Australia, it is being convicted of shooting one that is.

Fortunately, the reckless unscientific and illegal actions of the Wolfgang Wüster gang will not stop the progress of science, even if it takes longer to get the results of research out to the wider scientific community.

MATERIALS AND METHODS

Preceding this paper and as a methodology, all the relevant published literature, as cited below, was reviewed to 1/ Confirm that the previously named taxa in *Ctenotus sensu lato* were valid species and correctly assigned at the genus level.

2/ Flag any potentially unnamed forms at genus or species levels, including subgenera or subspecies.

This was backed up by way of inspection of specimens, alive, dead, in photos and preserved in museums.

Inspection of specimens from the relevant areas was done to confirm what was mooted by way of literature review and the unnamed taxa flagged in relatively recent molecular studies.

I should have made it clear that this publication was deliberately not created until more than 6 years after the publications of Pyron *et al.* (2013), Singhal *et al.*

(2017) and others and more than a year after the most recent relevant papers on the genus flagging an intent to name any taxa, to allow the relevant authors ample time to name any candidate species of their choice and without fear of being pipped by someone else.

However, no one in zoology has a right to monopolize a taxon indefinitely in a way that ultimately hampers science.

On this basis I have no hesitation in naming all the relevant identified 39 species and 11 subspecies in accordance with the rules of the *International Code of Zoological nomenclature* (Ride *et al.* 1999) as amended (ICZN 2012).

Publicly available sequences available at Genbank were downloaded and analysed using Mega11 (Tamura *et al.* 2021) and checked against previously published phylogenies using the same data.

Similar to the methodology employed by Colgan *et al.* (2009) and Sadlier *et al.* (2019), MEGA version 11 (Tamura *et al.* 2021) was downloaded from the web and used to calculate Kimura 2-parameter (K2P) genetic distances with pairwise deletion of missing data and assuming a discrete approximation

to the gamma distribution for modelling rate variation between sites (a shape parameter set to 1.0).

Standard errors of the distances were estimated by a bootstrap analysis with 500 replicates.

The upper limit of the divergence rate generally assumed for substitution in cytochrome b in reptiles is 2.5% per million years (Crochet *et al.* 2004).

Assuming this rate as correct, as was done by Colgan *et al.* (2009), it was decided that where *Ctenotus* clades had apparently diverged beyond 1.75 MYA, the relevant lizard groups were assessed to see whether or not they were: 1/ Morphologically diagnosable as separate species and 2/ If a likely or logical biogeographic factor causing isolation of populations could be identified.

The latter may be:

A/ Habitat barrier/s (e.g. soil type, vegetation type, rock type, etc),

B/ Competing or predatory species in an area or

C/ Presumed past climatic events that may have facilitated either of the prior types of factor.

Where applicable, if a case for separation of populations was made out, due to morphological divergence, but date of divergence was not believed to be great, then I opted to make the relevant taxa subspecies.

Publications relevant to the taxonomy and nomenclature of the species within *Ctenotus sensu lato* and the final decisions made herein included Anonymous (1969, 2004), Aplin and Adams (1998), Barr *et al.* (2018), Bauer (1999), Boulenger (1887, 1896), Bowles (2000), Broom (1898), Brown (2014, 2023), Browne-Cooper and Maryan (1990), Brygoo (1985), Cavalcanti *et al.* (2023), Ceraico *et al.* (2023),

Chiacchio *et al.* (2020), Cogger (2014), Cogger *et al.* (1983), Colgan *et al.* (2019), Conroy (1999), Copland (1947), Cotton (2014), Couper and Pianka (1997), Couper *et al.* (2002, 2006), Covacevich *et al.* (1998), Crochet *et al.* (2004), Czechura (1986), Czechura and Wombey (1982), D'Amore (2018), Daudin (1802), Dawson *et al.* (1996), de Rooij (1915), Dittmer *et al.* (2020), Duméril and Bibron (1831), Edwards *et al.* (2012), Ehmann (1992), Eldridge *et al.* (2022), Ellis (2015), Even (2005), Fischer (1882), Ford (1963, 1969), Garnham and Osborne (2020), Glauert (1952, 1960), Goodyear and Pianka (2011), Gray (1838, 1842, 1845), Greenbaum (2000), Greer (1981, 1989), Grimm-Seyfarth *et al.* (2019), Hallermann (2020), Harp *et al.* (2010), Hawkeswood (2021), Henle (1996), Horner (1991, 1995, 2007, 2009), Horner and Fisher (1998), Horner and King (1985), Hoser (1989, 1991, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2023a, 2023b, 2023c, 2023d, 2024), Hutchinson and Donnellan (1992, 1999), Hutchinson *et al.* (2006, 2021), Ingram (1979), Ingram and Czechura (1990), James and Shine (2000), Jenkins and Bartell (1980), Jennings and Thompson (1999), Kay and Keogh (2012), Kay *et al.* (2013), Kearney *et al.* (2021), King *et al.* (1988), Kinghorn (1924), Kwet (2023), Kuhl (1820), LaCépède (1804), Lesson (1830), Licht *et al.* (1966a, 1966b), Love (2017), Loveridge (1933), Lucas and Frost (1894, 1895), Macleay (1877), Maryan (2005, 2013), Maryan and Gaikhorst (2022), Maryan *et al.* (2002), Mertens (1967), Michael *et al.* (2011), Mitchell (1949), Mo (2015), Montague (1914), Moro and MacAulay (2010), Mosyakin (2022), Murphy (1998), Murphy and Murphy (2015), Peters (1863, 1866, 1874), Peterson and Shea (1987), Pianka (1969a, 1969b, 1972), Pike *et al.* (2020), Prates *et al.* (2021, 2022a, 2022b, 2023), Punzo and Madragon (2022), Pyron *et al.* (2013), Rabosky *et al.* (2009, 2014, 2017), Rankin (1978), Rankin and Gilam (1979), Reeder (2003), Ride *et al.* (1999), Rosen (1905), Roux-Estève (1979), Sadlier (1985, 1987, 1993), Sadlier *et al.* (1985, 2019), Siebenrock (1892), Schlüter and Hallermann (1997), Simpson *et al.* (2024), Singhal *et al.* (2017, 2018, 2022), Shea and Sadlier (1999), Smith (1937), Smith and Stow (2008), Sternfeld (1919, 1925), Stirling and Zietz (1893), Storr (1969, 1970, 1971, 1974, 1975, 1978a, 1978b, 1978c, 1979a, 1979b, 1980a, 1980b, 1981, 1985, 1987, 1988, 1990), Storr *et al.* (1981, 1999), Swan *et al.* (2022), Swan and Watharow (2005), Swanson (1976), Tamura *et al.* (2021), Taylor (1985, 1986), Tittle *et al.* (2024), Virens *et al.* (2017), Warburg (1966), Watharow (1988), Wells and Wellington (1984, 1985), White (1790), Wilson (2022), Wilson and Couper (1995), Wilson and Knowles (1988) and sources cited therein.

RESULTS

Following both literature review, including reviewing the available published molecular data as outlined above, and direct inspection of relevant specimens, it was deemed appropriate to erect a new genus for the so-called wedge-snouted species and to formally

describe a number of new species and subspecies, being 39 and 11 respectively.

Where no changes to taxonomy or nomenclature were required there is no mention of this in the results below or elsewhere in this paper, unless explicitly relevant.

I should note that the entire genus *Ctenotus* was reviewed as was literature relevant to all species and original descriptions.

Many, but not all the following species and subspecies-level divisions occurred across well known biogeographic barriers that have affected other Australian species of reptiles and frogs that occupy like habitats.

There are numerous papers that identify many of these barriers, in particular the major ones, including dozens of papers that I have published in the previous decade in *Australasian Journal of Herpetology*.

In terms of frogs, two Australia-wide reviews that at times split species across relevant barriers that also affected the skinks subject of this paper are the extensive monographs of Hoser (2020a, 2020b).

In terms of the reptiles and other small lizards in particular, some relevant recent papers with relevant divisions of putative taxa across well-known biogeographical barriers include Hoser (2022a-c, 2023a-d, 2024).

A NEW GENUS

The new genus is formally described herein called *Matherus* gen. nov. with a type species of *M. matheri* sp. nov..

This group also consists of "*Ctenotus tantillus* Storr, 1975" and closely related taxa.

Not only were various phylogenies consistent with this decision (e.g. Singhal *et al.* 2017), but so too was the level of consistent morphological divergence of the group.

This group is not as divergent as the three Wells and Wellington (1984) genera recognised in this paper, but in my view sufficient to warrant genus-level recognition nonetheless.

A more conservative view would be to treat it as a subgenus.

NEW SPECIES

The following putative species or groups as listed below were also split and new taxa formally named in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) as amended (ICZN 2012). They were all formally named in the absence of available junior synonyms.

The summary of these results are as follows:

CTENOTUS PALLASOTUS

Putative *Ctenotus pallasotus* Rabosky and Doughty, 2017 a taxon with a known occurrence of the Pilbara district in Western Australia is split three ways across the two best-known biogeographic barriers in the region relevant to reptiles, based on both

morphological divergences and the molecular results of Singhal *et al.* (2022).

C. pallasotus Rabosky and Doughty, 2017, type locality of "24 km south-east of Paraburdoo, quadrat TCMB03 of the Pilbara Biodiversity Survey, WA, Australia" (Latitude -23.2023 S., Longitude 117.4804 E.) is herein confined to the main Pilbara district south of the Fortescue River.

Ctenotus celerrimus sp. nov. is the taxon from the Cape Range in Western Australia and *C. ieiummovens* sp. nov. is that from north of the Fortescue River in the Pilbara region of Western Australia.

CTENOTUS PIANKAI

C. piankai as recognized in 2024 is split into two. The eastern population (eastern NT and western Queensland) is formally named *C. whatdafuk* sp. nov.. The remainder, being a taxon principally of the interior of Western Australia (type locality, Laverton, WA), remains as *C. piankai*.

CTENOTUS SERVentyi

C. serventyi Storr, 1975, with a type locality of Christmas Creek in the south-west Kimberley district of Western Australia, (Latitude -18.53 S., Longitude 124.53 E.) is clearly composite. See Singhal *et al.* (2022) at Fig 2 on page 8.

The taxon is split two ways.

C. serventyi is restricted to the type locality and nearby parts of the south-west Kimberley District of Western Australia. Even this population is probably composite. See Singhal *et al.* (2022) at Fig 2 on page 8.

The population from the Pilbara is herein formally described and named as *C. absconditus* sp. nov..

CTENOTUS ARIADNAE

Ctenotus ariadnae Storr, 1969, with a type locality of 24 miles east north-east of Laverton, Western Australia, Australia, (Latitude 28.31 S., Longitude 122.45 E) is formally split two ways.

The new and divergent species named *Ctenotus abba* sp. nov. occurs from the region of the border between Queensland and South Australia and including far southeastern Northern Territory.

In turn *C. ariadnae* is now confined to the interior of Western Australia as well as immediately adjacent parts of far north-west South Australia and far south-west Northern Territory.

CTENOTUS QUATTUORDECIMLINEATUS

Singhal *et al.* (2017) in their published phylogenies in their Figs 1 and 2, showed that *C. quattuordecimlineatus* with a type locality of Hermannsburg Mission, Upper Finke River, Northern Territory, Australia actually consisted of two very divergent lineages that were not particularly closely related to each other.

The bulk of the population of the putative species was in fact another species and that is formally named as

Ctenotus vultharenae sp. nov..

It is the main West Australian population of what has until now been putative *C. quattuordecimlineatus*.

CTENOTUS ORIENTALIS

The divergent southwestern Australian population of putative *C. orientalis* Storr, 1971, type locality Ouyen, Victoria, Australia (Latitude 35.0726 S., Longitude 142.3188 E.) has a divergence of an estimated 2 MYA from the type form and is formally named herein as a new species *Ctenotus inveneruntusquam* sp. nov..

In the absence of molecular evidence one way or other, but in the face of consistent morphological divergence and biographic trends with respect of other Australian reptiles, including for example, species within *Tympanocryptis* Peters, 1863 as outlined in Hoser (2019a, 2019b) the putative taxon *C. monaro* Wells and Wellington, 1985 is tentatively recognized herein as a valid species.

Contrary to the assertion by Wolfgang Wüster and his agent Peter Uetz on their website "The Reptile Database", the name *Minervascincus monaro* Wells and Wellington is NOT a "*nomen nudum*" as alleged by them without evidence.

The false claim of *nomen nudum* is a prelude to members of their own cohort breaking the rules of *International Code of International Nomenclature* (Ride *et al.* 1999) and engaging in taxonomic vandalism to break the Copyright Act 1968 by renaming the same taxon and then improperly promoting their own name as the correct one.

In passing I note that repeated claims by Shea and Sadler (1999) alleging that most Wells and Wellington names are "*probably nomen nudum*" are bare-faced lies.

A population of putative *C. orientalis* from region of the South Australia and Queensland border was found by Singhal *et al.* (2017) to be more closely associated with *C. astarte* Czechura, 1986, found further north-east in inland Queensland, and with a divergence I estimated as being just under 1 MYA between the two. This allowed for an argument to be made to fully subsume it within this latter taxon (see their Figs 1 and 2).

However due to the divergence in form and likely evolutionary trajectory of the population, noting a mere 40 km at most separating the two populations and an apparent divergence of them based on the molecular results as compared to other putative *C. Astarte* from considerably further north relevant to the type population, I herein formally name putative *C. orientalis* from the region of the South Australia and Queensland border as a subspecies of *C. astarte*, being *C. astarte eyreensis* subsp. nov.

CTENOTUS LEONHARDII AND CTENOTUS HEBETIOR

Ctenotus leonhardii (Sternfeld, 1919), with a type locality of Hermannsburg Mission, Upper Finke River,

Northern Territory, Australia as designated by Mertens (1967) has long been recognized as a composite species with divergent lineages.

Closely associated to this taxon is *Ctenotus hebetior* Storr, 1978 long recognised as a separate species and also containing divergent lineages within the populations referred to the taxon.

With the unavailability of synonyms and based on significant, species-level divergences of the relevant populations, I have no hesitation at all in formally naming the south-west Australian and north-west New South Wales populations as separate species.

These are *C. ap* sp. nov. for the south-west Australian population and *C. taxi* sp. nov. for the NSW population. With respect of *C. hebetior* Storr, 1978 the genetic evidence (sequence divergences) and morphological evidence suggests three divergent lineages that diverged from one another around 1.5 MYA. One of these sublineages has an available name, and so the Selwyn Range animals are known herein as *C. hebetior schuettleri* Börner, 1981, although they are in fact best regarded as a full species.

The population from north-east Queensland, generally centred around the upper Burdekin River basin is herein formally described as *C. cab* sp. nov..

CTENOTUS PULCHELLUS

Molecular evidence flagged putative *C. pulchellus* Storr, 1978 as comprising two species groups (Singhal *et al.* 2017) but has not to date been actioned or investigated by anyone.

At a glance the relevant lizards looked morphologically identical, and it appeared from the distribution maps (e.g. Atlas of Living Australia) that the distribution of the putative species was effectively continuous from central western Queensland to the east of the Northern Territory and into the middle of that state.

However, a reassessment of the genetic samples showed that the samples grouped strongly between those from Queensland versus those from Brunette Downs in the Northern Territory, again flagging a separate species with a divergence in excess of 2 MYA.

The known ranges of each group was plotted and showed the nominate form (type locality of 72 km north, north-east of Mount Isa, Queensland) having a distribution exclusive to the Selwyn Range and outliers, including to the north-west and south-east and the western population occurring from Brunette Downs on the Barkly Tableland northwest to the interior of the Northern Territory.

Significantly the gap zone was nearly 200 km in diameter and black soil habitat.

This habitat is point blank uninhabitable for the relevant species group and another group of reptiles in the form of Death Adder snakes.

Plotting the distribution of these lizards against Death Adders (Genus *Acanthophis* Daudin, 1803), showed

they too were constrained and speciated across the very same barrier.

The distribution of putative *C. pulchellus* and Death Adders across the entire part of the top end of Australia was nearly identical! Likewise for the associated taxa *C. militaris* Storr, 1975 and *C. gagudju* Sadlier, Wombey and Braithwaite, 1986, which range between the top end of the Northern Territory and the Kimberley district of north-west Western Australia. To the west of the barrier is the taxon *Acanthophis hawkei* Wells and Wellington, 1985 and to the east the Mount Isa Death Adder, *Acanthophis woolfi* Hoser, 1998 (a taxon often erroneously identified in the literature as *A. rugosus* Loveridge, 1948, being a very different taxon from south New Guinea).

It is of course biogeographically impossible for the Death Adders in Merauke New Guinea (Indonesian side) to be of the same species as the inland Australian species from the Selwyn Ranges, Queensland, Australia, but Wolfgang Wüster has mischievously peddled this lie to prevent uptake and usage of the "Hoser" name *Acanthophis woolfi* Hoser, 1998.

With a biogeographical barrier found and matched with a divergence of over 2 MYA, it made sense to reassess the two populations of putative *C. pulchellus*. On closer inspection, there were in fact consistent identifiable differences between the eastern and western populations of the putative taxon and so I have had no hesitation in formally naming the unnamed western form as a new species, namely *C. fukdat* sp. nov.

CTENOTUS MILITARIS

In terms of putative *C. militaris* there are three distinct and disjunct populations.

Those from the south-west Kimberley are so different in form to the nominate form, they must be of a separate species.

Colouration-wise they are reminiscent of *C. gagudju*. Biogeographically, it is a common occurrence that west and east Kimberley reptile taxa form species pairs being unable to cross flat rock free habitat between these general zones.

Self-evidently south-west Kimberley putative *C. militaris* fit within that genre and I have no hesitation at all in formally naming it a new species *C. dakotabarnettae* sp. nov.. The specimens from the upper Victoria River region of the western Northern Territory are also different in form to the nominate form of *C. militaris*.

However this divergence is less and so too is the geographical distance between known specimens.

Divergence of reptile taxa across this barrier is also less frequent with some rock and sand-dwelling species able to cross and others not.

In the absence of molecular data, I conservatively formally describe that taxon as a subspecies, namely *C. militaris gurindji* sp. nov..

CTENOTUS ARCANUS

The Queensland species *C. arcanus* Czechura and Wombey, 1982 with a type locality of Cooonoon Gibber Creek, Conondale Range, south-east Queensland, Australia comes in three known forms.

The type form has a single row of yellow-white spots running half or all the way along the upper lateral black band. Another form apparently confined to North Stradbroke Island and the adjacent coastal fringe of the region from North Stradbroke Island to the lower Gold Coast has two rows of small spots along the black band on the upper flank.

A third form with only a small number of spots, semi-distinct at that, running along the anterior part of the black band on the upper flank occurs in the Eungella region of central-east Queensland.

In the absence of molecular evidence of divergence, each is herein formally named as new subspecies being, *C. arcanus quandamooka* subsp. nov. for the North Stradbroke Island taxon and *C. arcanus birriwirri* subsp. nov. for the Eungella population.

CTENOTUS ESSINGTONII AND ASSOCIATED TAXA

Molecular phylogenies have shown putative *C. essingtonii* (Gray, 1842) from the top end of the Northern Territory to comprise three species level divergent lineages. This is in addition to the closely related lineage *C. arnhemensis* Storr, 1981 (Singhal *et al.* 2017).

With each readily diagnosable, allopatric across known biogeographical breaks and divergent at an estimated 2 or more million years from one another, I have no hesitation in naming each of the unnamed clades as new species.

These are *C. adelynhoserae* sp. nov. from the Litchfield National Park and Daly River district and *C. jackyhoserae* sp. nov. from the Darwin and Kakadu areas. *C. essingtonii* with a type locality of Port Essington in the Northern Territory is so far as is known is actually confined to that exact area, as in the Cobourg Peninsula.

The species status of putative *C. essingtonii* from east of the Coburg Peninsula is not yet known.

West of that area, one finds *C. jackyhoserae* sp. nov. and further west of the Stuart Highway one finds *C. adelynhoserae* sp. nov..

Other species in the preceding Northern Territory distributed species group were also assessed, including *C. coggeri* Sadlier, 1985, *C. quirinus* Horner, 2007 and *C. vertebralis* Rankin and Gillam, 1979.

C. vertebralis has a type locality of type locality of Arnold River, Cox River Station, south-west Gulf of Carpentaria region of the Northern Territory, Australia, (Latitude -15.43 S., Longitude 134.32 E.).

Specimens from this relatively confined area of the type locality, being well south of the Roper River are radically different in morphology to those from the Arnhem Land escarpment region within the range of

the putative taxon found to the north.

With different habitats inhabited, tied in with significant morphological divergence and a biogeographical break between the populations, being relatively flat, rock free lowland areas, I have no hesitation at all in recognising the northern population with a distribution centred on the hilly Arnhem Land escarpment region of the Northern Territory as a new species. This is herein called *C. merciecai* sp. nov..

In addition an isolated population of putative *C. vertebralis* to the south-east of the main Arnhem Land escarpment centred on the Strangeman's Range of the Northern Territory is morphologically divergent and separated from both other populations.

Geographically allopatric from both and from a location between the two this population is in some ways intermediate in morphology between the two.

This is mainly in terms of dorsal colouration. But in other ways this taxon is divergent from both the others (as a pair) and in such a way as to imply this is not merely a clinal form, but rather a taxon that has evolved in isolation from the other two for an extended period of time.

Because it is so different from either *C. vertebralis* and *C. merciecai* sp. nov. as it has clearly been isolated for an extended period of time, I have had no hesitation in also formally naming it as a new species, *C. binghami* sp. nov..

Some people suggested that the species *C. astictus* Horner, 1995 was conspecific with one or other of *C. vertebralis*, *C. merciecai* sp. nov. or *C. binghami* sp. nov., but it is in fact a very different animal. *C. astictus* is depicted in Wilson and Swan (2021) on page 259 top right, or if the book is unavailable can be seen online (as the holotype) at: <https://www.gaiaguide.info/Group.html?hierarchyId=k6q6eQR2&groupId=HRnRtiV4>

C. astictus has 2-4 ear lobules and an obviously much wider second supraocular scale, versus 4-6 ear lobules and a normal width second supraocular scale (but slightly wider than the first) in *C. vertebralis*, *C. merciecai* sp. nov. and *C. binghami* sp. nov..

CTENOTUS LATERALIS AND CTENOTUS EUTAENIUS

Two available DNA sequences for putative *Ctenotus lateralis* Storr, 1978 with a type locality of 14 km north of Mount Isa in Queensland, Latitude -20.37 S., Longitude 139.32 E were inspected.

A third specimen sample from the same putative taxon that was acquired from near Winton, Queensland, being about 468 km by road to the south-east showed species-level divergence (estimated at between 1.5 to 1.8 MYA).

Inspection of specimens from both general areas yielded significant and consistent differences in morphology, leading to further inspection of specimens from the entire known distribution of the putative species, including those from north-east Queensland.

It appeared that the specimens from north-east Queensland were conspecific with an associated species, namely *Ctenotus eutaenius* Storr, 1981 which is also within the same species group and based on DNA, slightly more divergent from the other species pair.

To that extent they had a name and were not of taxonomic or nomenclatural significance save for being a part of the inspection of the overall group and to work out distributions of each and biogeographical barriers affecting them.

The new species from further south, herein formally named *C. arabanoo* sp. nov., seemed to have a distribution almost abutting that of *C. lateralis* but the barrier to dispersal of either form was obvious in that it was the black soils of the upper Diamantina drainage system, running north to about Kyuna, Queensland, (Latitude 21.5790 S., Longitude 141.9211 E.). Completing this biogeographical break is the extensive Flinders River system, abutting the same general location.

The Flinders River system combined with the upper Coopers Creek system to the east of Winton also separates the eastern population of the complex, namely *Ctenotus eutaenius* from both other species.

This in turn explains the obvious species-level divergence between the three sibling species.

All three species appear to be unable to disperse beyond their preferred habitat of elevated vegetated gravelly and stony hills and are simply unable to pass extensive and wide black soiled areas.

Hence in naming *C. arabanoo* sp. nov. as a new species it is worth noting that there is a molecular basis, morphological basis and a biogeographical basis, which is literally as good as it gets for these things.

It is notable that when revisiting DNA sequences for the taxon *Nephrurus saxacola* (Hoser, 2016), a similar divergence was found between north and south populations (1.6 to 1.8 MYA), indicating it should also be recognized as a separate species or subspecies.

Oliver *et al.* (2022) committed an act of taxonomic vandalism in trying to over-write the name *N. saxacola* by effectively renaming it as "*Nephrurus eromanga* Oliver, Donnellan & Gunn, 2022".

While the name is a junior synonym of *N. saxacola*, their newly named taxon had a holotype of "QM J97592 (formerly SAMA R42602), 4 km N. of Diamantina Station (23°440 S, 141°080E), collected by B. Miller, G. Armstrong and J. Birrell on 12 October 1993".

Because that specimen is clearly one of the southern population from east of the Diamantina River, the name "*Nephrurus eromanga*" is available for that population as either a senior synonym, when recognizing *N. saxacola* as a separate taxon, or in the alternative as a subspecies of *N. saxacola* for the southern population alone.

CTENOTUS DECANEURUS

The species *C. decaneurus* Storr, 1970 has had two allopatric subspecies formally named.

These are the type form, with a type locality of 21 miles north-west of Newry, Northern Territory, Australia, (Latitude 15.59 S., Longitude 129.00 E), being a taxon from the lower Ord region of the east Kimberley district of Western Australia and adjacent Northern Territory, as well as *Ctenotus decaneurus yampiensis* Storr, 1975 with a type locality of Wotjulum Mission Station, Yampi Sound, north-west Kimberleys, Western Australia, Australia (Latitude 16.11 S., Longitude 123.37 E.).

Molecular evidence confirms species level divergence between the forms in addition to the morphological differences identified by Storr in 1975.

The biogeographical break between similar sibling species in the north-east Kimberleys versus north-west Kimberleys has been established for many taxa, including for example in the *Odatia glauerti* (Mertens, 1957) species group (Mertens 1957, 1958, Hoser 2018c, 2022b).

The same gap exists between east and west Kimberley populations of *Ctenotus decaneurus*.

Significantly, Storr (1970) noted significantly divergence in the specimens from the top end of the Northern Territory. In spite of this fact and being separated from the other western populations by a similarly well-known biogeographic gap (the west Victoria River District), it is not yet formally named.

Therefore I have had no hesitation in formally naming this species as *C. timhudsoni* sp. nov..

Likewise in terms of a geographically isolated population of putative *Ctenotus decaneurus* from the Selwyn Ranges district of north-west Queensland, herein formally named as *C. anthonyjacksoni* sp. nov..

GENUS MAGNUSCINCUS WELLS AND WELLINGTON, 1985

The putative genus *Magnuscincus* Wells and Wellington, 1985, as originally conceived by Wells and Wellington in 1984 and 1985 was essentially confined to the distinctive putative species, "*Ctenotus pantherinus* (Peters, 1866)".

In recognising that genus, Wells and Wellington (1985) in their most recent interpretation of their genus also elevated to full species level three morphologically divergent forms from north-west Australia described as subspecies by Storr at various times.

They gave no written reason for this action at the time and it seems that no other publishing herpetologists have to date recognized any of these "subspecies" as species since that date to the present date (2024), being roughly four decades later.

The sequences available for the putative taxon from across the known range (excluding Barrow Island, Western Australia, from where the subspecies "*Ctenotus pantherinus acripes* Storr, 1975" has its type

locality and is confined to), were assessed by myself.

Specimen groups and clades corresponding to the type forms for the other three widely recognized subspecies did have sequence divergences leading to an estimation of date divergences of between 1.3 to 1.9 MYA, which is certainly in line with subspecies or species recognition.

In any event, three of the four recognized entities are supported by the molecular evidence and the one for which no samples were available is quite clearly sufficiently divergent to be recognized at least as a subspecies.

For the purposes of this paper and as a tentative action only, I recognize the four commonly recognized subspecies of "*C. pantherinus*" including the type form as one of them, all as full species in line with Wells and Wellington (1985).

These are *Magnuscincus pantherinus* with a type locality of Swan River (Perth, Western Australia), *M. ocillifer* (Storr, 1969) with a type locality of Roebuck Bay, Western Australia, *M. calyx* (Storr, 1970) with a type locality of Dunmarra, Northern Territory, Australia (Latitude -16.40 S., Longitude 133.23 E.) and *M. acripes* (Storr, 1975) with a type locality of Barrow Island, Western Australia (Latitude -20.45 S., Longitude 115.25 E.).

I note that the relevant position of Wells and Wellington (1985) had zero influence on the decision by me here and it was made solely on the basis of sequence and morphological divergences.

Notwithstanding the preceding, it also emerged that some more eastern populations of putative *M. pantherinus* were more divergent and as yet not taxonomically recognized.

To correct this serious anomaly four relevant entities are formally named herein.

These are the north-east Queensland form herein formally named as *M. hoseræ* sp. nov., the form from the Selwyn Ranges, north-west Queensland, formally named *M. maxinehoseræ* sp. nov., the form from south-west Queensland and north-west New South Wales, formally named *M. maxinehoseræ eromanga subsp. nov.* and the Eyre Peninsula, east of Nullarbor form from south Australia as *M. brianbarnetti* sp. nov..

All are readily diagnosable morphologically.

In terms of divergences, it seems that the two eastern species as a pair diverged from "*M. pantherinus*" from further north-west and west by about 3 MYA and from each other about 2.4 MYA.

In turn the south-west Queensland subspecies diverged from the north-west Queensland population about 1.3 MYA.

The South Australian population appeared to have diverged about 2 MYA from its nearest relative.

These date divergences also corroborate with the biogeographic history of the relevant areas and the formation of the black soil barriers in Queensland and

aridification of the Nullarbor on the South Australia, Western Australian border area.

MATHERUS TANTILLUS AND MATHERUS STRIATICEPS

A new species and a new subspecies are formally named in the genus *Matherus* *gen. nov.*.

These are a divergent eastern population of putative "*Ctenotus tantillus* Storr, 1975" type locality of Kununurra, Western Australia, (Latitude 15.42 S., Longitude 128.42 E.), from the Daly River region in the Northern Territory formally named as *Matherus matheri* *sp. nov.* and the western Gulf of Carpentaria population of putative "*Ctenotus striaticeps* Storr, 1978" with a type locality of 72 km north northeast of Mount Isa, Queensland, Queensland (Latitude 20.19 S., Longitude 139.47 E.).

That one is formally named as *Ctenotus striaticeps divergens* *subsp. nov.*

There is no molecular data separating these two taxa from their nearest related forms (or any refuting the concept), but they are separated on the basis of consistent morphological divergences combined with allopatric distributions over known biogeographical barriers that have affected species pairs with similar habitat preferences over the same geographical zones (see for example for pygmy monitors in the genus *Worrellisaurus* Wells and Wellington, 1985 *sensu* Hoser 2018b).

KOMMOSAGOGUS LABILLARDIERI

Kay and Keogh (2012) published a phylogeny of "*Ctenotus labillardieri* (Duméril and Bibron, 1839)" and associated taxa.

This group sits within the genus *Kommosagogus* Wells and Wellington, 1984 as recognised herein.

They named a divergent clade from the Darling Range area as "*Ctenotus ora*" and also showed that putative *K. labillardieri* consisted seven separate clades.

Inspection of live specimens from across the range of the putative taxon, also matched with the descriptions in Ford (1969) confirmed that each were readily separable from one another.

A reassessment of the sequences showed that three of these clades had an estimated divergence of 2 MYA from each other and within one of these clades there were subclades. One diverged an estimated 1.8 MYA and another of 1.5 MYA and within the final pair, one clade had three lineages each about 1.1-1.3 MYA divergent.

These seven clades evidently needed taxonomic recognition and I have assumed that the non-recognition of any has arisen due to an apparent uncertainty as to the provenance and form of the type material of Duméril and Bibron (1839).

A translation of the original description for their taxon confirmed it was a specimen from the northern Darling Range (near Perth), to the exclusion of all other forms, enabling the others to be formally named. So as first

reviser I restrict that taxon to the north Darling Range region.

The most divergent unnamed populations of putative *K. labillardieri* are therefore formally named herein as species and the two unnamed lineages under 1.5 MYA divergent have been formally named as subspecies.

Thus the relevant taxa are now as follows:

K. labillardieri from the Darling Range east of Perth and including the area slightly north;

K. pailsei *sp. nov.* for the populations in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park.

In turn that population is divided into subspecies, these being, *K. pailsei menang* *subsp. nov.* from Cheynes in the east to about Windy Harbour and hinterland in the west, as well as *K. pailsei whadjuk* *subsp. nov.* for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

Nominate *K. pailsei pailsei* *subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast.

K. grantturneri *sp. nov.* is restricted to the Stirling Ranges in south-west Western Australia.

K. alexanderdudleyi *sp. nov.* is from Hopetoun in the west and Dalyup in the east along the coastal strip in southern Western Australia.

K. graysonoconnori *sp. nov.* is a taxon found in southern Western Australia from Cape Le Grand in the west along the coast to Cape Aird in the east in the near coastal area.

This taxonomic division is important as it underlines the fact that a formerly widespread and apparently secure species is shown to be a cohort of relatively range-restricted taxa in an area of extremely intense human agriculture and monoculture (mainly wheat).

This means that each could be more at risk of decline and potential extinction than previously envisioned.

KOMMOSAGOGUS CATENIFER

A similar situation exists with respect of the closely related putative West Australian taxon *K. catenifer* (Storr, 1974).

Wells and Wellington (1985) followed on from the advice of Ford (1969) and elevated the western population from Ravensthorpe in the west to Cape Arid National Park in the east to be a new species, namely *K. hickmani*, although if one were to believe their dishonest detractors, the later authors merely plucked the taxonomic concept out of thin air.

There is no molecular evidence available with respect of the putative taxon and whether or not it is a separate species to the nominate form of *K. catenifer*. Having inspected live specimens of this population (that from Ravensthorpe in the west to Cape Arid

National Park) and compared it with that from the nominate form west of there, it is notable that there are consistent differences in colouration and so I tentatively continue to recognize *K. hickmani* as a valid species and diagnose it with respect of closely related taxa in the relevant descriptions.

In terms of *K. catenifer* from east of the type locality there appear to be two more unnamed species-level population groups.

One was identified by Kay and Keogh (2012) which they apparently ignored and I presume that was because they thought that one of the two populations of *K. catenifer* they had found that was species-level divergent was almost certainly *K. hickmani* and they really didn't want to give Wells and Wellington credit for anything.

In fact it definitely wasn't *K. hickmani* and Kay and Keogh (2012) had merely identified a division between the nominate form and another apparently ignored divergent population that was further east.

That population of putative *K. catenifer* from the far south-west corner of Western Australia is formally named as *K. rosswellingtoni* sp. nov. in recognition of the significant contributions to herpetology by Cliff Ross Wellington, the coauthor of the significant works in herpetology, Wells and Wellington (1984, 1985).

The audit also uncovered significant divergence in form in the geographically isolated Stirling Range population, which while morphologically most similar to south-west Australian specimens (herein known as *K. rosswellingtoni* sp. nov.) were geographically most proximal to those from directly south of the type form of *K. catenifer*.

That divergent population is herein formally named as *K. goreng* sp. nov., in recognition of the Goreng people, the original Aboriginal inhabitants of the region including these mountains.

KOMMOSAGOGUS GEMMULA

K. gemmula (Storr, 1974) another south-west Australian endemic species, has also long been known to have geographically disjunct populations.

Significantly, Kay and Keogh (2012) produced molecular results that indicated divergence in two populations and two other widely scattered populations of the type form via their molecular results.

Inspection of live specimens from the relevant localities also confirmed that the relevant populations had morphological divergences in line with their genetic ones and they corresponded with well-known biogeographic breaks in south-west Australia as identified in Hoser (2020) with respect of genera of small frogs.

Because the species level divergences were great, each of the hitherto unnamed populations are formally named as new species for the first time.

K. gemmula is herein confined to the environs of Perth (the type locality for the taxon) and the coastal

and near coastal region between 25 km east of Ravensthorpe and Esperance on the south coast.

In the cooler south generally in the region west of Ravensthorpe extending to the Stirling Ranges is the newly named taxon, *K. wellsei* sp. nov.. In the vicinity of Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) in the east and 5 km west of Israelite Bay (Latitude -33.6166667 S., Longitude 123.8 E.) on the eastern south coast of Western Australia in the west, is a range-restricted population herein formally named as *K. trevorhawkeswoodi* sp. nov..

TANTALOSCINCUS EUCLAE

"*Ctenotus brooksi euclae*" (Storr, 1971), with a type locality of Eucla, Western Australia, (Latitude -31.43 S., Longitude 128.53 E.) is now recognised by most herpetologists as being a valid species separate from "*Ctenotus brooksi* (Loveridge, 1933)", type locality allegedly of "Perth", Western Australia, Australia.

This was confirmed by the phylogeny published by Singhal *et al.* (2017).

This species is herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

Analysis of the available sequences of putative *T. euclae* from eastern and western parts of their range showed an estimated divergence of just under 2 MYA between the two main clades, which in short means there are two species involved.

As they are readily separable by morphology, the eastern form of putative *T. euclae* from the Eyre Peninsula of South Australia and nearby parts of that state to the immediate west along the Great Australian Bight is herein formally named as a new species *T. julianassangei* sp. nov..

TANTALOSCINCUS CALURUS

Until now, putative "*Ctenotus calurus* Storr, 1969" type locality of 24 miles east northeast of Laverton, Western Australia, (Latitude -28.31 S., Longitude 122.45 E), now placed in the genus *Tantaloscincus* Wells and Wellington, 1985 has been treated as a wide-ranging taxon from Centralian sand dune habitats in West Australia, the Northern Territory and South Australia, with a distribution extending to the west coast of Australia on the southern edge of the Pilbara region, south-west of the Cape Range and extending to western Queensland on the eastern edge of the Simpson Desert.

However the sequence data available yielded a divergence between two main population groups of about 3 MYA. Because they are morphologically divergent, the unnamed Centralian form is herein formally named as a new species, *Tantaloscincus xorum* sp. nov..

That taxon occurs generally east of the low-lying flood prone flats that generally run in a north-south line along the Western Australian border, parallel to both most of the Northern Territory and the northern parts of South Australia, but generally almost entirely within the

territorial limits of Western Australia.

Hence *T. xorum* sp. nov. is the taxon from central Australia in the Northern Territory, northern South Australia and far west Queensland in the sandy eastern extremity of the Simpson Desert.

West of this zone and throughout most of the interior of Western Australia *T. calurus* occurs.

The species is generally absent from the western third of Western Australia, save for an isolated and divergent population of this putative taxon found generally south-west of the Cape Range in the relevant sand and dune habitat. While there is no molecular data with respect of this population, it is in some ways more divergent from the other two (*T. xorum* sp. nov. and the putative type form of *T. calurus*) than they are to each other.

Because of the known depth of divergence between *T. xorum* sp. nov. and the putative type form of *T. calurus* I have no hesitation in formally naming the western form as a new species, being *T. muski* sp. nov..

TANTALOSCINCUS STRAUCHII AND ASSOCIATED SPECIES

The putative species "*Ctenotus strauchii* (Boulenger, 1887)" was recognised by Storr (1981) as comprising a number of regionally divergent forms worthy of taxonomic recognition. It is herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

In Storr (1981), he formally named "*Ctenotus allotropis* Storr, 1981", type locality of the Round Hill Fauna Reserve, near Euabalong, New South Wales, as a related species from western New South Wales and nearby southern Queensland away from the coast as well as naming "*Ctenotus strauchii varius* Storr, 1981", with a type locality of Charlotte Waters in the far southeast of the Northern Territory, being a taxon from the Cooper's Creek / Lake Eyre drainage system in western Queensland, southern Northern Territory and northern South Australia.

Storr also mentioned morphological differences between specimens of putative "*Ctenotus strauchii*" found east of the Great Dividing Range in north-east Queensland (being the type form for the taxon, with a type locality of Gayndah, Queensland), versus those to the south in southern inland Queensland and nearby parts of northwest New South Wales. He also foreshadowed taxonomic actions with regards to this fact, but ultimately none was made. Storr (1981) also mentioned colouration of an aberrant specimen but went no further.

That specimen R.62861 at the Australian Museum in Sydney, Australia was collected at Muttaborra in north-west Queensland. It was in fact a separate, albeit related, species. Singhal *et al.* (2017) also inspected specimens of this taxon, but also referred them to the species "*Ctenotus strauchii*".

Analysis of the relevant available sequences, indicates that the taxon appears to have a divergence of 2.3-2.5 MYA from nearest relative (*T. hattoni* sp. nov.). It is

also very divergent morphologically and so it warrants species-level recognition.

As already mentioned, the relevant species are all within the genus *Tantaloscincus* Wells and Wellington, 1984.

The unnamed form from north-west Queensland occurs in the area generally in a line between Belyando (upper Burdekin basin) in the east and Julia Creek in the west, being about 500 km in a straight line. It is herein formally named *T. katteri* sp. nov..

The unnamed form from south-west Queensland and immediately adjacent parts of New South Wales is formally named *T. hattoni* sp. nov..

It is worth mentioning that an attempt by myself to locate and view specimen R.62861 at the Australian Museum in Sydney, Australia failed. The only specimen bearing the tag number was a "Bynoe's Gecko *Heteronotia binoei* (Gray, 1845)", actually being an *H. anomalus* (Peters, 1867) collected by Paul Ludowici (of St. Ives, NSW) in the 1990's from 20 miles East of Bogantungan, east Queensland, (Latitude -23.6 S., Longitude 147.5 E.).

For the benefit of those who knew him and others, Paul Anthony Ludowici, a larger than life character in herpetology (literally), being one of the truly professional "amateur herpetologists", died in late 2013 in his fifties.

As to how and why the specimen tag apparently got moved from a skink to a gecko at the Australian Museum in Sydney, I have no explanation. An attempt to get an explanation from Jodi Rowley in 2022 (the current 2022-2024 reptile curator there) for this event got no response from her.

The putative taxon "*Ctenotus zebrilla* Storr, 1981", type locality of Venture Creek, 62 km east of Croydon, Queensland, Australia, (Latitude 18.13 S., Longitude 142.49 E.) is herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984. It occurs in north Queensland generally west of the Great Dividing Range at the Burdekin Dry zone and south-east of the Gulf of Carpentaria.

It has long been known to be a morphologically variable taxon (Wilson and Swan 2021).

One specimen that morphologically appeared to be most similar to *Tantaloscincus katteri* sp. nov. until now treated as *T. strauchii* (Boulenger, 1887), was found by Rabovsky *et al.* (2014) and Prates *et al.* (2022a) to be most similar genetically to *T. zebrilla*. That specimen (South Australian Museum registration number R55848) was collected at Breakneck Gully, 45 km north-west of Charters Towers, north Queensland. This is a location between the known ranges of both *T. katteri* sp. nov. and *T. zebrilla*.

Notwithstanding the morphological divergence of the specimen, it appears to be recently divergent of *T. zebrilla*, as in about 1 MYA or less and so it is formally described herein as a new subspecies. It is called *T. zebrilla confusaidem* subsp. nov..

TANTALOSCINCUS SCHOMBURGKII

Singhal *et al.* (2017) and Prates *et al.* (2022a) identified multiple clades within putative "*Ctenotus schomburgkii* (Peters, 1863)", with a type locality of Gawler, South Australia.

All are herein placed within the genus *Tantaloscincus* Wells and Wellington, 1984.

The most divergent of these clades, being a taxon from central Australia was formally named by Prates *et al.* (2022a) as "*Ctenotus kutjupa* Hutchinson, Prates and Rabosky, 2022".

Mark Hutchinson, one of the "*et al.*" in Prates *et al.* (2022a) would die before he voluntarily used any Wells and Wellington name for a reptile taxon, so there is little weight to be placed on the recent generic allocation by these authors.

The relevant phylogenies and a re-examination of the molecular sequences revealed that if ignoring *T. kutjupa*, there remained a number of divergent clades which were not being taxonomically recognized as of 2024 and should be.

As these are readily diagnosable morphologically, it is without hesitation that I recognize and name all the unnamed clades herein.

The first main split is two groups about 3 MYA within putative *T. schomburgkii*.

One of these clades includes the type form and which occupies a zone including most of South Australia and extending slightly over the borders in all adjoining states.

Within that clade is an east-west split, with the population from far north-west South Australia and eastern southern Western Australia having diverged about 1.8 MYA.

It is therefore formally named as *T. oxyi* *sp. nov.*

In the other group that diverged about 3 MYA, there is a further split about 1.8 MYA two ways.

One of these groups includes specimens from most of Western Australia, except the interior of the south-east, most of the Pilbara and the Kimberley districts, extending east into the southern sandy and hill area of the southern Northern Territory as well as along the southern edge of the Nullarbor into the far south-west of South Australia, where it occurs in the absence of the eastern clade.

A further split in this group occurs with the specimens from the northern deserts diverging about 1.8 MYA.

This southern animals are formally named as *T. crottyi* *sp. nov.* and the northern deserts form is named *T. sloppi* *sp. nov.*

Another taxon, the associated *T. pallescens* (Storr, 1970), type locality Morphett Creek, 7 miles south of Banka Banka, Northern Territory (Latitude 18.53 S., Longitude 134.05 E.) was originally described as a subspecies of *T. schomburgkii*.

It has not been subjected to molecular study but

occurs in a different region of the Northern Territory, as in mainly on the Barkly Tableland.

It appears to be allopatric to southern populations and roughly where they meet, broadly between Tennant Creek and Barrow Creek, there is an abrupt transition between the forms. The two forms are sufficiently morphologically divergent to evidently be of a separate species. Putative *T. pallescens* also has a strong morphological similarity to the type form of *T. schomburgkii* found to the south-east in similar habitat in north-west Queensland.

Therefore, it has not been mooted as likely that the species herein named *T. sloppi* *sp. nov.* is the same taxon as *T. pallescens*.

The second group in the estimated 1.8 MYA split is a cluster of specimens from the Pilbara region of Western Australia, mainly occurring around sandy areas within and immediately around this general area, extending down the west coast to just north of Shark Bay.

The name "*Lygosoma fischeri* Boulenger, 1887" (*nom. nov. pro Hinulia muelleri*) with the type for *Hinulia muelleri* Fischer, 1882 being from Nickol Bay, Western Australia, is available for this clade.

Within this clade there are three distinctive populations all believed to have diverged about 1 MYA.

The other two are formally named as new subspecies. These are *T. fischeri yinggarda* *subsp. nov.* from south of the main Pilbara district and *T. fischeri martu* *subsp. nov.* from the Great Sandy Desert and north Pilbara region, generally north of the Fortescue River.

T. fischeri occurs in the main Pilbara region mainly south of the Fortescue River and including the Pilbara coast, north of the Fortescue River around the type locality Nickol Bay (Karratha).

Significantly this is exactly the same biogeographic division seen the Pilbara Death Adder *Acanthophs wellsei* Hoser, 1998 species group and other species pairs or groups as outlined in Hoser (2014).

INFORMATION RELEVANT TO THE FORMAL DESCRIPTIONS THAT FOLLOW

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

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

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

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked

most recently as of 28 April 2023, unless otherwise stated and were accurate in terms of the context or content cited herein as of that date.

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

Readers should be mindful of the fact that specimens pre-sloughing skin may have dulled or obscured markings, juveniles often may have brighter or different markings to adults and regenerated tails as a rule lack the pattern or markings of original ones.

Unless otherwise stated, references to lamellae, keels and similar structures under the toes, always refers to that seen under the fourth toe.

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.

Material within descriptions may be repeated from other in this paper in order to ensure compliance with the *International Code of Zoological Nomenclature* as amended (Ride *et al.* 1999 and ICZN 2012). If more than one taxon described herein is considered to be of the same species, then the name to be used in preference by a first reviser is that in terms of page priority herein as seen in the abstract keywords.

Material, items or references cited herein merely as “online” without a URL, can be easily found by copying and pasting the name or detail into a search engine such as “Google” and it will appear either as the first result or in the first page of results on a computer desktop screen.

CONSERVATION

Delays in recognition of these species and subspecies could jeopardise the long-term survival of the taxa as outlined by Hoser (2007, 2019a, 2019b) and sources cited therein.

Therefore attempts by taxonomic vandals like the Wolfgang Wüster gang via Kaiser (2012a, 2012b, 2013, 2014a, 2014b) and Kaiser *et al.* (2013) (as frequently amended and embellished, e.g. Rhodin *et al.* 2015, Thiele *et al.* 2020, Hammer and Thiele 2021, Wüster *et al.* 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. Dubois *et al.* 2019 and Ceriaco *et al.* 2023).

Claims by the Wüster gang against this paper and the descriptions herein will no doubt be no different to those the gang have made previously, all of which were discredited long ago as outlined by Ceriaco *et al.* (2023), Cogger (2014), Cotton (2014), Dubois *et al.* (2019), Hawkeswood (2021), Hoser, (2007a-b,

2009, 2012a, 2012b, 2013, 2015a-f, 2019a, 2019b), ICZN (1991, 2001, 2012, 2021), Mosyakin (2022), Wellington (2015) and sources cited therein.

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

Fortunately, none of the relevant named taxa appear to be under any immediate threat, beyond limited distributions for some and in the scheme of things their conservation status should be presently treated as being of “least concern”.

Tempering this however is evidence obtained by myself (not yet published) that human activity has altered the balance of power among competing species of Australian small skink, causing changes in species number or composition in certain areas over periods spanning decades and at times and places that people, including herpetologists generally do not notice.

CTENOTUS CELERRIMUS SP. NOV.

LSIDurn:lsid:zoobank.org:act:CE71F41D-D719-461E-9D64-BFC902BAE03B

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R110668 collected from the Learmonth Air Weapons Range, Cape Range District, Western Australia, Australia, Latitude -22.4025 S., Longitude 113.843333 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 R60948 and R60949 both collected from the watercourse at Yardie Creek, Cape Range District, Western Australia, Australia, Latitude -23.333333 S., Longitude 113.816667 E., 2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R61031 collected from 22 km north-west of Giralda Station homestead, Western Australia, Australia, Latitude -22.666667 S., Longitude 114.166667 E., 3/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R139566 collected from Giralda Station homestead, Western Australia, Australia, Latitude -22.776389 S., Longitude 114.304167 E.

Diagnosis: Until now both *Ctenotus celerrimus* sp. nov. from the Cape Range in Western Australia and *C. ieiummovens* sp. nov. from north of the Fortescue River in the Pilbara region of Western Australia have been treated as allopatric outlier populations of *Ctenotus pallasotus* Rabosky and Doughty, 2017, type locality of “24 km south-east of Paraburdoo, quadrat TCMB03 of the Pilbara Biodiversity Survey, WA, Australia” (Latitude -23.2023 S., Longitude 117.4804 E.).

The molecular evidence assessed, including that

published by Singhal *et al.* (2022) confirms that each relevant population diverged about 2 MYA, which is sufficient for species-level divergence.

As they are easily separated morphologically, the three are divided into species, with two formally named for the first time.

Ctenotus celerrimus sp. nov. is separated from *C. pallasotus* and the morphologically similar *C. ieuniummovens sp. nov.* by the absence of scattered yellowish-white spots running along the black stripe that runs along the upper flank. The two yellow lines running along the mid-dorsal line, on either side of a black mid-dorsal stripe are clean, bright and well-defined in *C. celerrimus sp. nov.* versus with light yellowish or white extrusions on the outer edge in the other two species or otherwise with the lines themselves not bold, clean and bright.

C. ieuniummovens sp. nov. is in turn separated from the other two species by having a thick yellow line running along the lower flank, versus medium to thin in the other two species, as well as faded or non-existent markings on the head, versus semi-distinct in *C. pallasotus* and well-defined in *C. celerrimus sp. nov.*

The three preceding species are separated from all other Australian *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* type species *Matherus matheri sp. nov.* by the following unique combination of characters:

A medium-large (to 65 mm SVL) elongate *Ctenotus* Storr, 1964, with nasals in contact, prefrontals in contact or not in contact, 26-30 mid-body scale rows, 21-25 compressed lamellae under fourth toes with narrow callus, usually eight supralabials and supraciliary scales, six (occasionally eight) pale narrow longitudinal stripes on a blackish-brown ground colour, dorsal stripes not continuing on head to snout, tail not red or blue, an upper lateral row of spots present between the pale dorsolateral and lateral stripes with usually a broken pale lateral line from ear to forelimb with scattered spots on the sides of the neck (except the North West Cape population, AKA *C. celerrimus sp. nov.*), dark vertebral stripe not continuing anteriorly to parietals (terminates 2-4 nuchal scales before), parietals with some blotching; pale dorsolateral stripe continues anteriorly to eye, pale paravertebral stripes join on tail at or posterior to level of heel of extended hindlimb, lower labial scales variably stippled or sometimes not (as in *C. ieuniummovens sp. nov.*) (modified and amended from Rabosky and Doughty, 2017).

Ctenotus celerrimus sp. nov. is depicted in life in Wilson and Swan (2021) on page 287 at second from

top.

Ctenotus pallasotus is depicted in life in Wilson and Swan (2021) on page 287 at third from top and online at:

<https://www.flickr.com/photos/58349528@N02/53195397364/>

and

<https://www.flickr.com/photos/reptileshots/53172108824/i>

and

<https://arod.com.au/arod/reptilia/Squamata/Scincidae/Ctenotus/pallasotus>

Distribution: *C. celerrimus sp. nov.* is a Cape Range endemic taxon. It is found from Giralia Station in the south-east, west and north-west to include the Cape Range of Western Australia, Australia.

North and east of the sand dunes immediately east of the Giralia homestead, in the main Pilbara district, *C. pallasotus* occupies the hillier areas as far north as the Fortescue River drainage basin.

North of there in the remaining hillier parts of the Pilbara region *C. ieuniummovens sp. nov.* occurs.

Etymology: The species name “*celerrimus*” comes from the Latin word meaning “very fast” which is reflection of the high speed at which this lizard moves when fleeing humans.

CTENOTUS IEIUNIUMMOVENS SP. NOV.

LSIDurn:lsid:zoobank.org:act:911E50FA-E408-4819-AA16-CD5D7A5FB1D5

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R76440 collected from the 10 km south-south-west of the Cooya Pooya Homestead, Pilbara district, Western Australia, Australia, Latitude -21.116667 S., Longitude 117.116667 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ Five preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R76423, R76433, R76434, R76441 and R76442 all collected 10 km south-south-west of the Cooya Pooya Homestead, Pilbara district, Western Australia, Australia, Latitude -21.116667 S., Longitude 117.116667 E., 2/ Three preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R76425, R76447 and R76448 all collected 4 km north-west of the Cooya Pooya Homestead, Pilbara district, Western Australia, Australia, Latitude -21.116667 S., Longitude 117.116667 E.

Diagnosis: Until now both *C. ieuniummovens sp. nov.* from north of the Fortescue River in the Pilbara region of Western Australia and *Ctenotus celerrimus sp. nov.* from the Cape Range in Western Australia have been treated as allopatric outlier populations of *Ctenotus pallasotus* Rabosky and Doughty, 2017, type locality

of "24 km south-east of Paraburdoo, quadrat TCMB03 of the Pilbara Biodiversity Survey, WA, Australia" (Latitude -23.2023 S., Longitude 117.4804 E.).

The molecular evidence assessed, including that published by Singhal *et al.* (2022) confirms that each relevant population diverged about 2 MYA, which is sufficient for species-level divergence.

As they are easily separated morphologically the three are divided into species, with two formally named for the first time.

Ctenotus celerrimus sp. nov. is separated from *C. pallasotus* and the morphologically similar *C. ieuniummovens* sp. nov. by the absence of scattered yellowish-white spots running along the black stripe that runs along the upper flank. The two yellow lines running along the mid-dorsal line, on either side of a black mid-dorsal stripe are clean, bright and well-defined in *C. celerrimus* sp. nov. versus with light yellowish or white extrusions on the outer edge in the other two species or otherwise with the lines themselves not bold, clean and bright.

C. ieuniummovens sp. nov. is in turn separated from the other two species by having a thick yellow line running along the lower flank, versus medium to thin in the other two species, as well as faded or non-existent markings on the head, versus semi-distinct in *C. pallasotus* and well-defined in *C. celerrimus* sp. nov..

The three preceding species are separated from all other Australian *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

A medium-large (to 65 mm SVL) elongate *Ctenotus* with nasals in contact, prefrontals in contact or not in contact, 26-30 mid-body scale rows, 21-25 compressed lamellae under toes with narrow callus, usually eight supralabials and supraciliary scales, six (occasionally eight) pale narrow longitudinal stripes on a blackish-brown ground colour, dorsal stripes not continuing on head to snout, tail not red or blue, an upper lateral row of spots present between the pale dorsolateral and lateral stripes with usually a broken pale lateral line from ear to forelimb with scattered spots on the sides of the neck (except the North West Cape population, AKA *C. celerrimus* sp. nov.), dark vertebral stripe not continuing anteriorly to parietals (terminates 2-4 nuchal scales before), parietals with some blotching; pale dorsolateral stripe continues anteriorly to eye, pale paravertebral stripes join on tail at or posterior to level of heel of extended hindlimb, lower labial scales variably stippled or sometimes not (as in *C. ieuniummovens* sp. nov.) (modified and

amended from Rabosky and Doughty, 2017).

Ctenotus celerrimus sp. nov. is depicted in life in Wilson and Swan (2021) on page 287 at second from top.

Ctenotus pallasotus is depicted in life in Wilson and Swan (2021) on page 287 at third from top and online at:

<https://www.flickr.com/photos/58349528@N02/53195397364/>

and

<https://www.flickr.com/photos/reptileshots/53172108824/>

and

<https://arod.com.au/arod/reptilia/Squamata/Scincidae/Ctenotus/pallasotus>

Distribution: *C. celerrimus* sp. nov. is a Cape Range endemic taxon. It is found from Giralia Station in the south-east, west and north-west to include the Cape Range of Western Australia, Australia.

North and east of the sand dunes immediately east of the Giralia homestead, in the main Pilbara district, *C. pallasotus* occupies the hillier areas as far north as the Fortescue River drainage basin.

North of there in the remaining hillier parts of the Pilbara region *C. ieuniummovens* sp. nov. occurs.

Etymology: The species name "*ieuniummovens*" comes from the Latin words meaning "fast moving" which is reflection of the high speed at which this lizard moves when fleeing humans.

CTENOTUS WHATDAFUK SP. NOV.

LSIDurn:lsid:zoobank.org:act:653FCE16-E5F2-4248-A401-599C96A5C825

Holotype: A preserved specimen at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen number R32139, collected from the Phillip Creek Station, Northern Territory, Australia, Latitude 19.233 S., Longitude 134.25 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen number R08466 collected from the Frewena Roadhouse, Barkly Tableland, Northern Territory, Australia, Latitude -19.433 S., Longitude 135.4 E., 2/ Two preserved specimens at the Museum and Art Gallery of the Northern Territory, Darwin, Northern Territory, Australia, specimen numbers R18086 and R18130 collected from the Alyawarre Desert Area, Northern Territory, Australia, Latitude -19.633 S., Longitude 135.617 E.

Diagnosis: Until now *C. whatdafuk* sp. nov. of the eastern half of the Northern Territory, and nearby far west Queensland, Australia, has been treated as an eastern population of *C. pianakai* Storr, 1969 with a type locality of 24 miles east north-east of Laverton, Western Australia, Australia (Latitude 28.31 S.,

Longitude 122.45 E.) and in turn confined to most of the interior parts of Western Australia and immediately adjacent parts of northern South Australia and the Northern Territory.

C. whatdafuk sp. nov. is readily separated from *C. piankai* by the presence of a distinctive row of light bold yellowish spots in a line along the anterior part of the body on the dark band that runs along the upper flank, which is absent or if present is faded in *C. piankai*. In *C. whatdafuk* sp. nov. the dark band running along the lower flank is bold and thin, versus semi-bold or faded and thick in *C. piankai*.

The purplish brown colouration of the stripes running down the dorsum and flanks is slightly faded in *C. piankai*, versus not so in *C. whatdafuk* sp. nov.

Both *C. piankai* and *C. whatdafuk* sp. nov. are separated from all other *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

A small-bodied (to 53 mm SVL), elongate *Ctenotus*; nasals in contact, prefrontals in contact, 22 or 24 midbody scale rows, 18-23 compressed lamellae under toes with obtuse keel, usually eight supralabial and supraciliary scales; pattern including six (occasionally eight) pale narrow longitudinal stripes on a reddish-brown dorsum, at most a single upper mid-lateral row of spots or dashes, dorsal stripes not continuing on head to snout, tail not red or blue, pale lateral stripe approximately twice as wide as pale paravertebral and dorsolateral stripes, dark vertebral stripe terminates on nuchals (not contacting parietals), pale dorsolateral stripe not continuing anteriorly to eye (broken), pale upper lateral stripe between ear and forelimb usually continuous, lower lateral stripe on fore-body is usually solid or sometimes broken, pale paravertebral stripes join on tail at or posterior to level of heel of extended hind limb, lower labial scales immaculate white; upper labials also mainly white (adapted from Rabosky *et al.* (2017).

C. whatdafuk sp. nov. is depicted in life in Wilson and Swan (2021) on page 289 second from bottom on left and online at:

https://www.flickr.com/photos/zimny_anders/50384875017/

C. piankai is depicted in life in Wilson and Swan (2021) on page 289 second from bottom on right and Cogger 2014 on page 513 bottom left.

Distribution: *C. whatdafuk* sp. nov. occurs in the eastern half of the Northern Territory, and nearby far west Queensland, Australia.

C. piankai Storr, 1969 with a type locality of 24 miles east north-east of Laverton, Western Australia, Australia (Latitude 28.31 S., Longitude 122.45 E.) occurs in most of the interior parts of Western Australia and immediately adjacent parts of northern South Australia and the Northern Territory.

Etymology: In January 1983, Charles Acheson and I went on a major herpetological expedition in northern Australia in search of this taxon and other reptiles.

Heading west, we drove into the Frewena Roadhouse on the Barkly Tableland, Northern Territory.

Being an isolated outpost in the middle of nowhere, where because of its remoteness one is forced to buy petrol to enable you to get to the next roadhouse, we knew we had to fill the near empty car with fuel.

The cost of the petrol was more than double what we were paying back in Sydney and Charles exclaimed "What da fuk!"

As this was the last thing he said before I grabbed one of these lizards at the petrol stop, the name for the taxon stuck.

CTENOTUS ABSCONDITUS SP. NOV.

LSIDurn:lsid:zoobank.org:act:FF4E3159-484F-45B9-9EB3-ECB352B4445D

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R139164 collected from the Burrup Peninsula, Western Australia, Australia, Latitude -20.65 S., Longitude 116.766667 E.

This government-owned facility allows access to its holdings.

Paratypes: Seven preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, being 1/ Specimen numbers R132525, R132559, R102809 and R102812 all collected from the Burrup Peninsula, Western Australia, Australia, (approximate) Latitude -20.676667 S., Longitude 116.752222 E., 2/ Specimen number R116301 collected from King Bay, Western Australia, Australia, Latitude -20.633333 S., Longitude 116.75 E., 3/ Two preserved specimens from the Dampier area, Western Australia, Australia, Latitude -20.690556 S., Longitude 116.661389 E.

Diagnosis: Until now the Pilbara taxon, *Ctenotus absconditus* sp. nov. has been treated as a southern population of *C. serventyi* Storr, 1975, with a type locality of Christmas Creek in the south-west Kimberley district of Western Australia, (Latitude -18.53 S., Longitude 124.53 E.), with that species now confined to the south Kimberley region of Western Australia.

C. absconditus sp. nov. is separated from the morphologically similar taxon *C. serventyi* by the fact that the yellow spots running along the brownish band on the upper flank are only small in size, versus large or large and small in *C. serventyi*.

C. absconditus sp. nov. usually has five ear lobules,

versus usually four in *C. serventyi*.

In *C. absconditus* sp. nov. the striping on the tail goes to about 50 percent of the length in original tails, whereas it goes most of the length in *C. serventyi*, usually being in the order of 70 to 80 percent.

Both *C. absconditus* sp. nov. and *C. serventyi* are readily separated from all other *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

Having 5 dark stripes on the back and a very bold white midlateral white stripe extending forward to lores; nasals and prefrontals that is contiguous or only slightly broken on the anterior of the head.

Further diagnostic information relevant to both species as "*C. serventyi*" is in Storr (1975) on pages 233-234. Singhal *et al.* (2022) found both *C. absconditus* sp. nov. and *C. serventyi* to have diverged from one another nearly 4 MYA (Fig 2. at page 8).

Two similarly divergent Kimberley populations (south of Derby versus the rest) also showed similar divergence, but have not been split in this paper due to their morphological similarities.

C. absconditus sp. nov. is depicted in life in Wilson and Swan (2021) on page 299 second from top, and online at:

<https://www.flickr.com/photos/euprepiosaur/13731670424/>

C. serventyi is depicted in life online at:

<https://www.flickr.com/photos/stephenmahony/14014679334/>

and

<https://www.flickr.com/photos/stephenmahony/14034213643/>

Distribution: *C. absconditus* sp. nov. occurs in the Pilbara region generally, although mainly north of the Fortescue River valley, but extending slightly south of there and along the coastal strip north to Mandora.

In the south-west Kimberley district *C. serventyi* occurs.

Etymology: *C. absconditus* sp. nov. is named in reflection of the Latin word "*absconditus*" which means "concealed", reflecting that due to morphological similarities to other forms, this species has been effectively concealed from science until 2024.

CTENOTUS ABBA SP. NOV.

LSIDurn:lsid:zoobank.org:act:0380E894-321C-4185-8CA0-C71BF77BD7FF

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia,

Australia, specimen number R35025 collected from 12 km south of Bloodwood Bore, South Australia, Australia, Latitude -26.95 S., Longitude 140.95 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, specimen numbers R33814, R33816 and R35029 all collected from 12 km south of Bloodwood Bore, South Australia, Australia, Latitude -26.95 S., Longitude 140.95 E.

Diagnosis: Until now *Ctenotus abba* sp. nov. from the region of the border between Queensland and South Australia and including far southeastern Northern Territory, has been treated as the eastern population of *Ctenotus ariadnae* Storr, 1969, with a type locality of 24 miles east north-east of Laverton, Western Australia, Australia, (Latitude 28.31 S., Longitude 122.45 E).

C. ariadnae is now confined to the interior of Western Australia as well as immediately adjacent parts of far north-west South Australia and far south-west Northern Territory.

C. abba sp. nov. is readily separated from *C. ariadnae* by having a dark band running down the upper flank that contains two rows of closely broken yellow spots forming lines. The gap between each spot is significant, except for the very posterior part of the body, where some spots get close to each other and there are large gaps between only some.

In *C. ariadnae* these spots are considerably more numerous and are effectively merged to form longitudinal lines, the exception to this being immediately posterior to the front limb.

In *C. abba* sp. nov. the colour of the light-yellow stripes on the dorsum becomes strongly reddish orange at the posterior part of the body and onto the tail, versus only weakly so in *C. ariadnae*.

The upper labials of *C. abba* sp. nov. are white, versus yellow in *C. ariadnae*.

Both *C. abba* sp. nov. and *C. ariadnae* are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

A dorsum without ocelli; post-narial groove is weak or absent. Dorsal and lateral pattern that is simple and full, as in consisting wholly or nearly wholly of alternating dark and pale longitudinal stripes formed by tiny spots that are usually merged, but sometimes broken apart and/or spaced.

Subdigital lamellae obtusely keeled or narrowly callose; Snout-vent length up to 65 mm. Tail to 186 mm (original). One or two pale upper lateral lines formed by dots that may range from well-spaced to merged on a black background. No pale dorsal line between pale dorsolateral and paravertebral lines. An almost complete lack of a lateral pattern between the ear and forelimb.

Relatively short limbs.

It is notable that Storr in 1969 had as his original concept of *C. ariadnae* only Western Australian material.

The genetic divergence between *C. abba* sp. nov. and *C. ariadnae* appears to be about 2 MYA.

C. abba sp. nov. is depicted in life in Wilson and Swan (2021) on page 257 at bottom left and online at: https://www.flickr.com/photos/zimny_anders/50383783613/

and

https://www.flickr.com/photos/zimny_anders/50383809563/

C. ariadnae sp. nov. is depicted in life in Cogger (2014) on page 484 at top and online at: https://www.flickr.com/photos/zimny_anders/52442420224/

Distribution: *Ctenotus abba* sp. nov. occurs in the region of the border between Queensland and South Australia and including far southeastern Northern Territory.

C. ariadnae Storr, 1969, with a type locality of 24 miles east north-east of Laverton, Western Australia, Australia, (Latitude 28.31 S., Longitude 122.45 E. is now confined to the interior of Western Australia as well as immediately adjacent parts of far north-west South Australia and far south-west Northern Territory.

Etymology: *C. abba* is named in honour of the Swedish music sensation, the four-person band called ABBA.

CTENOTUS VULTHARENAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:E54AB714-8799-4870-92AF-DCBFB7CFED7E

Holotype: A preserved adult male specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R145331 collected from Carnarvon Range, Western Australia, Australia, Latitude -25.278611 S., Longitude 120.619167 E.

This government-owned facility allows access to its holdings.

Paratype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R129972 collected from near Mount Joel, Western Australia, Australia, Latitude -27.216667 S., Longitude 121.05 E.

Diagnosis: Until now *Ctenotus vultharenae* sp. nov. has been treated as the main West Australian population of *Ctenotus quattuordecimlineatus*

(Sternfeld, 1919), type locality Hermannsburg Mission, Upper Finke River, Northern Territory (NT), Australia. The quite divergent species *C. quattuordecimlineatus* occurs essentially from the NT and Western Australian border region, including just inside Western Australia, from the Tanami Desert, south to the Musgrave Ranges (NT/SA/WA border area), and east across most of the southern third of the Northern Territory, entering far western Queensland.

C. vultharenae sp. nov. is found throughout most of Western Australia, excluding the tropics, the far south and the far west coast.

C. vultharenae sp. nov. is readily separated from *C. quattuordecimlineatus* by colouration.

On both species there is a dark band running down the upper flank. In *C. vultharenae* sp. nov. the yellow spots within are well merged to form one or more very blunt and bold lines also running longitudinally down the flank.

By contrast in *C. quattuordecimlineatus* the same lines are formed by closely spaced spots and to that extent are not continuous or proper lines as such.

In *C. vultharenae* sp. nov. the white mid-lateral line is bounded above by a well-defined thick black line, versus one that has a line of yellow spots running through it as seen in *C. quattuordecimlineatus*.

In *C. vultharenae* sp. nov. the dark stripes of the tail merge and run to the tip, giving the lizard a dark brown distal end and tail tip.

By contrast, in *C. quattuordecimlineatus* the dark stripes fully fade about halfway along the tail length and the distal end and tail tip are light to medium brown.

C. quattuordecimlineatus and *C. vultharenae* sp. nov. are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen.

nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

No dorsal ocelli in body pattern. Post-narial groove weak or absent. Dorsal and lateral body pattern is simple and full, as in consisting wholly or nearly wholly of alternating dark and pale longitudinal stripes, the latter numbering 6 to 14. Subdigital lamellae are obtusely keeled or narrowly callose; Snout-vent length is up to 70 mm. The lines on the dorsum are orangish, not bright yellow (as seen in *C. atlas* Storr, 1969) or arranged as closely linked spots (barely touching one another or apart) as seen in *C. iapetus* Storr, 1975, but rather as bold lines or fully joined spots.

Singhal *et al.* (2017) in their published phylogenies showed that *C. vultharenae* sp. nov. as described

herein and *C. quattuordecimlineatus* are not particularly closely related (see Figs 1 and 2) and this is in spite of their morphological convergence.

C. vultharenae sp. nov. is depicted in life in Wilson and Swan (2021) on page 289 at bottom right and online at:

<https://www.inaturalist.org/observations/144968819>

and

<https://www.flickr.com/photos/96574168@N02/51919364113/>

and

<https://www.flickr.com/photos/reptileshots/15123228996/>

C. quattuordecimlineatus is depicted in life in Horner (1992) on page 61, second from top, Cogger (2014) on page 513 at bottom right and online at:

<https://www.inaturalist.org/observations/98351280>

and

<https://www.flickr.com/photos/euprepiosaur/7238436848/>

Distribution: *Ctenotus vultharenae* sp. nov. is found throughout most of Western Australia, excluding the tropics, the far south and the far west coast.

The morphologically similar species *Ctenotus quattuordecimlineatus* (Sternfeld, 1919), occurs essentially from the Northern Territory and Western Australian border region, including just inside Western Australia, from the Tanami Desert in the north, south to the Musgrave Ranges (NT/SA/WA border area), and east across most of the southern third of the Northern Territory, entering far western Queensland.

Etymology: The species name “*vult harenae*” comes from the Latin words *vult harenae*, which means “likes sand” in reflection of the microhabitat preference for this taxon. It frequents sandy areas including dunes and sandplains, usually in association with *Spinifex* (*Triodia* spp.).

CTENOTUS INVENERUNTUSQUAM SP. NOV.

LSIDDurn:lsid:zoobank.org:act:6275A94C-A1C6-4499-9ECC-C517E119C191

Holotype: A preserved adult male specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R112780 collected from Noondoonia station, Western Australia, Australia, Latitude -32.0725 S., Longitude 124.002778 E.

This government-owned facility allows access to its holdings.

Paratypes: Five preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, 1/ Specimen number R112779 collected from Noondoonia station, Western Australia, Australia, Latitude -32.0725 S., Longitude 124.002778 E., 2/ Specimen numbers R91324 and R91761

both collected 7 km east southeast of a place known as Kildwerinia Granite Rock, Western Australia, Australia, Latitude -32.074167 S., Longitude

124.003056 E., 3/ Specimen number R91777 collected 5 km east southeast of a place known as Kildwerinia Granite Rock, Western Australia, Australia, Latitude -32.074167 S., Longitude 123.962222 E.

Diagnosis: Until now, *Ctenotus inveneruntusquam* sp. nov. from south-west Western Australia has been treated as a western population of *C. orientalis* Storr, 1971, type locality Ouyen, Victoria, Australia (Latitude 35.0726 S., Longitude 142.3188 E.) and a taxon that now is confined to the region of central and western Victoria, across the southern part of South Australia and including the Eyre Peninsula and towards the Western Australian border.

While all specimens previously classified as *C. orientalis* found in the region generally bound by the vicinity of the type locality for *C. inveneruntusquam* sp. nov. in the west, Eyre Homestead, Western Australia in the south-east, (Latitude -32.025 S., Longitude 126.263889 E), and about 92 km north north-east of Rawlinna, Western Australia in the north (Latitude -30.25 S., Longitude 125.75 S.) are of the new species *C. inveneruntusquam* sp. nov., the status of specimens between the east side of this zone and including the southern Nullarbor is uncertain in terms of determining species limits for either taxon.

Specimens from the southern and central highlands of New South Wales, a distributionally distant area from where the preceding two taxa are identified as coming from, that have until now been referred to *C. orientalis* are tentatively treated as a third species, morphologically similar to *C. orientalis*.

The name *C. monaro* Wells and Wellington, 1985 is available for that taxon.

Contrary to the assertion by Wolfgang Wüster and his agent Peter Uetz on their website “The Reptile Database”, the name *Minervascincus monaro* Wells and Wellington is NOT a “*nomen nudum*” as alleged by them without evidence.

The false claim of *nomen nudum* is a prelude to members of their own cohort breaking the rules of *International Code of International Nomenclature* (Ride et al. 1999) and engaging in taxonomic vandalism to break the Copyright Act 1968 by renaming the same taxon and then improperly promoting their own name as the correct one.

C. inveneruntusquam sp. nov. is readily separated from *C. orientalis* as follows:

In *C. inveneruntusquam* sp. nov. the white dorsolateral line is broken into widely separated groups of light spots, versus either a continuous line, or in the alternative closely joined yellow spots forming an effectively continuous line. In *C. inveneruntusquam* sp. nov. spotting on the dorsum and upper flanks is heavily reduced, with these being tiny and well-spaced. By contrast, the spotting on the dorsum and upper flanks in *C. orientalis* consists of a series of large yellowish white spots or blotches. In *C. inveneruntusquam* sp. nov. there is no post auricular stripe or closely joined

white or yellow spots as seen in *C. orientalis*. At most *C. inveneruntusquam* sp. nov. has one or more well-spaced white or yellow spots behind the ear.

C. inveneruntusquam sp. nov. has 2-3 ear lobules, versus 4-5 in *C. orientalis*.

C. monaro is similar in most respects to *C. orientalis* and there have been no molecular comparisons between the forms, so recognition of this taxon herein is tentative.

C. monaro is diagnosed as for *C. orientalis* above in comparison to *C. inveneruntusquam* sp. nov..

C. monaro is separated from *C. orientalis* by the fact that the row of white spots running along the mid flank merge to form a well-defined moderately thick unbroken line at the posterior part of the body, versus not so in *C. orientalis*. In *C. orientalis* white spots along the midline of the flank are effectively broken along the entire length.

By contrast to both the preceding taxa, the same section of the midflank in *C. inveneruntusquam* sp. nov. has an effectively unbroken white line (rarely with small breaks) for the entire length, commencing at the axilla of the forelimb and running across the hindlimb and along the mid to lower part of the tail as the boundary of the dorsal and ventral surfaces of the tail.

As a rule, dark barring of the upper labials is thick in *C. monaro* versus thin in *C. orientalis*, and either thin or non-existent in *C. inveneruntusquam* sp. nov..

The species *C. uber* Storr, 1969 is also found in the southern interior of Western Australia and may be sympatric with *C. inveneruntusquam* sp. nov. at the northern extremity of the range for *C. inveneruntusquam* sp. nov..

C. uber is however readily separated from the preceding three species by a thick bold yellow-gold stripe running down each dorsolateral edge as well as the fact that in addition, the borders of the dorsal midline are thick and reddish in colour, making the black dorsal midline very thin, versus a generally blackish-brown dorsum with no obvious midline or borders in *C. inveneruntusquam* sp. nov. and a black mid-dorsal line bounded by thin yellow lines of reasonable thickness in both in *C. monaro* and *C. orientalis*.

The four preceding species, being *C. inveneruntusquam* sp. nov., *C. orientalis*, *C. monaro* and *C. uber* are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

No dorsal pattern consisting of obvious ocelli; post-narial groove is weak or absent. Dorsal and lateral pattern complex in that it includes pale spots, blotches or similar and/or longitudinal stripes of varying width and colour) or reduced (resulting in wide strips or zones without pattern or bands running longitudinally down the body or flank) and always including a dark vertebral stripe in some form; upper flank dark brown or black with or without 1-3 longitudinal series of whitish spots, dots or small blotches, sometimes of consistently irregular shape. First three of four supraoculars (or first two when only three supraoculars present) are in contact with the frontal; first supraocular not much narrower than the second; 1 or 2 presuboculars; second loreal quadrilateral with flat or curving top; toes compressed; subdigital lamellae obtusely keeled or narrowly callose; snout-vent length up to 79 mm.

The newly named subspecies *Ctenotus astarte eyreensis* subsp. nov. from the Lake Erye basin in north-west South Australia and immediately adjacent inland Queensland, is morphologically similar to the four preceding species and with similar body pattern, incorporating stripes formed from joined dots and dashes, but is separated from all by having a dorsum with a background colour that is light to medium brown rather than with black, or obvious black longitudinal stripes or bands.

C. inveneruntusquam sp. nov. is depicted in life online at:

<https://images.ala.org.au/image/details?imageId=1597774e-52b4-4570-84bc-015a00d9b2e9>

and

<https://reptile-database.reptarium.cz/species?genus=Ctenotus&species=orientalis>

C. orientalis is depicted in life in Wilson and Swan (2021) on page 287 at top, Swan and Watharow (2005) on page 34 at top left and online at:

<https://www.flickr.com/photos/193548600@N04/52591717877/>

and

<https://www.flickr.com/photos/127392361@N04/49937176523/>

and

<https://www.flickr.com/photos/jayceebarnes/50684439173/>

and

<https://www.flickr.com/photos/jayceebarnes/50649921138/>

and

<https://www.flickr.com/photos/88708273@N03/27642709115/>

and

<https://www.flickr.com/photos/127392361@N04/27545038091/>

C. monaro as defined herein is depicted in life in Jenkins and Bartell (1980) on page 136, Swan *et al.* (2022) on page 140 at top and online at:

<https://www.flickr.com/photos/171250498@N08/51381617518/>

and

<https://www.flickr.com/photos/192450840@N03/52368743429/>

and

<https://www.flickr.com/photos/189037423@N06/51169559828/>

Ctenotus uber from the West Australian Goldfields Region is depicted in life online at:

<https://www.inaturalist.org/observations/201883331>

Distribution: With certainty the taxon *C. inveneruntusquam* sp. nov. is only known to occur within the region bounded in the west by Latitude -32.311473 S., Longitude 123.728703, in the southeast by Eyre Homestead, Western Australia, (Latitude -32.025 S. Longitude 126.263889 E), and in the north about 92 km north north-east of Rawlinna, Western Australia (Latitude -30.25 S., Longitude 125.75 S.).

C. orientalis Storr, 1971, type locality Ouyen, Victoria, Australia (Latitude 35.0726 S., Longitude 142.3188 E.) is a taxon that now is confined (with certainty) to the region of central and western Victoria, across the southern part of South Australia and including the Eyre Peninsula and towards the Western Australian border.

Populations previously referred to *C. orientalis* from the higher areas of southern New South Wales and the ACT are referred to the putative taxon *C. Monaro* Wells and Wellington, 1985.

Etymology: The species name "*inveneruntusquam*" comes from the Latin words *invenerunt usquam* which means "found anywhere", which reflects the relatively casual habitat preferences of this species within its range of distribution.

CTENOTUS ASTARTE EYRENSIS SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:4EE52921-5829-4E81-A1FE-14B651347951

Holotype: A preserved specimen at the South Australian Museum, Adelaide South Australia, Australia, specimen number R42949 collected from 9 km west of Betoota, Queensland, Australia, Latitude -25.75 S., Longitude 140.72 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 R42950 collected from 9 km west of Betoota, Queensland, Australia, Latitude -25.75 S., Longitude 140.72 E., 2/ A preserved specimen at the South Australian Museum, Adelaide South Australia, Australia, specimen number R45013 collected from half a kilometre north of Stony Point, South Australia, Australia, Latitude -26.2506 S.,

Longitude 140.9119 E.

Diagnosis: Until now *Ctenotus astarte eyreensis* subsp. nov. has been treated as a population of *C. orientalis* Storr, 1971, type locality Ouyen, Victoria, Australia (Latitude 35.0726 S., Longitude 142.3188 E.) and a taxon that now is confined to the region of central and western Victoria, across the southern part of South Australia and including the Eyre Peninsula and towards the Western Australian border.

The newly named subspecies *Ctenotus astarte eyreensis* subsp. nov. from the Lake Eyre basin in north-west South Australia and immediately adjacent inland Queensland, is morphologically similar to *C. orientalis*, *C. inveneruntusquam* sp. nov. from south-east southern Western Australia, *C. monaro* Wells and Wellington, 1985 from the southern highlands and nearby parts of southern New South Wales and the ACT and *C. uber* Storr, 1969 from the interior of Western Australia and adjacent parts of South Australia and the Northern Territory.

Ctenotus astarte eyreensis subsp. nov. is similar to the four other preceding species in that they have similar body pattern to them by way of incorporating stripes formed from joined dots and dashes.

Ctenotus astarte eyreensis subsp. nov. is separated from all by having a dorsum with a background colour that is light to medium brown rather than with black (the black being absent), or obvious black longitudinal stripes or bands.

Nominate *Ctenotus astarte* Czechura, 1986, with a type locality of Cuddapan airstrip, Cuddapan Station, Queensland, Australia, (Latitude 25.3859 S., Longitude 141.3000 E.), is readily separated from *C. astarte eyreensis* subsp. nov. by having a dorsum and flank pattern composed of numerous tiny yellow spots on a light to medium background.

Both *C. astarte* and *C. astarte eyreensis* subsp. nov. are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

Dorsum and flanks that are the same colour, usually being light to medium brown, spotted only, as seen in *C. astarte*, or spotted with broken stripes as seen in *C. astarte eyreensis* subsp. nov.,.

There is sometimes a dark-edged temporal stripe from above the eye to above the ear. Whitish spotting on the body is aligned to form broken lines but due to their spacing and size, this is not obvious. Lower flanks have reduced intensity of spotting and plainer in general colouration. Upper labials are thickly barred

purple, brown with white between, tiny white spots are in the temporal area, with larger ones below; upper surfaces of the limbs are brown and with bold to faint pale stripes running longitudinally. Tail is more speckled than striped.

Venter whitish. 32-37 midbody rows, nasals separated or contact only just. Prefrontals separated. Four (rarely 5) supraoculars, 8-9 supralabials. 4-6 ear lobules. 25-27 lamellae under the fourth toe, each with a blunt keel or narrow callus. Snout-vent to 80 mm (adapted from Cogger 2014).

Distribution: *C. astarte eyreensis subsp. nov.* is only known from the locations the type and paratypes originate.

Etymology: The subspecies name reflects the fact the taxon is restricted to the Lake Eyre basin in central east Australia.

CTENOTUS AP SP. NOV.

LSIDurn:lsid:zoobank.org:act:42B459BF-3844-4BDE-AB63-A78C29A06361

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R117303 collected at Yalgoo, Western Australia, Australia, Latitude -28.35 S., Longitude 116.683333 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, being: 1/ Specimen number R127029 collected from 12 km south south-east of White Tank Well, Western Australia, Australia, Latitude -25.2425 S., Longitude 119.631389 E., 2/ Specimen number R129973 collected from near Mount Joel, Western Australia, Australia, Latitude -27.216667 S., Longitude 121.05 E., 3/ Specimen number R144639 collected from 13 km south of Menzies, Western Australia, Australia, Latitude -29.796389 S., Longitude 29.796389 S., Longitude 121.074722 E.

Diagnosis: The putative pan-Australian taxon, *Ctenotus leonhardii* (Sternfeld, 1919), with a type locality of Hermannsburg Mission, Upper Finke River, Northern Territory, Australia as designated by Mertens (1967) has long been recognized as a composite species with divergent lineages.

Closely associated to this taxon is *Ctenotus hebetior* Storr, 1978, with a type locality of 5 km northwest of Fermoy, Queensland (Latitude -23.09 S., Longitude 143.00 E.) long recognised as a separate species and containing multiple divergent lineages within the populations referred to the taxon (Singhal *et al.* 2017).

With the unavailability of synonyms and based on significant, species-level divergences of the relevant populations of putative *C. leonhardii*, that species as recognized to date is split three ways.

These are *C. ap sp. nov.* for the south-west Australian population and *C. taxi sp. nov.* for the north-west NSW

population. *C. leonhardii* is in effect confined to Central Australia and nearby parts of north-west Australia and northern South Australia.

Specimens from east South Australia are referred to *C. taxi sp. nov.* and there is a degree of uncertainty as to the limits of distribution of *C. hebetior* (all lineages) in terms of western and southern limits and likewise for the others in the *C. leonhardii* complex whose ranges about that species.

The north-east population of putative *C. hebetior* from generally east of the Great Dividing Range in north-east Queensland, with an estimated 1.5 MYA divergence from the type form of *C. hebetior* is herein formally named *C. cab sp. nov.*

C. leonhardii of the type form, *C. ap sp. nov.* and *C. taxi sp. nov.* as well as the related taxa, *C. hebetior* (of the type form), *C. hebetior schuettleri* Börner, 1981 and *C. cab sp. nov.* are separated from one another by the following unique combinations of characters:

C. leonhardii of the type form is a boldly coloured lizard with black on the upper flanks with small bold yellow-white spots evenly spaced and arranged more-or-less in longitudinal rows.

The black mid-dorsal line is bound with a yellow edge on either side, in turn becoming brown as a thick line bordering the black mid-dorsal line. On the outer edge of the border line on each side of the dorsal surface is a moderately well-defined black line of moderate thickness to the sharp bold well-defined and continuous yellow dorso-lateral line and edge. The inner edge of the outer black line has a sharp edge anteriorly but becomes faded from the upper body to the back legs. The head is brown with faint black markings, sides of back of head purplish with white spots; anterior to the eye and labials are mainly whitish.

C. ap sp. nov. is readily separated from *C. leonhardii* by the absence of the reddish outer edge to the yellow line that borders the black mid-dorsal line. This in turn makes the outer black lines much wider and gives the lizard an overall much darker appearance. Spots on the flank are medium in size rather than small as seen in *C. leonhardii*.

C. taxi sp. nov. is separated from the two preceding species by being a generally brownish coloured lizard with brown rather than black on the upper flank, and the stripes bounding the black mid-dorsal line being gold in colour rather than yellow or white. The dorsolateral line and side markings are white and not yellow. On the outer edge of the two gold-coloured lines running down either side of the black midline, the red coloured outer edge is brownish in colour and expanded to cover most, if not all the black lines that would otherwise run down the outer sides of the dorsum in the other two species.

C. hebetior including the subspecies *C. hebetior schuettleri* Börner, 1981, with a type locality of 1.5 km east of the Barkly Highway, about 25 km north of

Mount Isa, Queensland, Australia (being generally restricted to the Selwyn Ranges area) and the newly named species *C. cab sp. nov.* are all separated from the morphologically similar species *C. leonhardii*, *C. ap sp. nov.* and *C. taxi sp. nov.* by the fact that the dorsum is in effect all black or blackish and there are four main yellow lines running down the dorsum, with this number being six if one includes those on the dorso-lateral edge.

Alternatively the three taxa could be said to effectively have 5 dark dorsal stripes.

C. hebetior schuettleri has bold and sharply contrasting markings on the dorsum and flanks. The flanks in particular from behind the eye backwards, are jet black with boldly defined large white blotches with a lower row tending to form a broken line.

Unlike the type form of *C. hebetior* and *C. cab sp. nov.* the upper labials of *C. hebetior schuettleri* are immaculately white and sharply etched with a dark outline.

The type form of *C. hebetior* by contrast has flanks that are dark brown at the top, rapidly fading to light orange and white towards the belly. The white spots on the flanks are also small in size.

C. cab sp. nov. is black on the upper flanks, but not boldly so like in *C. hebetior schuettleri*. The white spotting is sparse, with spots being small to medium in size (versus large in *C. hebetior schuettleri*) and clearly arranged in antero-posterior rows. Underlying the yellow rows on the dorsum, the background colour is dark brown to blackish.

The six preceding taxa are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* type species *Matherus matheri sp. nov.* by the following unique combination of characters:

No dorsal pattern containing well-formed ocelli; post-narial groove weak or absent.

Dorsal and lateral pattern complex as in, including spots, dots and dashes, and in some form has longitudinal stripes of varying width and colour, or reduced, resulting in wide strips or zones without pattern and including in some form a dark black or brown mid dorsal stripe; mid dorsal stripe moderately narrow and pale-edged; white mid-lateral stripe present in some form, being entire or broken and extending more than half way along the flank from the rear, being complete to forelimb and/or ear in some cases; upper flank brown or black, spotted in some way with whiteish spots generally arranged in 1 to 3 longitudinal rows.

First three of four supraoculars (or first two when only three supraoculars present) in contact with frontal; 1-2 presuboculars; first supraocular not much narrower than second; second loreal quadrilateral with flat or curving top; prefrontals usually separated; midbody scale rows usually more than 26.

Toes compressed; subdigital lamellae keeled or callose; snout vent length to about a maximum of about 80 mm, but more commonly about 70 mm. Tail (original) is about 150 percent of body length.

Ctenotus leonhardii is depicted in life in Horner (1991) on page 53 at Fig. 49 and online at:

<https://www.inaturalist.org/observations/203347519> and

<https://www.inaturalist.org/observations/135635518> and

<https://www.inaturalist.org/observations/153548244>

C. ap sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/90622330> and

<https://www.inaturalist.org/observations/146599177>

C. taxi sp. nov. is depicted in life in Swan *et al.* (2022) on page 138 and online at:

<https://www.inaturalist.org/observations/208648962> and

<https://www.inaturalist.org/observations/204676490>

C. hebetior is depicted in life in Wilson and Swan, page 273 second from bottom left and online at:

<https://www.flickr.com/photos/127392361@N04/53387192998/>

and

<https://www.flickr.com/photos/euprepiosaur/50538679246/> and

<https://www.inaturalist.org/observations/137399409>

C. cab sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/135222645> and

<https://www.inaturalist.org/observations/141666981>

C. hebetior schuettleri is depicted in life in Wilson and Swan (2021) on page 273, second from bottom.

Distribution: *C. ap sp. nov.* is confined to the lower half of western Australia, excluding the coasts to the south and west, south-west corner more generally and not including the dry deserts and Pilbara in the northern half of the State.

Etymology: The Latin word “*uber*”, means “product” and in English the word *uber* means “over, beyond” and is usually added to an adjective or noun to form a compound; e.g. *uberchef*, *uberstylish*, sometimes hyphenated when used in an unusual context. Storr (1969) gave no explanation or verbal context when naming his “*Ctenotus uber*” meaning the etymology isn’t really known. That is perhaps save for the fact he recognized various three geographical groups within

the species as he conceived it, meaning it was a bit beyond the normal species he named, that came in just one form.

In 2024, "Uber" is a well-known brand of flea taxi service operating globally and in Australia. With one species in the genus now in effect using the name of a flea taxi (AKA Ride share) service, it is appropriate to honour the means by which the service operates, as in a phone application, or "ap" for short. Hence the etymology of this species.

CTENOTUS TAXI SP. NOV.

LSIDurn:lsid:zoobank.org:act:C4C9DD6B-0F90-463D-B7FE-7C304E9B19E4

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.65825 collected at Lake Bancannia, New South Wales, Australia, Latitude -30.8 S., Longitude 141.866 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, 1/ Specimen number R93709 collected at Fowlers Gap Research Station, approximately 25 km north-east of the Homestead, New South Wales, Australia, Latitude -30.95, Longitude 141.8 E., 2/ Specimen number R.147281 collected from Mootwingee National Park, New South Wales, Australia, Latitude -31.283 S., Longitude 142.25 E.

Diagnosis: The putative pan-Australian taxon, *Ctenotus leonhardii* (Sternfeld, 1919), with a type locality of Hermannsburg Mission, Upper Finke River, Northern Territory, Australia as designated by Mertens (1967) has long been recognized as a composite species with divergent lineages.

Closely associated to this taxon is *Ctenotus hebetior* Storr, 1978, with a type locality of 5 km northwest of Fermoy, Queensland (Latitude -23.09 S., Longitude 143.00 E.) long recognised as a separate species and also containing multiple divergent lineages within the populations referred to the taxon (Singhal *et al.* 2017).

With the unavailability of synonyms and based on significant, species-level divergences of the relevant populations of putative *C. leonhardii*, that species as recognized to date is split three ways.

These are *C. ap sp. nov.* for the south-west Australian population and *C. taxi sp. nov.* for the north-west New South Wales population. *C. leonhardii* is in effect confined to Central Australia and nearby parts of north-west Australia and northern South Australia.

Specimens from east South Australia are referred to *C. taxi sp. nov.* and there is a degree of uncertainty as to the limits of distribution of *C. hebetior* (all lineages) in terms of western and southern limits and likewise for the others in the *C. leonhardii* complex whose ranges about that species.

The north-east population of putative *C. hebetior*

from generally east of the Great Dividing Range in north-east Queensland, with an estimated 1.5 MYA divergence from the type form of *C. hebetior* is herein formally named *C. cab sp. nov.*

C. leonhardii of the type form, *C. ap sp. nov.* and *C. taxi sp. nov.* as well as the related taxa, *C. hebetior* (of the type form), *C. hebetior schuettleri* Börner, 1981 and *C. cab sp. nov.* are separated from one another by the following unique combinations of characters:

C. leonhardii of the type form is a boldly coloured lizard with black on the upper flanks with small bold yellow-white spots evenly spaced and arranged more-or-less in longitudinal rows.

The black mid-dorsal line is bound with a yellow edge on either side, in turn becoming brown as a thick line bordering the black mid-dorsal line. On the outer edge of the border line on each side of the dorsal surface is a moderately well-defined black line of moderate thickness to the sharp bold well-defined and continuous yellow dorso-lateral line and edge. The inner edge of the outer black line has a sharp edge anteriorly but becomes faded from the upper body to the back legs. The head is brown with faint black markings, sides of back of head purplish with white spots; anterior to the eye and labials are mainly whitish.

C. ap sp. nov. is readily separated from *C. leonhardii* by the absence of the reddish outer edge to the yellow line that borders the black mid-dorsal line. This in turn makes the outer black lines much wider and gives the lizard an overall much darker appearance. Spots on the flank are medium in size rather than small as seen in *C. leonhardii*.

C. taxi sp. nov. is separated from the two preceding species by being a generally brownish coloured lizard with brown rather than black on the upper flank, and the stripes bounding the black mid-dorsal line being gold in colour rather than yellow or white. The dorsolateral line and side markings are white and not yellow. On the outer edge of the two gold-coloured lines running down either side of the black midline, the red coloured outer edge is brownish in colour and expanded to cover most, if not all the black lines that would otherwise run down the outer sides of the dorsum in the other two species.

C. hebetior including the subspecies *C. hebetior schuettleri* Börner, 1981, with a type locality of 1.5 km east of the Barkly Highway, about 25 km north of Mount Isa, Queensland, Australia (being generally restricted to the Selwyn Ranges area) and the newly named species *C. cab sp. nov.* are all separated from the morphologically similar species *C. leonhardii*, *C. ap sp. nov.* and *C. taxi sp. nov.* by the fact that the dorsum is in effect all black or blackish and there are four main yellow lines running down the dorsum, with this number being six if one includes those on the dorso-lateral edge.

Alternatively, the three taxa could be said to effectively have 5 dark dorsal stripes.

C. hebetior schuettleri has bold and sharply contrasting markings on the dorsum and flanks. The flanks in particular from behind the eye backwards, are jet black with boldly defined large white blotches with a lower row tending to form a broken line.

Unlike the type form of *C. hebetior* and *C. cab sp. nov.* the upper labials of *C. hebetior schuettleri* are immaculately white and sharply etched with a dark outline.

The type form of *C. hebetior* by contrast has flanks that are dark brown at the top, rapidly fading to light orange and white towards the belly. The white spots on the flanks are also small in size.

C. cab sp. nov. is black on the upper flanks, but not boldly so like in *C. hebetior schuettleri*. The white spotting is sparse, with spots being small to medium in size (versus large in *C. hebetior schuettleri*) and clearly arranged in antero-posterior rows. Underlying the yellow rows on the dorsum, the background colour is dark brown to blackish.

The six preceding taxa are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* by the following unique combination of characters:

No dorsal pattern containing well-formed ocelli; post-narial groove weak or absent.

Dorsal and lateral pattern complex as in, including spots, dots and dashes, and in some form has longitudinal stripes of varying width and colour, or reduced, resulting in wide strips or zones without pattern and including in some form a dark black or brown mid dorsal stripe; mid dorsal stripe moderately narrow and pale-edged; white mid-lateral stripe present in some form, being entire or broken and extending more than half way along the flank from the rear, being complete to forelimb and/or ear in some cases; upper flank brown or black, spotted in some way with whiteish spots generally arranged in 1 to 3 longitudinal rows.

First three of four supraoculars (or first two when only three supraoculars present) in contact with frontal; 1 or 2 presuboculars; first supraocular not much narrower than second; second loreal quadrilateral with flat or curving top; prefrontals usually separated; midbody scale rows usually more than 26.

Toes compressed; subdigital lamellae keeled or callose; snout vent length to about a maximum of about 80 mm, but more commonly about 70 mm. Tail (original) is about 150 percent of body length.

Ctenotus leonhardii is depicted in life in Horner (1991) on page 53 at Fig. 49 and online at:

<https://www.inaturalist.org/observations/203347519> and

<https://www.inaturalist.org/observations/135635518> and

<https://www.inaturalist.org/observations/153548244>

C. ap sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/90622330> and

<https://www.inaturalist.org/observations/146599177>

C. taxi sp. nov. is depicted in life in Swan *et al.* (2022) on page 138 and online at:

<https://www.inaturalist.org/observations/208648962> and

<https://www.inaturalist.org/observations/204676490>

C. hebetior is depicted in life in Wilson and Swan, page 273 second from bottom left and online at:

<https://www.flickr.com/photos/127392361@N04/53387192998/>

and

<https://www.flickr.com/photos/euprepiosaur/50538679246/> and

<https://www.inaturalist.org/observations/137399409>

C. cab sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/135222645> and

<https://www.inaturalist.org/observations/141666981>

C. hebetior schuettleri is depicted in life in Wilson and Swan (2021) on page 273, second from bottom.

Distribution: *C. taxi sp. nov.* is confined to far west of New South Wales, potentially extending into the eastern parts of nearby South Australia as well as perhaps south-west Queensland.

Etymology: Referring to the newly named species *Ctenotus ap sp. nov.* and the earlier named species *C. uber* Storr, 1969, sharing its name with a now ubiquitous outlaw flea taxi service, it seems appropriate that the original and legal, government-regulated "ride share" service, the humble taxicab be honoured in an etymology. Hence the naming of this taxon, *C. taxi sp. nov.*

CTENOTUS CAB SP. NOV.

LSIDurn:lsid:zoobank.org:act:ACCA0B49-FEFB-4C4A-BEC0-85BB3AD017DB

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R55677 collected from about 40 km south of Torrens Creek on Torrens Creek-Aramac Road, Queensland, Australia, Latitude -21.0917 S., Longitude 145.0044 E.

This government-owned facility allows access to its holdings.

Paratypes: Eight preserved specimens being: 1/ A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia,

specimen number R55678 collected from about 40 km south of Torrens Creek on Torrens Creek-Aramac Road, Queensland, Australia, Latitude -21.0917 S., Longitude 145.0044 E., 2/ Two preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.113495 and R.113496 both collected from a rubbish tip just south of Pentland, Queensland, Australia, Latitude -20.533 S., Longitude 145.4 E., 3/ Five preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J44483, J44484, J44485, J44486 and J44487 all collected from Campaspe Station, Latitude -20.5 S., Longitude 145.633333 E.

Diagnosis: The putative pan-Australian taxon, *Ctenotus leonhardii* (Sternfeld, 1919), with a type locality of Hermannsburg Mission, Upper Finke River, Northern Territory, Australia as designated by Mertens (1967) has long been recognized as a composite species with divergent lineages.

Closely associated to this taxon is *Ctenotus hebetior* Storr, 1978, with a type locality of 5 km northwest of Fermoy, Queensland (Latitude -23.09 S., Longitude 143.00 E.) long recognised as a separate species and also containing multiple divergent lineages within the populations referred to the taxon (Singhal *et al.* 2017).

With the unavailability of synonyms and based on significant, species-level divergences of the relevant populations of putative *C. leonhardii*, that species as recognized to date is split three ways.

These are *C. ap sp. nov.* for the south-west Australian population and *C. taxi sp. nov.* for the north-west New South Wales population. *C. leonhardii* is in effect confined to Central Australia and nearby parts of north-west Australia and northern South Australia.

Specimens from east South Australia are referred to *C. taxi sp. nov.* and there is a degree of uncertainty as to the limits of distribution of *C. hebetior* (all lineages) in terms of western and southern limits and likewise for the others in the *C. leonhardii* complex whose ranges about that species.

The north-east population of putative *C. hebetior* from generally east of the Great Dividing Range in north-east Queensland, with an estimated 1.5 MYA divergence from the type form of *C. hebetior* is herein formally named *C. cab sp. nov.*

C. leonhardii of the type form, *C. ap sp. nov.* and *C. taxi sp. nov.* as well as the related taxa, *C. hebetior* (of the type form), *C. hebetior schuettleri* Börner, 1981 and *C. cab sp. nov.* are separated from one another by the following unique combinations of characters:

C. leonhardii of the type form is a boldly coloured lizard with black on the upper flanks with small bold yellow-white spots evenly spaced and arranged more-or-less in longitudinal rows.

The black mid-dorsal line is bound with a yellow edge on either side, in turn becoming brown as a thick line bordering the black mid-dorsal line. On the outer

edge of the border line on each side of the dorsal surface is a moderately well-defined black line of moderate thickness to the sharp bold well-defined and continuous yellow dorso-lateral line and edge. The inner edge of the outer black line has a sharp edge anteriorly but becomes faded from the upper body to the back legs. The head is brown with faint black markings, sides of back of head purplish with white spots; anterior to the eye and labials are mainly whitish.

C. ap sp. nov. is readily separated from *C. leonhardii* by the absence of the reddish outer edge to the yellow line that borders the black mid-dorsal line. This in turn makes the outer black lines much wider and gives the lizard an overall much darker appearance. Spots on the flank are medium in size rather than small as seen in *C. leonhardii*.

C. taxi sp. nov. is separated from the two preceding species by being a generally brownish coloured lizard with brown rather than black on the upper flank, and the stripes bounding the black mid-dorsal line being gold in colour rather than yellow or white. The dorsolateral line and side markings are white and not yellow. On the outer edge of the two gold-coloured lines running down either side of the black midline, the red coloured outer edge is brownish in colour and expanded to cover most, if not all the black lines that would otherwise run down the outer sides of the dorsum in the other two species.

C. hebetior including the subspecies *C. hebetior schuettleri* Börner, 1981, with a type locality of 1.5 km east of the Barkly Highway, about 25 km north of Mount Isa, Queensland, Australia (being generally restricted to the Selwyn Ranges area) and the newly named species *C. cab sp. nov.* are all separated from the morphologically similar species *C. leonhardii*, *C. ap sp. nov.* and *C. taxi sp. nov.* by the fact that the dorsum is in effect all black or blackish and there are four main yellow lines running down the dorsum, with this number being six if one includes those on the dorso-lateral edge.

Alternatively, the three taxa could be said to effectively have 5 dark dorsal stripes.

C. hebetior schuettleri has bold and sharply contrasting markings on the dorsum and flanks. The flanks in particular from behind the eye backwards, are jet black with boldly defined large white blotches with a lower row tending to form a broken line.

Unlike the type form of *C. hebetior* and *C. cab sp. nov.* the upper labials of *C. hebetior schuettleri* are immaculately white and sharply etched with a dark outline.

The type form of *C. hebetior* by contrast has flanks that are dark brown at the top, rapidly fading to light orange and white towards the belly. The white spots on the flanks are also small in size.

C. cab sp. nov. is black on the upper flanks, but not boldly so like in *C. hebetior schuettleri*. The white

spotting is sparse, with spots being small to medium in size (versus large in *C. hebetior schuettleri*) and clearly arranged in antero-posterior rows. Underlying the yellow rows on the dorsum, the background colour is dark brown to blackish.

The six preceding taxa are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species *Matherus matheri* sp. nov. by the following unique combination of characters:

No dorsal pattern containing well-formed ocelli; post-narial groove weak or absent.

Dorsal and lateral pattern complex as in, including spots, dots and dashes, and in some form has longitudinal stripes of varying width and colour, or reduced, resulting in wide strips or zones without pattern and including in some form a dark black or brown mid dorsal stripe; mid dorsal stripe moderately narrow and pale-edged; white mid-lateral stripe present in some form, being entire or broken and extending more than half way along the flank from the rear, being complete to forelimb and/or ear in some cases; upper flank brown or black, spotted in some way with whiteish spots generally arranged in 1 to 3 longitudinal rows.

First three of four supraoculars (or first two when only three supraoculars present) in contact with frontal; 1 or 2 presuboculars; first supraocular not much narrower than second; second loreal quadrilateral with flat or curving top; prefrontals usually separated; midbody scale rows usually more than 26.

Toes compressed; subdigital lamellae keeled or callose; snout vent length to about a maximum of about 80 mm, but more commonly about 70 mm. Tail (original) is about 150 percent of body length.

Ctenotus leonhardii is depicted in life in Horner (1991) on page 53 at Fig. 49 and online at:

<https://www.inaturalist.org/observations/203347519>

and

<https://www.inaturalist.org/observations/135635518>

and

<https://www.inaturalist.org/observations/153548244>

C. ap sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/90622330>

and

<https://www.inaturalist.org/observations/146599177>

C. taxi sp. nov. is depicted in life in Swan *et al.* (2022) on page 138 and online at:

<https://www.inaturalist.org/observations/208648962>

and

<https://www.inaturalist.org/observations/204676490>

C. cab sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/135222645>

and

<https://www.inaturalist.org/observations/141666981>

C. hebetior is depicted in life in Wilson and Swan, page 273 second from bottom left and online at:

<https://www.flickr.com/photos/127392361@N04/53387192998/>

and

<https://www.flickr.com/photos/euprepiosaur/50538679246/>

and

<https://www.inaturalist.org/observations/137399409>

C. hebetior schuettleri is depicted in life in Wilson and Swan (2021) on page 273, second from bottom.

Distribution: *C. cab* sp. nov. is confined to north-east Queensland in the general area of the upper Burdekin River drainage basin and including adjacent areas including places just west of the Great Divide including the type locality for the species, near the western extremity of the range of the taxon.

Etymology: Referring to the newly named species *Ctenotus ap* sp. nov. and *C. taxi* sp. nov. with the earlier named species *C. uber* Storr, 1969, sharing its name with a now ubiquitous outlaw flea taxi service, it seems appropriate that the original and legal, government-regulated "ride share" service, the humble taxicab be honoured in another etymology. Hence the naming of this particular taxon, *C. cab* sp. nov..

CTENOTUS FUKDAT SP. NOV.

LSIDurn:lsid:zoobank.org:act:921D8FA3-F8F7-4597-A44D-4A040472468D

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R54025 collected from Brunette Downs racecourse, Northern Territory, Australia, Latitude -18.5922 S., Longitude 136.0894 E.

This government-owned facility allows access to its holdings.

Paratypes: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R54030 and three preserved specimens at the Northern Territory Museum of Arts and Sciences, Darwin, NT, Australia, specimen numbers R05783, R05784 and R05785 all collected from Brunette Downs racecourse, Northern Territory, Australia, Latitude -18.5922 S., Longitude 136.0894 E.

Diagnosis: *Ctenotus fukdat* sp. nov. has until now been treated as a western population of *C. pulchellus* Storr, 1978, with a type locality of 72 km north, northeast of Mount Isa, Queensland, Australia, (Latitude 20.19 S., Longitude 139.47 E).

C. pulchellus is now confined to the Selwyn Ranges,

outliers and associated sandy and rocky habitat, effectively confining the taxon to Queensland save for a few small intrusions into the Northern Territory near Alpururulam, NT.

C. fukdat sp. nov. occurs in sandy and rocky habitat generally north-west of the type locality of Brunette Downs, north-west to the Sturt Plateau, NT and generally north towards to Gulf of Carpentaria, where the habitat permits, recalling that this species group avoids flat black soil areas and generally do not pass them.

C. fukdat sp. nov. is readily separated from the nominate form of *C. pulchellus* as follows:

C. fukdat sp. nov. has bold dark black on the upper lateral edge being 3 scales wide, below which is bright orange on most of the rest of the flank. The border between the two is well defined and sharp edged. Overlaying all this are closely scattered white spots, being 1 to 4 scales in size. The dorsum is black with yellow lines running down it.

The black vertebral stripe is relatively wide.

By contrast, in *C. pulchellus* there is no sharp and well-defined border on the flank between the black upper band and the lower orange. The intensity of colouration in *C. pulchellus* is not as bright and strongly contrasting. White spots on the flank are smaller, usually being just 1 or 2 scales in size, sometimes three and almost never four. The black vertebral line is only of medium width.

Both *C. fukdat* sp. nov. and *C. pulchellus* have small poorly defined patches of white on the supralabials. These are usually in the centre of each or most in *C. pulchellus* or more randomly positioned in *C. fukdat* sp. nov. and as a rule absent in the associated and closely related species *C. gagudju* Sadlier, Wombey and Braithwaite, 1986, *C. militaris* Storr, 1975 (all putative populations and/or subspecies including *C. militaris gurindji* subsp. nov.) and *C. dakotabarnettae* sp. nov..

The latter three species also have a broken white lower lateral line below the orange region that is absent in both *C. fukdat* sp. nov. and *C. pulchellus* as well as a thin vertebral line (versus medium to wide in *C. fukdat* sp. nov. and *C. pulchellus*) (see comparative images and note that *C. pulchellus* is defined differently here than in the Storr papers of 1975 and 1978).

C. dakotabarnettae sp. nov. previously treated as the south-west Kimberley population of *C. militaris* Storr, 1975, with a type locality of Lake Argyle, Western Australia, Australia, (Latitude 16.25 S., Longitude 128.40 E.), is a taxon apparently confined to the south-west Kimberley district, including one or more immediately offshore islands.

It is readily separated from *C. militaris* by the fact that as a rule, the mid-dorsal yellow lines (not those bounding the vertebral line) are spotted or broken, rather than entire, the spots on the flank are coalesced

to form large blotches, the orange around the anterior regions is particularly intense and on the posterior flank the lower-mid line that is whiteish yellow is very thick and with a straight sharp outer edge, top and bottom and not of the form of merged spots, all being characters not present in the type form of *C. militaris* or the associated subspecies *C. militaris gurindji* subsp. nov..

C. militaris gurindji subsp. nov. from the upper Victoria River District of the Northern Territory is separated from the nominate form of *C. militaris* by the fact that the white spots on the upper and mid flanks are reduced in intensity and have faded rather than sharp edges. Furthermore, on the black upper lateral band in the middle and again on the lower boundary of this band, the white spots are in the form of two broken lines in the form of spaced elongated dash shapes (AKA long and very thin rectangles), versus small dots in *C. militaris*.

The five preceding species and named subspecies are separated from all other *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov., type species *Matherus matheri* sp. nov. by the following unique combination of characters:

No dorsal pattern containing well-formed ocelli; post-narial groove weak or absent.

Dorsal and lateral pattern complex as in, including spots, dots and dashes, and in some form has longitudinal stripes of varying width and colour, or reduced, resulting in wide strips or zones without pattern and including in some form a dark black or brown mid dorsal stripe; vertebral stripe moderately narrow to wide and bounded by sharp yellow lines and another similar line between this line and the dorsolateral one; all thin, bright, sharp edged and on a black back background colour, (with the exception of *C. dakotabarnettae* sp. nov. in which has the two mid dorsal lines, as in not those bordering the vertebral stripe, being as broken and bold stripes); white mid-lateral stripe present in some form, being entire or broken and extending more than half way along the flank from the rear, being complete to forelimb and/or ear in some cases (three western species as in WA, west NT, Kakadu NT), or absent in the other two (eastern species as in Qld, west to central NT); upper flank brown or black, spotted in some way with whiteish spots generally not obviously arranged in longitudinal rows.

First three of four supraoculars (or first two when only three supraoculars present) are in contact with frontal; presuboculars 2 or 1; first supraocular is not much narrower than second; second loreal quadrilateral

with flat or curving top; prefrontals usually separated; nasals form a median suture; midbody scale rows usually more than 26.

Toes compressed; subdigital lamellae keeled or callose; snout vent length to about a maximum of about 80 mm, but more commonly about 70 mm. Tail (original) is about 150 percent of body length.

C. fukdat sp. nov. is depicted in life in Horner (1991) on page 61 at top and online at:

https://www.flickr.com/photos/zimny_anders/51991298968/

and

<https://www.inaturalist.org/observations/145945485>

and

<https://www.flickr.com/photos/58349528@N02/52785039698/>

C. pulchellus is depicted in life in Cogger (2014) on page 512 at top right, Wilson and Swan (2021) on page 289 bottom left and online at:

<https://www.flickr.com/photos/elliottbudd/51694550703/>

and

<https://www.flickr.com/photos/ryanfrancis/34613505430/>

and

<https://www.flickr.com/photos/121210153@N05/14162560533/>

and

<https://www.flickr.com/photos/ryanfrancis/34190379583/>

C. militaris of the type form is depicted in life in Horner (1991) on page 53 bottom, Storr *et al.* (1981) on plate 7 picture 7, Wilson and Swan (2021) on page 283 top and online at:

<https://www.flickr.com/photos/145646323@N08/50542644697/>

C. gagudju is depicted in life in Cogger (2014) on page 496 bottom, Horner (1971) on page 40 bottom, Wilson and Swan on page 271 top left and online at:

<https://www.flickr.com/photos/58349528@N02/51371039576/>

and

<https://www.flickr.com/photos/58349528@N02/51274646097/>

and

<https://www.flickr.com/photos/chrisjolly1989/44741415544/>

C. dakotabarnettiae sp. nov. is depicted in life online at:

<https://pbase.com/austrelaps/image/166918385>

C. militaris gurindji subsp. nov. is depicted in life online at:

<https://arod.com.au/arod/reptilia/Squamata/Scincidae/Ctenotus/militaris>

Distribution: *C. fukdat* sp. nov. occurs in sandy and rocky habitat generally north-west of the type locality

of Brunette Downs, north-west to the Sturt Plateau, Northern Territory and generally north towards to Gulf of Carpentaria, where the habitat permits, recalling that this species group avoids flat black soil areas and generally does not pass them.

Etymology: The taxon *C. fukdat* sp. nov. occurs in the elevated areas to the north of Frewena Roadhouse on the Barkly Tableland. See the preceding etymology for *C. whatdafuk* sp. nov..

Heading east from the Kimberley district back towards Sydney, Charles Acheson and myself again had to pass through Frewena to buy petrol.

When I reminded Charles of the exorbitant price of fuel, he exclaimed "fukdat" and decided to purchase several drums of fuel at Threeways Roadhouse near Tennant Creek to avoid having to refuel at Frewena. As the name "fukdat" became synonymous with the general area, it is appropriate that a taxon be named in recognition of the fact.

CTENOTUS DAKOTABARNETTAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:76B9B0B2-CE07-4E6A-8A9E-9B0F57A33D74

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R11795 collected from the Wotjulum Mission Station, Western Australia, Australia, Latitude -16.183333 S., Longitude 123.616667 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 R11796 and R11797 both collected from the Wotjulum Mission Station, Western Australia, Australia, Latitude -16.183333 S., Longitude 123.616667 E.

2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R100117 collected from the Mount Hart Homestead, Western Australia, Australia, Latitude -16.816667 S., Longitude 124.916667 E.

Diagnosis: *Ctenotus dakotabarnettiae* sp. nov. has until now been treated as a south-west Kimberley district population of *C. militaris* Storr, 1975, with a type locality of Lake Argyle, Western Australia, Australia, (Latitude 16.25 S., Longitude 128.40 E.).

It is a taxon apparently confined to the south-west Kimberley district, including one or more immediately offshore islands.

It is readily separated from *C. militaris* by the fact that as a rule, the mid-dorsal yellow lines (not those bounding the vertebral line) are spotted or broken, rather than entire, the spots on the flank are coalesced to form large blotches, the orange around the anterior regions is particularly intense and on the posterior flank the lower-mid line that is whiteish yellow is very thick and with a straight sharp outer edge, top and bottom and not of the form of merged spots, all being

characters not present in the type form of *C. militaris* or the associated subspecies *C. militaris gurindji subsp. nov.*.

C. militaris gurindji subsp. nov. from the upper Victoria River District of the Northern Territory is separated from the nominate form of *C. militaris* by the fact that the white spots on the upper and mid flanks are reduced in intensity and have faded rather than sharp edges. Furthermore, on the black upper lateral band in the middle and again on the lower boundary of this band, the white spots are in the form of two broken lines in the form of spaced elongated dash shapes (AKA long and very thin rectangles), versus small dots in *C. militaris*.

Ctenotus fukdat sp. nov. has until now been treated as a western population of *C. pulchellus* Storr, 1978, with a type locality of 72 km north, northeast of Mount Isa, Queensland, Australia, (Latitude 20.19 S., Longitude 139.47 E).

C. pulchellus is now confined to the Selwyn Ranges, outliers and associated sandy and rocky habitat, effectively confining the taxon to Queensland save for a few small intrusions into the Northern Territory near Alpururulam, NT.

C. fukdat sp. nov. occurs in sandy and rocky habitat generally north-west of the type locality of Brunette Downs, north-west to the Sturt Plateau, NT and generally north towards to Gulf of Carpentaria, where the habitat permits, recalling that this species group avoids flat black soil areas and generally do not pass them.

C. fukdat sp. nov. is readily separated from the nominate form of *C. pulchellus* as follows:

C. fukdat sp. nov. has bold dark black on the upper lateral edge being 3 scales wide, below which is bright orange on most of the rest of the flank. The border between the two is well defined and sharp edged. Overlaying all this are closely scattered white spots, being 1 to 4 scales in size. The dorsum is black with yellow lines running down it.

The black vertebral stripe is relatively wide.

By contrast, in *C. pulchellus* there is no sharp and well-defined border on the flank between the black upper band and the lower orange. The intensity of colouration in *C. pulchellus* is not as bright and strongly contrasting. White spots on the flank are smaller, usually being just 1 or 2 scales in size, sometimes three and almost never four. The black vertebral line is only of medium width.

Both *C. fukdat sp. nov.* and *C. pulchellus* have small poorly defined patches of white on the supralabials. These are usually in the centre of each or most in *C. pulchellus* or more randomly positioned in *C. fukdat sp. nov.* and as a rule absent in the associated and closely related species *C. gagudju* Sadler, Wombey and Braithwaite, 1986, *C. militaris* Storr, 1975 (all putative populations and/or subspecies including *C. militaris gurindji subsp. nov.*) and *C. dakotabarnettiae*

sp. nov..

The latter three species also have a broken white lower lateral line below the orange region that is absent in both *C. fukdat sp. nov.* and *C. pulchellus* as well as a thin vertebral line (versus medium to wide in *C. fukdat sp. nov.* and *C. pulchellus*) (see comparative images and note that *C. pulchellus* is defined differently here than in the Storr papers of 1975 and 1978).

The five preceding species and named subspecies are separated from all other Australian *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* type species *Matherus matheri sp. nov.* by the following unique combination of characters:

No dorsal pattern containing well-formed ocelli; post-narial groove weak or absent.

Dorsal and lateral pattern complex as in, including spots, dots and dashes, and in some form has longitudinal stripes of varying width and colour, or reduced, resulting in wide strips or zones without pattern and including in some form a dark black or brown mid dorsal stripe; vertebral stripe moderately narrow to wide and bounded by sharp yellow lines and another similar line between this line and the dorsolateral one; all thin, bright, sharp edged and on a black back background colour, (with the exception of *C. dakotabarnettiae sp. nov.* in which has the two mid dorsal lines, as in not those bordering the vertebral stripe, being as broken and bold stripes); white mid-lateral stripe present in some form, being entire or broken and extending more than half way along the flank from the rear, being complete to forelimb and/or ear in some cases (three western species as in WA, west NT, Kakadu NT), or absent in the other two (eastern species as in Qld, west to central NT); upper flank brown or black, spotted in some way with whiteish spots generally not obviously arranged in longitudinal rows.

First three of four supraoculars (or first two when only three supraoculars present) in contact with frontal; 1 or 2 presuboculars; first supraocular not much narrower than second; second loreal quadrilateral with flat or curving top; prefrontals usually separated; nasals form a median suture; midbody scale rows usually more than 26.

Toes compressed; subdigital lamellae keeled or callose; snout vent length to about a maximum of about 80 mm, but more commonly about 70 mm. Tail (original) is about 150 percent of body length.

C. fukdat sp. nov. is depicted in life in Horner (1991) on page 61 at top and online at:

https://www.flickr.com/photos/zimny_anders/51991298968/

and

<https://www.inaturalist.org/observations/145945485>

and

<https://www.flickr.com/photos/58349528@N02/52785039698/>

C. pulchellus is depicted in life in Cogger (2014) on page 512 at top right, Wilson and Swan (2021) on page 289 bottom left and online at:

<https://www.flickr.com/photos/elliottbudd/51694550703/>

<https://www.flickr.com/photos/ryanfrancis/34613505430/>

and

<https://www.flickr.com/photos/121210153@N05/14162560533/>

and

<https://www.flickr.com/photos/ryanfrancis/34190379583/>

C. militaris of the type form is depicted in life in Horner (1991) on page 53 bottom, Storr *et al.* (1981) on plate 7 picture 7, Wilson and Swan (2021) on page 283 top and online at:

<https://www.flickr.com/photos/145646323@N08/50542644697/>

C. gagudju is depicted in life in Cogger (2014) on page 496 bottom, Horner (1971) on page 40 bottom, Wilson and Swan on page 271 top left and online at:

<https://www.flickr.com/photos/58349528@N02/51371039576/>

and

<https://www.flickr.com/photos/58349528@N02/51274646097/>

and

<https://www.flickr.com/photos/chrisjolly1989/44741415544/>

C. dakotabarnettae sp. nov. is depicted in life online at: <https://pbase.com/austrelaps/image/166918385>

C. militaris gurindji subsp. nov. is depicted in life online at:

<https://arod.com.au/arod/reptilia/Squamata/Scincidae/Ctenotus/militaris>

Distribution: *Ctenotus dakotabarnettae* sp. nov. is a taxon apparently confined to the south-west Kimberley district, including one or more immediately offshore islands.

C. militaris an associated taxon is effectively confined to the Ord River region of the East Kimberley in western Australia and the adjacent Keep River system. The subspecies *C. militaris gurindji* subsp. nov. occurs in the upper Victoria River District of the Northern Territory, Australia.

Etymology: *C. dakotabarnettae* sp. nov. is named

in honour of Dakota Barnett, grand daughter of Brian Barnett a well-known herpetological icon in Victoria and long-time president of the Victorian Herpetological Society Incorporated (now retired from that role). Dakota Barnett, age 10 in 2024, is the daughter of Brett Barnett, also a herpetological icon in Victoria, without whom most of what happened at the Victorian Herpetological Society probably would not have happened.

Like the species named in her honour, Dakota Barnett is a bright and colourful person and she is being honoured for her services to herpetology even at a very young age.

CTENOTUS MILITARIS GURINDJI SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:A5B9ED6A-9CDD-44DB-A8A9-232D6EA4A0E4

Holotype: A preserved specimen at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R23602 collected from Mount Standford, Northern Territory, Australia, Latitude -17.375 S., Longitude 130.808 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R23603 and R23604 both collected from Mount Standford, Northern Territory, Australia, Latitude -17.375 S., Longitude 130.808 E.

Diagnosis: *C. militaris gurindji* subsp. nov. from the upper Victoria River District of the Northern Territory is separated from the nominate form of *C. militaris* Storr, 1975, with a type locality of Lake Argyle, Western Australia, Australia, (Latitude 16.25 S., Longitude 128.40 E.) by the fact that the white spots on the upper and mid flanks are reduced in intensity and have faded rather than sharp edges. Furthermore, on the black upper lateral band in the middle and again on the lower boundary of this band, the white spots are in the form of two broken lines in the form of spaced elongated dash shapes (AKA long and very thin rectangles), versus small dots in *C. militaris*.

Ctenotus dakotabarnettae sp. nov. has until now also been treated as a south-west Kimberley district population of *C. militaris*.

It is a taxon apparently confined to the south-west Kimberley district, including one or more immediately offshore islands.

It is readily separated from *C. militaris* by the fact that as a rule, the mid-dorsal yellow lines (not those bounding the vertebral line) are spotted or broken, rather than entire, the spots on the flank are coalesced to form large blotches, the orange around the anterior regions is particularly intense and on the posterior flank the lower-mid line that is whiteish yellow is very thick and with a straight sharp outer edge, top and bottom and not of the form of merged spots, all being characters not present in the type form of *C. militaris*

or the associated subspecies *C. militaris gurindji* subsp. nov..

Ctenotus fukdat sp. nov. has until now been treated as a western population of *C. pulchellus* Storr, 1978, with a type locality of 72 km north, northeast of Mount Isa, Queensland, Australia, (Latitude 20.19 S., Longitude 139.47 E).

C. pulchellus is now confined to the Selwyn Ranges, outliers and associated sandy and rocky habitat, effectively confining the taxon to Queensland save for a few small intrusions into the Northern Territory near Alpururulam, NT.

C. fukdat sp. nov. occurs in sandy and rocky habitat generally north-west of the type locality of Brunette Downs, north-west to the Sturt Plateau, NT and generally north towards to Gulf of Carpentaria, where the habitat permits, recalling that this species group avoids flat black soil areas and generally do not pass them.

C. fukdat sp. nov. is readily separated from the nominate form of *C. pulchellus* as follows:

C. fukdat sp. nov. has bold dark black on the upper lateral edge being 3 scales wide, below which is bright orange on most of the rest of the flank. The border between the two is well defined and sharp edged. Overlaying all this are closely scattered white spots, being 1 to 4 scales in size. The dorsum is black with yellow lines running down it.

The black vertebral stripe is relatively wide.

By contrast, in *C. pulchellus* there is no sharp and well-defined border on the flank between the black upper band and the lower orange. The intensity of colouration in *C. pulchellus* is not as bright and strongly contrasting. White spots on the flank are smaller, usually being just 1 or 2 scales in size, sometimes three and almost never four. The black vertebral line is only of medium width.

Both *C. fukdat* sp. nov. and *C. pulchellus* have small poorly defined patches of white on the supralabials. These are usually in the centre of each or most in *C. pulchellus* or more randomly positioned in *C. fukdat* sp. nov. and as a rule absent in the associated and closely related species *C. gagudju* Sadlier, Wombey and Braithwaite, 1986, *C. militaris* Storr, 1975 (all putative populations and/or subspecies including *C. militaris gurindji* subsp. nov.) and *C. dakotabarnettae* sp. nov..

The latter three species also have a broken white lower lateral line below the orange region that is absent in both *C. fukdat* sp. nov. and *C. pulchellus* as well as a thin vertebral line (versus medium to wide in *C. fukdat* sp. nov. and *C. pulchellus*) (see comparative images and note that *C. pulchellus* is defined differently here than in the Storr papers of 1975 and 1978).

The five preceding species and named subspecies are separated from all other *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper,

being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

No dorsal pattern containing well-formed ocelli; post-narial groove weak or absent.

Dorsal and lateral pattern complex as in, including spots, dots and dashes, and in some form has longitudinal stripes of varying width and colour, or reduced, resulting in wide strips or zones without pattern and including in some form a dark black or brown mid dorsal stripe; vertebral stripe moderately narrow to wide and bounded by sharp yellow lines and another similar line between this line and the dorsolateral one; all thin, bright, sharp edged and on a black back background colour, (with the exception of *C. dakotabarnettae* sp. nov. in which has the two mid dorsal lines, as in not those bordering the vertebral stripe, being as broken and bold stripes); white mid-lateral stripe present in some form, being entire or broken and extending more than half way along the flank from the rear, being complete to forelimb and/or ear in some cases (three western species as in WA, west NT, Kakadu NT), or absent in the other two (eastern species as in Qld, west to central NT); upper flank brown or black, spotted in some way with whiteish spots generally not obviously arranged in longitudinal rows.

First three of four supraoculars (or first two when only three supraoculars present) in contact with frontal; 1 or 2 presuboculars; first supraocular not much narrower than second; second loreal quadrilateral with flat or curving top; prefrontals usually separated; nasals form a median suture; midbody scale rows usually more than 26.

Toes compressed; subdigital lamellae keeled or callose; snout vent length to about a maximum of about 80 mm, but more commonly about 70 mm. Tail (original) is about 150 percent of body length.

C. fukdat sp. nov. is depicted in life in Horner (1991) on page 61 at top and online at:

https://www.flickr.com/photos/zimny_anders/51991298968/

and

<https://www.inaturalist.org/observations/145945485>

and

<https://www.flickr.com/photos/58349528@N02/52785039698/>

C. pulchellus is depicted in life in Cogger (2014) on page 512 at top right, Wilson and Swan (2021) on page 289 bottom left and online at:

<https://www.flickr.com/photos/elliottbudd/51694550703/>

and

<https://www.flickr.com/photos/ryanfrancis/34613505430/>

and

<https://www.flickr.com/photos/121210153@N05/14162560533/>

and

<https://www.flickr.com/photos/ryanfrancis/34190379583/>

C. militaris of the type form is depicted in life in Horner (1991) on page 53 bottom, Storr *et al.* (1981) on plate 7 picture 7, Wilson and Swan (2021) on page 283 top and online at:

<https://www.flickr.com/photos/145646323@N08/50542644697/>

C. gagudju is depicted in life in Cogger (2014) on page 496 bottom, Horner (1971) on page 40 bottom, Wilson and Swan on page 271 top left and online at:

<https://www.flickr.com/photos/58349528@N02/51371039576/>

and

<https://www.flickr.com/photos/58349528@N02/51274646097/>

and

<https://www.flickr.com/photos/chrisjolly1989/44741415544/>

C. dakotabarnettae sp. nov. is depicted in life online at: <https://pbase.com/austrelaps/image/166918385>

C. militaris gurindji subsp. nov. is depicted in life online at:

<https://arod.com.au/arod/reptilia/Squamata/Scincidae/Ctenotus/militaris>

Distribution: The subspecies *C. militaris gurindji* subsp. nov. occurs in the upper Victoria River District of the Northern Territory, Australia.

C. militaris of the nominate type form is herein effectively confined to the Ord River region of the East Kimberley in western Australia and the adjacent Keep River system.

Ctenotus dakotabarnettae sp. nov. an associated taxon, is a taxon apparently confined to the south-west Kimberley district, including one or more immediately offshore islands.

Etymology: *C. militaris gurindji* subsp. nov. is named in recognition of the Gurindji people, the original Australian aboriginal native inhabitants of the upper Victoria River region.

Most were either killed off by the British invaders in the 1800's either directly or through brought in diseases like smallpox. The survivors, dispossessed of their original lands now eke out a pathetic existence scavenging from the edges of towns in the area and living under sheets of rusting tin away from the sight of the invading people.

The subspecies name *gurindji* should not be emended

to "gurindjiorum" as may be the correct Latinisation of the name, because the original choice of name and spelling (*gurindji*) is intentional.

CTENOTUS ARCANUS QUANDAMOOKA SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:6B6A365A-31CE-4C57-9817-0E39BEE50158

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J73516 collected from North Stradbroke Island, South-east Queensland, Australia, Latitude -27.613889 S., Longitude 153.435833 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J47293, J47292 and J46038 collected 5 km from Dunwich on Point Lookout Road, North Stradbroke Island, South-east Queensland, Australia, Latitude - 27.470278 S., Longitude 153.424444 E.

Diagnosis: The putative species *C. arcanus* Czechura and Wombey, 1982 with a type locality of Coonoon Gibber Creek, Conondale Range, south-east Queensland, Australia has a known distribution along the coastal strip of Queensland from Kroombit tops in the north, south to about the NSW border. In addition, an outlier population occurs at Eungella about 590 km further by road to the north of Kroombit Tops.

This taxon comes in three distinctive forms, each of which are formally identified as subspecies, with two formally named for the first time.

They are separated from another as follows:

The type subspecies of *C. arcanus* (*C. arcanus arcanus*) has a single row of yellow-white spots running half or all the way along the upper lateral black band. The black vertebral stripe is prominent in most specimens and in a small number of specimens is obvious and prominent at least above the mid-section of the dorsum, with the stripe running from the back of the head posteriorly.

C. arcanus quandamooka subsp. nov. is apparently confined to North Stradbroke Island and the adjacent coastal fringe of the region from North Stradbroke Island to the lower Gold Coast.

It is separated from the other two subspecies in that it has two rows of small spots along the black band on the upper flank. Furthermore, the black vertebral stripe is either absent or is so reduced in thickness and intensity at the anterior end (the only part it may be) as to still be effectively absent and not readily apparent. The original tail of *C. arcanus quandamooka* subsp. nov. is mainly brown versus mainly with latero-linear stripes in the other two species. The yellow dorsolateral line is broken.

C. arcanus birriwirri subsp. nov. is apparently confined to the Eungella region west of Mackay in north-east

Queensland.

It is separated from the two other subspecies by having only a small number of spots, semi-distinct at that, running along the anterior part of the black band on the upper flank. The black mid dorsal band runs the entire length of the body and onto the tail (as is seen in most *C. arcanus arcanus*) but differs in that it is extremely thin for the entire length.

The yellow dorsolateral line in *C. arcanus birriwirri subsp. nov.* is entire with a clean lower edge, versus complete but without a clean lower edge in *C. arcanus arcanus*.

Significantly in *C. arcanus quandamooka subsp. nov.* the yellow dorsolateral line is broken and therefore ill-defined and not complete.

The presence of upper lateral spots of some from, separates this species from the related species *C. taeniolatus* (White, 1790), *C. ingrami* Czechura and Wombey, 1982, *C. miowera* Wells and Wellington, 1985, *C. robertcooki* Hoser, 2022 and *C. sonnemannorum* Hoser, 2024.

The preceding species being *C. arcanus*, *C. taeniolatus*, *C. ingrami*, *C. miowera*, *C. robertcooki* and *C. sonnemannorum* are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* type species *Matherus matheri sp. nov.* by the following unique combination of characters:

Well defined, black mid-dorsal stripe running from nape past the base of the tail; no prominent spots on the body of the adult (except in *C. arcanus* of all subspecies); white venter; nasal is not or is only very weakly grooved; 2-5 ear lobules; 18-22 subdigital lamellae under the fourth toe, each with a blunt keel; eight yellow-white longitudinal stripes on the flanks and back, with well-defined brown or black stripes intervening; a narrow pale upper lateral stripe (on head, becoming lower lateral on the body) is always continuous from the ear opening to the groin (except in *C. arcanus* of all subspecies); original tail is commonly, but not always a copper-red colour at the posterior end (except in *C. arcanus* of all subspecies where it is usually brown); maximum snout-vent is usually 80-90 mm.

C. arcanus quandamooka subsp. nov. is depicted in life in Wilson and Knowles (1988) on page 261 bottom, Wilson and Swan (2021) on page 257 second from top and online at:

<https://www.inaturalist.org/observations/142350568>

and

<https://www.inaturalist.org/observations/66608878>

and

<https://www.flickr.com/photos/euprepiosaur/27170848629/>

and

<https://www.flickr.com/photos/euprepiosaur/24082904697/>

C. arcanus birriwirri subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/119401310>

C. arcanus arcanus of the type form is depicted in life in Wilson 2022 on page 128 at top right and online at:

<https://www.inaturalist.org/observations/118495426>

and

<https://www.inaturalist.org/observations/129796663>

and

<https://www.flickr.com/photos/143696880@N06/53648460983/>

Distribution: *C. arcanus quandamooka subsp. nov.* is apparently confined to North Stradbroke Island and the adjacent coastal fringe of the region from North Stradbroke Island to the lower Gold Coast.

Etymology: *C. arcanus quandamooka subsp. nov.* is named in honour of the Quandamooka peoples the original Aboriginal inhabitants who apparently lived on Minjerribah (now known as North Stradbroke Island) for a very long time, as in thousands of years. Pretty much all of them were either exterminated or driven out long ago and the island is now mainly populated by rich businesspeople who commute to the nearby Brisbane central business district.

The subspecies name *quandamooka* should not be emended to “quandamookaorum” as may be the correct Latinisation of the name, because the original choice of name and spelling (*quandamooka*) is intentional.

CTENOTUS ARCANUS BIRRIWIRRI SUBSP. NOV.

LSIDurn: [lsid:zoobank.org:act:33E22FF2-F64B-4D65-B4D6-847A6CDF50C5](https://zoobank.org/act:33E22FF2-F64B-4D65-B4D6-847A6CDF50C5)

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J80852 collected from Homevale Resource Reserve, Queensland, Australia, Latitude -21.317778 S., Longitude 148.509722 E.

This government-owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers 79955, J79953 and J79968 all collected from Crediton State Forest, Queensland, Australia, Latitude -21.279167 S., Longitude 148.523333 E.

Diagnosis: The putative species *C. arcanus* Czechura and Wombey, 1982 with a type locality of Coonoon Gibber Creek, Conondale Range, south-east Queensland, Australia has a known distribution along

the coastal strip of Queensland from Kroombit tops in the north, south to about the NSW border. In addition an outlier population occurs at Eungella about 590 km further by road to the north of Kroombit Tops.

This taxon comes in three distinctive forms, each of which are formally identified as subspecies, with two formally named for the first time.

They are separated from another as follows:

The type subspecies of *C. arcanus* (*C. arcanus arcanus*) has a single row of yellow-white spots running half or all the way along the upper lateral black band. The black vertebral stripe is prominent in most specimens and in a small number of specimens is obvious and prominent at least above the mid-section of the dorsum, with the stripe running from the back of the head posteriorly.

C. arcanus quandamooka subsp. nov. is apparently confined to North Stradbroke Island and the adjacent coastal fringe of the region from North Stradbroke Island to the lower Gold Coast.

It is separated from the other two subspecies in that it has two rows of small spots along the black band on the upper flank. Furthermore, the black vertebral stripe is either absent or is so reduced in thickness and intensity at the anterior end (the only part it may be) as to still be effectively absent and not readily apparent. The yellow dorsolateral line is broken.

The original tail of *C. arcanus quandamooka subsp. nov.* is mainly brown versus mainly with latero-linear stripes in the other two species.

C. arcanus birriwirri subsp. nov. is apparently confined to the Eungella region west of Mackay in north-east Queensland.

It is separated from the two other subspecies by having only a small number of spots, semi-distinct at that, running along the anterior part of the black band on the upper flank. The black mid dorsal band runs the entire length of the body and onto the tail (as is seen in most *C. arcanus arcanus*) but differs in that it is extremely thin for the entire length.

The yellow dorsolateral line in *C. arcanus birriwirri subsp. nov.* is entire with a clean lower edge, versus complete but without a clean lower edge in *C. arcanus arcanus*.

Significantly in *C. arcanus quandamooka subsp. nov.* the yellow dorsolateral line is broken and therefore ill-defined and not complete.

The presence of upper lateral spots of some from, separates this species from the related species *C. taeniolatus* (White, 1790), *C. ingrami* Czechura and Wombey, 1982, *C. miowera* Wells and Wellington, 1985, *C. robertcooki* Hoser, 2022 and *C. sonnemannorum* Hoser, 2024.

The preceding species being *C. arcanus*, *C. taeniolatus*, *C. ingrami*, *C. miowera*, *C. robertcooki* and *C. sonnemannorum* are separated from all other Australian species of *Ctenotus* Storr, 1968 and

the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Well defined, black mid-dorsal stripe running from nape past the base of the tail; no prominent spots on the body of the adult (except in *C. arcanus* of all subspecies); white venter; nasal is not or is only very weakly grooved; 2-5 ear lobules; 18-22 subdigital lamellae under the fourth toe, each with a blunt keel; eight yellow-white longitudinal stripes on the flanks and back, with well-defined brown or black stripes intervening; a narrow pale upper lateral stripe (on head, becoming lower lateral on the body) is always continuous from the ear opening to the groin (except in *C. arcanus* of all subspecies); original tail is commonly, but not always a copper-red colour at the posterior end (except in *C. arcanus* of all subspecies where it is usually brown); maximum snout-vent is usually 80-90 mm.

C. arcanus quandamooka subsp. nov. is depicted in life in Wilson and Swan (2021) on page 257 second from top and online at:

<https://www.inaturalist.org/observations/142350568> and

<https://www.inaturalist.org/observations/66608878> and

<https://www.flickr.com/photos/euprepiosaur/27170848629/>

and

<https://www.flickr.com/photos/euprepiosaur/24082904697/>

C. arcanus birriwirri subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/119401310>

C. arcanus arcanus of the type form is depicted in life in Wilson 2022 on page 128 at top right and online at:

<https://www.inaturalist.org/observations/118495426>

and

<https://www.inaturalist.org/observations/129796663>

and

<https://www.flickr.com/photos/143696880@N06/53648460983/>

Distribution: *C. arcanus birriwirri subsp. nov.* is apparently confined to the Eungella region west of Mackay in north-east Queensland.

Etymology: *C. arcanus birriwirri subsp. nov.* is named in honour of the Birri and Wirri tribes, being the original native Australian inhabitants of the Eungella region in north-east Queensland, which is from where this taxon

occurs.

The subspecies name *birriwirri* should not be emended to "birriwirriorum" as may be the correct Latinisation of the name, because the original choice of name and spelling (*birriwirri*) is intentional.

Catherine Astrid Salome Freeman OAM (born 16 February 1973) AKA Cathy Freeman, former sprinter, who specialised in the 400 metres event is of the Birri tribe. Freeman also lit the torch in the 2000 Olympic Games in Sydney. She is perhaps the best-known member of the Birri tribe, also known as the Birri Gubba people.

CTENOTUS ADELYNHOSERAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:B4BBF40B-0828-4ACE-AFDB-CEA0B00DEBD1

Holotype: A preserved specimen at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R22188 collected from the Litchfield National Park, Northern Territory, Australia, Latitude -13.408 S., Longitude 130.892 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Northern Territory Museum, Darwin, Northern Territory, Australia, specimen number R22191 collected from the Litchfield National Park, Northern Territory, Australia, Latitude -13.408 S., Longitude 130.892 E., 2/ Two preserved specimens at the Northern Territory Museum, Darwin, Northern Territory, Australia, specimen numbers R24427 and R24426 collected from the upper Daly River, Northern Territory, Australia, Latitude -14.591 S., Longitude 131.352 E., 3/ Two preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.72876 and R.72877 collected from 16 km Upstream from Daly River Crossing (at Police Station P.O.), Northern Territory, Australia, Latitude -13.866 S., Longitude 130.716 E., 4/ A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.75099 collected from 12 km Upstream from Daly River Crossing (at Police Station P.O.), Northern Territory, Australia, Latitude -13.866 S., Longitude 130.733 E.

Diagnosis: Molecular phylogenies have shown putative *C. essingtonii* (Gray, 1842) from the top end of the Northern Territory to comprise three species level divergent lineages. This is in addition to the closely related lineage *C. arnhemensis* Storr, 1981 (Singhal *et al.* 2017).

With each readily diagnosable, allopatric across known biogeographical breaks and divergent at an estimated 2 or more million years from one another, I have no hesitation in naming each of the unnamed clades as new species.

These are *C. adelynhoserae* sp. nov. from the Litchfield National Park and Daly River district and *C. jackyhoserae* sp. nov. from the Darwin and

Kakadu areas. *C. essingtonii* with a type locality of Port Essington in the Northern Territory is so far as is known is actually confined to that exact area, as in the Cobourg Peninsula.

The actual species status of putative *C. essingtonii* from east of the Coburg Peninsula is not yet known.

West of that area, one finds *C. jackyhoserae* sp. nov. and further west of the Stuart Highway one finds *C. adelynhoserae* sp. nov..

The four previously named taxa are separated from one another the following unique combinations of characters:

The type form of *C. essingtonii* has a thick black line on either side of the dorsum between the brown upper surface and unbroken sharp straight lined, dorsolateral line, versus either not so, or only slightly so in the other species.

If there is black between the dorsum and the white dorsolateral line in either of *C. jackyhoserae* sp. nov. or *C. adelynhoserae* sp. nov. it is only in the anterior region around the front leg and not along the entire length of the body as seen in *C. essingtonii*.

C. arnhemensis always lacks black between the yellow dorsolateral line and the plain upper surface.

C. essingtonii is also unique among the four closely related species in that the upper edge of the white lower lateral line on the flank is jagged white, versus even and not jagged in the other three species. This jagged white line is caused by diamond like intrusions over the upper edge of the white.

In both *C. jackyhoserae* sp. nov. or *C. adelynhoserae* sp. nov. there is a thick black line that is entire and runs in complete unbroken form from the back of the eye, across the top of the ear and continuously to form the dark lateral stripe. This is not the case in either *C. essingtonii* or *C. arnhemensis* where the black line does not begin to form until after the ear.

C. arnhemensis is readily separated from the other three species by having a distinct black vertebral stripe, which the other three species do not.

In addition to that *C. arnhemensis* is alone of the four species in having a row of semi-distinct white patches that run the entire length of the black band on the upper flank, with this commencing behind the ear and terminating at the back leg.

C. adelynhoserae sp. nov. is separated from *C. jackyhoserae* sp. nov. by having white spotting on the anterior part of the dark lateral bar, anterior to the front leg, versus not so or rarely so in *C. jackyhoserae* sp. nov. as well as having a light yellowish brown dorsum, versus one that is medium brown or even greyish in *C. jackyhoserae* sp. nov..

The four preceding species are readily separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri*

Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters: Dorsum not comprised of a pattern consisting of ocelli; no groove behind the nostril; dorsum plain and unmarked or otherwise with a bold yellow edged vertebral stripe; lateral pattern including a yellow dorsolateral line, followed by a thick black stripe on the upper flank, that may or may not have spotting of blotches along some or all of the length. Lower edges of neck and flanks are mottled, spotted and/or patterned. Nasals separated or contacting; prefrontals usually but not always separated, four supraoculars; second supraocular is much wider than the third and usually wider than the first; seven or rarely eight supralabials; 23-28 midbody rows; 2-7 ear lobules; toe not, or only slightly compressed; 20-26 lamellae under the fourth toes, each with a moderately wide callus; snout vent length to 60 mm.

C. adelynhoserae sp. nov. is depicted in life in Cogger (2014) on page 493 bottom and online at:

<https://www.inaturalist.org/observations/31900206>
and

<https://www.inaturalist.org/observations/28792867>
and

<https://www.inaturalist.org/observations/202633715>

C. jackyhoserae sp. nov. in is depicted in life online at:
<https://www.inaturalist.org/observations/66687953>

and

<https://www.inaturalist.org/observations/136764570>
and

<https://www.inaturalist.org/observations/126230525>

C. essingtonii in is depicted in life online at:

<https://www.inaturalist.org/observations/93567596>

C. arnhemensis is depicted in life in Wilson and Swan (2021) on page 257 bottom right and online at:

https://www.flickr.com/photos/zimny_anders/51597178612/

and

<https://www.flickr.com/photos/58349528@N02/49003798886/>

and

<https://www.flickr.com/photos/nieminski/27536702085/>

Distribution: *C. adelynhoserae* sp. nov. occurs in the Litchfield National Park and Daly River district of the Northern Territory.

Etymology: *C. adelynhoserae* sp. nov. is named in honour of my eldest daughter, Adelyn Hoser in recognition of 25 years services to wildlife conservation, including doing live reptile shows from an early age.

CTENOTUS JACKYHOSERAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:2AD465A2-DF75-4D78-8D3D-BA26FDD12E9A

Holotype: A preserved specimen at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R13717 collected from Swim Creek, Port Stuart Station, Northern Territory, Australia, Latitude -12.575 S., Longitude 131.825 E.

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.111496 collected from Jabiru District, Northern Territory, Australia, Latitude -12.666 S., Longitude 132.833 E.

Diagnosis: Molecular phylogenies have shown putative *C. essingtonii* (Gray, 1842) from the top end of the Northern Territory to comprise three species level divergent lineages. This is in addition to the closely related lineage *C. arnhemensis* Storr, 1981 (Singhal et al. 2017).

With each readily diagnosable, allopatric across known biogeographical breaks and divergent at an estimated 2 or more million years from one another, I have no hesitation in naming each of the unnamed clades as new species.

These are *C. adelynhoserae* sp. nov. from the Litchfield National Park and Daly River district and *C. jackyhoserae* sp. nov. from the Darwin and Kakadu areas. *C. essingtonii* with a type locality of Port Essington in the Northern Territory is so far as is known is actually confined to that exact area, as in the Cobourg Peninsula.

The actual species status of putative *C. essingtonii* from east of the Cobourg Peninsula is not yet known.

West of that area, one finds *C. jackyhoserae* sp. nov. and further west of the Stuart Highway one finds *C. adelynhoserae* sp. nov..

The four previously named taxa are separated from one another the following unique combinations of characters:

The type form of *C. essingtonii* has a thick black line on either side of the dorsum between the brown upper surface and unbroken sharp straight lined, dorsolateral line, versus either not so, or only slightly so in the other species.

If there is black between the dorsum and the white dorsolateral line in either of *C. jackyhoserae* sp. nov. or *C. adelynhoserae* sp. nov. it is only in the anterior region around the front leg and not along the entire length of the body as seen in *C. essingtonii*.

C. arnhemensis always lacks black between the yellow dorsolateral line and the plain upper surface.

C. essingtonii is also unique among the four closely related species in that the upper edge of the white lower lateral line on the flank is jagged white, versus

even and not jagged in the other three species. This jagged white line is caused by diamond like intrusions over the upper edge of the white.

In both *C. jackyhoseræ* sp. nov. or *C. adelynhoseræ* sp. nov. there is a thick black line that is entire and runs in complete unbroken form from the back of the eye, across the top of the ear and continuously to form the dark lateral stripe. This is not the case in either *C. essingtonii* or *C. arnhemensis* where the black line does not begin to form until after the ear.

C. arnhemensis is readily separated from the other three species by having a distinct black vertebral stripe, which the other three species do not.

In addition to that *C. arnhemensis* is alone of the four species in having a row of semi-distinct white patches that run the entire length of the black band on the upper flank, with this commencing behind the ear and terminating at the back leg.

C. adelynhoseræ sp. nov. is separated from *C. jackyhoseræ* sp. nov. by having white spotting on the anterior part of the dark lateral bar, anterior to the front leg, versus not so or rarely so in *C. jackyhoseræ* sp. nov. as well as having a light yellowish brown dorsum, versus one that is medium brown or even greyish in *C. jackyhoseræ* sp. nov..

The four preceding species are readily separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters: Dorsum not comprised of a pattern consisting of ocelli; no groove behind the nostril; dorsum plain and unmarked or otherwise with a bold yellow edged vertebral stripe; lateral pattern including a yellow dorsolateral line, followed by a thick black stripe on the upper flank, that may or may not have spotting of blotches along some or all of the length. Lower edges of neck and flanks are mottled, spotted and/or patterned. Nasals separated or contacting; prefrontals usually but not always separated, four supraoculars; second supraocular is much wider than the third and usually wider than the first; seven or rarely eight supralabials; 23-28 midbody rows; 2-7 ear lobules; toe not, or only slightly compressed; 20-26 lamellae under the fourth toes, each with a moderately wide callus; snout vent length to 60 mm.

C. adelynhoseræ sp. nov. is depicted in life in Cogger (2014) on page 493 bottom and online at:

<https://www.inaturalist.org/observations/31900206>

and

<https://www.inaturalist.org/observations/28792867>

and

<https://www.inaturalist.org/observations/202633715>

C. jackyhoseræ sp. nov. in is depicted in life online at: <https://www.inaturalist.org/observations/66687953>

and

<https://www.inaturalist.org/observations/136764570>

and

<https://www.inaturalist.org/observations/126230525>

C. essingtonii in is depicted in life online at:

<https://www.inaturalist.org/observations/93567596>

C. arnhemensis is depicted in life in Wilson and Swan (2021) on page 257 bottom right and online at:

https://www.flickr.com/photos/zimny_anders/51597178612/

and

<https://www.flickr.com/photos/58349528@N02/49003798886/>

and

<https://www.flickr.com/photos/nieminski/27536702085/>

Distribution: *C. jackyhoseræ* sp. nov. occurs in the region between and including the Arnhem Land escarpment and Darwin in the Northern Territory, Australia.

Etymology: *C. jackyhoseræ* sp. nov. is named in honour of my youngest daughter, Jacky Hoser in recognition of 23 years services to wildlife conservation.

CTENOTUS MERECIAI SP. NOV.

LSIDurn:lsid:zoobank.org:act:D6D64284-0972-4554-B9C7-2881EC148244

Holotype: A preserved specimen at the Australian Museum, Sydney, New South Wales, Australia, specimen number R.38842 collected at or near Koongarra, Mount Brockman Range, Northern Territory, Australia, Latitude -12.53 S., Longitude 132.50 E.

This government-owned facility allows access to its holdings.

Paratypes: 15 preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers R.38843- R.38857 all collected at or near Koongarra, Mount Brockman Range, Northern Territory, Australia, Latitude 12.53 S., Longitude 132.50 E.

Diagnosis: Until now *Ctenotus merceiai* sp. nov. has been treated as a northern population of *C. vertebralis* Rankin and Gillam, 1979.

Likewise for the related newly named species *C. binghami* sp. nov..

C. vertebralis has a type locality of type locality of Arnold River, Cox River Station, south-west Gulf of Carpentaria region of the Northern Territory, Australia, (Latitude -15.43 S., Longitude 134.32 E.) and specimens from this localised elevated area, being well south of the Roper River, are morphologically

divergent from the allopatric population to the north in the Arnhem Land escarpment region, herein treated as the new species *C. merciecai* sp. nov..

C. merciecai sp. nov. is readily separated from *C. vertebralis* by the following combination of characters:

Dorsum is brown or yellowish brown in colour. Below the dark line running along the upper flank on the body, the white border below is effectively unbroken. The head is not yellowish.

In some specimens the dark upper lateral band is not black or dark but faded as to be barely noticeable. However, it is always bound by an unbroken white border below.

By contrast, *C. vertebralis* has a yellow-orange dorsum. Other than a slight darkening of the orangish dorsum, there is no dark line running along the upper flank on the body.

The white border below this area is broken to become an indistinct series of white spots or patches. The head is yellowish.

A third related species believed to be isolated to the Strangeman's Range of the Northern Territory is morphologically divergent and herein formally named as *C. binghami* sp. nov.. It is separated from both *C. vertebralis* and *C. merciecai* sp. nov. by the following combination of characters:

Reddish brown dorsum and generally all over; the dark upper lateral band is altered so that neither upper nor lower edges are sharp. Instead, the black has become irregular and jagged intruding up and down and not forming a well-defined edge. Intruding into the line is lighter areas from above and below. Other than very isolated and very scattered, very tiny white flecks, there is absolutely no indication of any white line or border below the darker area above on the flank. In any event, the red of the dorsum is again between the darker part and the tiny white spots on the flank. Also separating *C. binghami* sp. nov. from both *C. vertebralis* and *C. merciecai* sp. nov. is that the dark vertebral stripe runs from the body and remains bold and distinct for half the length of the tail, versus less than a third in *C. merciecai* sp. nov. or barely onto the tail in *C. vertebralis*. The dorsum of the head is grey-brown in colour.

The three preceding species, *C. vertebralis*, *C. binghami* sp. nov. and *C. merciecai* sp. nov. are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters: Moderately small (up to 55 mm snout vent length),

slender *Ctenotus* species; a very distinct black vertebral stripe, with a thin gold or yellow edge, this extending onto the tail for either, 1/ a short distance (*C. vertebralis*), 2/ about one third of the length (*C. merciecai* sp. nov.) or, 3/ half the length (*C. binghami* sp. nov.); no pattern of distinct pale blotches on upper lateral or outer vertebral zone; no more than 6 narrow pale longitudinal stripes, including pale edges (when present) on black vertebral stripe (often fewer than six when lateral pattern is absent); presuboculars almost invariably 2; 4 supraoculars, second is largest but only slightly so (versus much larger in *C. astictus* Horner, 1995); supraciliaries subequal in vertical depth; prefrontals rarely in contact; subdigital lamellae moderately compressed, dark; claws on hindlimb sabre-like; 4-6 ear lobules (modified and added to from Rankin and Gillam, 1979).

Ctenotus merciecai sp. nov. is depicted in life in Wilson and Swan (2021) on page 307 at top, Horner (1991) on page 77 top, Ehmann (1992) on page 223 at top, Wilson and Knowles (1988) page 276 bottom left and online at:

<https://www.flickr.com/photos/58349528@N02/42771231351/>

and

<https://www.inaturalist.org/observations/15778257>

and

<https://www.flickr.com/photos/julesfarquhar/51989139882/>

C. vertebralis from the type locality or immediately adjacent to it, is depicted in life online at:

<https://www.inaturalist.org/observations/180752588>

C. binghami sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/171250498@N08/52400381501/>

Rankin and Gillam (1979), wrote: "The two paratypes from Cox River Station (NTM-NS R411, AM R65113) agree very well with the colouring and patterning of the holotype. However, the rest of the type series, from more northerly localities, exhibits a great degree of variation in the intensity of pattern."

Those two specimens agreed with their holotype as they were also of the same species "*C. vertebralis*". The remaining variation they described was within and between *Ctenotus merciecai* sp. nov. and *C. binghami* sp. nov. and due to the fact they were in fact referring to specimens of those species.

Further diagnostic information relevant to the three species *C. vertebralis*, *Ctenotus merciecai* sp. nov. and *C. binghami* sp. nov. can be found in Rankin and Gillam (1979), which can be downloaded in full from the internet.

Distribution: *Ctenotus merciecai* sp. nov. is apparently confined to the region of the Arnhem Land escarpment from near Kikikyon in the north (Latitude -12.1883 S., Longitude 133.812 E), to the upper Roper River, (Latitude -14.835 S., Longitude 133.107 E.).

Etymology: *C. merciecai* sp. nov. is named in

honour of David Mercieca, formerly of Victoria and now of Queensland, Australia, the owner of Snakes Downunder Reptile Park and Zoo, Childers, south-east Queensland in recognition of his lifetime's work of services to herpetology in Australia.

CTENOTUS BINGHAMI SP. NOV.

LSIDurn:lsid:zoobank.org:act:4B913B1A-2AA9-496F-BFDB-1C635316D591

Holotype: A preserved specimen at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R35064 collected at Wongalara Sanctuary, Roper River Region, Northern Territory, Australia, Latitude -14.239 S., Longitude 134.132 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ Two preserved specimens at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen numbers R21883 and R21884 collected from the junction area of Sherwin Creek and Roper River, Northern Territory, Australia, Latitude -14.667 S., Longitude 134.367 E., 2/ A preserved specimen at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R37912 collected Wongalara Sanctuary, Roper River Region, Northern Territory, Australia, Latitude -14.239 S., Longitude 134.132 E.

Diagnosis: Until now *Ctenotus merciecai* sp. nov. has been treated as a northern population of *C. vertebralis* Rankin and Gillam, 1979.

Likewise for the related and range restricted species *C. binghami* sp. nov..

C. vertebralis has a type locality of type locality of Arnold River, Cox River Station, south-west Gulf of Carpentaria region of the Northern Territory, Australia, (Latitude -15.43 S., Longitude 134.32 E.) and specimens from this localised elevated area, being well south of the Roper River, are morphologically divergent from the allopatric population to the north in the Arnhem Land escarpment region, herein treated as the new species *C. merciecai* sp. nov..

C. merciecai sp. nov. is readily separated from *C. vertebralis* by the following combination of characters:

Dorsum is brown or yellowish brown in colour. Below the dark line running along the upper flank on the body, the white border below is effectively unbroken. The head is not yellowish.

In some specimens the dark upper lateral band is not black or dark but faded as to be barely noticeable. However, it is always bound by an unbroken white border below.

By contrast, *C. vertebralis* has a yellow-orange dorsum. Other than a slight darkening of the orangish dorsum, there is no dark line running along the upper flank on the body.

The white border below this area is broken to become

an indistinct series of white spots or patches. The head is yellowish.

A third related species believed to be isolated to the Strangeman's Range of the Northern Territory, a location east of the main Arnhem Land escarpment is morphologically divergent and therefore herein formally named as *C. binghami* sp. nov.. It is separated from both *C. vertebralis* and *C. merciecai* sp. nov. by the following combination of characters:

Reddish brown dorsum and generally all over; the dark upper lateral band is altered so that neither upper nor lower edges are sharp. Instead, the black has become irregular and jagged intruding up and down and not forming a well-defined edge. Intruding into the line is lighter areas from above and below. Other than very isolated and very scattered, very tiny white flecks, there is absolutely no indication of any white line or border below the darker area above on the flank. In any event, the red of the dorsum is again between the darker part and the tiny white spots on the flank. Also separating *C. binghami* sp. nov. from both *C. vertebralis* and *C. merciecai* sp. nov. is that the dark vertebral stripe runs from the body and remains bold and distinct for half the length of the tail, versus less than a third in *C. merciecai* sp. nov. or barely onto the tail in *C. vertebralis*. The dorsum of the head is grey, brown in colour.

The three preceding species, being *C. vertebralis*, *C. binghami* sp. nov. and *C. merciecai* sp. nov. are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagobius* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Moderately small (up to 55 mm snout vent length), slender *Ctenotus* species; a very distinct black vertebral stripe, with a thin gold or yellow edge, this extending onto the tail for either 1/ a short distance (*C. vertebralis*), 2/ about one third of the length (*C. merciecai* sp. nov.), 3/ half the length (*C. binghami* sp. nov.); no pattern of distinct pale blotches on upper lateral or outer vertebral zone; no more than 6 narrow pale longitudinal stripes, including pale edges (when present) on black vertebral stripe (often fewer than six when lateral pattern is absent); presuboculars almost invariably 2; 4 supraoculars, second is largest but only slightly so (versus much larger in *C. astictus* Horner, 1995); supraciliaries subequal in vertical depth; prefrontals rarely in contact; subdigital lamellae moderately compressed, dark; claws on hindlimb sabre-like; 4-6 ear lobules (modified and added to from Rankin and Gillam, 1979).

Further diagnostic information relevant to the three

species *C. vertebralis*, *Ctenotus merciecai* sp. nov. and *C. binghami* sp. nov. can be found in Rankin and Gillam (1979), which can be downloaded in full from the internet.

Ctenotus merciecai sp. nov. is depicted in life in Wilson and Swan (2021) on page 307 at top, Horner (1991) on page 77 top, Ehmann (1992) on page 223 at top, Wilson and Knowles (1988) page 276 bottom left and online at:

<https://www.flickr.com/photos/58349528@N02/42771231351/>

and

<https://www.inaturalist.org/observations/15778257>

and

<https://www.flickr.com/photos/julesfarquhar/51989139882/>

C. vertebralis from the type locality or immediately adjacent to it, is depicted in life online at:

<https://www.inaturalist.org/observations/180752588>

C. binghami sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/171250498@N08/52400381501/>

Distribution: *Ctenotus binghami* sp. nov. is apparently confined to the region of the Strangeman's Range of the Northern Territory and is only known from the two localities that the holotype and paratypes were collected.

Etymology: *C. binghami* sp. nov. is named in honour of Jarrod Bingham, of Bacchus Marsh, Victoria, Australia, a well-known snake catcher operating mainly in the western suburbs of Melbourne, but who has spent considerable time working with reptiles in the Northern Territory as well, in recognition of his services to herpetology and public safety in Australia.

CTENOTUS ARABANOO SP. NOV.

LSIDurn: [lsid:zoobank.org:act:836E6A1E-6A96-46E3-90A7-5CACDEEFEC84](https://zoobank.org/act:836E6A1E-6A96-46E3-90A7-5CACDEEFEC84)

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R42758 collected from south of Winton, Queensland, Australia, Latitude -22.67 S., Longitude 142.93 E.

This government-owned facility allows access to its holdings.

Paratypes: Five preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J63968, J72628, J74402, J76160 and J76161 all collected from Bladensburg National Park, near Winton, central Queensland, Australia, Latitude -22.516667 S., Longitude 143.033333 E.

Diagnosis: *Ctenotus lateralis* Storr, 1978 with a type locality of 14 km north of Mount Isa in Queensland, Latitude -20.37 S., Longitude 139.32 E is a putative taxon from the Selwyn Ranges, including northern and southern outliers in north and with a distribution extending to include elevated rocky and gravelly areas

southwards towards the Channel Country in south-west Queensland.

Populations generally found east of the Diamantina River from Winton, Queensland, Latitude -22.3906 S., Longitude 143.0412 E. in the north and Jundah, Queensland, Latitude 24.8316 S., 143.0590 E. in the south are now referred to the new species *C. arabanoo* sp. nov..

C. arabanoo sp. nov. is most easily separated from the morphologically similar *C. lateralis* by colouration markings.

C. arabanoo sp. nov. is separated from the morphologically similar species *C. lateralis* by having the upper lateral white line (the one below the white dorsolateral edge) being well defined and whitish in colour, rather than dull, yellowish or brownish in colour. Furthermore the second down white line on the flank is sharp edged and continuous in *C. arabanoo* sp. nov. and rarely so in *C. lateralis*.

C. arabanoo sp. nov. has small white blotches or markings on the rear upper labials, versus large in *C. lateralis*.

The Flinders River system combined with the upper Coopers Creek system to the east of Winton also separates the eastern population of the complex, namely *Ctenotus eutaenius* Storr, 1981 from both other species, that taxon being found in the rocky drier regions of the lower parts of western Cape York.

C. eutaenius is readily separated from the other two species by the fact that the first light stripe on the flank (the one below the light dorsolateral edge) is prominently broken into dashes along the anterior part of the body as well as by having a dark mid lateral stripe that is either black or blackish in colour, versus brown or brownish in the other two species.

The three preceding species, being *C. lateralis*, *C. eutaenius* and *C. arabanoo* sp. nov. are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Large, robust, long-tailed, long-legged members of the of the genus *Ctenotus* in which the pale upper lateral spots are wholly or mainly replaced by a broad stripe at least at the posterior end of the body. In addition the three species have nasals that are usually narrowly separated (rarely just touching and rarely widely separated). Prefrontals usually merging to form a short to moderately long suture, although sometimes separated. 4 Supraoculars, first three in contact with frontal, first a little to considerably narrower than

second. Supraciliaries 7 (rarely 8), either forming a graded series

or with fourth to penultimate considerably smaller than others. Second loreal about 1.2-2.0 times as wide as high. 2 presuboculars; 8 (rarely 9) upper labials; 3-5 ear lobules; obtuse in juveniles, usually subacute in adults; first usually very small, second or third largest. 2-3 (rarely 4) nuchals; 28-32 midbody scale rows; 20-25 lamellae under fourth toe, each with a wide dark-brown callus.

Dorsally greyish brown, reddish brown or olive brown, becoming greyer on tail. Narrow black vertebral stripe from nape to base of tail, indistinctly edged with greyish white or brownish white (pale margins tending to disappear with age). White or whitish dorsolateral stripe from orbit to the proximal half of tail, edged above with black (i.e. a narrow laterodorsal stripe). Upper lateral zone black or brown (becoming lighter on the tail), bisected by a wide greyish white or brownish white stripe, in effect creating two such (separated) lateral lines. Narrow to moderately wide greyish white midlateral stripe, extending back nearly to the end of the tail and forward to ear aperture, thence more narrowly and less distinctly to lores. Lower lateral zone greyish, occasionally bisected by a pale stripe. Legs reddish brown streaked with black (modified from Storr 1978 and Cogger 2014 to accommodate the three relevant species).

C. lateralis is depicted in life in Storr (1978) (black and white image), Wilson and Swan (2021) on page 279 second from bottom and Wilson (2022), page 135 top left and online at:

<https://www.flickr.com/photos/ryanfrancis/8405252178/>

C. arabanoo sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/reptileshots/34587146553/>

and

<https://www.flickr.com/photos/128365570@N04/35070645690/>

and

<https://www.inaturalist.org/observations/116389438>

and

<https://www.inaturalist.org/observations/55262708>

and

<https://www.inaturalist.org/observations/113052929>

C. eutaenius is depicted in life in Wilson (2022), page 132 bottom left, Cogger (2014) on page 495 at top and online at:

<https://www.flickr.com/photos/euprepiosaur/37340316652/>

and

<https://www.flickr.com/photos/166192144@N05/32141715108/>

Distribution: *C. arabanoo* sp. nov. occurs generally east of the Diamantina River from Winton, Queensland, Latitude -22.3906 S., Longitude 143.0412 E. in the north and Jundah, Queensland, Latitude

24.8316 S., 143.0590 E. in the south and east of the Coopers Creek drainage system in inland northern Queensland, Australia.

C. lateralis is the taxon from the Selwyn Ranges, north-west Queensland, Australia including northern and southern outliers in north and generally north or west of the Diamantina River.

C. eutaenius is found in the dry rocky country of the lower Cape York Queensland, east of the Fitzroy River system and the Coopers Creek basin.

Etymology: *C. arabanoo* sp. nov. is named in recognition of Arabanoo. Born roughly 1758 and died in 1789, he was an Aboriginal Australian man of the Eora people forcibly abducted on New Year's Eve 1788 by British invaders who arrived with the "First Fleet" at Port Jackson.

His capture was organised to force communication and relations between the Aboriginal people and the British as part of the planned genocide of the natives associated with the theft, occupation and plunder of their native lands.

CTENOTUS TIMHUDSONI SP. NOV.

LSIDurn:lsid:zoobank.org:act:018D978B-0A84-450A-993C-3FA47FF327B3

Holotype: A preserved specimen at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R38791 collected from Dorat Road, south of the Adelaide River township, Adelaide River Region, Northern Territory, Australia, Latitude -13.34122 S., Longitude 131.13172 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ Eight preserved specimens at the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, being specimen numbers R08827 and R08829, R08830 and R08831 all collected from 7 miles south of the Adelaide River township, Adelaide River Region, Northern Territory, Australia, Latitude -13.333 S., Longitude 131.117 E.; R01275, R02055 and R02056 all collected from Mount Carr, Adelaide River Region, Northern Territory, Australia, Latitude -13.233 S., Longitude 131.083 E. and R02053 collected from Berry Springs Reserve, Outer Darwin metropolitan area, Northern Territory, Australia, Latitude -13.233 S., Longitude 131.083 E., and 2/ A preserved male specimen at the Australian National Wildlife Collection (ANWC), Canberra, ACT, Australia, specimen number R00729 collected from Tapa Bay, Cox Peninsula, Northern Territory, Australia, Latitude -12.4667 S., Longitude 130.5833 E.

Diagnosis: Until recently putative *C. decaneurus* Storr, 1970 with a type locality of 21 miles north-west of Newry, Northern Territory, Australia, (Latitude 15.59 S., Longitude 129.00 E), effectively being the lower Ord region of the far East Kimberley district, has been treated as a wide-ranging taxon with a distribution extending across the dry rocky tropics of Australia.

That is from the west Kimberley in Western Australia, across the top end of the Northern Territory to the Selwyn Ranges in north-west Queensland.

In line with other putative species with a similar distribution, it has been self-evident for some years that it is a species complex.

Storr (1975) named as a subspecies *Ctenotus decaneurus yampiensis* with a type locality of Wotjulum Mission Station, Yampi Sound, north-west Kimberleys, Western Australia, Australia (Latitude 16.11 S., Longitude 123.37 E.).

Assessment of the publicly available sequences for putative *C. decaneurus* from the type locality areas, indicated a likely divergence of 3 MYA for the two Kimberley populations.

That makes the northwest Kimberley form a separate species, rather than a subspecies.

These in turn are separated biogeographically from the top end and Selwyn Ranges populations that are in all likelihood similarly divergent. These forms are also significantly morphologically different from one another supporting the contention they are separate species and so they are formally named as such herein.

Ctenotus yampiensis (Storr, 1975) is separated from *C. decaneurus* (treated herein at the East Kimberley population of this putative taxon only) by having separated nasals and 30-32 midbody rows, versus nasals in contact, tiny ear lobules and 26 midbody rows.

C. timhudsoni sp. nov. a taxon confined to the top end of the Northern Territory, is separated from the two preceding species by having 7 (instead of 8) labials, 26-28 mid-body rows, 3 (instead of 4-5) nuchals; loreal 1.8 to 2 times as wide as high versus 1.1-1.4 times; 3-4 instead of 5-6 ear lobules.

C. anthonyjacksoni subsp. nov. a taxon confined to the Selwyn Ranges of far north-west Queensland is separated from the three preceding species by having widely separated nasals, versus closely separated or in contact.

In both *C. decaneurus* and *C. yampiensis* the light tail stripes are orange, versus dull whitish brown in *C. timhudsoni* sp. nov. and *C. anthonyjacksoni* subsp. nov..

In both *C. decaneurus* and *C. yampiensis* there is distinctive white spotting on the otherwise dark rear upper labials. This is either absent or obscured in both *C. timhudsoni* sp. nov. and *C. anthonyjacksoni* subsp. nov..

In *C. timhudsoni* sp. nov. the white mid-lateral line is composed of closely joined white spots, making the outer edges slightly jagged. By contrast in *C. anthonyjacksoni* subsp. nov. this line is effectively immaculate and therefore straight edged on top and bottom.

C. timhudsoni sp. nov. usually has one of the ear lobules much larger than the others, whereas in *C. anthonyjacksoni* subsp. nov. they are all small and of

roughly the same size.

The four preceding species being *C. decaneurus*, *C. yampiensis*, *C. timhudsoni* sp. nov. and *C. anthonyjacksoni* subsp. nov. are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Subdigital lamellae wide and with brown callose, being 20-24 under the fourth toe; snout is long and low; back and sides blackish with a total of 10 white lines and stripes. Nasals in short contact, separated or widely separated (depending on species). Prefrontals widely separated. Supraoculars 4, first 3 in contact with frontal. Supraciliaries 8. loreal 1.1 to 2 times as wide as high. 7-8 upper labials. 4 to 6 ear lobules, generally small (sometimes one outsized larger one), subacute. 3-5 nuchals. 26-32 midbody scale rows.

Head colour greyish brown; back and sides blackish brown; upper surface of limbs reddish brown.

There is a white paravertebral line from nape to tail (on which it becomes pale reddish-brown). The white dorsal line begins about the centre of the parietal and finishes abruptly just behind level of hind leg. The white dorsolateral line runs from the from last supraocular to the proximal third of tail (on which it is suffused with orange, reddish brown or light brown). There is a white mid lateral stripe from second loreal to at least the middle of the tail, looping above the ear aperture and interrupted slightly by the thigh. A white ventrolateral stripe runs from behind the bottom of the ear aperture to the groin and is partly interrupted by arm. Limbs are longitudinally streaked with dark brown. Under surface is white (modified from Storr (1970), Horner (1992) and following inspection of specimens of all four relevant species).

C. decaneurus of the type form is depicted in life in Wilson and Swan (2021) on page 265 at top right (labelled as "*Ctenotus decaneurus decaneurus*") and online at:

<https://www.flickr.com/photos/julesfarquhar/51319044569/>

and

<https://www.flickr.com/photos/54876436@N08/14370824932/>

Ctenotus yampiensis is depicted in life in Wilson and Swan (2021) on page 265 at second from bottom and online at:

<https://www.flickr.com/photos/reptileshots/9063870234/>

and

https://www.flickr.com/photos/zimny_

anders/28944939671/

C. timhudsoni sp. nov. is depicted in life in Horner (1991) on page 33 bottom and online at:

<https://www.flickr.com/photos/171250498@N08/52397402662/>

and

<https://www.flickr.com/photos/chrisjolly1989/44741416594/>

and

<https://www.flickr.com/photos/euprepiosaur/27148051669/>

and

<https://www.flickr.com/photos/58349528@N02/50053298352/>

and

<https://www.flickr.com/photos/152410663@N05/47477393591/>

C. anthonyjacksoni subsp. nov. is depicted in life in Wilson (2022) on page 131 middle left.

Distribution: *C. timhudsoni* sp. nov. is a taxon confined to the top end of the Northern Territory found generally from the Victoria River region in the south-west across the top end, including Litchfield National Park, Kakadu, but not including flatter areas east of the Arnhem Land escarpment and then extending south through outliers to the southwestern corner of the Gulf of Carpentaria.

Etymology: *C. timhudsoni* sp. nov. is named in honour of Gold Coast Queensland, Australia snake catcher Tim Hudson of Hudson Snake Catching Gold Coast at Gilston, Queensland, Australia, who works 24/7 as a snake catcher, in recognition of his services to wildlife conservation and public safety.

CTENOTUS ANTHONYJACKSONI SP. NOV.

LSIDurn:lsid:zoobank.org:act:60E1031F-E5D5-48BD-9E8D-5BAD0E427D8C

Holotype: A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J43267 collected 88 km south-west of Winton, Queensland, Australia, Latitude -23.0 S., Longitude 142.466667 S.

This government-owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J30430 collected from Cloncurry, Queensland, Australia, Latitude -20.7 S., Longitude 140.5 E., 2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R163663, collected from John Hills, Middleton, Queensland, Australia, Latitude -22.219444 S., Longitude 142.242222 E.

Diagnosis: Until recently putative *C. decaneurus* Storr, 1970 with a type locality of 21 miles north-west of Newry, Northern Territory, Australia, (Latitude 15.59 S., Longitude 129.00 E), effectively being the lower

Ord region of the far east Kimberley, has been treated as a wide-ranging taxon with a distribution extending across the dry rocky tropics of Australia.

That is from the west Kimberley in Western Australia, across the top end of the Northern Territory to the Selwyn Ranges in north-west Queensland.

In line with other putative species with a similar distribution, it has been self-evident for some years that it is a species complex.

Storr (1975) named as a subspecies *Ctenotus decaneurus yampiensis* with a type locality of Wotjulum Mission Station, Yampi Sound, north-west Kimberleys, Western Australia, Australia (Latitude 16.11 S., Longitude 123.37 E.).

Assessment of the publicly available sequences for putative *C. decaneurus* from the type locality areas, indicated a likely divergence of 3 MYA for the two Kimberley populations.

That makes the northwest Kimberley form a separate species, rather than a subspecies.

These in turn are separated biogeographically from the top end and Selwyn Ranges populations that are in all likelihood similarly divergent. These forms are also significantly morphologically different from one another supporting the contention they are separate species and so they are formally named as such herein.

Ctenotus yampiensis (Storr, 1975) is separated from *C. decaneurus* (treated herein at the East Kimberley population of this putative taxon only) by having separated nasals and 30-32 midbody rows, versus nasals in contact, tiny ear lobules and 26 midbody rows.

C. timhudsoni sp. nov. a taxon confined to the top end of the Northern Territory, is separated from the two preceding species by having 7 (instead of 8) labials, 26-28 mid-body rows, 3 (instead of 4-5) nuchals; loreal 1.8 to 2 times as wide as high versus 1.1-1.4 times; 3-4 instead of 5-6 ear lobules.

C. anthonyjacksoni subsp. nov. a taxon confined to the Selwyn Ranges of far north-west Queensland is separated from the three preceding species by having widely separated nasals, versus closely separated or in contact.

In both *C. decaneurus* and *C. yampiensis* the light tail stripes are orange, versus dull whitish brown in *C. timhudsoni* sp. nov. and *C. anthonyjacksoni* subsp. nov..

In both *C. decaneurus* and *C. yampiensis* there is distinctive white spotting on the otherwise dark rear upper labials. This is either absent or obscured in both *C. timhudsoni* sp. nov. and *C. anthonyjacksoni* subsp. nov..

In *C. timhudsoni* sp. nov. the white mid-lateral line is composed of closely joined white spots, making the outer edges slightly jagged. By contrast in *C. anthonyjacksoni* subsp. nov. this line is effectively immaculate and therefore straight edged on top and

bottom.

C. timhudsoni sp. nov. usually has one of the ear lobules much larger than the others, whereas in *C. anthonyjacksoni* subsp. nov. they are all small and of roughly the same size.

The four preceding species being *C. decaneurus*, *C. yampiensis*, *C. timhudsoni* sp. nov. and *C. anthonyjacksoni* subsp. nov. are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Subdigital lamellae wide and with brown callose, being 20-24 under the fourth toe; snout is long and low; back and sides blackish with a total of 10 white lines and stripes. Nasals in short contact, separated or widely separated (depending on species). Prefrontals widely separated. Supraoculars 4, first 3 in contact with frontal. Supraciliaries 8. loreal 1.1 to 2 times as wide as high. 7-8 upper labials. 4 to 6 ear lobules, generally small (sometimes one outsized larger one), subacute. 3-5 nuchals. 26-32 midbody scale rows.

Head colour greyish brown; back and sides blackish brown; upper surface of limbs reddish brown.

There is a white paravertebral line from nape to tail (on which it becomes pale reddish-brown). The white dorsal line begins about the centre of the parietal and finishes abruptly just behind level of hind leg. The white dorsolateral line runs from the from last supraocular to the proximal third of tail (on which it is suffused with orange, reddish brown or light brown). There is a white mid lateral stripe from second loreal to at least the middle of the tail, looping above the ear aperture and interrupted slightly by the thigh. A white ventro-lateral stripe runs from behind the bottom of the ear aperture to the groin and is partly interrupted by arm. Limbs are longitudinally streaked with dark brown. Under surface is white (modified from Storr (1970), Horner (1992) and following inspection of specimens of all four relevant species).

C. decaneurus of the type form is depicted in life in Wilson and Swan (2021) on page 265 at top right (labelled as "*Ctenotus decaneurus decaneurus*") and online at:

<https://www.flickr.com/photos/julesfarquhar/51319044569/>

and

<https://www.flickr.com/photos/54876436@N08/14370824932/>

Ctenotus yampiensis is depicted in life in Wilson and Swan (2021) on page 265 at second from bottom and

online at:

<https://www.flickr.com/photos/reptileshots/9063870234/> and

https://www.flickr.com/photos/zimny_anders/28944939671/

C. timhudsoni sp. nov. is depicted in life in Horner (1991) on page 33 bottom and online at:

<https://www.flickr.com/photos/171250498@N08/52397402662/>

and

<https://www.flickr.com/photos/chrisjolly1989/44741416594/>

and

<https://www.flickr.com/photos/euprepiosaur/27148051669/>

and

<https://www.flickr.com/photos/58349528@N02/50053298352/>

and

<https://www.flickr.com/photos/152410663@N05/47477393591/>

C. anthonyjacksoni subsp. nov. is depicted in life in Wilson (2022) on page 131 middle left.

Distribution: *C. anthonyjacksoni* subsp. nov. is a taxon confined to the Selwyn Ranges region of north-west Queensland, including outlier ranges to the south-east.

Etymology: *C. anthonyjacksoni* subsp. nov. is named in honour of Gold Coast Queensland, Australia snake catcher Anthony Jackson a New Zealander (aka Kiwi) who works with Tim Hudson at Hudson Snake Catching Gold Coast at Gilston, Queensland, Australia in recognition of his services to wildlife conservation and public safety.

MAGNUSCINCUS HOSERAE SP. NOV.

LSIDurn:lsid:zoobank.org:act:64BCCCE1-EACA-4280-8F7D-8E3B1E5CD0AB

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R55674 collected from 60 km south (by air) from Torrens Creek, on the Torrens Creek to Aramac Road, Queensland, Australia, Latitude -21.3464 S., Longitude 145.05 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ Four preserved specimens at the Queensland Museum, Brisbane, Queensland, Australia, specimen numbers J44886, J44887, J44888 and J44889 all collected from Rocky Downs Station, Queensland, Australia, Latitude -20.85 S., Longitude 146.383333 E., 2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R55637 collected 10 km south-west of Pentland, Queensland, Australia, Latitude -20.6 S., Longitude 145.333333 E., 3/ A preserved specimen at the Australian Museum,

Sydney, New South Wales, Australia, specimen number R.113405 collected from about 86.2 km south of Charters Towers, (via the Gregory Developmental Road), Queensland, Australia, Latitude -20.816 S., Longitude 146.35 E., 4/ A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J77061 collected from the Epping Forest National Park, Queensland, Australia, Latitude -22.368056 S., Longitude 146.678889 E.

Diagnosis: Until now putative *Magnuscincus pantherinus* (Peters, 1866) with a type locality of Swan River (Perth, Western Australia), has been treated as a variable pan-Australian species generally found in hilly, rocky, or elevated Spinifex habitats across most of arid Australia extending east of the Great Dividing Range in east Queensland in the dry zone south of the tropics.

Three described subspecies, herein recognized as closely related species are as follows:

M. ocellifer (Storr, 1969) with a type locality of Roebuck Bay, Western Australia, is the taxon of the elevated sandy and rocky areas within the hot deserts of Western Australia and central Australia. *M. calyx* (Storr, 1970) with a type locality of Dunmarra, Northern Territory, Australia (Latitude -16.40 S., Longitude 133.23 E.), and occupying the east Kimberley in Western Australia and nearby parts of the top end of the Northern Territory and *M. acripes* (Storr, 1975) with a type locality of Barrow Island, Western Australia (Latitude -20.45 S., Longitude 115.25 E.), herein confined to that island.

Previous authors, (e.g. Storr *et al.* 1981) have alleged that *M. acripes* also occurs as an isolate in the Selwyn Ranges area of north-west Queensland, which is a biogeographic impossibility and so that taxon and three others are formally named herein.

The seven relevant species, being three newly named herein and a newly named subspecies are separated from one another by the relevant characters as described below:

M. pantherinus of the nominate form is herein restricted to the south-west of Western Australia, from the lower Murchison south to Mount Lesueur, New Norcia and Quairding and east to Karlee.

It is separated from all other species formerly treated as *C. pantherinus* by its greyish-brown dorsum, the dorsal and lateral white spots on the body are surrounded by black on all sides as well as the presence of a broken black vertebral line running down the body and an average snout-vent length of 70 mm.

M. ocellifer is further separated from *M. pantherinus* by its white spots that have shaved black on the edges, meaning many only have black on two sides, whereas the other parts of the white spots merely about the dark red-coloured dorsum. It also has a larger adult size of about 80 mm snout-vent length.

M. acripes as well as *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M.*

maxinehoserae eromanga subsp. nov.), are separated from all the other species in the complex by having 36-40 midbody scale rows versus 30-36 in all other species and by having high sharp scales on the soles and extremely high keels on the lamellae under the fourth toe.

This similarity led to the erroneous conclusion that these three species were of the same taxon (e.g. Storr *et al.* 1981).

M. acripes is separated from the other two species by the presence of black on either side of the white spots, versus above and below them in *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M. maxinehoserae eromanga* subsp. nov.).

M. calyx has callose rather than keeled lamellae under the fourth toe as seen in all other species in the complex. This taxon has enlarged areas of black surrounding the white spots on the dorsum and flanks, making the dark more prominent than the light, which is the reverse in the other species. It is also the largest in the complex having an average snout-vent length of 100 mm.

Lake Argyle (northwest Western Australia / East Kimberley district) region specimens attributed to this species have enlarged white areas rather than black (as seen in animals further east in the Victoria River district and type locality for the taxon) and may be taxonomically distinct.

M. hoserae sp. nov. a taxon from drier parts of north-east Queensland generally east of the Cooper's Creek drainage is separated from the closely related nominate form of *M. maxinehoserae* sp. nov. from the Selwyn Ranges district of north-west Queensland (just intruding into the Northern Territory) by having a dorsum that is a greyish-brown rather than reddish orange in colour and by having white patches on the lower dorsum and flanks that are obviously rectangular in shape.

The white patches on the flanks are larger in this species (nominate form) than seen in any other in the complex, often being 8 or more scales in size.

The two labials under the eye of *M. hoserae* sp. nov. are white and heavily boldly barred black, versus yellow, with or without a white centre and thinly barred brown in *M. maxinehoserae* sp. nov..

M. maxinehoserae eromanga subsp. nov. is a taxon found south of the Selwyn ranges in a region bound by the Diamantina and Coopers Creek drainage basins, extending from around Bladensburg National Park, near Winton in central Queensland, south-west to about Betoota at the South Australian border.

While similar in most respects to *M. maxinehoserae* sp. nov. as just described, *M. maxinehoserae eromanga* subsp. nov. has a dorsum that is a chocolate brown colour, separating it from nominate *M. maxinehoserae* sp. nov. (that is reddish orange). In *M. maxinehoserae eromanga* subsp. nov. the two upper labials under the eye are yellow and heavily barred dark brown, versus not in *M. maxinehoserae* sp. nov..

M. brianbarnetti sp. nov. from the northern Eyre Peninsula and nearby parts of south-west South Australia, east of the Nullarbor is separated from all other species in the complex by having tiny white spots on the dorsum (versus small to medium in the other species) and somewhat faded white spots on the flank.

M. brianbarnetti sp. nov. is further separated from the other species in the complex by having reduced black encircling the white in that the amount and intensity is reduced, as in being faded. This makes the black bounding the white to be effectively non-existent across most of the dorsum and flank of the lizard, again separating it from all other species in the complex.

All the preceding species are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters: having a pattern on the back, flanks and hindlimbs that includes at least some small to medium, white ocelli that are black edged in some way; a strongly grooved nasal (in contact); prefrontals usually in contact; four supraoculars; 7-9 (usually 8) supralabials; 31-38 midbody rows; 3-7 ear lobules and 21-29 lamellae under the fourth toe.

An associated species, *M. rubicundus* Storr, 1978 from the Pilbara region only is separated from the preceding species by a complete lack of any dorsal pattern (as in no spots, blotches, etc), being reddish to olive brown above and paler anteriorly, with 19-22 lamellae under the fourth toe and a moderately narrow callus. It is also large with an average 100 mm snout-vent length.

In terms of divergences, it seems that the two newly named Queensland species (*M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov.) as a pair diverged from "*M. pantherinus*" from further north-west and west by about 3 MYA and from each other about 2.4 MYA.

In turn the south-west Queensland subspecies (*M. maxinehoserae eromanga* subsp. nov.) diverged from the north-west Queensland population (*M. maxinehoserae* sp. nov.) about 1.3 MYA.

The southern South Australian population (*M. brianbarnetti* sp. nov.) appeared to have diverged about 2 MYA from *M. ocillifer* further north in central Australia.

These date divergences also corroborate with the biogeographic history of the relevant areas and the formation of the black soil barriers in Queensland and aridification of the Nullarbor on the South Australia, Western Australian border area.

M. hoserae sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/smacdonald/3410902446/in/album-72157616322354420/>

M. maxinehoserae sp. nov. is depicted in life in Cogger (2014) on page 512 top left, Brown (2014) on page 611 bottom left and online at:

<https://www.flickr.com/photos/gondwanareptileproducts/52532204682/>

and

<https://www.flickr.com/photos/ryanfrancis/17192061605/>

and

<https://www.flickr.com/photos/39576988@N06/6489580065/>

M. maxinehoserae eromanga subsp. nov. is depicted in life in Wilson and Swan (2021) on page 298 top left (as "*Ctenotus pantherinus acripes*") and is also depicted online at:

<https://www.inaturalist.org/observations/212726620>

M. brianbarnetti sp. nov. is depicted in life online at: <https://www.inaturalist.org/observations/191288473> and

<https://www.inaturalist.org/observations/147782166>

M. pantherinus of the nominate form is depicted in life in Wilson and Swan (2021) on page 289 second from top on left and online at:

<https://www.inaturalist.org/observations/81978063>

and

<https://www.inaturalist.org/observations/151539144>

M. acripes of the nominate form from Barrow Island, Western Australia is depicted in life online at:

<https://australia.chevron.com/-/media/australia/publications/documents/nature-book-reptiles.pdf> at page 33

M. calyx i is depicted in life in Wilson and Swan (2021) on page 289 top right, Storr *et al.* (1981) on plate 6, photo 5 on bottom left and online at:

<https://www.flickr.com/photos/58349528@N02/52037638859/>

and

<https://www.inaturalist.org/observations/109831184>

M. ocillifer is depicted in life in Storr *et al.* (1981) in plate 6, photo 2 at top right, Wilson and Swan (2021) on page 289 second from top on left and online at:

<https://www.flickr.com/photos/mattsummerville/8745893575/>

and

<https://www.flickr.com/photos/julesfarquhar/52709839536/>

and

<https://www.flickr.com/photos/141679113@N08/53009954788/>

and

<https://www.flickr.com/photos/96574168@N02/51919364173/>

Distribution: *M. hoserae* sp. nov. is a taxon from drier parts of north-east Queensland generally east of the Cooper's Creek drainage found both east and west of the Great Dividing Range.

Etymology: *M. hoserae* sp. nov. is named in honour of my wife Shireen Hoser in recognition for over a quarter of a century for numerous important contributions to herpetology and wildlife conservation often in very challenging circumstances.

MAGNUSCINCUS MAXINEHOSERAЕ SP. NOV.

LSIDurn:lsid:zoobank.org:act:4C81B2F5-0B87-4D7A-B3C1-7FB5A0B00915

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R54432 collected from 21 km south of the Bourke and Wills Roadhouse, Queensland, Australia, Latitude -19.3947 S., Longitude 140.2367 E.

This government-owned facility allows access to its holdings.

Paratypes: 1/ Three preserved specimens at the Australian Museum, Sydney, New South Wales, Australia, specimen numbers: R.27398, R.55096 and R.65968 all collected from Mount Isa, Queensland, Australia, Latitude -20.733 S., Longitude 139.483 E., 2/ A preserved specimen at the Queensland Museum, Brisbane, Queensland, Australia, specimen number J54462 collected from Quamby, Queensland, Australia, Latitude -20.366667 S., Longitude 140.283333 E.

Diagnosis: Until now putative *Magnuscincus pantherinus* (Peters, 1866) with a type locality of Swan River (Perth, Western Australia), has been treated as a variable pan-Australian species generally found in hilly, rocky or elevated Spinifex habitats across most of arid Australia extending east of the Great Dividing Range in east Queensland in the dry zone south of the tropics.

Three described subspecies, herein recognized as closely related species are as follows:

M. ocellifer (Storr, 1969) with a type locality of Roebuck Bay, Western Australia, is the taxon of the elevated sandy and rocky areas within the hot deserts of Western Australia and central Australia. *M. calyx* (Storr, 1970) with a type locality of Dunmarra, Northern Territory, Australia (Latitude -16.40 S., Longitude 133.23 E.), and occupying the east Kimberley in Western Australia and nearby parts of the top end of the Northern Territory and *M. acripes* (Storr, 1975) with a type locality of Barrow Island, Western Australia (Latitude -20.45 S., Longitude 115.25 E.), herein confined to that island.

Previous authors, (e.g. Storr *et al.* 1981) have alleged that *M. acripes* also occurs as an isolate in the Selwyn Ranges area of north-west Queensland, which is a

biogeographic impossibility and so that taxon and three others are formally named herein.

The seven relevant species, being three newly named herein and a newly named subspecies are separated from one another by the relevant characters as described below:

M. pantherinus of the nominate form is herein restricted to the south-west of Western Australia, from the lower Murchison south to Mount Lesueur, New Norcia and Quairding and east to Karlee.

It is separated from all other species formerly treated as *C. pantherinus* by its greyish-brown dorsum, the dorsal and lateral white spots on the body are surrounded by black on all sides as well as the presence of a broken black vertebral line running down the body and an average snout-vent length of 70 mm.

M. ocellifer is further separated from *M. pantherinus* by its white spots that have shaved black on the edges, meaning many only have black on two sides, whereas the other parts of the white spots merely abut the dark red-coloured dorsum. It also has a larger adult size of about 80 mm snout-vent length.

M. acripes as well as *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M. maxinehoserae eromanga subsp. nov.*), are separated from all the other species in the complex by having 36-40 midbody scale rows versus 30-36 in all other species and by having high sharp scales on the soles and extremely high keels on the lamellae under the fourth toe.

This similarity led to the erroneous conclusion that these three species were of the same taxon (e.g. Storr *et al.* 1981).

M. acripes is separated from the other two species by the presence of black on either side of the white spots, versus above and below them in *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M. maxinehoserae eromanga subsp. nov.*).

M. calyx has callose rather than keeled lamellae under the fourth toe as seen in all other species in the complex. This taxon has enlarged areas of black surrounding the white spots on the dorsum and flanks, making the dark more prominent than the light, which is the reverse in the other species. It is also the largest in the complex having an average snout-vent length of 100 mm.

Lake Argyle (northwest Western Australia / East Kimberley district) region specimens attributed to this species have enlarged white areas rather than black (as seen in animals further east in the Victoria River district and type locality for the taxon) and may be taxonomically distinct.

M. hoserae sp. nov. a taxon from drier parts of north-east Queensland generally east of the Cooper's Creek drainage is separated from the closely related nominate form of *M. maxinehoserae* sp. nov. from the Selwyn Ranges district of north-west Queensland (just intruding into the Northern Territory) by having

a dorsum that is a greyish-brown rather than reddish orange in colour and by having white patches on the lower dorsum and flanks that are obviously rectangular in shape.

The white patches on the flanks are larger in this species (nominate form) than seen in any other in the complex, often being 8 or more scales in size.

The two labials under the eye of *M. hoserae* sp. nov. are white and heavily boldly barred black, versus yellow, with or without a white centre and thinly barred brown in *M. maxinehoserae* sp. nov..

M. maxinehoserae eromanga subsp. nov. is a taxon found south of the Selwyn ranges in a region bound by the Diamantina and Coopers Creek drainage basins, extending from around Bladensburg National Park, near Winton in central Queensland, south-west to about Betoota at the South Australian border.

While similar in most respects to *M. maxinehoserae* sp. nov. as just described, *M. maxinehoserae eromanga subsp. nov.* has a dorsum that is a chocolate brown colour, separating it from nominate *M. maxinehoserae* sp. nov. (that is reddish orange). In *M. maxinehoserae eromanga subsp. nov.* the two upper labials under the eye are yellow and heavily barred dark brown, versus not in *M. maxinehoserae* sp. nov.. *M. brianbarnetti* sp. nov. from the northern Eyre Peninsula and nearby parts of south-west South Australia, east of the Nullarbor is separated from all other species in the complex by having tiny white spots on the dorsum (versus small to medium in the other species) and somewhat faded white spots on the flank.

M. brianbarnetti sp. nov. is further separated from the other species in the complex by having reduced black encircling the white in that the amount and intensity is reduced, as in being faded. This makes the black bounding the white to be effectively non-existent across most of the dorsum and flank of the lizard, again separating it from all other species in the complex.

All the preceding species are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. by the following unique combination of characters: having a pattern on the back, flanks and hindlimbs that includes at least some small to medium, white ocelli that are black edged in some way; a strongly grooved nasal (in contact); prefrontals usually in contact; four supraoculars; 7-9 (usually 8) supralabials; 31-38 midbody rows; 3-7 ear lobules and 21-29 lamellae under the fourth toe.

An associated species, *M. rubicundus* Storr, 1978 from

the Pilbara region only is separated from the preceding species by a complete lack of any dorsal pattern (as in no spots, blotches, etc), being reddish to olive brown above and paler anteriorly, with 19-22 lamellae under the fourth toe and a moderately narrow callus. It is also large with an average 100 mm snout-vent length.

In terms of divergences, it seems that the two newly named Queensland species (*M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov.) as a pair diverged from "*M. pantherinus*" from further north-west and west by about 3 MYA and from each other about 2.4 MYA.

In turn the south-west Queensland subspecies (*M. maxinehoserae eromanga subsp. nov.*) diverged from the north-west Queensland population (*M. maxinehoserae* sp. nov.) about 1.3 MYA.

The southern South Australian population (*M. brianbarnetti* sp. nov.) appeared to have diverged about 2 MYA from *M. ocellifer* further north in central Australia.

These date divergences also corroborate with the biogeographic history of the relevant areas and the formation of the black soil barriers in Queensland and aridification of the Nullarbor on the South Australia, Western Australian border area.

M. hoserae sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/smacdonald/3410902446/in/album-72157616322354420/>

M. maxinehoserae sp. nov. is depicted in life in Cogger (2014) on page 512 top left, Brown (2014) on page 611 bottom left and online at:

<https://www.flickr.com/photos/gondwanareptileproducts/52532204682/>

and

<https://www.flickr.com/photos/ryanfrancis/17192061605/>

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<https://www.flickr.com/photos/39576988@N06/6489580065/>

M. maxinehoserae eromanga subsp. nov. is depicted in life in Wilson and Swan (2021) on page 298 top left (as "*Ctenotus pantherinus acripes*") and is also depicted online at:

<https://www.inaturalist.org/observations/212726620>

M. brianbarnetti sp. nov. is depicted in life online at: <https://www.inaturalist.org/observations/191288473> and

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M. pantherinus of the nominate form is depicted in life in Wilson and Swan (2021) on page 289 second from top on left and online at:

<https://www.inaturalist.org/observations/81978063>

and

<https://www.inaturalist.org/observations/151539144>

M. acripes of the nominate form from Barrow Island, Western Australia is depicted in life online at:

<https://australia.chevron.com/-/media/australia/publications/documents/nature-book-reptiles.pdf>
at page 33

M. calyx is depicted in life in Wilson and Swan (2021) on page 289 top right, Storr *et al.* (1981) on plate 6, photo 5 on bottom left and online at:
<https://www.flickr.com/photos/58349528@N02/52037638859/>

and
<https://www.inaturalist.org/observations/109831184>

M. ocillifer is depicted in life in Hoser (1989) on page 86 bottom, Storr *et al.* (1981) in plate 6, photo 2 at top right, Wilson and Swan (2021) on page 289 second from top on left and online at:
<https://www.flickr.com/photos/mattsummerville/8745893575/>

and
<https://www.flickr.com/photos/julesfarquhar/52709839536/>

and
<https://www.flickr.com/photos/141679113@N08/53009954788/>

and
<https://www.flickr.com/photos/96574168@N02/51919364173/>

Distribution: *M. maxinehoserae* sp. nov. of the nominate form is a taxon from Selwyn Ranges of northwest Queensland, including elevated dunes and rocky or gravelly areas immediately adjacent to outliers.

It is constrained in the west by the black soils of the Barkly Tableland, the north by the folds towards the Gulf of Carpentaria, to the south-east by the Diamantina River drainage and to the east by the Coopers Creek and Fitzroy River drainages.

To the south of this area, generally south of Winton, central Queensland and between the Diamantina River drainage in the west and the Cooper's Creek network in the east in a region extending south-west to the South Australian border, the subspecies *M. maxinehoserae eromanga* subsp. nov. occurs.

Etymology: *M. maxinehoserae* sp. nov. is named in honour of my cousin, Maxine Hoser, formerly of Margate in the United Kingdom and more recently of north Israel (where her home is regularly bombed by Hezbollah terrorists) for her services to herpetology in the 1960's.

MAGNUSCINCUS BRIANBARNETTI SP. NOV.

LSIDurn:lsid:zoobank.org:act:DD10EC1E-9CD0-4609-A25B-5B1136B296EC

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R45310 collected from 1 km northwest of Waroona Peak, South Australia, Australia, Latitude -32.2433 S., Longitude 135.1333 E. This government-owned facility allows access to its

holdings.

Paratypes: Three preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, being 1/ Specimen number R17676 collected from north-west of the Yardea Station Shearing Shed, Yardea Station, South Australia, Australia, Latitude -32.33 S., Longitude 135.67 E., 2/ Specimen number R61990 collected from 9 km east of Moonaree Hill, South Australia, Australia, Latitude -31.9822 S., Longitude 135.6669 E., 3/ Specimen number R3068 collected from Coralbignie Station, South Australia, Australia, Latitude -32.62 S., Longitude 136.35 E.

Diagnosis: Until now putative *Magnuscincus pantherinus* (Peters, 1866) with a type locality of Swan River (Perth, Western Australia), has been treated as a variable pan-Australian species generally found in hilly, rocky or elevated Spinifex habitats across most of arid Australia extending east of the Great Dividing Range in east Queensland in the dry zone south of the tropics.

Three described subspecies, herein recognized as closely related species are as follows:

M. ocillifer (Storr, 1969) with a type locality of Roebuck Bay, Western Australia, is the taxon of the elevated sandy and rocky areas within the hot deserts of Western Australia and central Australia. *M. calyx* (Storr, 1970) with a type locality of Dunmarra, Northern Territory, Australia (Latitude -16.40 S., Longitude 133.23 E.), and occupying the east Kimberley in Western Australia and nearby parts of the top end of the Northern Territory and *M. acripes* (Storr, 1975) with a type locality of Barrow Island, Western Australia (Latitude -20.45 S., Longitude 115.25 E.), herein confined to that island.

Previous authors, (e.g. Storr *et al.* 1981) have alleged that *M. acripes* also occurs as an isolate in the Selwyn Ranges area of north-west Queensland, which is a biogeographic impossibility and so that taxon and three others are formally named herein.

The seven relevant species, being three newly named herein and a newly named subspecies are separated from one another by the relevant characters as described below:

M. pantherinus of the nominate form is herein restricted to the south-west of Western Australia, from the lower Murchison south to Mount Lesueur, New Norcia and Quairading and east to Karlee.

It is separated from all other species formerly treated as *C. pantherinus* by its greyish-brown dorsum, the dorsal and lateral white spots on the body are surrounded by black on all sides as well as the presence of a broken black vertebral line running down the body and an average snout-vent length of 70 mm.

M. ocillifer is further separated from *M. pantherinus* by its white spots that have shaved black on the edges, meaning many only have black on two sides, whereas the other parts of the white spots merely about the dark

red-coloured dorsum. It also has a larger adult size of about 80 mm snout-vent length.

M. acripes as well as *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M. maxinehoserae eromanga* subsp. nov.), are separated from all the other species in the complex by having 36-40 midbody scale rows versus 30-36 in all other species and by having high sharp scales on the soles and extremely high keels on the lamellae under the fourth toe.

This similarity led to the erroneous conclusion that these three species were of the same taxon (e.g. Storr et al. 1981).

M. acripes is separated from the other two species by the presence of black on either side of the white spots, versus above and below them in *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M. maxinehoserae eromanga* subsp. nov.).

M. calyx has callose rather than keeled lamellae under the fourth toe as seen in all other species in the complex. This taxon has enlarged areas of black surrounding the white spots on the dorsum and flanks, making the dark more prominent than the light, which is the reverse in the other species. It is also the largest in the complex having an average snout-vent length of 100 mm.

Lake Argyle (northwest Western Australia / East Kimberley district) region specimens attributed to this species have enlarged white areas rather than black (as seen in animals further east in the Victoria River district and type locality for the taxon) and may be taxonomically distinct.

M. hoserae sp. nov. a taxon from drier parts of north-east Queensland generally east of the Cooper's Creek drainage is separated from the closely related nominate form of *M. maxinehoserae* sp. nov. from the Selwyn Ranges district of north-west Queensland (just intruding into the Northern Territory) by having a dorsum that is a greyish-brown rather than reddish orange in colour and by having white patches on the lower dorsum and flanks that are obviously rectangular in shape.

The white patches on the flanks are larger in this species (nominate form) than seen in any other in the complex, often being 8 or more scales in size.

The two labials under the eye of *M. hoserae* sp. nov. are white and heavily boldly barred black, versus yellow, with or without a white centre and thinly barred brown in *M. maxinehoserae* sp. nov..

M. maxinehoserae eromanga subsp. nov. is a taxon found south of the Selwyn ranges in a region bound by the Diamantina and Coopers Creek drainage basins, extending from around Bladensburg National Park, near Winton in central Queensland, south-west to about Betoota at the South Australian border.

While similar in most respects to *M. maxinehoserae* sp. nov. as just described, *M. maxinehoserae eromanga* subsp. nov. has a dorsum that is a

chocolate brown colour, separating it from nominate *M. maxinehoserae* sp. nov. (that is reddish orange). In *M. maxinehoserae eromanga* subsp. nov. the two upper labials under the eye are yellow and heavily barred dark brown, versus not in *M. maxinehoserae* sp. nov.. *M. brianbarnetti* sp. nov. from the northern Eyre Peninsula and nearby parts of south-west South Australia, east of the Nullarbor is separated from all other species in the complex by having tiny white spots on the dorsum (versus small to medium in the other species) and somewhat faded white spots on the flank.

M. brianbarnetti sp. nov. is further separated from the other species in the complex by having reduced black encircling the white in that the amount and intensity is reduced, as in being faded. This makes the black bounding the white to be effectively non-existent across most of the dorsum and flank of the lizard, again separating it from all other species in the complex.

All the preceding species are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. by the following unique combination of characters: having a pattern on the back, flanks and hindlimbs that includes at least some small to medium, white ocelli that are black edged in some way; a strongly grooved nasal (in contact); prefrontals usually in contact; four supraoculars; 7-9 (usually 8) supralabials; 31-38 midbody rows; 3-7 ear lobules and 21-29 lamellae under the fourth toe.

An associated species, *M. rubicundus* Storr, 1978 from the Pilbara region only is separated from the preceding species by a complete lack of any dorsal pattern (as in no spots, blotches, etc), being reddish to olive brown above and paler anteriorly, with 19-22 lamellae under the fourth toe and a moderately narrow callus. It is also large with an average 100 mm snout-vent length.

In terms of divergences, it seems that the two newly named Queensland species (*M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov.) as a pair diverged from "*M. pantherinus*" from further north-west and west by about 3 MYA and from each other about 2.4 MYA.

In turn the south-west Queensland subspecies (*M. maxinehoserae eromanga* subsp. nov.) diverged from the north-west Queensland population (*M. maxinehoserae* sp. nov.) about 1.3 MYA.

The southern South Australian population (*M. brianbarnetti* sp. nov.) appeared to have diverged about 2 MYA from *M. ocillifer* further north in central Australia.

These date divergences also corroborate with the

biogeographic history of the relevant areas and the formation of the black soil barriers in Queensland and aridification of the Nullarbor on the South Australia, Western Australian border area.

M. hoserae sp. nov. is depicted in life online at:

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<https://www.flickr.com/photos/gondwanareptileproducts/52532204682/>

and

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and

<https://www.flickr.com/photos/39576988@N06/6489580065/>

M. maxinehoserae eromanga subsp. nov. is depicted in life in Wilson and Swan (2021) on page 298 top left (as "*Ctenotus pantherinus acripes*") and is also depicted online at:

<https://www.inaturalist.org/observations/212726620>

M. brianbarnetti sp. nov. is depicted in life online at: <https://www.inaturalist.org/observations/191288473>

and

<https://www.inaturalist.org/observations/147782166>

M. pantherinus of the nominate form is depicted in life in Wilson and Swan (2021) on page 289 second from top on left and online at:

<https://www.inaturalist.org/observations/81978063>

and

<https://www.inaturalist.org/observations/151539144>

M. acripes of the nominate form from Barrow Island, Western Australia is depicted in life online at:

<https://australia.chevron.com/-/media/australia/publications/documents/nature-book-reptiles.pdf> at page 33

M. calyx is depicted in life in Wilson and Swan (2021) on page 289 top right, Storr *et al.* (1981) on plate 6, photo 5 on bottom left and online at:

<https://www.flickr.com/photos/58349528@N02/52037638859/>

and

<https://www.inaturalist.org/observations/109831184>

M. ocellifer is depicted in life in Hoser (1989) on page 86 bottom, Storr *et al.* (1981) in plate 6, photo 2 at top right, Wilson and Swan (2021) on page 289 second from top on left and online at:

<https://www.flickr.com/photos/mattsummerville/8745893575/>

and

<https://www.flickr.com/photos/julesfarquhar/52709839536/>

and

<https://www.flickr.com/photos/141679113@N08/53009954788/>

and

<https://www.flickr.com/photos/96574168@N02/51919364173/>

Distribution: *M. brianbarnetti* sp. nov. appears restricted to the northern Eyre Peninsula and nearby parts of south-west South Australia, east of the Nullarbor.

Etymology: The species *brianbarnetti* sp. nov. is named in honour of herpetological icon Brian Barnett of Ardeer, Melbourne, Victoria, Australia for services to herpetology spanning many decades including (along with other family members) making huge personal sacrifices to run the Victorian Herpetological Society in the 1970's, 1980's and 1990's which were important years for herpetology in Australia.

MAGNUSCINCUS MAXINEHOSERAE EROMANGA SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:7FFE55C0-506F-46CA-9CBA-02A2D13C2B0A

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R42153 collected from 200 metres east of the Pelican Waterhole, Queensland, Australia, Latitude -25.6864 S., Longitude 140.6164 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 R65403 collected from 17 km west of Noonbah Homestead, Queensland, Australia, Latitude -24.1006 S., Longitude 143.0181 E., 2/ A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R42835 collected from 35 km south of Noonbah Homestead, Queensland, Australia, Latitude -24.22 S., Longitude 143.12 E., 3/ A preserved specimen at the Queensland Museum, specimen number J52548 collected from Bald Hills, Queensland, Australia, Latitude -24.166667 S., Longitude 143.016667 E., 4/ A preserved specimen at the Queensland Museum, specimen number J90191 collected from Valetta station, on the southern fence of the bore paddock, Queensland, Australia, Latitude -24.271944 S., Longitude 143.132778 E.

Diagnosis: Until now putative *Magnuscincus pantherinus* (Peters, 1866) with a type locality of Swan River (Perth, Western Australia), has been treated as a variable pan-Australian species generally found in hilly, rocky or elevated Spinifex habitats across most of arid Australia extending east of the Great Dividing Range in east Queensland in the dry zone south of the tropics.

Three described subspecies, herein recognized as

closely related species are as follows:

M. ocillifer (Storr, 1969) with a type locality of Roebuck Bay, Western Australia, is the taxon of the elevated sandy and rocky areas within the hot deserts of Western Australia and central Australia. *M. calyx* (Storr, 1970) with a type locality of Dunmarra, Northern Territory, Australia (Latitude -16.40 S., Longitude 133.23 E.), and occupying the east Kimberley in Western Australia and nearby parts of the top end of the Northern Territory and *M. acripes* (Storr, 1975) with a type locality of Barrow Island, Western Australia (Latitude -20.45 S., Longitude 115.25 E.), herein confined to that island.

Previous authors, (e.g. Storr *et al.* 1981) have alleged that *M. acripes* also occurs as an isolate in the Selwyn Ranges area of north-west Queensland, which is a biogeographic impossibility and so that taxon and three others are formally named herein.

The seven relevant species, being three newly named herein and a newly named subspecies are separated from one another by the relevant characters as described below:

M. pantherinus of the nominate form is herein restricted to the south-west of Western Australia, from the lower Murchison south to Mount Lesueur, New Norcia and Quairding and east to Karlee.

It is separated from all other species formerly treated as *C. pantherinus* by its greyish-brown dorsum, the dorsal and lateral white spots on the body are surrounded by black on all sides as well as the presence of a broken black vertebral line running down the body and an average snout-vent length of 70 mm.

M. ocillifer is further separated from *M. pantherinus* by its white spots that have shaved black on the edges, meaning many only have black on two sides, whereas the other parts of the white spots merely about the dark red-coloured dorsum. It also has a larger adult size of about 80 mm snout-vent length.

M. acripes as well as *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M. maxinehoserae eromanga* subsp. nov.), are separated from all the other species in the complex by having 36-40 midbody scale rows versus 30-36 in all other species and by having high sharp scales on the soles and extremely high keels on the lamellae under the fourth toe.

This similarity led to the erroneous conclusion that these three species were of the same taxon (e.g. Storr *et al.* 1981).

M. acripes is separated from the other two species by the presence of black on either side of the white spots, versus above and below them in *M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov. (including the subspecies *M. maxinehoserae eromanga* subsp. nov.).

M. calyx has callose rather than keeled lamellae under the fourth toe as seen in all other species in the complex. This taxon has enlarged areas of black surrounding the white spots on the dorsum and flanks,

making the dark more prominent than the light, which is the reverse in the other species. It is also the largest in the complex having an average snout-vent length of 100 mm.

Lake Argyle (northwest Western Australia / East Kimberley district) region specimens attributed to this species have enlarged white areas rather than black (as seen in animals further east in the Victoria River district and type locality for the taxon) and may be taxonomically distinct.

M. hoserae sp. nov. a taxon from drier parts of north-east Queensland generally east of the Cooper's Creek drainage is separated from the closely related nominate form of *M. maxinehoserae* sp. nov. from the Selwyn Ranges district of north-west Queensland (just intruding into the Northern Territory) by having a dorsum that is a greyish-brown rather than reddish orange in colour and by having white patches on the lower dorsum and flanks that are obviously rectangular in shape.

The white patches on the flanks are larger in this species (nominate form) than seen in any other in the complex, often being 8 or more scales in size.

The two labials under the eye of *M. hoserae* sp. nov. are white and heavily boldly barred black, versus yellow, with or without a white centre and thinly barred brown in *M. maxinehoserae* sp. nov..

M. maxinehoserae eromanga subsp. nov. is a taxon found south of the Selwyn ranges in a region bound by the Diamantina and Coopers Creek drainage basins, extending from around Bladensburg National Park, near Winton in central Queensland, south-west to about Betoota at the South Australian border.

While similar in most respects to *M. maxinehoserae* sp. nov. as just described, *M. maxinehoserae eromanga* subsp. nov. has a dorsum that is a chocolate brown colour, separating it from nominate *M. maxinehoserae* sp. nov. (that is reddish orange). In *M. maxinehoserae eromanga* subsp. nov. the two upper labials under the eye are yellow and heavily barred dark brown, versus not in *M. maxinehoserae* sp. nov.. *M. brianbarnetti* sp. nov. from the northern Eyre Peninsula and nearby parts of south-west South Australia, east of the Nullarbor is separated from all other species in the complex by having tiny white spots on the dorsum (versus small to medium in the other species) and somewhat faded white spots on the flank.

M. brianbarnetti sp. nov. is further separated from the other species in the complex by having reduced black encircling the white in that the amount and intensity is reduced, as in being faded. This makes the black bounding the white to be effectively non-existent across most of the dorsum and flank of the lizard, again separating it from all other species in the complex.

All the preceding species are separated from all other species of *Ctenotus* Storr, 1968 and the

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An associated species, *M. rubicundus* Storr, 1978 from the Pilbara region only is separated from the preceding species by a complete lack of any dorsal pattern (as in no spots, blotches, etc), being reddish to olive brown above and paler anteriorly, with 19-22 lamellae under the fourth toe and a moderately narrow callus. It is also large with an average 100 mm snout-vent length.

In terms of divergences, it seems that the two newly named Queensland species (*M. hoserae* sp. nov. and *M. maxinehoserae* sp. nov.) as a pair diverged from "*M. pantherinus*" from further north-west and west by about 3 MYA and from each other about 2.4 MYA.

In turn the south-west Queensland subspecies (*M. maxinehoserae eromanga* subsp. nov.) diverged from the north-west Queensland population (*M. maxinehoserae* sp. nov.) about 1.3 MYA.

The southern South Australian population (*M. brianbarnetti* sp. nov.) appeared to have diverged about 2 MYA from *M. ocillifer* further north in central Australia.

These date divergences also corroborate with the biogeographic history of the relevant areas and the formation of the black soil barriers in Queensland and aridification of the Nullarbor on the South Australia, Western Australian border area.

M. hoserae sp. nov. is depicted in life online at:

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M. maxinehoserae sp. nov. is depicted in life in Cogger (2014) on page 512 top left, Brown (2014) on page 611 bottom left and online at:

<https://www.flickr.com/photos/gondwanareptileproducts/52532204682/>

and

<https://www.flickr.com/photos/ryanfrancis/17192061605/>

and

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M. maxinehoserae eromanga subsp. nov. is depicted

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<https://www.inaturalist.org/observations/212726620>
M. brianbarnetti sp. nov. is depicted in life online at:
<https://www.inaturalist.org/observations/191288473>
and

<https://www.inaturalist.org/observations/147782166>

M. pantherinus of the nominate form is depicted in life in Wilson and Swan (2021) on page 289 second from top on left and online at:

<https://www.inaturalist.org/observations/81978063>
and

<https://www.inaturalist.org/observations/151539144>

M. acripes of the nominate form from Barrow Island, Western Australia is depicted in life online at:

<https://australia.chevron.com/-/media/australia/publications/documents/nature-book-reptiles.pdf>
at page 33

M. calyx is depicted in life in Wilson and Swan (2021) on page 289 top right, Storr *et al.* (1981) on plate 6, photo 5 on bottom left and online at:

<https://www.flickr.com/photos/58349528@N02/52037638859/>

and

<https://www.inaturalist.org/observations/109831184>

M. ocillifer is depicted in life in Hoser (1989) on page 86 bottom, Storr *et al.* (1981) in plate 6, photo 2 at top right, Wilson and Swan (2021) on page 289 second from top on left and online at:

<https://www.flickr.com/photos/mattsummerville/8745893575/>

and

<https://www.flickr.com/photos/julesfarquhar/52709839536/>

and

<https://www.flickr.com/photos/141679113@N08/53009954788/>

and

<https://www.flickr.com/photos/96574168@N02/51919364173/>

Distribution: *M. maxinehoserae eromanga* subsp. nov. occurs generally south of Winton, central Queensland and between the Diamantina River drainage in the west and the Cooper's Creek network in the east in a region extending south-west to the South Australian border.

To the north of this area, *M. maxinehoserae* sp. nov. of the nominate form occurs. It is a taxon from Selwyn Ranges of northwest Queensland, including elevated dunes and rocky or gravelly areas immediately adjacent to outliers.

It is constrained in the west by the black soils of the Barkly Tableland, the north by the folds towards the Gulf of Carpentaria, to the south-east by the

Diamantina River drainage and to the east by the Coopers Creek and Fitzroy River drainages.

Etymology: The subspecies *M. maxinehoserae eromanga* subsp. nov. is named in reflection of the fact that a section of its distribution occurs in association with the Eromanga basin and associated hills in south-west Queensland, Australia.

The spelling of the name should not be amended as the spelling "eromanga" is intentional, even though it could be argued that Latinisation is incorrect.

In passing I make mention of the fact that when revisiting DNA sequences for the taxon *Nephrurus saxacola* (Hoser, 2016), a similar divergence was found between north and south populations (1.6 to 1.8 MYA), indicating it should also be recognized as a separate species or subspecies.

Oliver *et al.* (2022) committed an act of taxonomic vandalism in trying to over-write the name *N. saxacola* by effectively renaming it as "*Nephrurus eromanga* Oliver, Donnellan & Gunn, 2022".

While the name is a junior synonym of *N. saxacola*, their newly named taxon had a holotype of "QM J97592 (formerly SAMA R42602), 4 km N. of Diamantina Station (23°440 S, 141°080E), collected by B. Miller, G. Armstrong and J. Birrell on 12 October 1993".

Because that specimen is clearly one of the southern population from east of the Diamantina River, the name "*Nephrurus eromanga*" is available for that population as either a senior synonym, when recognizing *N. saxacola* as a separate taxon, or in the alternative as a subspecies of *N. saxacola* for the southern population alone.

MATHERUS GEN. NOV.

LSIDurn:lsid:zoobank.org:act:F667FDFB-B99F-48B2-B9A0-FC85BD54A759

Type species: *Matherus matheri* sp. nov. (this paper).

Diagnosis: The species within this genus are separated from all other members of *Ctenotus sensu lato*, including the genera *Ctenotus* Storr, 1968, type species *Lacerta taeniolata* WHITE, 1790, *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 by the following unique combination of characters:

No dorsal pattern incorporating obvious ocelli; post-narial groove is weak or absent; dorsal and lateral pattern is complex, and is either:

1/ A complex of eight bold white stripes from snout to tail; on each side a paravertebral line joins its opposite number on the snout; a dorsolateral line from above the eye to the tail; a mid-lateral line from the lips to tail and a lower lateral line between forelimbs and hind

limbs, or:

2/ Including pale blotches, spots, dots and dashes, and/or longitudinal stripes of varying width and colour but not reduced to leave wide strips or zones without pattern; lateral dots, if any and spots if any are more-or-less arranged longitudinally. Dorsum brown and with rows of longitudinal stripes both dorsally and laterally.

Regardless of dorsal and lateral colouration, all species have limbs that are a combination of dark and white longitudinal stripes. Venter is always whitish.

The genus is further diagnosed as having 26-30 midbody rows; nasals in broad contact; prefrontals widely separated; first three of four supraoculars are in contact with the frontal; first supraocular not much narrower than second; 1 or 2 presuboculars; second loreal quadrilateral with flat or curving; seven or eight upper labials; anterior sets of toes are compressed; scales under foot uniformly small; 18-28 subdigital lamellae that are very finely keeled or finely; anterior of tail has longitudinal stripes, sometimes extending most of the way along the tail length. Otherwise the tail is usually brownish in colour, but sometimes with an slight dull orange tinge at distal end. One to four ear lobules with the first larger. Snout vent length up to about 52 mm.

Etymology: Named in honour of Michael Mather of Wollongong, New South Wales, Australia, in recognition of a lifetime's work in herpetology, in particular the captive breeding and study of skinks in the *Ctenotus sensu lato* group.

Content: *Matherus matheri* sp. nov. (this paper); *M. tantillus* (Storr, 1975); *M. colletti* (Boulenger, 1896); *M. ehmani* (Storr, 1985); *M. halysis* (Horner, 2009); *M. nasutus* (Storr, 1969); *M. rufescens* (Storr, 1979); *M. striaticeps* (Storr, 1978); *M. nigrilineatus* (Storr, 1990).

MATHERUS MATHERI SP. NOV.

LSIDurn:lsid:zoobank.org:act:8629EA37-BCA5-4AA3-8647-F3637EB9A963

Holotype: A preserved specimen in the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R24428 collected from Dorisvale, Bradshaw Creek, Fitzmaurice River, Northern Territory Australia, Latitude -14.504 S., Longitude 131.323 E.

This government-owned facility allows access to its holdings.

Paratypes: Two preserved specimens in the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen numbers R24429 and R24432, both collected from Dorisvale, Bradshaw Creek, Fitzmaurice River, Northern Territory Australia, Latitude -14.504 S., Longitude 131.323 E.

Diagnosis: *M. matheri* sp. nov. a species generally from the upper Daly River District of the Northern Territory, Australia has until now been treated as an easterly outlier population of "*Ctenotus tantillus* Storr, 1975", with a type locality of Kununurra, Western Australia, Australia, Latitude -1542 S., Longitude

128.42 E.

M. matheri sp. nov. is separated from *M. tantillus* by the markings on the lateral stripe on the upper flank. In *M. tantillus* these are generally in the form of a single line of a series of large yellow blotches that become reddish brown on the lower part where they abut an effectively unbroken white lower lateral stripe. Then the head is dark to chocolate brown.

In *M. matheri* sp. nov. the spots are reduced in size and intensity and posteriorly tend to split to become pairs. The white lower lateral stripe is broken slightly and the head is medium brown and slightly lighter between the eyes.

A very closely related species *M. mesotes* (Horner, 1999), is separated from the two previous species by having a generally washed out and dull colouration above combined with an obvious thick yellow vertebral line running down most of the body and the upper surface of the anterior part of the tail.

This line is formed by the enlargement and merging of two thin lines on either side of the black mid-dorsal line on the neck and anterior dorsum. The dorsolateral is also somewhat broken into a row of joined white dots that are often apart.

Another closely related species in this group is *M. ehmanni* (Storr, 1985) is separated from the preceding species by having a bold and well-defined dorsal and lateral pattern, with a just black band running along the upper flank punctuated by a bold row of evenly spaced bright yellow spots (no red), below which is a bold white line, in turn bounded by a thick black line and then another white line.

The four preceding species are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. by the following unique combination of characters:

No dorsal pattern incorporating obvious ocelli; post-narial groove is weak or absent; dorsal and lateral pattern is complex, as in including pale blotches, spots, dots and dashes, and/or longitudinal stripes of varying width and colour but not reduced to leave wide strips or zones without pattern; lateral dots, if any and spots if any are more-or-less arranged longitudinally. Dorsum brown and with rows of longitudinal stripes both dorsally and laterally. First three of four supraoculars (or first two when only three supraoculars present) are in contact with the frontal; first supraocular not much narrower than second; 1 or 2 presuboculars; second loreal quadrilateral with flat or curving; anterior sets of toes are compressed; scales under foot uniformly small; the 18-24 subdigital

lamellae under the fourth toe are finely keeled; anterior of tail has longitudinal stripes, sometimes extending most of the way along the tail length. 1-4 ear lobules. Otherwise the tail is usually brownish in colour, but sometimes with a slight dull orange tinge. Snout vent length up to about 52 mm.

Distribution: *M. matheri* sp. nov. is a species known only from the upper Daly River District of the Northern Territory, Australia.

Etymology: As for the genus. Named in honour of Michael Mather of Wollongong, New South Wales, Australia, in recognition of a lifetime's work in herpetology, in particular the captive breeding and study of skinks in the *Ctenotus sensu lato* group.

MATHERUS STRIATICEPS DIVERGANS SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:009072C0-980E-4C01-A462-2D0AF5F843B2

Holotype: A preserved specimen in the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R22441 collected 15 km south of the Nathan River Station, on Roper Bar Road, Limmen National Park, Northern Territory, Australia, Latitude -15.718 S., Longitude 135.469 E.

This government owned facility allows access to its holdings.

Paratype: A preserved specimen in the Northern Territory Museum of Arts and Sciences, Darwin, Northern Territory, Australia, specimen number R16374 collected at the Nathan River Station, Limmen National Park, Northern Territory, Australia, Latitude -15.533 S., Longitude 135.417 E.

Diagnosis: *Maheurus striaticeps divergens subsp. nov.* from the north-west Gulf of Carpentaria region of the Northern Territory is readily separated from the Selwyn ranges taxon "*Ctenotus striaticeps* Storr, 1978" with a type locality of 72 km north northeast of Mount Isa, Queensland, Queensland (Latitude 20.19 S., Longitude 139.47 E.) by the generally slightly duller pattern.

The dark longitudinal lines on the upper body of *M. striaticeps divergens subsp. nov.* are not jet black as seen in nominate *M. striaticeps*, the boundaries of these lines are not sharp as seen in nominate *M. striaticeps*, the yellow lines on the body are not as brilliant in *M. striaticeps divergens subsp. nov.* and as a rule have an obvious smudge of colour on them (rarely seen in nominate *M. striaticeps*).

The light lines on the dorsum are nearly as wide as the blackish ones in *M. striaticeps divergens subsp. nov.*, but not so in *M. striaticeps*.

The two species are separated from all other species of *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839,

Magnuscincus Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

No dorsal pattern incorporating obvious ocelli; post-narial groove is weak or absent; dorsal and lateral pattern is complex, and is a complex of eight bold white stripes from snout to tail, on each side a paravertebral line joins its opposite number on the snout; a dorsolateral line from above the eye to the tail; a mid-lateral line from the lips to tail and a lower lateral line between forelimbs and hind limbs. The limbs are a combination of dark and white longitudinal stripes. Venter whitish. 28 midbody rows; nasals in broad contact; prefrontals widely separated; first three of four supraoculars are in contact with the frontal; first supraocular not much narrower than second; 1 or 2 presuboculars; second loreal quadrilateral with flat or curving; seven upper labials; anterior sets of toes are compressed; scales under foot uniformly small; the 24-28 subdigital lamellae very finely keeled; anterior of tail has longitudinal stripes, sometimes extending most of the way along the tail length. Otherwise, the tail is usually brownish in colour, but sometimes with a slight dull orange tinge. Two ear lobules with the first larger. Snout vent length up to about 52 mm.

M. striaticeps divergens subsp. nov. is depicted in life online at:

<https://www.flickr.com/photos/euprepiosaur/51937412628/>

and

<https://www.flickr.com/photos/58349528@N02/51685883943/>

M. striaticeps of the nominate subspecies is depicted in life in Cogger (2014) on page 524 at top right, Wilson and Swan (2021) on page 301 middle left and online at:

<https://www.flickr.com/photos/ryanfrancis/16461197309/>

and

<https://www.flickr.com/photos/ryanfrancis/16027470873/>

Distribution: *M. striaticeps divergens* subsp. nov. is believed to occur in suitable habitat immediately south of the western part of the Gulf of Carpentaria in the Northern Territory and potentially nearby Queensland. *M. striaticeps* is herein confined to the main Selwyn Range, generally within 200 km of Mount Isa, Queensland, Australia.

Etymology: *M. striaticeps divergens* subsp. nov. is named in reflection of the fact it is divergent from the nominate form.

The spelling of the subspecies name is intentional and should not be altered. The spelling was chosen to eliminate risk of creation of a homonym.

KOMMOSAGOGUS PAILSEI SP. NOV.

LSIDurn:lsid:zoobank.org:act:529BD0AA-4653-489D-86B1-486A6B0378D7

Holotype: A preserved adult female specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R134072 collected from the Fitzgerald River National Park, Western Australia, Australia, Latitude -33.745278 S., Longitude 119.665556 E.

This government owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, Specimen numbers R36884, R36885 and R142908 collected from West Mount Barren, Western Australia, Australia, Latitude -34.216389 S., Longitude 119.433056 E.

Diagnosis: Notwithstanding the formal recognition of several divergent species within the so-called "*Ctenotus labillardieri* (Duméril and Bibron, 1839) complex", including the relatively recent paper of Kay and Keogh (2012), it has been clear for some time that the putative species within the south-west Australian genus *Kommosagogus* Wells and Wellington, 1984 as recognised herein still contain a number of taxonomically significant and unnamed forms.

This paper names the obvious ones by:

1/ Dividing *K. labillardieri* five ways and with two additional subspecies, all beyond *K. labillardieri* being named for the first time;

2/ *K. catenifer* (Storr, 1974) is split three ways with *K. hickmani* Wells and Wellington, 1985 resurrected from synonymy and a new species, *K. rosswellingtoni* sp. nov. formally named;

3/ *K. gemmula* (Storr, 1974) is also split three ways, with the southern population formally named *K. wellsei* sp. nov. and the westernmost population from Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) on the eastern south coast of Western Australia formally named as *K. trevorhawkeswoodi* sp. nov..

Within putative *K. labillardieri* the following taxonomic actions are made.

1/ *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north;

2/ *K. pailsei* sp. nov. is the relevant taxon for the populations in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park.

In turn that population is divided into 3 subspecies;

3/ The second of these subspecies is *K. pailsei menang* subsp. nov. from Cheynes in the east to about Windy Harbour and hinterland in the west;

4/ The third of these subspecies is *K. pailsei whadjuk* subsp. nov. for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast;

5/ *K. grantturneri sp. nov.* is a taxon restricted to the Stirling Ranges in south-west Western Australia;

6/ *K. alexanderdudleyi sp. nov.* is the taxon found from about Hopetoun in the west and near Dalyup in the east along the coastal strip in southern Western Australia;

7/ *K. graysonoconnori sp. nov.* is the relevant taxon found in southern Western Australia from Cape Le Grand in the west along the coast to Cape Aird in the east in the near coastal area.

The five species and additional two subspecies, defined herein as "the complex", are separated from one another with the following unique characters or combinations of them:

Nominate *C. labillardieri* was well-defined by Ford (1969) in what he defined as the population in the "northern Part of the Darling Range" and is in effect adopted herein as diagnostic for the taxon in terms of colouration with a few minor modifications in light of newly described taxa since his paper was published in 1969.

C. labillardieri has sharply defined markings on back and sides. Dorsum is a light bronze-brown colour. A narrow white sharp-edged line starts on the supraoculars (which themselves are whitish and with narrow dark bars) and runs dorsolaterally down to the tail where it becomes less distinct. Bordering on the dorsal side of this is a fine black line of similar sharpness and below, starting at the eye, is a broad jet-black band that is finely spotted with white and pale brown flecks at the anterior end of the body (only). This band is bounded below by a thin white mid-lateral line which commences below the eye, passes through the ear and over the limbs to the tail. It is ragged edged compared to the dorsolateral white line which is not. Below this is a jagged and sometimes broken blackish line (thicker anteriorly on the body, thinner and likely to have breaks posteriorly on the body), which in turn is followed below by the ragged white edge of the ventrolateral border. Venter is white, except for the chin and throat which are white with small brown flecks on the scales.

There is no distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

The closely related species *Ctenotus ora* Kay and Keogh, 2012 from the south-west corner of Western Australia, is morphologically similar to the above species complex in particular *C. labillardieri*, but it is readily separated from that taxon and all others in the

species complex by the fact that the back is silvery grey with minute black flecking, no white speckling on the flanks or on the dorsal black line and that the upper surface of the limbs are orange with small irregularly shaped markings that are not interconnected, (for further separation of this taxon from other similar species not in this species complex, see Kay and Keogh, 2012).

K. pailsei sp. nov. (of the nominate subspecies) is readily separated from the other subspecies and species in the complex by the unique combination of: A wide black stripe on the dorsum before the yellow-white dorsolateral line, in effect reducing the size of the brownish mid-dorsal zone. Both these black lines on the dorsum and the wide black upper band on the upper flanks have numerous scattered large well-defined and distinct yellow-white spots. There is a distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

K. pailsei menang subsp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: It is essentially similar to the nominate form of *K. pailsei sp. nov.*, but separated from that taxon by having a generally more chocolate brown colouration on the dorsum; the large well-defined and distinct yellow-white spots on the black of the lateral parts of the dorsum form a well defined single line and in some specimens are semi-distinct only; the white line of the mid-lower flank is well defined and ragged edged top and bottom, versus not well defined on the lower edge in the nominate form of *K. pailsei sp. nov.*

Orange flecks or markings behind the eye, if present in *K. pailsei menang subsp. nov.*, are not in the form of a distinct row of 7 orange spots.

K. pailsei whadjuk subsp. nov. is similar in most respects to *K. pailsei menang subsp. nov.*, but separated from that taxon by the fact that the spotting on the black on the lateral edges of the dorsum and upper flanks is reduced in number, intensity and size of spots, with a lot of the tiny spots being dark yellowish and brown, rather than a bright white or light yellow as seen in *K. pailsei menang subsp. nov.*

In *K. pailsei whadjuk subsp. nov.* has the unique combination of the white line of the lower flank and black below more-or-less merge to become a matrix of mottling that is both darker and lighter, generally appearing a mottled or marbled colour, gradually fading as one moves towards the belly proper. In other words, there is no obvious jagged edged white line on the lower flank. There is a medium to large patch immediately behind the eye, but in no way does this form part of a row of spots running posteriorly along the side of the head.

K. grantturneri sp. nov. is readily separated from

the other subspecies and species in the complex by the unique combination of: A distinctively ragged edged yellow-white dorsolateral line, made more so by breaks or near breaks and extensions consisting of dots joined to the main line on both the upper and lower edges. Tiny scattered white spots on the black of the upper flanks are reduced in size and number. The black lines at the lateral edge of the dorsum are reduced in size and almost wholly obscured by intrusions of brown on the vertebral side and white scale intrusions from the lateral edge side. Behind the eye, the colour is either dark and with at most one or two scattered tiny yellow spots, or alternatively dark and brown marbled, but again without any obvious row of spots.

K. alexanderdudleyi sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A thick, well-defined, and slightly jagged edged bold yellow dorsolateral line. The black on the dorsal side is expanded to form a well-defined black line. On the vertebral side edge there are light brown, yellow and white scales abutting the black, making the black lines even better defined.

On the black band of the upper flank, there are small and large yellow-white spots that are reasonably well spaced and more-or-less aligned along the middle of the band, rather than the edges. The 10-12 large spots are on centre and the smaller ones are off centre, usually lower only anteriorly and as upper and lower pairs at the posterior end of the flank. Below this black section there is a series of broken short lines or dashes (sometimes touching and at other times not) the anterior edge lower than the upper beneath which is black. The white lower boundary of the black is similar to and in parallel to the upper and this is the zone just where the belly meets. Within each wider part of the black, is a tiny white dot, giving this section of the flank the appearance of having a series of black with white centred ocelli. Behind the eye is jet black with a series of 6-7 moderately large orange dots running to the ear in a single midline.

K. graysonoconnori sp. nov. is separated from the other species in the complex by the unique combination of the following: There is a very bold and distinctive dorsal and lateral pattern. The brown of the dorsum, running along the mid-section down the body is reduced in size, making the black of the sides of the dorsum wider. On some specimens at the vertebral line, the brown of the dorsum may tend to fragment leading the partial formation of a black mid-dorsal line. On the inner edge of the black dorsal lines there are no scales of lighter or different colour to the brown on top. While the white dorsolateral lines are complete and even edged, on each scale there is a white protrusion giving a slightly ragged appearance on close inspection.

The black line along the upper flank is reduced in thickness as compared to the other species in the complex, generally going only about halfway down the

flank, rather than obviously more than half in all other species in the complex. Running along the middle of this black line is a series of 16-18 mainly medium yellow-white spots, evenly spaced and running along the midline only. A very small number of tiny yellow-white spots are on the black area as well, usually between some of the larger spots and occasionally randomly placed elsewhere.

Below the black of the upper flank, the white is in the form of a jagged edged, but boldly defined white line, similar in form at the lower edge, giving it the form of a tight zig-zag line. Below this is a similar white upper edge that forms the boundary to the white belly.

Behind the eye and between the ear may be none, or one to four small yellow dots in a line.

The preceding species are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Obviously reddish legs that are heavily marked with black and further distinguishable from most morphologically similar taxa in south-west Australia by the white dorsolateral line that is effectively continuous (not a series of spots or dashes) and not any obvious speckled type of pattern.

In passing, I note that specimens of the species *K. hickmani* Wells and Wellington, 1985 have been since treated as being of either putative *K. labillardieri* or *K. catenifer* Storr, 1974.

K. hickmani is recognised herein as a separate species to both and is also allopatric to both.

K. hickmani is readily separated from *K. labillardieri* by the unique presence of a distinctively speckled appearance.

The dorsolateral white stripes may or may not be discontinuous. If discontinuous, it may be reduced to a series of white dashes.

... CONTINUES IN AUSTRALASIAN JOURNAL OF HERPETOLOGY, ISSUE 69, PUBLISHED AT THE SAME TIME AS ISSUE 68.

Australasian Journal of Herpetology

Issue 68

Hoser, R. T. 2024. Dealing with a taxonomic disaster zone ...
39 new species and 11 new subspecies within *Ctenotus* Storr, 1964 *sensu lato*.
Australasian Journal of Herpetology 68-69:1-128.

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Dealing with a taxonomic disaster zone ... 39 new species and 11 new subspecies within *Ctenotus* Storr, 1964 *sensu lato*.

**... CONTINUED FROM AUSTRALASIAN JOURNAL OF HERPETOLOGY, ISSUE 68,
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K. hickmani is readily separated from both *K. labillardieri* or *K. catenifer* by the following combination of characteristics:

The black on the lateral edge of the dorsum and that of the flank is expanded in area. Both are heavily speckled with dull semi-defined whitish, yellowish, or brownish spots that are small to tiny in size. These are usually brown on the dorsum and yellowish white on the flank, the colour difference between the colour of these spots being obvious when compared. The white line on the lower flank is relatively straight edged but not wholly so, but usually is unbroken, thin and well-defined, although in some other specimens it is poorly defined with respect of the area of the lower flank. Below this line, or where it would otherwise be, one finds on the lower flank that the pattern is a patchwork of black and white, with white specks or tiny white spots inside black areas large enough to fit them and remain obviously black on all sides. The back of the head behind the eyes, invariably has grey specks or grey marks on the otherwise brown surface (versus blackish brown with white or yellow spots in *C. catenifer*).

The upper surface of the (original) tail is in overall appearance a light greyish brown with a speckled appearance. This is created by black intrusions from a black midline on the anterior part of the tail, becoming black specking towards the distal end.

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. labillardieri is depicted in life in Wilson and Swan (2021) on page 279 at top left and online at:

<https://www.inaturalist.org/observations/189541229>

K. pailsei sp. nov. (of the nominate subspecies) is depicted in life online at:

<https://www.inaturalist.org/observations/64036697>

and

<https://www.inaturalist.org/observations/189650296>

and

<https://www.inaturalist.org/observations/64036691>

and

<https://www.inaturalist.org/observations/170819053>

K. pailsei menang subsp. nov. is depicted in life in Wilson and Swan (2021) on page 279 top right, Cogger (2014) on page 504 top left and online at:

<https://www.inaturalist.org/observations/156506659>

and

<https://www.inaturalist.org/observations/903209>

and

<https://www.inaturalist.org/observations/169932677>

and

<https://www.inaturalist.org/observations/185723885>

K. pailsei whadjuk subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/188369673>

and

<https://www.inaturalist.org/observations/195882908>

K. grantturneri sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/51903990>

and

<https://www.inaturalist.org/observations/139432357>

and

<https://www.inaturalist.org/observations/179390>

and

<https://www.inaturalist.org/observations/47082653>

K. alexanderdudleyi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/145471553>

and

<https://www.inaturalist.org/observations/48740005>

K. graysonoconnori sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/176228>

and

<https://www.inaturalist.org/observations/46121694>

and

<https://www.inaturalist.org/observations/104340376>

Distribution: *K. pailsei* sp. nov. is the relevant taxon for the populations previously known as the southwestern Australian species *K. labillardieri* that occurs in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the

Fitzgerald National Park in the east.

In turn that population is divided into 3 subspecies;

The second of these subspecies is *K. pailsei menang subsp. nov.* from Cheynes in the east to about Windy Harbour and hinterland in the west;

The third of these subspecies is *K. pailsei whadjuk subsp. nov.* for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast.

As a result, *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north.

Etymology: The taxon *K. pailsei sp. nov.* is named in honour of Roy Pails of Delacombe, (Ballarat), Victoria, Australia, who has dedicated his lifetime to the research and conservation of snakes, reptiles and other wildlife. In most recent years (2010-2024) has worked extensively as "Pails for scales conservation" creating a network of important wildlife sanctuaries across southern and eastern Australia.

He has also organised teams of zoologists to conduct field surveys in remote parts of Australia to assist in the scientific research on and conservation of Australia's wildlife.

Roy is known to friends as "Pailse" or "Pailsey" and so the spelling of the species name "*pailsei*" is intentional and should not be changed.

KOMMOSAGOGUS PAILSEI MENANG SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:63CC8F64-6713-492B-A49A-151566B58EFA

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R140763 collected about 15 km west of Walpole, Western Australia, Australia, Latitude -34.963611 S., Longitude 116.602778 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 R165587 and R165587 both collected from the Walpole area, Western Australia, Australia, Latitude -34.99 S., Longitude E.

Diagnosis: Notwithstanding the formal recognition of several divergent species within the so-called "*Ctenotus labillardieri* (Duméril and Bibron, 1839) complex", including the relatively recent paper of Kay and Keogh (2012), it has been clear for some time that the putative species within the south-west Australian genus *Kommosagogus* Wells and Wellington, 1984 as recognised herein still contain a number of taxonomically significant and unnamed forms.

This paper has formally named the obvious ones by:

1/ Dividing *K. labillardieri* five ways and with two additional subspecies, all beyond *K. labillardieri* being named for the first time;

2/ *K. catenifer* (Storr, 1974) is split three ways with *K. hickmani* Wells and Wellington, 1985 resurrected from synonymy and a new species, *K. rosswellingtoni sp. nov.* formally named;

3/ *K. gemmula* (Storr, 1974) is also split three ways, with the southern population formally named *K. wellsei sp. nov.* and the westernmost population from Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) on the eastern south coast of Western Australia formally named as *K. trevorhawkeswoodi sp. nov.*

Within putative *K. labillardieri* the following taxonomic actions are made.

1/ *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north;

2/ *K. pailsei sp. nov.* is the relevant taxon for the populations in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park.

In turn that population is divided into 3 subspecies;

3/ The second of these subspecies is *K. pailsei menang subsp. nov.* from Cheynes in the east to about Windy Harbour and hinterland in the west;

4/ The third of these subspecies is *K. pailsei whadjuk subsp. nov.* for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast;

5/ *K. grantturneri sp. nov.* is a taxon restricted to the Stirling Ranges in south-west Western Australia;

6/ *K. alexanderdudleyi sp. nov.* is the taxon found from about Hopetoun in the west and near Dalyup in the east along the coastal strip in southern Western Australia;

7/ *K. graysonoconnori sp. nov.* is the relevant taxon found in southern Western Australia from Cape Le Grand in the west along the coast to Cape Aird in the east in the near coastal area.

The five species and additional two subspecies, defined herein as "the complex", are separated from one another with the following unique characters or combinations of them:

Nominate *C. labillardieri* was well-defined by Ford (1969) in what he defined as the population in the "northern Part of the Darling Range" and is in effect adopted herein as diagnostic for the taxon in terms of colouration with a few minor modifications in light of newly described taxa since his paper was published in 1969.

C. labillardieri has sharply defined markings on back and sides. Dorsum is a light bronze-brown colour. A narrow white sharp-edged line starts on the supraoculars (which themselves are whitish and with narrow dark bars) and runs dorsolaterally down to the tail where it becomes less distinct. Bordering on the dorsal side of this is a fine black line of similar sharpness and below, starting at the eye, is a broad jet-black band that is finely spotted with white and pale brown flecks at the anterior end of the body (only). This band is bounded below by a thin white mid-lateral line which commences below the eye, passes through the ear and over the limbs to the tail. It is ragged edged compared to the dorsolateral white line which is not. Below this is a jagged and sometimes broken blackish line (thicker anteriorly on the body, thinner and likely to have breaks posteriorly on the body), which in turn is followed below by the ragged white edge of the ventrolateral border. Venter is white, except for the chin and throat which are white with small brown flecks on the scales.

There is no distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

The closely related species *Ctenotus ora* Kay and Keogh, 2012 from the south-west corner of Western Australia, is morphologically similar to the above species complex in particular *C. labillardieri*, but it is readily separated from that taxon and all others in the species complex by the fact that the back is silvery grey with minute black flecking, no white speckling on the flanks or on the dorsal black line and that the upper surface of the limbs are orange with small irregularly shaped markings that are not interconnected, (for further separation of this taxon from other similar species not in this species complex, see Kay and Keogh, 2012).

K. pailsei sp. nov. (of the nominate subspecies) is readily separated from the other subspecies and species in the complex by the unique combination of: A wide black stripe on the dorsum before the yellow-white dorsolateral line, in effect reducing the size of the brownish mid-dorsal zone. Both these black lines on the dorsum and the wide black upper band on the upper flanks have numerous scattered large well-defined and distinct yellow-white spots. There is a distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

K. pailsei menang subsp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: It is essentially similar to the nominate form of *K. pailsei* sp. nov., but separated

from that taxon by having a generally more chocolate brown colouration on the dorsum; the large well-defined and distinct yellow-white spots on the black of the lateral parts of the dorsum form a well-defined single line and in some specimens are semi-distinct only; the white line of the mid-lower flank is well defined and ragged edged top and bottom, versus not well defined on the lower edge in the nominate form of *K. pailsei* sp. nov..

Orange flecks or markings behind the eye, if present in *K. pailsei menang* subsp. nov., are not in the form of a distinct row of 7 orange spots.

K. pailsei whadjuk subsp. nov. is similar in most respects to *K. pailsei menang* subsp. nov., but separated from that taxon by the fact that the spotting on the black on the lateral edges of the dorsum and upper flanks is reduced in number, intensity and size of spots, with a lot of the tiny spots being dark yellowish and brown, rather than a bright white or light yellow as seen in *K. pailsei menang* subsp. nov..

In *K. pailsei whadjuk* subsp. nov. has the unique combination of the white line of the lower flank and black below more-or-less merge to become a matrix of mottling that is both darker and lighter, generally appearing a mottled or marbled colour, gradually fading as one moves towards the belly proper. In other words, there is no obvious jagged edged white line on the lower flank. There is a medium to large patch immediately behind the eye, but in no way does this form part of a row of spots running posteriorly along the side of the head.

K. grantturneri sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A distinctively ragged edged yellow-white dorsolateral line, made more so by breaks or near breaks and extensions consisting of dots joined to the main line on both the upper and lower edges. Tiny scattered white spots on the black of the upper flanks are reduced in size and number. The black lines at the lateral edge of the dorsum are reduced in size and almost wholly obscured by intrusions of brown on the vertebral side and white scale intrusions from the lateral edge side. Behind the eye, the colour is either dark and with at most one or two scattered tiny yellow spots, or alternatively dark and brown marbled, but again without any obvious row of spots.

K. alexanderdudleyi sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A thick, well-defined, and slightly jagged edged bold yellow dorsolateral line. The black on the dorsal side is expanded to form a well-defined black line. On the vertebral side edge there are light brown, yellow and white scales abutting the black, making the black lines even better defined.

On the black band of the upper flank, there are small and large yellow-white spots that are reasonably well spaced and more-or-less aligned along the middle of the band, rather than the edges. The 10-12 large

spots are on centre and the smaller ones are off centre, usually lower only anteriorly and as upper and lower pairs at the posterior end of the flank. Below this black section there is a series of broken short lines or dashes (sometimes touching and at other times not), the anterior edge lower than the upper beneath which is black. The white lower boundary of the black is similar to and in parallel to the upper and this is the zone just where the belly meets. Within each wider part of the black, is a tiny white dot, giving this section of the flank the appearance of having a series of black with white centred ocelli. Behind the eye is jet black with a series of 6-7 moderately large orange dots running to the ear in a single midline.

K. graysonoconnori sp. nov. is separated from the other species in the complex by the unique combination of the following: There is a very bold and distinctive dorsal and lateral pattern. The brown of the dorsum, running along the mid-section down the body is reduced in size, making the black of the sides of the dorsum wider. On some specimens at the vertebral line, the brown of the dorsum may tend to fragment leading the partial formation of a black mid-dorsal line. On the inner edge of the black dorsal lines there are no scales of lighter or different colour to the brown on top. While the white dorsolateral lines are complete and even edged, on each scale there is a white protrusion giving a slightly ragged appearance on close inspection.

The black line along the upper flank is reduced in thickness as compared to the other species in the complex, generally going only about halfway down the flank, rather than obviously more than half in all other species in the complex. Running along the middle of this black line is a series of 16-18 mainly medium yellow-white spots, evenly spaced and running along the midline only. A very small number of tiny yellow-white spots are on the black area as well, usually between some of the larger spots and occasionally randomly placed elsewhere.

Below the black of the upper flank, the white is in the form of a jagged edged, but boldly defined white line, similar in form at the lower edge, giving it the form of a tight zig-zag line. Below this is a similar white upper edge that forms the boundary to the white belly.

Behind the eye and between the ear may be none, or one to four small yellow dots in a line.

The preceding species are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantalooscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination

of characters:

Obviously reddish legs that are heavily marked with black and further distinguishable from most morphologically similar taxa in south-west Australia by the white dorsolateral line that is effectively continuous (not a series of spots or dashes) and not any obvious speckled type of pattern.

In passing, I note that specimens of the species *K. hickmani* Wells and Wellington, 1985 have been since treated as being of either putative *K. labillardieri* or *K. catenifer* Storr, 1974.

K. hickmani is recognised herein as a separate species to both and is also allopatric to both.

K. hickmani is readily separated from *K. labillardieri* by the unique presence of a distinctively speckled appearance.

The dorsolateral white stripes may or may not be discontinuous. If discontinuous, it may be reduced to a series of white dashes.

K. hickmani is readily separated from both *K. labillardieri* or *K. catenifer* by the following combination of characteristics:

The black on the lateral edge of the dorsum and that of the flank is expanded in area. Both are heavily speckled with dull semi-defined whitish, yellowish, or brownish spots that are small to tiny in size. These are usually brown on the dorsum and yellowish white on the flank, the colour difference between the colour of these spots being obvious when compared. The white line on the lower flank is relatively straight edged but not wholly so, but usually is unbroken, thin and well-defined, although in some other specimens it is poorly defined with respect of the area of the lower flank. Below this line, or where it would otherwise be, one finds on the lower flank that the pattern is a patchwork of black and white, with white specks or tiny white spots inside black areas large enough to fit them and remain obviously black on all sides. The back of the head behind the eyes, invariably has grey specks or grey marks on the otherwise brown surface (versus blackish brown with white or yellow spots in *C. catenifer*).

The upper surface of the (original) tail is in overall appearance a light greyish brown with a speckled appearance. This is created by black intrusions from a black midline on the anterior part of the tail, becoming black specking towards the distal end.

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. labillardieri is depicted in life in Wilson and Swan (2021) on page 279 at top left and online at:

<https://www.inaturalist.org/observations/189541229>

K. pailsei sp. nov. (of the nominate subspecies) is depicted in life online at:

<https://www.inaturalist.org/observations/64036697> and

<https://www.inaturalist.org/observations/189650296>
and

<https://www.inaturalist.org/observations/64036691>
and

<https://www.inaturalist.org/observations/170819053>

K. pailsei menang subsp. nov. is depicted in life in Wilson and Swan (2021) on page 279 top right, Cogger (2014) on page 504 top left and online at:

<https://www.inaturalist.org/observations/156506659>
and

<https://www.inaturalist.org/observations/903209>
and

<https://www.inaturalist.org/observations/169932677>
and

<https://www.inaturalist.org/observations/185723885>

K. pailsei whadjuk subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/188369673>
and

<https://www.inaturalist.org/observations/195882908>
K. grantturneri sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/51903990>
and

<https://www.inaturalist.org/observations/139432357>
and

<https://www.inaturalist.org/observations/179390>
and

<https://www.inaturalist.org/observations/47082653>

K. alexanderdudleyi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/145471553>
and

<https://www.inaturalist.org/observations/48740005>

K. graysonconnori sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/176228>
and

<https://www.inaturalist.org/observations/46121694>
and

<https://www.inaturalist.org/observations/104340376>

Distribution: *K. pailsei sp. nov.* is the relevant taxon for the populations previously known as the southwestern Australian species *K. labillardieri* that occurs in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park in the east.

In turn that population is divided into 3 subspecies;

The second of these subspecies is *K. pailsei menang subsp. nov.* from Cheynes in the east to about Windy Harbour and hinterland in the west;

The third of these subspecies is *K. pailsei whadjuk*

subsp. nov. for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast.

As a result *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north.

Etymology: The taxon *K. pailsei menang subsp. nov.* is named in honour of the Menang people, the original Aboriginal inhabitants of the region this taxon occurs. Most were exterminated by the British at the time they invaded, either directly or via introduced diseases such as smallpox.

The spelling and formation of the subspecies name is intentional and should be amended to add "orum" or similar.

KOMMOSAGOGUS PAILSEI WHADJUK SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:167726DB-066D-46C4-9C2D-A454B3F899B7

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R113336 collected from 5 km east south-east of Margaret River, Western Australia, Australia, Latitude -33.983333 S., Longitude 115.116667 E.

This government owned facility allows access to its holdings.

Paratypes: Six preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, being 1/ Specimen number R113337 collected from 5 km east south-east of Margaret River, Western Australia, Australia, Latitude -33.983333 S., Longitude 115.116667 E., 2/ Specimen numbers R142382 and R142327 both collected 8.5 km east of Dwellup, Western Australia, Australia, Latitude -32.746389 S., Longitude 116.151944 E., 3/ Specimen numbers R132092, R132093 and R135756 all collected from Cape Leeuwin, Western Australia, Australia, Latitude -34.366667 S., Longitude 115.133333 E.

Diagnosis: Notwithstanding the formal recognition of several divergent species within the so-called "*Ctenotus labillardieri* (Duméril and Bibron, 1839) complex", including the relatively recent paper of Kay and Keogh (2012), it has been clear for some time that the putative species within the south-west Australian genus *Kommosagodus* Wells and Wellington, 1984 as recognised herein still contain a number of taxonomically significant and unnamed forms.

This paper has formally named the obvious ones by:

1/ Dividing *K. labillardieri* five ways and with two additional subspecies, all beyond *K. labillardieri* being

named for the first time;

2/ *K. catenifer* (Storr, 1974) is split three ways with *K. hickmani* Wells and Wellington, 1985 resurrected from synonymy and a new species, *K. rosswellingtoni* sp. nov. formally named;

3/ *K. gemmula* (Storr, 1974) is also split three ways, with the southern population formally named *K. wellsei* sp. nov. and the westernmost population from Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) on the eastern south coast of Western Australia formally named as *K. trevorhawkeswoodi* sp. nov..

Within putative *K. labillardieri* the following taxonomic actions are made.

1/ *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north;

2/ *K. pailsei* sp. nov. is the relevant taxon for the populations in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park.

In turn that population is divided into 3 subspecies;

3/ The second of these subspecies is *K. pailsei menang* subsp. nov. from Cheynes in the east to about Windy Harbour and hinterland in the west;

4/ The third of these subspecies is *K. pailsei whadjuk* subsp. nov. for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei* subsp. nov. is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast;

5/ *K. grantturneri* sp. nov. is a taxon restricted to the Stirling Ranges in south-west Western Australia;

6/ *K. alexanderdudleyi* sp. nov. is the taxon found from about Hopetoun in the west and near Dalyup in the east along the coastal strip in southern Western Australia;

7/ *K. graysonconnori* sp. nov. is the relevant taxon found in southern Western Australia from Cape Le Grand in the west along the coast to Cape Aird in the east in the near coastal area.

The five species and additional two subspecies, defined herein as "the complex", are separated from one another with the following unique characters or combinations of them:

Nominate *C. labillardieri* was well-defined by Ford (1969) in what he defined as the population in the "northern Part of the Darling Range" and is in effect adopted herein as diagnostic for the taxon in terms of colouration with a few minor modifications in light of newly described taxa since his paper was published in 1969.

C. labillardieri has sharply defined markings on back and sides. Dorsum is a light bronze-brown colour. A narrow white sharp-edged line starts on the

supraoculars (which themselves are whitish and with narrow dark bars) and runs dorsolaterally down to the tail where it becomes less distinct. Bordering on the dorsal side of this is a fine black line of similar sharpness and below, starting at the eye, is a broad jet-black band that is finely spotted with white and pale brown flecks at the anterior end of the body (only). This band is bounded below by a thin white mid-lateral line which commences below the eye, passes through the ear and over the limbs to the tail. It is ragged edged compared to the dorsolateral white line which is not. Below this is a jagged and sometimes broken blackish line (thicker anteriorly on the body, thinner and likely to have breaks posteriorly on the body), which in turn is followed below by the ragged white edge of the ventrolateral border. Venter is white, except for the chin and throat which are white with small brown flecks on the scales.

There is no distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

The closely related species *Ctenotus ora* Kay and Keogh, 2012 from the south-west corner of Western Australia, is morphologically similar to the above species complex in particular *C. labillardieri*, but it is readily separated from that taxon and all others in the species complex by the fact that the back is silvery grey with minute black flecking, no white speckling on the flanks or on the dorsal black line and that the upper surface of the limbs are orange with small irregularly shaped markings that are not interconnected, (for further separation of this taxon from other similar species not in this species complex, see Kay and Keogh, 2012).

K. pailsei sp. nov. (of the nominate subspecies) is readily separated from the other subspecies and species in the complex by the unique combination of: A wide black stripe on the dorsum before the yellow-white dorsolateral line, in effect reducing the size of the brownish mid-dorsal zone. Both these black lines on the dorsum and the wide black upper band on the upper flanks have numerous scattered large well-defined and distinct yellow-white spots. There is a distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

K. pailsei menang subsp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: It is essentially similar to the nominate form of *K. pailsei* sp. nov., but separated from that taxon by having a generally more chocolate brown colouration on the dorsum; the large well-defined and distinct yellow-white spots on the black

of the lateral parts of the dorsum form a well-defined single line and in some specimens are semi-distinct only; the white line of the mid-lower flank is well defined and ragged edged top and bottom, versus not well defined on the lower edge in the nominate form of *K. pailsei* sp. nov..

Orange flecks or markings behind the eye, if present in *K. pailsei menang subsp. nov.*, are not in the form of a distinct row of 7 orange spots.

K. pailsei whadjuk subsp. nov. is similar in most respects to *K. pailsei menang subsp. nov.*, but separated from that taxon by the fact that the spotting on the black on the lateral edges of the dorsum and upper flanks is reduced in number, intensity and size of spots, with a lot of the tiny spots being dark yellowish and brown, rather than a bright white or light yellow as seen in *K. pailsei menang subsp. nov.*.

In *K. pailsei whadjuk subsp. nov.* has the unique combination of the white line of the lower flank and black below more-or-less merge to become a matrix of mottling that is both darker and lighter, generally appearing a mottled or marbled colour, gradually fading as one moves towards the belly proper. In other words, there is no obvious jagged edged white line on the lower flank. There is a medium to large patch immediately behind the eye, but in no way does this form part of a row of spots running posteriorly along the side of the head.

K. grantturneri sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A distinctively ragged edged yellow-white dorsolateral line, made more so by breaks or near breaks and extensions consisting of dots joined to the main line on both the upper and lower edges. Tiny scattered white spots on the black of the upper flanks are reduced in size and number. The black lines at the lateral edge of the dorsum are reduced in size and almost wholly obscured by intrusions of brown on the vertebral side and white scale intrusions from the lateral edge side. Behind the eye, the colour is either dark and with at most one or two scattered tiny yellow spots, or alternatively dark and brown marbled, but again without any obvious row of spots.

K. alexanderdudleyi sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A thick, well-defined, and slightly jagged edged bold yellow dorsolateral line. The black on the dorsal side is expanded to form a well-defined black line. On the vertebral side edge there are light brown, yellow and white scales abutting the black, making the black lines even better defined.

On the black band of the upper flank, there are small and large yellow-white spots that are reasonably well spaced and more-or-less aligned along the middle of the band, rather than the edges. The 10-12 large spots are on centre and the smaller ones are off centre, usually lower only anteriorly and as upper and lower pairs at the posterior end of the flank. Below this

black section there is a series of broken short lines or dashes (sometimes touching and at other times not), the anterior edge lower than the upper beneath which is black. The white lower boundary of the black is similar to and in parallel to the upper and this is the zone just where the belly meets. Within each wider part of the black, is a tiny white dot, giving this section of the flank the appearance of having a series of black with white centred ocelli. Behind the eye is jet black with a series of 6-7 moderately large orange dots running to the ear in a single midline.

K. graysonoconnori sp. nov. is separated from the other species in the complex by the unique combination of the following: There is a very bold and distinctive dorsal and lateral pattern. The brown of the dorsum, running along the mid-section down the body is reduced in size, making the black of the sides of the dorsum wider. On some specimens at the vertebral line, the brown of the dorsum may tend to fragment leading the partial formation of a black mid-dorsal line. On the inner edge of the black dorsal lines there are no scales of lighter or different colour to the brown on top. While the white dorsolateral lines are complete and even edged, on each scale there is a white protrusion giving a slightly ragged appearance on close inspection.

The black line along the upper flank is reduced in thickness as compared to the other species in the complex, generally going only about halfway down the flank, rather than obviously more than half in all other species in the complex. Running along the middle of this black line is a series of 16-18 mainly medium yellow-white spots, evenly spaced and running along the midline only. A very small number of tiny yellow-white spots are on the black area as well, usually between some of the larger spots and occasionally randomly placed elsewhere.

Below the black of the upper flank, the white is in the form of a jagged edged, but boldly defined white line, similar in form at the lower edge, giving it the form of a tight zig-zag line. Below this is a similar white upper edge that forms the boundary to the white belly.

Behind the eye and between the ear may be none, or one to four small yellow dots in a line.

The preceding species are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. by the following unique combination of characters:

Obviously reddish legs that are heavily marked with black and further distinguishable from most morphologically similar taxa in south-west Australia by

the white dorsolateral line that is effectively continuous (not a series of spots or dashes) and not any obvious speckled type of pattern.

In passing, I note that specimens of the species *K. hickmani* Wells and Wellington, 1985 have been since treated as being of either putative *K. labillardieri* or *K. catenifer* Storr, 1974.

K. hickmani is recognised herein as a separate species to both and is also allopatric to both.

K. hickmani is readily separated from *K. labillardieri* by the unique presence of a distinctively speckled appearance.

The dorsolateral white stripes may or may not be discontinuous. If discontinuous, it may be reduced to a series of white dashes.

K. hickmani is readily separated from both *K. labillardieri* or *K. catenifer* by the following combination of characteristics:

The black on the lateral edge of the dorsum and that of the flank is expanded in area. Both are heavily speckled with dull semi-defined whitish, yellowish, or brownish spots that are small to tiny in size. These are usually brown on the dorsum and yellowish white on the flank, the colour difference between the colour of these spots being obvious when compared. The white line on the lower flank is relatively straight edged but not wholly so, but usually is unbroken, thin and well-defined, although in some other specimens it is poorly defined with respect of the area of the lower flank. Below this line, or where it would otherwise be, one finds on the lower flank that the pattern is a patchwork of black and white, with white specks or tiny white spots inside black areas large enough to fit them and remain obviously black on all sides. The back of the head behind the eyes, invariably has grey specks or grey marks on the otherwise brown surface (versus blackish brown with white or yellow spots in *C. catenifer*).

The upper surface of the (original) tail is in overall appearance a light greyish brown with a speckled appearance. This is created by black intrusions from a black midline on the anterior part of the tail, becoming black specking towards the distal end.

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. labillardieri is depicted in life in Wilson and Swan (2021) on page 279 at top left and online at:

<https://www.inaturalist.org/observations/189541229>

K. pailsei sp. nov. (of the nominate subspecies) is depicted in life online at:

<https://www.inaturalist.org/observations/64036697>

and

<https://www.inaturalist.org/observations/189650296>

and

<https://www.inaturalist.org/observations/64036691>

and

<https://www.inaturalist.org/observations/170819053>

K. pailsei menang subsp. nov. is depicted in life in Wilson and Swan (2021) on page 279 top right, Cogger (2014) on page 504 top left and online at:

<https://www.inaturalist.org/observations/156506659>

and

<https://www.inaturalist.org/observations/903209>

and

<https://www.inaturalist.org/observations/169932677>

and

<https://www.inaturalist.org/observations/185723885>

K. pailsei whadjuk subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/188369673>

and

<https://www.inaturalist.org/observations/195882908>

K. grantturneri sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/51903990>

and

<https://www.inaturalist.org/observations/139432357>

and

<https://www.inaturalist.org/observations/179390>

and

<https://www.inaturalist.org/observations/47082653>

K. alexanderdudleyi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/145471553>

and

<https://www.inaturalist.org/observations/48740005>

K. graysonoconnori sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/176228>

and

<https://www.inaturalist.org/observations/46121694>

and

<https://www.inaturalist.org/observations/104340376>

Distribution: *K. pailsei* sp. nov. is the relevant taxon for the populations previously known as the southwestern Australian species *K. labillardieri* that occurs in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park in the east.

In turn that population is divided into 3 subspecies;

The second of these subspecies is *K. pailsei menang* subsp. nov. from Cheynes in the east to about Windy Harbour and hinterland in the west;

The third of these subspecies is *K. pailsei whadjuk* subsp. nov. for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast.

As a result, *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north.

Etymology: The taxon *K. pailsei whadjuk subsp. nov.* is named in honour of the Whadjuk people, the original Aboriginal inhabitants of the region this taxon occurs. Most were exterminated by the British at the time they invaded, either directly or via introduced diseases such as smallpox.

The spelling and formation of the subspecies name is intentional and should be amended to add "orum" or similar.

KOMMOSAGOGUS GRANTTURNERI SP. NOV.

LSIDurn:lsid:zoobank.org:act:FCEB97F5-04EB-42E0-8928-49A24FCBFEE3

Holotype: A preserved juvenile specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R142949 collected from Bluff Knoll in the Stirling Ranges, Western Australia, Australia, Latitude -34.369722 S., Longitude 118.249722 E.

This government owned facility allows access to its holdings.

Paratypes: Ten preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R129043, R129048, R129049, R129050, R129051, R129052, R129053, R129054, R129055 and R129059 all collected from Bluff Knoll in the Stirling Ranges, Western Australia, Australia, Latitude -34.369722 S., Longitude 118.249722 E.

Diagnosis: Notwithstanding the formal recognition of several divergent species within the so-called "*Ctenotus labillardieri* (Duméril and Bibron, 1839) complex", including the relatively recent paper of Kay and Keogh (2012), it has been clear for some time that the putative species within the south-west Australian genus *Kommosagogus* Wells and Wellington, 1984 as recognised herein still contain a number of taxonomically significant and unnamed forms.

This paper has formally named the obvious ones by:

1/ Dividing *K. labillardieri* five ways and with two additional subspecies, all beyond *K. labillardieri* being named for the first time;

2/ *K. catenifer* (Storr, 1974) is split three ways with *K. hickmani* Wells and Wellington, 1985 resurrected from synonymy and a new species, *K. rosswellingtoni sp. nov.* formally named;

3/ *K. gemmula* (Storr, 1974) is also split three ways, with the southern population formally named *K. wellsei sp. nov.* and the westernmost population from Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333

E.) on the eastern south coast of Western Australia formally named as *K. trevorhawkeswoodi sp. nov.*.

Within putative *K. labillardieri* the following taxonomic actions are made.

1/ *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north;
2/ *K. pailsei sp. nov.* is the relevant taxon for the populations in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park.

In turn that population is divided into 3 subspecies;

3/ The second of these subspecies is *K. pailsei menang subsp. nov.* from Cheynes in the east to about Windy Harbour and hinterland in the west;

4/ The third of these subspecies is *K. pailsei whadjuk subsp. nov.* for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast;

5/ *K. grantturneri sp. nov.* is a taxon restricted to the Stirling Ranges in south-west Western Australia;

6/ *K. alexanderdudleyi sp. nov.* is the taxon found from about Hopetoun in the west and near Dalyup in the east along the coastal strip in southern Western Australia;

7/ *K. graysonoconnori sp. nov.* is the relevant taxon found in southern Western Australia from Cape Le Grand in the west along the coast to Cape Aird in the east in the near coastal area.

The five species and additional two subspecies, defined herein as "the complex", are separated from one another with the following unique characters or combinations of them:

Nominate *C. labillardieri* was well-defined by Ford (1969) in what he defined as the population in the "northern Part of the Darling Range" and is in effect adopted herein as diagnostic for the taxon in terms of colouration with a few minor modifications in light of newly described taxa since his paper was published in 1969.

C. labillardieri has sharply defined markings on back and sides. Dorsum is a light bronze-brown colour. A narrow white sharp-edged line starts on the supraoculars (which themselves are whitish and with narrow dark bars) and runs dorsolaterally down to the tail where it becomes less distinct. Bordering on the dorsal side of this is a fine black line of similar sharpness and below, starting at the eye, is a broad jet-black band that is finely spotted with white and pale brown flecks at the anterior end of the body (only). This band is bounded below by a thin white mid-lateral line which commences below the eye, passes

through the ear and over the limbs to the tail. It is ragged edged compared to the dorsolateral white line which is not. Below this is a jagged and sometimes broken blackish line (thicker anteriorly on the body, thinner and likely to have breaks posteriorly on the body), which in turn is followed below by the ragged white edge of the ventrolateral border. Venter is white, except for the chin and throat which are white with small brown flecks on the scales.

There is no distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

The closely related species *Ctenotus ora* Kay and Keogh, 2012 from the south-west corner of Western Australia, is morphologically similar to the above species complex in particular *C. labillardieri*, but it is readily separated from that taxon and all others in the species complex by the fact that the back is silvery grey with minute black flecking, no white speckling on the flanks or on the dorsal black line and that the upper surface of the limbs are orange with small irregularly shaped markings that are not interconnected, (for further separation of this taxon from other similar species not in this species complex, see Kay and Keogh, 2012).

K. pailsei sp. nov. (of the nominate subspecies) is readily separated from the other subspecies and species in the complex by the unique combination of: A wide black stripe on the dorsum before the yellow-white dorsolateral line, in effect reducing the size of the brownish mid-dorsal zone. Both these black lines on the dorsum and the wide black upper band on the upper flanks have numerous scattered large well-defined and distinct yellow-white spots. There is a distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

K. pailsei menang subsp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: It is essentially similar to the nominate form of *K. pailsei* sp. nov., but separated from that taxon by having a generally more chocolate brown colouration on the dorsum; the large well-defined and distinct yellow-white spots on the black of the lateral parts of the dorsum form a well-defined single line and in some specimens are semi-distinct only; the white line of the mid-lower flank is well defined and ragged edged top and bottom, versus not well defined on the lower edge in the nominate form of *K. pailsei* sp. nov..

Orange flecks or markings behind the eye, if present in *K. pailsei menang subsp. nov.*, are not in the form of a distinct row of 7 orange spots.

K. pailsei whadjuk subsp. nov. is similar in most respects to *K. pailsei menang subsp. nov.*, but separated from that taxon by the fact that the spotting on the black on the lateral edges of the dorsum and upper flanks is reduced in number, intensity and size of spots, with a lot of the tiny spots being dark yellowish and brown, rather than a bright white or light yellow as seen in *K. pailsei menang subsp. nov.*.

In *K. pailsei whadjuk subsp. nov.* has the unique combination of the white line of the lower flank and black below more-or-less merge to become a matrix of mottling that is both darker and lighter, generally appearing a mottled or marbled colour, gradually fading as one moves towards the belly proper. In other words, there is no obvious jagged edged white line on the lower flank. There is a medium to large patch immediately behind the eye, but in no way does this form part of a row of spots running posteriorly along the side of the head.

K. grantturneri sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A distinctively ragged edged yellow-white dorsolateral line, made more so by breaks or near breaks and extensions consisting of dots joined to the main line on both the upper and lower edges. Tiny scattered white spots on the black of the upper flanks are reduced in size and number. The black lines at the lateral edge of the dorsum are reduced in size and almost wholly obscured by intrusions of brown on the vertebral side and white scale intrusions from the lateral edge side. Behind the eye, the colour is either dark and with at most one or two scattered tiny yellow spots, or alternatively dark and brown marbled, but again without any obvious row of spots.

K. alexanderdudleyi sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A thick, well-defined, and slightly jagged edged bold yellow dorsolateral line. The black on the dorsal side is expanded to form a well-defined black line. On the vertebral side edge there are light brown, yellow and white scales abutting the black, making the black lines even better defined.

On the black band of the upper flank, there are small and large yellow-white spots that are reasonably well spaced and more-or-less aligned along the middle of the band, rather than the edges. The 10-12 large spots are on centre and the smaller ones are off centre, usually lower only anteriorly and as upper and lower pairs at the posterior end of the flank. Below this black section there is a series of broken short lines or dashes (sometimes touching and at other times not), the anterior edge lower than the upper beneath which is black. The white lower boundary of the black is similar to and in parallel to the upper and this is the zone just where the belly meets. Within each wider part of the black, is a tiny white dot, giving this section of the flank the appearance of having a series of black with white centred ocelli. Behind the eye is jet black

with a series of 6-7 moderately large orange dots running to the ear in a single midline.

K. graysonoconnori sp. nov. is separated from the other species in the complex by the unique combination of the following: There is a very bold and distinctive dorsal and lateral pattern. The brown of the dorsum, running along the mid-section down the body is reduced in size, making the black of the sides of the dorsum wider. On some specimens at the vertebral line, the brown of the dorsum may tend to fragment leading the partial formation of a black mid-dorsal line. On the inner edge of the black dorsal lines there are no scales of lighter or different colour to the brown on top. While the white dorsolateral lines are complete and even edged, on each scale there is a white protrusion giving a slightly ragged appearance on close inspection.

The black line along the upper flank is reduced in thickness as compared to the other species in the complex, generally going only about halfway down the flank, rather than obviously more than half in all other species in the complex. Running along the middle of this black line is a series of 16-18 mainly medium yellow-white spots, evenly spaced and running along the midline only. A very small number of tiny yellow-white spots are on the black area as well, usually between some of the larger spots and occasionally randomly placed elsewhere.

Below the black of the upper flank, the white is in the form of a jagged edged, but boldly defined white line, similar in form at the lower edge, giving it the form of a tight zig-zag line. Below this is a similar white upper edge that forms the boundary to the white belly.

Behind the eye and between the ear may be none, or one to four small yellow dots in a line.

The preceding species are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Obviously reddish legs that are heavily marked with black and further distinguishable from most morphologically similar taxa in south-west Australia by the white dorsolateral line that is effectively continuous (not a series of spots or dashes) and not any obvious speckled type of pattern.

In passing, I note that specimens of the species *K. hickmani* Wells and Wellington, 1985 have been since treated as being of either putative *K. labillardieri* or *K. catenifer* Storr, 1974.

K. hickmani is recognised herein as a separate

species to both and is also allopatric to both.

K. hickmani is readily separated from *K. labillardieri* by the unique presence of a distinctively speckled appearance.

The dorsolateral white stripes may or may not be discontinuous. If discontinuous, it may be reduced to a series of white dashes.

K. hickmani is readily separated from both *K. labillardieri* or *K. catenifer* by the following combination of characteristics:

The black on the lateral edge of the dorsum and that of the flank is expanded in area. Both are heavily speckled with dull semi-defined whitish, yellowish, or brownish spots that are small to tiny in size. These are usually brown on the dorsum and yellowish white on the flank, the colour difference between the colour of these spots being obvious when compared. The white line on the lower flank is relatively straight edged but not wholly so, but usually is unbroken, thin and well-defined, although in some other specimens it is poorly defined with respect of the area of the lower flank. Below this line, or where it would otherwise be, one finds on the lower flank that the pattern is a patchwork of black and white, with white specks or tiny white spots inside black areas large enough to fit them and remain obviously black on all sides. The back of the head behind the eyes, invariably has grey specks or grey marks on the otherwise brown surface (versus blackish brown with white or yellow spots in *C. catenifer*).

The upper surface of the (original) tail is in overall appearance a light greyish brown with a speckled appearance. This is created by black intrusions from a black midline on the anterior part of the tail, becoming black specking towards the distal end.

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. labillardieri is depicted in life in Wilson and Swan (2021) on page 279 at top left and online at:

<https://www.inaturalist.org/observations/189541229>

K. pailsei sp. nov. (of the nominate subspecies) is depicted in life online at:

<https://www.inaturalist.org/observations/64036697>

and

<https://www.inaturalist.org/observations/189650296>

and

<https://www.inaturalist.org/observations/64036691>

and

<https://www.inaturalist.org/observations/170819053>

K. pailsei menang subsp. nov. is depicted in life in Wilson and Swan (2021) on page 279 top right, Cogger (2014) on page 504 top left and online at:

<https://www.inaturalist.org/observations/156506659>

and

<https://www.inaturalist.org/observations/903209>

and
<https://www.inaturalist.org/observations/169932677>
 and
<https://www.inaturalist.org/observations/185723885>
K. pailsei whadjuk subsp. nov. is depicted in life online at:
<https://www.inaturalist.org/observations/188369673>
 and
<https://www.inaturalist.org/observations/195882908>
K. grantturneri sp. nov. is depicted in life online at:
<https://www.inaturalist.org/observations/51903990>
 and
<https://www.inaturalist.org/observations/139432357>
 and
<https://www.inaturalist.org/observations/179390>
 and
<https://www.inaturalist.org/observations/47082653>
K. alexanderdudleyi sp. nov. is depicted in life online at:
<https://www.inaturalist.org/observations/145471553>
 and
<https://www.inaturalist.org/observations/48740005>
K. graysonoconnori sp. nov. is depicted in life online at:
<https://www.inaturalist.org/observations/176228>
 and
<https://www.inaturalist.org/observations/46121694>
 and
<https://www.inaturalist.org/observations/104340376>

Distribution: *K. grantturneri sp. nov.* is a taxon restricted to the Stirling Ranges in south-west Western Australia, Australia.

Fortunately, the area is a national park, so the species, while range-restricted, is probably secure.

Etymology: The taxon *K. grantturneri sp. nov.* is named in honour of the Grant Turner, a herpetologist originally from Bundoora, (Melbourne), Victoria, Australia, but more recently of Innisfail, Queensland, Australia for significant contributions to herpetology in Australia, especially with respect of smaller and often overlooked species.

KOMMOSAGOGUS ALEXANDERDUDLEYI SP. NOV.

LSIDurn: [lsid:zoobank.org:act:8E048AF1-664A-4E6F-ADA7-BC2F476634DD](https://zoobank.org/act:8E048AF1-664A-4E6F-ADA7-BC2F476634DD)

Holotype: A preserved adult male specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R134073 collected at East Mount Barren, Western Australia, Australia, Latitude -33.923056 S., Longitude 120.030278 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 R129661 and R129662 both collected from Quagi Beach, Western Australia, Australia, Latitude -33.833333 S., Longitude 121.283333 E.

Diagnosis: Notwithstanding the formal recognition of several divergent species within the so-called “*Ctenotus labillardieri* (Duméril and Bibron, 1839) complex”, including the relatively recent paper of Kay and Keogh (2012), it has been clear for some time that the putative species within the south-west Australian genus *Kommosagogus* Wells and Wellington, 1984 as recognised herein still contain a number of taxonomically significant and unnamed forms.

This paper has formally named the obvious ones by:

1/ Dividing *K. labillardieri* five ways and with two additional subspecies, all beyond *K. labillardieri* being named for the first time;

2/ *K. catenifer* (Storr, 1974) is split three ways with *K. hickmani* Wells and Wellington, 1985 resurrected from synonymy and a new species, *K. rosswellingtoni sp. nov.* formally named;

3/ *K. gemmula* (Storr, 1974) is also split three ways, with the southern population formally named *K. wellsei sp. nov.* and the westernmost population from Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) on the eastern south coast of Western Australia formally named as *K. trevorhawkeswoodi sp. nov.*

Within putative *K. labillardieri* the following taxonomic actions are made.

1/ *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north;

2/ *K. pailsei sp. nov.* is the relevant taxon for the populations in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park.

In turn that population is divided into 3 subspecies;

3/ The second of these subspecies is *K. pailsei menang subsp. nov.* from Cheynes in the east to about Windy Harbour and hinterland in the west;

4/ The third of these subspecies is *K. pailsei whadjuk subsp. nov.* for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast;

5/ *K. grantturneri sp. nov.* is a taxon restricted to the Stirling Ranges in south-west Western Australia;

6/ *K. alexanderdudleyi sp. nov.* is the taxon found from about Hopetoun in the west and near Dalyup in the east along the coastal strip in southern Western Australia;

7/ *K. graysonoconnori sp. nov.* is the relevant taxon found in southern Western Australia from Cape Le

Grand in the west along the coast to Cape Aird in the east in the near coastal area.

The five species and additional two subspecies, defined herein as “the complex”, are separated from one another with the following unique characters or combinations of them:

Nominate *C. labillardieri* was well-defined by Ford (1969) in what he defined as the population in the “northern Part of the Darling Range” and is in effect adopted herein as diagnostic for the taxon in terms of colouration with a few minor modifications in light of newly described taxa since his paper was published in 1969.

C. labillardieri has sharply defined markings on back and sides. Dorsum is a light bronze-brown colour. A narrow white sharp-edged line starts on the supraoculars (which themselves are whitish and with narrow dark bars) and runs dorsolaterally down to the tail where it becomes less distinct. Bordering on the dorsal side of this is a fine black line of similar sharpness and below, starting at the eye, is a broad jet-black band that is finely spotted with white and pale brown flecks at the anterior end of the body (only). This band is bounded below by a thin white mid-lateral line which commences below the eye, passes through the ear and over the limbs to the tail. It is ragged edged compared to the dorsolateral white line which is not. Below this is a jagged and sometimes broken blackish line (thicker anteriorly on the body, thinner and likely to have breaks posteriorly on the body), which in turn is followed below by the ragged white edge of the ventrolateral border. Venter is white, except for the chin and throat which are white with small brown flecks on the scales.

There is no distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

The closely related species *Ctenotus ora* Kay and Keogh, 2012 from the south-west corner of Western Australia, is morphologically similar to the above species complex in particular *C. labillardieri*, but it is readily separated from that taxon and all others in the species complex by the fact that the back is silvery grey with minute black flecking, no white speckling on the flanks or on the dorsal black line and that the upper surface of the limbs are orange with small irregularly shaped markings that are not interconnected, (for further separation of this taxon from other similar species not in this species complex, see Kay and Keogh, 2012).

K. pailsei sp. nov. (of the nominate subspecies) is readily separated from the other subspecies and species in the complex by the unique combination of: A wide black stripe on the dorsum before the yellow-white dorsolateral line, in effect reducing the size of the brownish mid-dorsal zone. Both these black

lines on the dorsum and the wide black upper band on the upper flanks have numerous scattered large well-defined and distinct yellow-white spots. There is a distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

K. pailsei menang subsp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: It is essentially similar to the nominate form of *K. pailsei sp. nov.*, but separated from that taxon by having a generally more chocolate brown colouration on the dorsum; the large well-defined and distinct yellow-white spots on the black of the lateral parts of the dorsum form a well-defined single line and in some specimens are semi-distinct only; the white line of the mid-lower flank is well defined and ragged edged top and bottom, versus not well defined on the lower edge in the nominate form of *K. pailsei sp. nov.*.

Orange flecks or markings behind the eye, if present in *K. pailsei menang subsp. nov.*, are not in the form of a distinct row of 7 orange spots.

K. pailsei whadjuk subsp. nov. is similar in most respects to *K. pailsei menang subsp. nov.*, but separated from that taxon by the fact that the spotting on the black on the lateral edges of the dorsum and upper flanks is reduced in number, intensity and size of spots, with a lot of the tiny spots being dark yellowish and brown, rather than a bright white or light yellow as seen in *K. pailsei menang subsp. nov.*.

In *K. pailsei whadjuk subsp. nov.* has the unique combination of the white line of the lower flank and black below more-or-less merge to become a matrix of mottling that is both darker and lighter, generally appearing a mottled or marbled colour, gradually fading as one moves towards the belly proper. In other words, there is no obvious jagged edged white line on the lower flank. There is a medium to large patch immediately behind the eye, but in no way does this form part of a row of spots running posteriorly along the side of the head.

K. grantturneri sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A distinctively ragged edged yellow-white dorsolateral line, made more so by breaks or near breaks and extensions consisting of dots joined to the main line on both the upper and lower edges. Tiny scattered white spots on the black of the upper flanks are reduced in size and number. The black lines at the lateral edge of the dorsum are reduced in size and almost wholly obscured by intrusions of brown on the vertebral side and white scale intrusions from the lateral edge side. Behind the eye, the colour is either dark and with at most one or two scattered tiny yellow spots, or alternatively dark and brown marbled, but again without any obvious row

of spots.

K. alexanderdudleyi sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A thick, well-defined, and slightly jagged edged bold yellow dorsolateral line. The black on the dorsal side is expanded to form a well-defined black line. On the vertebral side edge there are light brown, yellow and white scales abutting the black, making the black lines even better defined.

On the black band of the upper flank, there are small and large yellow-white spots that are reasonably well spaced and more-or-less aligned along the middle of the band, rather than the edges. The 10-12 large spots are on centre and the smaller ones are off centre, usually lower only anteriorly and as upper and lower pairs at the posterior end of the flank. Below this black section there is a series of broken short lines or dashes (sometimes touching and at other times not), the anterior edge lower than the upper beneath which is black. The white lower boundary of the black is similar to and in parallel to the upper and this is the zone just where the belly meets. Within each wider part of the black, is a tiny white dot, giving this section of the flank the appearance of having a series of black with white centred ocelli. Behind the eye is jet black with a series of 6-7 moderately large orange dots running to the ear in a single midline.

K. graysonoconnori sp. nov. is separated from the other species in the complex by the unique combination of the following: There is a very bold and distinctive dorsal and lateral pattern. The brown of the dorsum, running along the mid-section down the body is reduced in size, making the black of the sides of the dorsum wider. On some specimens at the vertebral line, the brown of the dorsum may tend to fragment leading the partial formation of a black mid-dorsal line. On the inner edge of the black dorsal lines there are no scales of lighter or different colour to the brown on top. While the white dorsolateral lines are complete and even edged, on each scale there is a white protrusion giving a slightly ragged appearance on close inspection.

The black line along the upper flank is reduced in thickness as compared to the other species in the complex, generally going only about halfway down the flank, rather than obviously more than half in all other species in the complex. Running along the middle of this black line is a series of 16-18 mainly medium yellow-white spots, evenly spaced and running along the midline only. A very small number of tiny yellow-white spots are on the black area as well, usually between some of the larger spots and occasionally randomly placed elsewhere.

Below the black of the upper flank, the white is in the form of a jagged edged, but boldly defined white line, similar in form at the lower edge, giving it the form of a tight zig-zag line. Below this is a similar white upper edge that forms the boundary to the white belly.

Behind the eye and between the ear may be none, or

one to four small yellow dots in a line.

The preceding species are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Obviously reddish legs that are heavily marked with black and further distinguishable from most morphologically similar taxa in south-west Australia by the white dorsolateral line that is effectively continuous (not a series of spots or dashes) and not any obvious speckled type of pattern.

In passing, I note that specimens of the species *K. hickmani* Wells and Wellington, 1985 have been since treated as being of either putative *K. labillardieri* or *K. catenifer* Storr, 1974.

K. hickmani is recognised herein as a separate species to both and is also allopatric to both.

K. hickmani is readily separated from *K. labillardieri* by the unique presence of a distinctively speckled appearance.

The dorsolateral white stripes may or may not be discontinuous. If discontinuous, it may be reduced to a series of white dashes.

K. hickmani is readily separated from both *K. labillardieri* or *K. catenifer* by the following combination of characteristics:

The black on the lateral edge of the dorsum and that of the flank is expanded in area. Both are heavily speckled with dull semi-defined whitish, yellowish, or brownish spots that are small to tiny in size. These are usually brown on the dorsum and yellowish white on the flank, the colour difference between the colour of these spots being obvious when compared. The white line on the lower flank is relatively straight edged but not wholly so, but usually is unbroken, thin and well-defined, although in some other specimens it is poorly defined with respect of the area of the lower flank. Below this line, or where it would otherwise be, one finds on the lower flank that the pattern is a patchwork of black and white, with white specks or tiny white spots inside black areas large enough to fit them and remain obviously black on all sides. The back of the head behind the eyes, invariably has grey specks or grey marks on the otherwise brown surface (versus blackish brown with white or yellow spots in *C. catenifer*).

The upper surface of the (original) tail is in overall appearance a light greyish brown with a speckled appearance. This is created by black intrusions from a black midline on the anterior part of the tail, becoming

black specking towards the distal end.

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. labillardieri is depicted in life in Wilson and Swan (2021) on page 279 at top left and online at:

<https://www.inaturalist.org/observations/189541229>

K. pailsei sp. nov. (of the nominate subspecies) is depicted in life online at:

<https://www.inaturalist.org/observations/64036697>

and

<https://www.inaturalist.org/observations/189650296>

and

<https://www.inaturalist.org/observations/64036691>

and

<https://www.inaturalist.org/observations/170819053>

K. pailsei menang subsp. nov. is depicted in life in Wilson and Swan (2021) on page 279 top right, Cogger (2014) on page 504 top left and online at:

<https://www.inaturalist.org/observations/156506659>

and

<https://www.inaturalist.org/observations/903209>

and

<https://www.inaturalist.org/observations/169932677>

and

<https://www.inaturalist.org/observations/185723885>

K. pailsei whadjuk subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/188369673>

and

<https://www.inaturalist.org/observations/195882908>

K. grantturneri sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/51903990>

and

<https://www.inaturalist.org/observations/139432357>

and

<https://www.inaturalist.org/observations/179390>

and

<https://www.inaturalist.org/observations/47082653>

K. alexanderdudleyi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/145471553>

and

<https://www.inaturalist.org/observations/48740005>

K. graysonoconnori sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/176228>

and

<https://www.inaturalist.org/observations/46121694>

and

<https://www.inaturalist.org/observations/104340376>

Distribution: *K. alexanderdudleyi* sp. nov. is a taxon restricted to the area between about Hopetoun in the west and near Dalyup in the east along the coastal strip in southern Western Australia, Australia.

It is range-restricted and may be potentially vulnerable if remaining areas of natural habitat in the area are not actively conserved.

Etymology: The taxon *K. alexanderdudleyi* sp. nov. is named in honour of the Alexander (Alex) Dudley, originally of Kenthurst, New South Wales, Australia, but having spent considerable time at various locations across mainland Australia and Tasmania over some decades, in recognition of a lifetime's valuable contributions to herpetology in Australia.

KOMMOSAGOGUS GRAYSONOCONNORI SP. NOV.

LSIDurn:lsid:zoobank.org:act:509F15EC-6093-4011-863C-1560659EE01B

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R131926 collected from 2.2 km north of Mount LeGrand, Western Australia, Australia, Latitude -33.972222 S., Longitude 122.129167 E.

This government owned facility allows access to its holdings.

Paratypes: Six preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, being 1/ Specimen numbers R131903 and R131905 both collected from 2 km north west of Mount LeGrand, Western Australia, Australia, Latitude -33.972222 S., Longitude 122.119444 E., 2/ Specimen numbers R131924 and R131925 both collected from 10.5 km east of Merivale, Western Australia, Australia, Latitude -33.816667 S., Longitude 122.213889 E., 3/ Specimen numbers R131916 and R131919 both collected from Mount Belches, Western Australia, Australia, Latitude -33.947222 S., Longitude 122.566667 E.

Diagnosis: Notwithstanding the formal recognition of several divergent species within the so-called "*Ctenotus labillardieri* (Duméril and Bibron, 1839) complex", including the relatively recent paper of Kay and Keogh (2012), it has been clear for some time that the putative species within the south-west Australian genus *Kommosagogus* Wells and Wellington, 1984 as recognised herein still contain a number of taxonomically significant and unnamed forms.

This paper has formally named the obvious ones by:

1/ Dividing *K. labillardieri* five ways and with two additional subspecies, all beyond *K. labillardieri* being named for the first time;

2/ *K. catenifer* (Storr, 1974) is split three ways with *K. hickmani* Wells and Wellington, 1985 resurrected from synonymy and a new species, *K. rosswellingtoni* sp. nov. formally named;

3/ *K. gemmula* (Storr, 1974) is also split three ways, with the southern population formally named *K. wellsei*

sp. nov...and the westernmost population from Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) on the eastern south coast of Western Australia formally named as *K. trevorhawkeswoodi sp. nov.*..

Within putative *K. labillardieri* the following taxonomic actions are made.

1/ *K. labillardieri* is herein restricted the Darling Range east of Perth and including the area slightly north;

2/ *K. pailsei sp. nov.* is the relevant taxon for the populations in the southern Darling Range area, extending generally near the coast through the far south-west, through Denmark, Albany, Bremer Bay and to the Fitzgerald National Park.

In turn that population is divided into 3 subspecies;

3/ The second of these subspecies is *K. pailsei menang subsp. nov.* from Cheynes in the east to about Windy Harbour and hinterland in the west;

4/ The third of these subspecies is *K. pailsei whadjuk subsp. nov.* for the population found from the lower Darling Ranges to the far south-west corner of Western Australia, including the nearby hinterland.

This means that the first and nominate subspecies of *K. pailsei pailsei subsp. nov.* is restricted to the general region bound by the line of West Mount Barren in the south and Fitzgerald in the north (both in Western Australia) near the mid-south coast;

5/ *K. grantturneri sp. nov.* is a taxon restricted to the Stirling Ranges in south-west Western Australia;

6/ *K. alexanderdudleyi sp. nov.* is the taxon found from about Hopetoun in the west and near Dalyup in the east along the coastal strip in southern Western Australia;

7/ *K. graysonoconnori sp. nov.* is the relevant taxon found in southern Western Australia from Cape Le Grand in the west along the coast to Cape Aird in the east in the near coastal area.

The five species and additional two subspecies, defined herein as “the complex”, are separated from one another with the following unique characters or combinations of them:

Nominate *C. labillardieri* was well-defined by Ford (1969) in what he defined as the population in the “northern Part of the Darling Range” and is in effect adopted herein as diagnostic for the taxon in terms of colouration with a few minor modifications in light of newly described taxa since his paper was published in 1969.

C. labillardieri has sharply defined markings on back and sides. Dorsum is a light bronze-brown colour. A narrow white sharp-edged line starts on the supraoculars (which themselves are whitish and with narrow dark bars) and runs dorsolaterally down to the tail where it becomes less distinct. Bordering on the dorsal side of this is a fine black line of similar sharpness and below, starting at the eye, is a broad jet-black band that is finely spotted with white and pale brown flecks at the anterior end of the body (only).

This band is bounded below by a thin white mid-lateral line which commences below the eye, passes through the ear and over the limbs to the tail. It is ragged edged compared to the dorsolateral white line which is not. Below this is a jagged and sometimes broken blackish line (thicker anteriorly on the body, thinner and likely to have breaks posteriorly on the body), which in turn is followed below by the ragged white edge of the ventrolateral border. Venter is white, except for the chin and throat which are white with small brown flecks on the scales.

There is no distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

The closely related species *Ctenotus ora* Kay and Keogh, 2012 from the south-west corner of Western Australia, is morphologically similar to the above species complex in particular *C. labillardieri*, but it is readily separated from that taxon and all others in the species complex by the fact that the back is silvery grey with minute black flecking, no white speckling on the flanks or on the dorsal black line and that the upper surface of the limbs are orange with small irregularly shaped markings that are not interconnected, (for further separation of this taxon from other similar species not in this species complex, see Kay and Keogh, 2012).

K. pailsei sp. nov. (of the nominate subspecies) is readily separated from the other subspecies and species in the complex by the unique combination of: A wide black stripe on the dorsum before the yellow-white dorsolateral line, in effect reducing the size of the brownish mid-dorsal zone. Both these black lines on the dorsum and the wide black upper band on the upper flanks have numerous scattered large well-defined and distinct yellow-white spots. There is a distinct row of about 7 yellow-orange spots running from the middle of the eye across the rear side of the head (directly backwards from the eye), this being between the white lines emanating from the upper and lower eye that form the dorsolateral and lower lateral white lines.

K. pailsei menang subsp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: It is essentially similar to the nominate form of *K. pailsei sp. nov.*, but separated from that taxon by having a generally more chocolate brown colouration on the dorsum; the large well-defined and distinct yellow-white spots on the black of the lateral parts of the dorsum form a well-defined single line and in some specimens are semi-distinct only; the white line of the mid-lower flank is well defined and ragged edged top and bottom, versus not well defined on the lower edge in the nominate form of *K. pailsei sp. nov.*..

Orange flecks or markings behind the eye, if present in

K. pailsei menang subsp. nov., are not in the form of a distinct row of 7 orange spots.

K. pailsei whadjuk subsp. nov. is similar in most respects to *K. pailsei menang subsp. nov.*, but separated from that taxon by the fact that the spotting on the black on the lateral edges of the dorsum and upper flanks is reduced in number, intensity and size of spots, with a lot of the tiny spots being dark yellowish and brown, rather than a bright white or light yellow as seen in *K. pailsei menang subsp. nov.*.

In *K. pailsei whadjuk subsp. nov.* has the unique combination of the white line of the lower flank and black below more-or-less merge to become a matrix of mottling that is both darker and lighter, generally appearing a mottled or marbled colour, gradually fading as one moves towards the belly proper. In other words, there is no obvious jagged edged white line on the lower flank. There is a medium to large patch immediately behind the eye, but in no way does this form part of a row of spots running posteriorly along the side of the head.

K. grantturneri sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A distinctively ragged edged yellow-white dorsolateral line, made more so by breaks or near breaks and extensions consisting of dots joined to the main line on both the upper and lower edges. Tiny scattered white spots on the black of the upper flanks are reduced in size and number. The black lines at the lateral edge of the dorsum are reduced in size and almost wholly obscured by intrusions of brown on the vertebral side and white scale intrusions from the lateral edge side. Behind the eye, the colour is either dark and with at most one or two scattered tiny yellow spots, or alternatively dark and brown marbled, but again without any obvious row of spots.

K. alexanderdudleyi sp. nov. is readily separated from the other subspecies and species in the complex by the unique combination of: A thick, well-defined, and slightly jagged edged bold yellow dorsolateral line. The black on the dorsal side is expanded to form a well-defined black line. On the vertebral side edge there are light brown, yellow and white scales abutting the black, making the black lines even better defined.

On the black band of the upper flank, there are small and large yellow-white spots that are reasonably well spaced and more-or-less aligned along the middle of the band, rather than the edges. The 10-12 large spots are on centre, and the smaller ones are off centre, usually lower only anteriorly and as upper and lower pairs at the posterior end of the flank. Below this black section there is a series of broken short lines or dashes (sometimes touching and at other times not), the anterior edge lower than the upper beneath which is black. The white lower boundary of the black is similar to and in parallel to the upper and this is the zone just where the belly meets. Within each wider part of the black, is a tiny white dot, giving this section

of the flank the appearance of having a series of black with white centred ocelli. Behind the eye is jet black with a series of 6-7 moderately large orange dots running to the ear in a single midline.

K. graysonoconnori sp. nov. is separated from the other species in the complex by the unique combination of the following: There is a very bold and distinctive dorsal and lateral pattern. The brown of the dorsum, running along the mid-section down the body is reduced in size, making the black of the sides of the dorsum wider. On some specimens at the vertebral line, the brown of the dorsum may tend to fragment leading the partial formation of a black mid-dorsal line. On the inner edge of the black dorsal lines there are no scales of lighter or different colour to the brown on top. While the white dorsolateral lines are complete and even edged, on each scale there is a white protrusion giving a slightly ragged appearance on close inspection.

The black line along the upper flank is reduced in thickness as compared to the other species in the complex, generally going only about halfway down the flank, rather than obviously more than half in all other species in the complex. Running along the middle of this black line is a series of 16-18 mainly medium yellow-white spots, evenly spaced and running along the midline only. A very small number of tiny yellow-white spots are on the black area as well, usually between some of the larger spots and occasionally randomly placed elsewhere.

Below the black of the upper flank, the white is in the form of a jagged edged, but boldly defined white line, similar in form at the lower edge, giving it the form of a tight zig-zag line. Below this is a similar white upper edge that forms the boundary to the white belly.

Behind the eye and between the ear may be none, or one to four small yellow dots in a line.

The preceding species are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* *gen. nov.* type species, *Matherus* *matheri* *sp. nov.* by the following unique combination of characters:

Obviously reddish legs that are heavily marked with black and further distinguishable from most morphologically similar taxa in south-west Australia by the white dorsolateral line that is effectively continuous (not a series of spots or dashes) and not any obvious speckled type of pattern.

In passing, I note that specimens of the species *K. hickmani* Wells and Wellington, 1985 have been since

treated as being of either putative *K. labillardieri* or *K. catenifer* Storr, 1974.

K. hickmani is recognised herein as a separate species to both and is also allopatric to both.

K. hickmani is readily separated from *K. labillardieri* by the unique presence of a distinctively speckled appearance.

The dorsolateral white stripes may or may not be discontinuous. If discontinuous, it may be reduced to a series of white dashes.

K. hickmani is readily separated from both *K. labillardieri* or *K. catenifer* by the following combination of characteristics:

The black on the lateral edge of the dorsum and that of the flank is expanded in area. Both are heavily speckled with dull semi-defined whitish, yellowish, or brownish spots that are small to tiny in size. These are usually brown on the dorsum and yellowish white on the flank, the colour difference between the colour of these spots being obvious when compared. The white line on the lower flank is relatively straight edged but not wholly so, but usually is unbroken, thin and well-defined, although in some other specimens it is poorly defined with respect of the area of the lower flank. Below this line, or where it would otherwise be, one finds on the lower flank that the pattern is a patchwork of black and white, with white specks or tiny white spots inside black areas large enough to fit them and remain obviously black on all sides. The back of the head behind the eyes, invariably has grey specks or grey marks on the otherwise brown surface (versus blackish brown with white or yellow spots in *C. catenifer*).

The upper surface of the (original) tail is in overall appearance a light greyish brown with a speckled appearance. This is created by black intrusions from a black midline on the anterior part of the tail, becoming black specking towards the distal end.

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. labillardieri is depicted in life in Wilson and Swan (2021) on page 279 at top left and online at:

<https://www.inaturalist.org/observations/189541229>

K. pailsei sp. nov. (of the nominate subspecies) is depicted in life online at:

<https://www.inaturalist.org/observations/64036697>

and

<https://www.inaturalist.org/observations/189650296>

and

<https://www.inaturalist.org/observations/64036691>

and

<https://www.inaturalist.org/observations/170819053>

K. pailsei menang subsp. nov. is depicted in life in Wilson and Swan (2021) on page 279 top right, Cogger (2014) on page 504 top left and online at:

<https://www.inaturalist.org/observations/156506659>

and

<https://www.inaturalist.org/observations/903209>

and

<https://www.inaturalist.org/observations/169932677>

and

<https://www.inaturalist.org/observations/185723885>

K. pailsei whadjuk subsp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/188369673>

and

<https://www.inaturalist.org/observations/195882908>

K. grantturneri sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/51903990>

and

<https://www.inaturalist.org/observations/139432357>

and

<https://www.inaturalist.org/observations/179390>

and

<https://www.inaturalist.org/observations/47082653>

K. alexanderdudleyi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/145471553>

and

<https://www.inaturalist.org/observations/48740005>

K. graysonoconnori sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/176228>

and

<https://www.inaturalist.org/observations/46121694>

and

<https://www.inaturalist.org/observations/104340376>

Distribution: *K. graysonoconnori* sp. nov. is a taxon restricted to the coastal strip area between from Cape Le Grand in the west along the coast to Cape Aird in the east in the near coastal area of southern Western Australia, including nearby offshore islands.

It is relatively range-restricted and may be potentially vulnerable if remaining areas of natural habitat in the area are not actively conserved.

Etymology: The taxon *K. graysonoconnori* sp. nov. is named in honour of Grayson O'Connor of Box Hill North, Victoria, Australia in recognition of logistical services aiding the wildlife conservation work of Snakebusters: Australia's best reptiles with various research and conservation collaborators.

KOMMOSAGOGUS ROSSWELLINGTONI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:BE2CC4E6-6712-41C1-AE4F-20E553F452F0

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R121359 collected from 6 km north-west of Dunsborough, Western Australia,

Australia, Latitude -33.55 S., Longitude 115.05 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 R129077 and R129085 both collected from Lake Jasper, Western Australia, Australia, Latitude -34.416667 S., Longitude 115.683333 E., and 2/ Three preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R103262, R103263 and R115261 all collected from the Scott River National Park, Western Australia, Australia, Latitude -34.266667 S., Longitude 115.216667 E.

Diagnosis: The putative south-west Australian species "*Ctenotus catenifer* Storr (1974)", herein placed in the genus *Kommosagogus* Wells and Wellington, 1984, occurs in four geographically disjunct populations.

Based on molecular and morphological evidence each population is herein formally recognized as a separate species.

The nominate form of *K. catenifer* with a type locality of Cheyne Beach, Western Australia (Latitude 34.52 S., Longitude 118.34 E.) occurs on and near to the far south-west Australian coast between Mount Chudalup (Latitude -34.766667 S., Longitude 116.083333 E.) in the west and Cheyne Beach, Western Australia (Latitude 34.52 S., Longitude 118.34 E.) in the east.

K. hickmani Wells and Wellington is found west of this area in an area on and near the coast bounded by Ravensthorpe (Latitude 33.5817 S., Longitude 120.0471 E.) in the west and Cape Arid National Park (Latitude -33.825833 S., Longitude 122.973611 E.) in the east.

K. rosswellingtoni sp. nov. is confined to a region in the far south-west of Western Australia also on or near the coast between Scott River National Park, (Latitude -34.266667 S., Longitude 115.216667 E) in the south and 6 km north-west of Dunsborough (Latitude -33.55 S., Longitude 115.05 E) in the northwest and Brusselton (Latitude -33.716667 S., Longitude 115.333333 E.) in the northeast.

K. goreng sp. nov., is the geographically isolated Stirling Range population, distributionally proximal to *K. catenifer* found at its closest about 50 km south or south-east in a straight line (between populations).

The four species are separated from one another by the following unique characters or character suites:

K. catenifer has a broken white line or no obvious white line (being an alternation of black and white patches) on the lower flank.

K. hickmani has an even white upper edge of white on the lower flank, but not a white line as such (as it is not bordered black or any other colour below), the only point of note is that white spots on the black above do also intrude the white line from above, but these are also thinly bordered with black between where they

contact the lower white barrier.

Relatively indistinct greyish black markings on the lower flanks continue onto the venter.

K. rosswellingtoni sp. nov. is very different in colouration to the two preceding taxa in that the dorsolateral line has no large or medium white spots. It merely has a poorly defined row of spots (alternating in series as one larger, two smaller, one larger, two smaller and so on along either side) that are much the same size as those on the flanks proper, which also only has small spots (being of two size classes again). There are no large or medium spots. The mid dorsum is without an obvious vertebral line colour of orange brown, but rather the dorsum as a whole appears brownish in colour, being formed by brown scales combined with alternating scales that are largely black in their centres. In common with *K. goreng* sp. nov. and in contrast to *K. catenifer* and *K. hickmani*, the upper surfaces of the limbs in *K. rosswellingtoni* sp. nov. are dark brown with scattered tiny white spots or tiny grey spots, versus not so in the other two species where the surfaces are a combination of darker and lighter, but not darker with spots.

The lower flanks are more heavily light spotted than the upper parts, but there is no obvious white line, dashed white line or similar separating the upper from lower flank.

K. goreng sp. nov. is mainly brownish on the dorsum, but with more thin black etching of dorsal scales rather than black patches on the scales, although small black patches are present on some dorsal scales.

The yellowish dorsolateral line is broken and the lighter parts of the edge is more brownish than yellow or white, making it relatively indistinct, although towards the rear of the body it does become lighter and more well-defined. The black band of the upper flank is not well defined because of the badly defined upper edge, in that the black is also between the lighter parts of the dashed dorsolateral line and the scales immediately proximal on the dorsum are also black or black becoming brown.

The lower edge of the black of the flank is similarly ill-defined, in this case being a series of triangular intrusions into the white scales below. Those scales are heavily peppered black and so appear greyish as well.

The black of the upper flank is spotted and speckled further obscuring its prominence, these being mainly small to medium sized spots in a single line anterior to the front leg and including also the first half of the body. On the posterior half of the body, the yellow spots are only tiny and form in two longitudinal rows.

Unlike the other three species (*K. catenifer*, *K. hickmani* and *K. rosswellingtoni* sp. nov.), the sides of the head behind the eye in *K. goreng* sp. nov. has a unique combination of the scales being black but with bright and well defined yellow white medium sized spots in the centre of each scale. These scales being

the larger ones behind the eye and anterior to the ear. The original tail is beige with dense black specks generally along each lateral line (this trait being shared with *K. hickmani* and not the other two species).

K. catenifer has a brown tail and yellow with bold black markings, while *K. rosswellingtoni* sp. nov. has a dull brown tail with usually indistinct darker markings on both dorsal and lateral lines.

The four preceding species, being *K. catenifer*, *K. hickmani*, *K. rosswellingtoni* sp. nov. and *K. goreng* sp. nov. are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Legs olive brown (not red) and with either a combination of dark and light markings or bars, or alternatively unicolour with tiny flecks, a broken dorsolateral line, which may be reduced to rows of white scales where some but not all are joined together, creating a broken line. There is no obvious white midlateral stripe that is bordered dark below.

Nasals separated. Prefrontals separated, usually widely. 4 supraoculars, first 2 in contact with the frontal. 6-8 supraciliaries; 8-10 palpebrals; a second loreal being 1 to 1.4 times as wide as high. 7, rarely 8 upper labials; 3-6, usually four ear lobules which are acute or subacute in adults and obtuse in juveniles, with the first or second usually largest; 3 or 4 nuchals; 24-30 midbody rows; 21-25 lamellae under the fourth toes and each with a dark obtuse keel or narrow callus (modified from Storr, 1973).

K. catenifer is depicted in life in Wilson and Swan (2021) on page 263 bottom and online at:

<https://www.flickr.com/photos/mattsummerville/46141383841/>

and

<https://www.flickr.com/photos/133082406@N06/19978980688/>

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. rosswellingtoni sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/crafers/2904663428/>

K. goreng sp. nov. is depicted in life in Cogger (2014) on page 490 at bottom left.

Distribution: *K. rosswellingtoni* sp. nov. is confined to a region in the far south-west of Western Australia also on or near the coast between Scott River National Park, (Latitude -34.266667 S., Longitude 115.216667

E) in the south and 6 km north-west of Dunsborough (Latitude -33.55 S., Longitude 115.05 E) in the northwest and Brusselton (Latitude -33.716667 S., Longitude 115.333333 E.) in the northeast.

Etymology: *K. rosswellingtoni* sp. nov. is named in honour of Cliff Ross Wellington currently of Ramornie in New South Wales, Australia in recognition of his many critically important contributions to herpetology in Australia and internationally spanning some decades.

KOMMOSAGODUS GORENG SP. NOV.

LSIDurn:lsid:zoobank.org:act:E8CC8FEC-2B2B-4B71-8228-E2A348999AE9

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R91083 collected from 2.5 km south of Toll Peak, Stirling Ranges, Western Australia, Australia, Latitude -34.383333 S., Longitude 118.116667 E.

This government owned facility allows access to its holdings.

Paratypes: Four preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R91055, R91082, R91084 and R91085 collected 4 km east southeast of Toolbrunup Peak, Western Australia, Australia, Latitude -34.416667 S., Longitude 118.016667 E.

Diagnosis: The putative south-west Australian species "*Ctenotus catenifer* Storr (1974)", herein placed in the genus *Kommosagodus* Wells and Wellington, 1984, occurs in four geographically disjunct populations.

Based on molecular and morphological evidence each population is herein formally recognized as a separate species.

The nominate form of *K. catenifer* with a type locality of Cheyne Beach, Western Australia (Latitude 34.52 S., Longitude 118.34 E.) occurs on and near to the far south-west Australian coast between Mount Chudalup (Latitude -34.766667 S., Longitude 116.083333 E.) in the west and Cheyne Beach, Western Australia (Latitude 34.52 S., Longitude 118.34 E.) in the east.

K. hickmani Wells and Wellington is found west of this area in an area on and near the coast bounded by Ravensthorpe (Latitude 33.5817 S., Longitude 120.0471 E.) in the west and Cape Arid National Park (Latitude -33.825833 S., Longitude 122.973611 E.) in the east.

K. rosswellingtoni sp. nov. is confined to a region in the far south-west of Western Australia also on or near the coast between Scott River National Park, (Latitude -34.266667 S., Longitude 115.216667 E) in the south and 6 km north-west of Dunsborough (Latitude -33.55 S., Longitude 115.05 E) in the northwest and Brusselton (Latitude -33.716667 S., Longitude 115.333333 E.) in the northeast.

K. goreng sp. nov., is the geographically isolated Stirling Range population, distributionally proximal to *K. catenifer* found at its closest about 50 km south or

south-east in a straight line (between populations).

The four species are separated from one another by the following unique characters or character suites:

K. catenifer has a broken white line or no obvious white line (being an alternation of black and white patches) on the lower flank.

K. hickmani has an even white upper edge of white on the lower flank, but not a white line as such (as it is not bordered black or any other colour below), the only point of note is that white spots on the black above do also intrude the white line from above, but these are also thinly bordered with black between where they contact the lower white barrier.

Relatively indistinct greyish black markings on the lower flanks continue onto the venter.

K. rosswellingtoni sp. nov. is very different in colouration to the two preceding taxa in that the dorsolateral line has no large or medium white spots. It merely has a poorly defined row of spots (alternating in series as one larger, two smaller, one larger, two smaller and so on along either side) that are much the same size as those on the flanks proper, which also only has small spots (being of two size classes again). There are no large or medium spots. The mid dorsum is without an obvious vertebral line colour of orange brown, but rather the dorsum as a whole appears brownish in colour, being formed by brown scales combined with alternating scales that are largely black in their centres. In common with *K. goreng* sp. nov. and in contrast to *K. catenifer* and *K. hickmani*, the upper surfaces of the limbs in *K. rosswellingtoni* sp. nov. are dark brown with scattered tiny white spots or tiny grey spots, versus not so in the other two species where the surfaces are a combination of darker and lighter, but not darker with spots.

The lower flanks are more heavily light spotted than the upper parts, but there is no obvious white line, dashed white line or similar separating the upper from lower flank.

K. goreng sp. nov. is mainly brownish on the dorsum, but with more thin black etching of dorsal scales rather than black patches on the scales, although small black patches are present on some dorsal scales.

The yellowish dorsolateral line is broken and the lighter parts of the edge is more brownish than yellow or white, making it relatively indistinct, although towards the rear of the body it does become lighter and more well-defined. The black band of the upper flank is not well defined because of the badly defined upper edge, in that the black is also between the lighter parts of the dashed dorsolateral line and the scales immediately proximal on the dorsum are also black or black becoming brown.

The lower edge of the black of the flank is similarly ill-defined, in this case being a series of triangular intrusions into the white scales below. Those scales are heavily peppered black and so appear greyish as well.

The black of the upper flank is spotted and speckled further obscuring its prominence, these being mainly small to medium sized spots in a single line anterior to the front leg and including also the first half of the body. On the posterior half of the body, the yellow spots are only tiny and form in two longitudinal rows.

Unlike the other three species (*K. catenifer*, *K. hickmani* and *K. rosswellingtoni* sp. nov.), the sides of the head behind the eye in *K. goreng* sp. nov. has a unique combination of the scales being black but with bright and well defined yellow white medium sized spots in the centre of each scale. These scales being the larger ones behind the eye and anterior to the ear. The original tail is beige with dense black specks generally along each lateral line (this trait being shared with *K. hickmani* and not the other two species).

K. catenifer has a brown tail and yellow with bold black markings, while *K. rosswellingtoni* sp. nov. has a dull brown tail with usually indistinct darker markings on both dorsal and lateral lines.

The four preceding species, being *K. catenifer*, *K. hickmani*, *K. rosswellingtoni* sp. nov. and *K. goreng* sp. nov. are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Legs olive brown (not red) and with either a combination of dark and light markings or bars, or alternatively unicolour with tiny flecks, a broken dorsolateral line, which may be reduced to rows of white scales where some but not all are joined together, creating a broken line. There is no obvious white midlateral stripe that is bordered dark below.

Nasals separated. Prefrontals separated, usually widely. 4 supraoculars, first 2 in contact with the frontal. 6-8 supraciliaries; 8-10 palpebrals; a second loreal being 1 to 1.4 times as wide as high. 7, rarely 8 upper labials; 3-6, usually four ear lobules which are acute or subacute in adults and obtuse in juveniles, with the first or second usually largest; 3 or 4 nuchals; 24-30 midbody rows; 21-25 lamellae under the fourth toes and each with a dark obtuse keel or narrow callus (modified from Storr, 1973).

K. catenifer is depicted in life in Wilson and Swan (2021) on page 263 bottom and online at:

<https://www.flickr.com/photos/mattsummerville/46141383841/>

and

<https://www.flickr.com/photos/133082406@N06/19978980688/>

K. hickmani is depicted in life online at:

https://www.flickr.com/photos/brian_busho/14505416091/

K. rosswellingtoni sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/crafer/2904663428/>

K. goreng sp. nov. is depicted in life in Cogger (2014) on page 490 at bottom left.

Distribution: *K. goreng* sp. nov., is a geographically isolated taxon that is confined to the Stirling Ranges, Western Australia. It is distributionally proximal to *K. catenifer* a closely related species from the adjacent south coast of Western Australia being at its closest about 50 km south or south-east in a straight line (between populations).

Etymology: *K. goreng* sp. nov. is named in recognition of the Goreng people, the original native Australian Aboriginal natives of the Stirling Ranges of Western Australia, Australia. Most were killed off by the British invaders in the early 1800's either directly or through introduced diseases like smallpox. They are now forbidden from living anywhere in the Stirling Ranges after having all their land and property rights taken from them. This is because it is now "Crown Land" formally owned by the British Royal Family.

KOMMOSAGOGUS WELLSEI SP. NOV.

LSIDurn:lsid:zoobank.org:act:D46F6057-AE7F-4502-85F4-EF66B6A4E253

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R103320 collected from Two-Mile Lake, 12 km south of Bluff Knoll, Stirling Ranges National Park, Western Australia, Australia, Latitude -34.483333 S., Longitude 118.25 E.

This government owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R103322 collected from Two-Mile Lake, 12 km south of Bluff Knoll, Stirling Ranges National Park, Western Australia, Australia, Latitude -34.483333 S., Longitude 118.25 E., and 2/ Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R59714 and R86938 both collected from the South Stirling Nature Reserve, Western Australia, Australia, Latitude -34.583333 S., Longitude 118.216667 E.

Diagnosis: Specimens attributed to the putative south-west Australian species, "*Ctenotus gemmula* Storr, 1974", herein placed in the genus *Kommosagogus* Wells and Wellington, 1984, have long been known to be distributionally disjunct and morphologically divergent.

In line with the molecular results of Kay and Keogh (2012) implying three species involved, the three closely related but divergent species are herein recognized.

K. gemmula is herein confined to the environs of Perth (the type locality for the taxon) and the coastal and near coastal region between 25 km east of Ravensthorpe and Esperance on the south coast, being two separate populations of the same species.

Both populations are also morphologically alike and diagnosable as the same taxonomic entity.

In the cooler near coastal south of the State of Western Australia generally, in the region west of Ravensthorpe extending to the Stirling Ranges is the newly named taxon, *K. wellsei* sp. nov..

In the vicinity of Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) in the east and 5 km west of Israelite Bay (Latitude -33.616667 S., Longitude 123.8 E.) on the eastern south coast of Western Australia in the west (a closed by site) is a range-restricted population herein formally named as *K. trevorhawkeswoodi* sp. nov..

The three species are easily separated from one another as follows:

All three species have a relatively distinct black band running along the side of the upper flank below the dorsolateral edge. Below this, the lizard's flank is mainly whitish, with an alternation of white and blackish on the scales, with the blackish patches sometimes arranged in a linear manner, but because of the irregular shapes of the darker patches and the white interspaces, no obvious lateral line is formed.

K. gemmula is separated from the species *K. wellsei* sp. nov.. and *K. trevorhawkeswoodi* sp. nov. by having the dark zone of the upper flank heavily overlain with two rows of large elongate, somewhat irregularly shaped yellow spots. Each row of spots is on or near the upper and lower edge of the black band, but because of the size of the spots, there is little black space between them.

K. wellsei sp. nov. essentially lacks these. Instead, the same spots are reduced in size and intensity and also moved up or down to effectively become a part of the upper and lower boundary of the black band, rather than as spots within it.

This means that there is a wide uninterrupted wide black band on the upper flank, with jagged upper and lower edged. There are sometimes up to 7 tiny white specks, scattered irregularly along the midline of the black upper lateral band, but these are nothing like the spots seen on this band in *K. gemmula* or *K. trevorhawkeswoodi* sp. nov. (see below).

In some specimens of *K. wellsei* sp. nov. there are numerous tiny specks on the black upper lateral band, but again these are tiny, very indistinct and nothing like the obvious much larger spots seen in *K. gemmula* or *K. trevorhawkeswoodi* sp. nov. (see below).

K. trevorhawkeswoodi sp. nov. has a single row of medium sized spots running midway along the length of the dark upper flank band.

On the upper edge of this band at the dorsolateral

edge is a thin line consisting of alternating cream or yellow dashes (one to three scales in length), with similar sized interspaces, these being formed by the edge of the brown of the dorsum.

The lower edge of the black upper dorsolateral band is white and relatively jagged, similar in colour to the lower flank and venter and there is no obvious line at the interface of the black upper dorsolateral band and below.

K. trevorhawkeswoodi sp. nov. is also separated from *K. gemmula* and *K. wellsei* sp. nov. by the fact that on the dorsum, the brown colour goes as far as the dorsolateral edge, with its edge in effect forming part of the edge of the line, as in where the yellow dashes are not. By contrast in the other two species, the brown of the dorsum gives way to black just before the dorsolateral edge, meaning that there is a thin zone of black between the dorsolateral line and edge and the brown dorsum in those species.

This means that the interspaces of the broken dorsolateral line are black in *K. gemmula* and *K. wellsei* sp. nov. versus brown in *K. trevorhawkeswoodi* sp. nov..

The three preceding species, being *K. gemmula*, *K. wellsei* sp. nov. and *K. trevorhawkeswoodi* sp. nov. are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

A broken white, cream or yellowish dorsolateral stripe, formed by a series of dashes, usually one scale wide; narrow subdigital calli; consistently having 8 supralabials and the upper surfaces of the legs are light in background colour but overlain with bold blotching or similar markings as in they are not unicolour or unicolour with specks or obscurely dotted with black or grey.

They are further separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following additional unique combination of characters: Nasals separated (rarely touching); prefrontals usually

narrowly separated, occasionally in

short contact; 4 supraoculars, the first two in contact with the frontal; 6-8 supraciliaries 6-8, usually 7; 8-12 palpebrals; second loreal is 1.1 to 1.7 times as high as wide; 8 supralabials; 2-5 (usually 3-4) ear lobules being acute or subacute in adults and second is usually largest; 2-4 (usually 3) nuchals; 24-28 (usually 24-26) midbody rows; 23-27 lamellae under the fourth toe, each with a dark obtuse keel.

Colour dorsally is usually light to dark brown to olive or yellowish grey, unmarked except for a narrow black laterodorsal line (above the dorsolateral edge) from brow to base of the tail in two of the three species (not in *K. trevorhawkeswoodi* sp. nov.). A dorsolateral series of short white dashes run from brow to base of tail. The black upper lateral zone is with or without a series of white spots, extending forward as a broken stripe through the orbit nearly to the tip of the snout and backward on to the proximal quarter of tail. The white midlateral stripe being in the form of a stripe or border is either wavy, jagged edged or sometimes broken into series of short dashes.

The narrow dark grey lower lateral zone is variably marked with white and blackish with there being more light than dark, making it greyish in overall appearance. The legs are light to medium yellowish brown and boldly marked with blackish blotches or similar (the preceding was mainly modified from Storr 1974).

K. gemmula is depicted in life in Wilson and Swan (2021) on page 271 at top right, Storr *et al.* (1981) in plate 3 top right.

K. wellsei sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/euprepiosaur/52921847018/>

and

<https://www.flickr.com/photos/171250498@N08/52911877829/>

Distribution: *K. wellsei* sp. nov. occurs in the cooler near coastal south of the State of Western Australia generally, in the region west of Ravensthorpe extending to the Stirling Ranges.

Etymology: *K. wellsei* sp. nov. is named in honour of Richard W. Wells currently of Drake, in northern New South Wales, Australia in recognition of his many critically important contributions to herpetology in Australia and internationally spanning some decades. Known to his friends as "Wellsey" or "Wellsei" the spelling of the species name "*wellsei*" is deliberate and should not be changed/

KOMMOSAGOGUS TREVORHAWKESWOODI SP. NOV.

LSIDurn:lsid:zoobank.org:act:9F8CA5E4-F7CC-4008-A132-2D894B807D05

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R77749 collected 6

km east north-east of Toolinna Rock Hole, Western Australia, Australia, Latitude -32.725 S., Longitude 125.033333 E.

This government owned facility allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R66751 collected 7 km east north-east of Toolinna Rock Hole, Western Australia, Australia, Latitude -32.7 S., Longitude 125.033333 E., 2/ Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R94097 and R94104 collected 6 km east north-east of Toolinna Rock Hole, Western Australia, Australia, Latitude -32.725 S., Longitude 125.033333 E., 3/ Two preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers R31102 collected 5 km west of Israelite Bay, Western Australia, Australia, Latitude -33.616667 S., Longitude 123.8 E..

Diagnosis: Specimens attributed to the putative south-west Australian species, "*Ctenotus gemmula* Storr, 1974", herein placed in the genus *Kommosagogus* Wells and Wellington, 1984, have long been known to be distributionally disjunct and morphologically divergent.

In line with the molecular results of Kay and Keogh (2012) implying three species involved, the three closely related but divergent species are herein recognized.

K. gemmula is herein confined to the environs of Perth (the type locality for the taxon) and the coastal and near coastal region between 25 km east of Ravensthorpe and Esperance on the south coast, being two separate populations of the same species. Both populations are also morphologically alike and diagnosable as the same taxonomic entity.

In the cooler near coastal south of the State of Western Australia generally, in the region west of Ravensthorpe extending to the Stirling Ranges is the newly named taxon, *K. wellsei* sp. nov..

In the vicinity of Toolinna Rockhole (Latitude -32.7 S., Longitude 125.033333 E.) in the east and 5 km west of Israelite Bay (Latitude -33.616667 S., Longitude 123.8 E.) on the eastern south coast of Western Australia in the west is a range-restricted population herein formally named as *K. trevorhawkeswoodi* sp. nov..

The three species are easily separated from one another as follows:

All three species have a relatively distinct black band running along the side of the upper flank below the dorsolateral edge. Below this, the lizard's flank is mainly whitish, with an alternation of white and blackish on the scales, with the blackish patches sometimes arranged in a linear manner, but because of the irregular shapes of the darker patches and the

white interspaces, no obvious lateral line is formed.

K. gemmula is separated from the species *K. wellsei* sp. nov.. and *K. trevorhawkeswoodi* sp. nov. by having the dark zone of the upper flank heavily overlain with two rows of large elongate, somewhat irregularly shaped yellow spots. Each row of spots is on or near the upper and lower edge of the black band, but because of the size of the spots, there is little black space between them.

K. wellsei sp. nov. essentially lacks these. Instead, the same spots are reduced in size and intensity and also moved up or down to effectively become a part of the upper and lower boundary of the black band, rather than as spots within it.

This means that there is a wide uninterrupted wide black band on the upper flank, with jagged upper and lower edged. There are sometimes up to 7 tiny white specks, scattered irregularly along the midline of the black upper lateral band, but these are nothing like the spots seen on this band in *K. gemmula* or *K. trevorhawkeswoodi* sp. nov. (see below).

In some specimens of *K. wellsei* sp. nov. there are numerous tiny specks on the black upper lateral band, but again these are tiny, very indistinct and nothing like the obvious much larger spots seen in *K. gemmula* or *K. trevorhawkeswoodi* sp. nov. (see below).

K. trevorhawkeswoodi sp. nov. has a single row of medium sized spots running midway along the length of the dark upper flank band.

On the upper edge of this band at the dorsolateral edge is a thin line consisting of alternating cream or yellow dashes (one to three scales in length), with similar sized interspaces, these being formed by the edge of the brown of the dorsum.

The lower edge of the black upper dorsolateral band is white and relatively jagged, similar in colour to the lower flank and venter and there is no obvious line at the interface of the black upper dorsolateral band and below.

K. trevorhawkeswoodi sp. nov. is also separated from *K. gemmula* and *K. wellsei* sp. nov. by the fact that on the dorsum, the brown colour goes as far as the dorsolateral edge, with its edge in effect forming part of the edge of the line, as in where the yellow dashes are not. By contrast in the other two species, the brown of the dorsum gives way to black just before the dorsolateral edge, meaning that there is a thin zone of black between the dorsolateral line and edge and the brown dorsum in those species.

This means that the interspaces of the broken dorsolateral line are black in *K. gemmula* and *K. wellsei* sp. nov. versus brown in *K. trevorhawkeswoodi* sp. nov..

The three preceding species, being *K. gemmula*, *K. wellsei* sp. nov. and *K. trevorhawkeswoodi* sp. nov. are separated from all other similar and closely related species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper,

being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

A broken white, cream or yellowish dorsolateral stripe, formed by a series of dashes, usually one scale wide; narrow subdigital calli; consistently having 8 supralabials and the upper surfaces of the legs are light in background colour but overlain with bold blotching or similar markings as in they are not unicolour or unicolour with specks or obscurely dotted with black or grey.

They are further separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following additional unique combination of characters:

Nasals separated (rarely touching); prefrontals usually narrowly separated, occasionally in

short contact; 4 supraoculars 4, the first two in contact with the frontal; 6-8 supraciliaries 6-8, usually 7; 8-12 palpebrals; second loreal is 1.1 to 1.7 times as high as wide; 8 supralabials; 2-5 (usually 3-4) ear lobules being acute or subacute in adults and second is usually largest; 2-4 (usually 3) nuchals; 24-28 (usually 24-26) midbody rows; 23-27 lamellae under the fourth toe, each with a dark obtuse keel.

Colour dorsally is usually light to dark brown to olive or yellowish grey, unmarked except for a narrow black laterodorsal line (above the dorsolateral edge) from brow to base of the tail in two of the three species (not in *K. trevorhawkeswoodi* sp. nov.). A dorsolateral series of short white dashes run from brow to base of tail. The black upper lateral zone is with or without a series of white spots, extending forward as a broken stripe through the orbit nearly to the tip of the snout and backward on to the proximal quarter of tail. The white midlateral stripe being in the form of a stripe or border is either wavy, jagged edged or sometimes broken into series of short dashes.

The narrow dark grey lower lateral zone is variably marked with white and blackish with there being more light than dark, making it greyish in overall appearance. The legs are light to medium yellowish brown and boldly marked with blackish blotches or similar (the preceding was mainly modified from Storr 1974).

K. gemmula is depicted in life in Wilson and Swan (2021) on page 271 at top right, Storr *et al.* (1981) in plate 3 top right.

K. wellsei sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/euprepiosaur/52921847018/>

and

<https://www.flickr.com/photos/171250498@N08/52911877829/>

Distribution: *K. trevorhawkeswoodi* sp. nov. is a taxon restricted to the vicinity of Toolinna Rockhole (Latitude -32.7 S., Longitude 125.03333 E.) in the east and 5 km west of Israelite Bay (Latitude -33.616667 S., Longitude 123.8 E.) on the eastern south coast of Western Australia in the west (a short distance away) and is very range-restricted taxon, that should be regarded as vulnerable to extinction.

Etymology: *K. trevorhawkeswoodi* sp. nov. is named in honour of Dr. Trevor J. Hawkeswood of Northmead, New South Wales, Australia in recognition of his many critically important contributions to entomology, herpetology, taxonomy and zoology in general spanning some decades.

TANTALOSCINCUS JULIANASSANGEI SP. NOV.

LSIDurn:lsid:zoobank.org:act:EB8D1EED-7687-46A2-8D24-E3294F44DD51

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R46072 collected at 13.8 km west south-west of the Lonesome Pine Dam, Lake Gilles Conservation Park, South Australia, Australia, Latitude -33.0933 S., Longitude 136.6939 E.

This government owned facility allows access to its holdings.

Paratypes: Three preserved specimens at the South Australian Museum, Adelaide, South Australia, Australia, 1/ Specimen number R56624 collected 4.5 km east north-east of Corrobinnie Hill, South Australia, Australia, Latitude -32.9669 S., Longitude 135.7819 E., 2/ Specimen number R56672 collected from 5.1 km east northeast of Corrobinnie Homestead, South Australia, Australia, Latitude -32.9642 S., Longitude 135.7872 E., 3/ Specimen number R57629 collected from 18.7 km west northwest of Iron Duchess, South Australia, Australia, Latitude -33.2231 S., Longitude 136.9308 E.

Diagnosis: "*Ctenotus brooksi euclae*" (Storr, 1971), with a type locality of Eucla, Western Australia, (Latitude -31.43 S., Longitude 128.53 E.) is now recognised by most herpetologists as being a valid species separate from "*Ctenotus brooksi* (Loveridge, 1933)", type locality allegedly of "Perth", Western Australia, Australia.

This separation of the two species was confirmed by the phylogeny published by Singhal *et al.* (2017).

Both putative species are herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

Analysis of sequences of putative *T. euclae* from eastern and western parts of their range showed an estimated divergence of 2 MYA between the two main clades, which in short means there are two species involved.

Interestingly sequences of *T. brooksi* from a far wider area showed no such deep divergence.

As the two relevant populations of *T. euclae* are readily separable by morphology, the eastern form of putative *T. euclae* from the Eyre Peninsula of South Australia, Australia and nearby parts of that state to the immediate west along the Great Australian Bight is herein formally named as a new species *T. julianassangei* sp. nov..

T. julianassangei sp. nov. is readily separated from *T. euclae* by colouration.

T. euclae is a light sandy coloured lizard on top, rarely with a slight pinkish tinge. *T. julianassangei* sp. nov. is obviously pink on top.

The black band on the upper lateral surface of the flank in *T. euclae* is about half the width of the flank and densely covered with white spots or blotches all over.

By contrast in *T. julianassangei* sp. nov. the black band on the upper lateral surface of the flank is narrow and lacks any dense cover of white spots or blotches all over. Rarely there may be a small number of scattered tiny indistinct light flecks, or occasionally yellow intrusions from the yellow boundary of the dorsolateral edge line.

In *T. julianassangei* sp. nov. the three mid vertebral rows of dots tend to be joined to form longitudinal lines running down the back of the lizard, versus only the middle row in *T. euclae*.

Both *T. julianassangei* sp. nov. and *T. euclae* are separated from the morphologically similar species, *T. brooksi* (Loveridge, 1933) and *T. taeniatus* (Mitchell, 1949) (of all subspecies), by the light-coloured dorsum and the presence of a single presubocular.

The four species are separated from all other similar species within the genus *Tantaloscincus* Wells and Wellington, 1984 by the presence of enlarged, keeled plantars opposite the fourth toe.

T. julianassangei sp. nov., *T. euclae* and *T. brooksi* are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma* *schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

A dorsal pattern consisting of stripes, spots, blotches

and variegations, or a combination of these, but not with obvious ocelli; nasal is either weakly or not grooved; 24-30 midbody scale rows; adults small (snout-vent length up to 52 mm only); toes moderately or strongly compressed; subdigital lamellae sharply keeled dark brown, which may end in a tiny spine; tail less than twice as long as the snout-vent length; nasals usually separated (occasionally in short contact); prefrontals in contact or narrowly separated; four or rarely five supraoculars; 7 or 8 supralabials; the 2-5 ear lobules are short to moderately long; 18-28 lamellae under fourth toe; hindleg is 41-56 percent of snout-vent length; usually only one presubocular; plantar scales opposite the fourth toe are enlarged and keeled.

T. euclae is depicted in life in Wilson and Swan (2021) on page 269 at top, Cogger (2014) on page 494 bottom left and Storr *et al.* (1981) on plate 9, image 2 (top right) and online at:

<https://www.flickr.com/photos/reptileshots/48158148962/>

T. julianassangei sp. nov. is depicted in life online at:

<https://www.flickr.com/photos/moloch05/39807657473/>

and

<https://www.inaturalist.org/observations/161922133>

and

<https://www.inaturalist.org/observations/54978083>

and

<https://www.inaturalist.org/observations/151373361>

Distribution: *T. julianassangei* sp. nov. occurs from the upper Eyre Peninsula of South Australia, Australia and nearby parts of that state to the immediate west along the near parts of the Great Australian Bight. *T. euclae* is the taxon from the coast south of the Nullarbor and west into southern Western Australia.

The distribution of both taxa tends to hug the coastline except for the Eyre Peninsula region, where *T. julianassangei* sp. nov. extends inland.

Etymology: *T. julianassangei* sp. nov. is named in honour of Australian Julian Paul Assange born 3 July 1971. He was an Australian editor, publisher and activist who founded WikiLeaks in 2006. He came to wide international attention in 2010 when WikiLeaks published a series of leaks from US Army intelligence analyst Chelsea Manning including footage of a US airstrike in Baghdad, US military logs from the Afghanistan and Iraq wars as well as US diplomatic cables. Assange has won multiple awards for publishing and journalism. He has since been arrested, faced numerous contrived and concocted criminal charges and as of 2024 is languishing in a squalid UK prison, where he has been for some years and with no plans of release.

The etymology does not so much recognize the achievements of Julian Assange but should rather be reflected upon to show the endemic corruption of the legal systems within the UK, Australia and the USA

in which people who are disliked by those in power can be and are locked up for fabricated offences and charges. Julian Assange is merely one of the better-known victims of this system which claims tens of thousands of other innocent victims annually.

TANTALOSCINCUS XORUM SP. NOV.

LSIDDurn:lsid:zoobank.org:act:634A9C50-C82E-42F7-9154-46E662EC5FBA

Holotype: A preserved specimen at the Northern Territory Museum, Darwin, Northern Territory, Australia, Australia, specimen number R14947 collected from 12 km south-west of Sangster's Bore, Tanami Desert, Northern Territory, Australia, Latitude -20.867 S., Longitude 130.267 E.

This government owned facility allows access to its holdings.

Paratypes: Nine preserved specimens at the Northern Territory Museum, Darwin, Northern Territory, Australia, Australia, 1/ Specimen numbers R14931, R14940, R15148, R14969 and R14953 all collected from 12 km south-west of Sangster's Bore, Tanami Desert, Northern Territory, Australia, Latitude -20.867 S., Longitude 130.267 E., 2/ Specimen number R14511 collected from 15 km north-west of Sangster's Bore, Tanami Desert, Northern Territory, Australia, Latitude -20.75 S., Longitude 130.283 E., 3/ Specimen number R31888 collected from 10 km south-west of Sangster's Bore, Tanami Desert, Northern Territory, Australia, Latitude -20.817 S., Longitude 130.267 E., 4/ Specimen number R15053 collected from Sangster's Bore, Tanami Desert, Northern Territory, Australia, Latitude -20.95 S., Longitude 130.417 E., 5/ Specimen number R31884 collected from the Tanami Desert, Northern Territory, Australia, Latitude -20.8 S., Longitude 130.233 E.

Diagnosis: Until now, putative "*Ctenotus calurus* Storr, 1969" type locality of 24 miles east northeast of Laverton, Western Australia, (Latitude -28.31 S., Longitude 122.45 E), now placed in the genus *Tantaloscincus* Wells and Wellington, 1985 has been treated as a wide-ranging taxon from Centralian sand dune habitats in West Australia, the Northern Territory and South Australia, with a distribution extending to the west coast of Australia on the southern edge of the Pilbara region, south-west of the Cape Range and extending to western Queensland on the eastern edge of the Simpson Desert.

However, the sequence data available yielded a divergence between two main population groups of about 3 MYA. Because they are morphologically divergent, the unnamed Centralian form is herein formally named as a new species, *Tantaloscincus xorum sp. nov.*

That taxon occurs generally east of the low-lying flood prone flats that generally run in a north-south line along the Western Australian border, parallel to both most of the Northern Territory and the northern parts of South Australia, but generally almost entirely within the

territorial limits of Western Australia.

Hence *T. xorum sp. nov.* is the taxon from central Australia in the Northern Territory, northern South Australia and far west Queensland in the sandy eastern extremity of the Simpson Desert.

West of this zone and throughout most of the interior of Western Australia *T. calurus* occurs.

The species is generally absent from the western third of Western Australia, save for an isolated and divergent population of this putative taxon found generally south-west of the Cape Range in the relevant sand and dune habitat. While there is no molecular data with respect of this population, it is in some ways more divergent from the other two (*T. xorum sp. nov.* and the putative type form of *T. calurus*) than they are to each other.

Because of the known depth of divergence between *T. xorum sp. nov.* and the putative type form of *T. calurus* I have no hesitation in formally naming the western form as a new species, being *T. muski sp. nov.*

T. xorum sp. nov., *T. calurus*, and *T. muski sp. nov.* are separated from one another by the following character combinations:

In all of *T. xorum sp. nov.*, *T. calurus*, and *T. muski sp. nov.* there are five yellow lines running down the dorsum. These are a vertebral line, two lines along the lateral edges and two others between them.

They all form at the back of the head. They then merge to form a single bluish-white line at the distal end of the tail. The mid-dorsal lines merge first with the latero-dorso lines either near the hind limbs or past them. The remaining three lines merge further down the tail.

In both *T. xorum sp. nov.*, *T. calurus* the two outer yellow lines on the dorsum join at the end of the body, at approximately the hind limb area. This is done by the inner line becoming broken and curving into the other outer line.

For *T. muski sp. nov.* this line goes well beyond the pelvic girdle and merely stops. It is not as a rule broken in this area.

In terms of the yellow lines remaining on the upper surface of the anterior part of the (original) tail, being the vertebral and lateral lines, they join at or before the length of the outstretched adpressed hindlimb to the ankle of the foot (against the tail) in *T. xorum sp. nov.* In the other two species these two lines join much further down the tail. *T. muski sp. nov.* is alone in the trio in that the lines join properly beyond the length of the toe when the hind limb is adpressed against the tail.

T. calurus has an end of tail that is royal blue in colour. The black lower lateral band is thick. The black band behind the eye that becomes the black band on the upper flank is well defined from the orbit.

T. xorum sp. nov. has an end of tail that ranges between periwinkle blue and light purplish pink in colour. The black lower lateral band is thin. The black

band behind the eye that becomes the black band on the upper flank is not well defined from the orbit but is instead mainly a dark brown colour between eye and ear before turning black on the neck and body proper. In both *T. calurus* and *T. xorum sp. nov.* the back and white lines or bands on the flanks are bold, sharp edged and well defined.

In *T. muski sp. nov.* is more yellowish-brown all over than the other two species. The black bar behind the eye is thin, as opposed to thick in the dark bar in the other two species. The tail is purply pink at the distal end, rather than blue or bluish. The edges of the black and white stripes or bands on the flanks are distinctively brownish edged.

Both *T. calurus* and *T. muski sp. nov.* have well-defined black blotches and similar markings on the upper surface of the head, versus poorly defined in *T. xorum sp. nov.*

The three species, *T. calurus*, *T. muski sp. nov.* and *T. xorum sp. nov.* are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* type species, *Matherus matheri sp. nov.* by the following unique combination of characters:

Pattern consisting of 5 thin yellow/white longitudinal stripes on the dorsum, including a vertebral line and the two laterodorsal lines, all being unbroken and well defined on an otherwise black background.

Flanks with a thick upper black band, followed by a white band of moderate thickness, below which is a thin of thick black or blackish line on the lower flank; the pattern does not include any series of spots or ocelli; tail is transversely marked below with black, especially at the anterior end; size is small being 50 mm snout-vent length, with a slender build and pointed snout; nasal is weakly or not grooved; 24-28 midbody scale rows; 7 upper labials; 4 supraoculars; nasals usually in contact, but sometimes narrowly separated; 3-5 ear lobules; toes moderately or strongly compressed; 20-24 subdigital lamellae under the fourth toe which are sharply keeled and mucronate; the series of plantars opposite fourth toe are enlarged and keeled; tail is less than twice as long as the snout-vent length;

T. xorum sp. nov. is depicted in life in Wilson and Swan (2021) on page 263 second from top and online at:

https://www.flickr.com/photos/zimny_anders/50385012997/

and

<https://www.inaturalist.org/observations/63785344>

and

<https://www.inaturalist.org/observations/123287439>

and

<https://www.inaturalist.org/observations/45575043>

T. calurus is depicted in life in Cogger (2014) on page 489 at bottom, Storr *et al.* (1981), on plate 9, photo 8, bottom right and online at:

https://www.flickr.com/photos/brian_busho/16508116443/

and

<https://www.inaturalist.org/observations/156197299>

T. calurus muski subsp. nov. is depicted in life online at:

https://www.flickr.com/photos/colonel_007/49103744853/

Distribution: *T. xorum sp. nov.* occurs in the sandy deserts and adjacent sandy areas of central Australia in the Northern Territory, northern South Australia and the far west of Queensland in the sandy eastern extremity of the Simpson Desert.

East of this zone and throughout most of the interior of Western Australia *T. calurus* occurs.

That species is generally absent from the western third of Western Australia.

T. muski sp. nov. occurs south-west of the Cape Range near the mid-west Australian coast (just south of the Pilbara region) in sand and dune habitat wedged between regions of hilly uplands and flooding plains.

Etymology: *T. xorum sp. nov.* is named in recognition of the online "platform" "Twitter", more recently known as "X" for defying the fascist Australian government in 2024.

Following the publication in 2024 online of a video of a police-protected terrorist attacking a priest in an Australian church, the Australian government sought to erase all records of this failure of Australian law-enforcement and protection from the entire world.

The embarrassment was caused because the terrorist was a police protected criminal and it made the corrupt government in Australia look bad to the world in that through its corrupt police forces, they were allowing citizens to be harassed, attacked and terrorised by police-protected criminals.

The Australian government censorship department, this time calling itself the "eSafety Commissioner" (an oxymoron in itself) directed all online "Platforms", as in Facebook, Youtube, Twitter, etc to remove from their servers worldwide all copies of and access to the relevant video.

Facebook and Youtube complied, but Musk and his "platform" "X" defied this directive and refused to delete it outside of Australia.

Quite correctly "X" noted that if "Platforms" were to delete material at request of a government, any fascist state anywhere could in effect control the global media and all information flows.

On 13 May 2024, Judge Geoffrey Ross Kennett in

a published ruling, effectively sided with Musk and Twitter and refused to extend an injunction against the company (Kennett 2024).

Justice Kennett, quite likely under direct pressure from the United State Government, openly supporting "X", wrote that a global ban on posted material on "X" would clash with a concept called "the comity of nations". That is a legal mutual recognition by nations of the laws and customs of others.

Justice Kennett said it "*would be a clear case of a national law purporting to apply 'persons or matters over which, according to the comity of nations, the jurisdiction properly belongs to some other sovereign or state'.*"

He further said: "*What X Corp is to be permitted to show to users in a particular country is something that the 'comity of nations' would ordinarily regard as the province of that country's government.*"

The species name "*xorum*" is in recognition of a business and their staff, ("X") who used their own power to stand up to a tyrannical fascist government in the form of the Australian government. It should be pronounced "ex-orum".

Elon Musk, an American Billionaire, as owner in ultimate control of "X" is also recognized with the species name *T. muski* sp. nov. (see below).

TANTALOSCINCUS MUSKI SP. NOV.

LSIDurn:lsid:zoobank.org:act:087030DD-1418-46AD-A243-A07403659DE3

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R123224 collected at the Kennedy Range National Park, Western Australia, Australia, Latitude -24.500833 S., Longitude 115.0175 E.

This government owned facility allows access to its holdings.

Paratypes: 11 preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, being: 1/ Specimen number R123276 collected at the Kennedy Range National Park, Western Australia, Australia, Latitude -24.500833 S., Longitude 115.0175 E., 2/ Specimen number R5342 collected at Marrilla Station, Western Australia, Australia, Latitude -22.966667 S., Longitude 114.45 E., 3/ Specimen number R172399 collected at Cane River, Western Australia, Australia, Latitude -22.436667 S., Longitude 115.2925 E., 3/ Specimen numbers R120682, R122767, R122769, R125339 and R126797 all collected from 13 km west northwest of the Mardathuna Homestead, Western Australia, Australia, Latitude -24.405556 S., Longitude 114.444167 E., 4/ Specimen number R126778 collected from 12 km west northwest of the Mardathuna Homestead, Western Australia, Australia, Latitude -24.406944 S., Longitude 114.473056 E., 5/ Specimen number R122802 collected 8 km west northwest of the Mardathuna Homestead, Western

Australia, Australia, Latitude -24.428889 S., Longitude 114.5 E., 6/ Specimen number R122812 collected 6 km east southeast of the Mardathuna Homestead, Western Australia, Australia, Latitude -24.443056 S., Longitude 114.511667 E., 6/ Specimen number R122893 collected near Mardathuna Homestead, Western Australia, Australia, Latitude -24.466667 S., Longitude 114.55 E.

Diagnosis: Until now, putative "*Ctenotus calurus* Storr, 1969" type locality of 24 miles east northeast of Laverton, Western Australia, (Latitude -28.31 S., Longitude 122.45 E), now placed in the genus *Tantaloscincus* Wells and Wellington, 1985 has been treated as a wide-ranging taxon from Centralian sand dune habitats in West Australia, the Northern Territory and South Australia, with a distribution extending to the west coast of Australia on the southern edge of the Pilbara region, south-west of the Cape Range and extending to western Queensland on the eastern edge of the Simpson Desert.

However, the sequence data available yielded a divergence between two main population groups of about 3 MYA. Because they are morphologically divergent, the unnamed Centralian form is herein formally named as a new species, *Tantaloscincus xorum* sp. nov..

That taxon occurs generally east of the low-lying flood prone flats that generally run in a north-south line along the Western Australian border, parallel to both most of the Northern Territory and the northern parts of South Australia, but generally almost entirely within the territorial limits of Western Australia.

Hence *T. xorum* sp. nov.. is the taxon from central Australia in the Northern Territory, northern South Australia and far west Queensland in the sandy eastern extremity of the Simpson Desert.

West of this zone and throughout most of the interior of Western Australia *T. calurus* occurs.

The species is generally absent from the western third of Western Australia, save for an isolated and divergent population of this putative taxon found generally south-west of the Cape Range in the relevant sand and dune habitat. While there is no molecular data with respect of this population, it is in some ways more divergent from the other two (*T. xorum* sp. nov. and the putative type form of *T. calurus*) than they are to each other.

Because of the known depth of divergence between *T. xorum* sp. nov. and the putative type form of *T. calurus* I have no hesitation in formally naming the western form as a new species, being *T. muski* sp. nov..

T. xorum sp. nov., *T. calurus*, and *T. muski* sp. nov. are separated from one another by the following character combinations:

In all of *T. xorum* sp. nov., *T. calurus*, and *T. muski* sp. nov. there are five yellow lines running down the dorsum. These are a vertebral line, two lines along the lateral edges and two others between them.

They all form at the back of the head. They then merge to form a single bluish-white line at the distal end of the tail. The mid-dorsal lines merge first with the latero-dorso lines either near the hind limbs or past them. The remaining three lines merge further down the tail.

In both *T. xorum sp. nov.*, *T. calurus* the two outer yellow lines on the dorsum join at the end of the body, at approximately the hind limb area. This is done by the inner line becoming broken and curving into the other outer line.

For *T. muski sp. nov.* this line goes well beyond the pelvic girdle and merely stops. It is not as a rule broken in this area.

In terms of the yellow lines remaining on the upper surface of the anterior part of the (original) tail, being the vertebral and lateral lines, they join at or before the length of the outstretched adpressed hindlimb to the ankle of the foot (against the tail) in *T. xorum sp. nov.*. In the other two species these two lines join much further down the tail. *T. muski sp. nov.* is alone in the trio in that the lines join properly beyond the length of the toe when the hind limb is adpressed against the tail.

T. calurus has an end of tail that is royal blue in colour. The black lower lateral band is thick. The black band behind the eye that becomes the black band on the upper flank is well defined from the orbit.

T. xorum sp. nov. has an end of tail that ranges between periwinkle blue and light purplish pink in colour. The black lower lateral band is thin. The black band behind the eye that becomes the black band on the upper flank is not well defined from the orbit but is instead mainly a dark brown colour between eye and ear before turning black on the neck and body proper. In both *T. calurus* and *T. xorum sp. nov.* the back and white lines or bands on the flanks are bold, sharp edged and well defined.

In *T. muski sp. nov.* is more yellowish-brown all over than the other two species. The black bar behind the eye is thin, as opposed to thick in the other two species. The tail is purply pink at the distal end, rather than blue or bluish. The edges of the black and white stripes or bands on the flanks are distinctively brownish edged.

Both *T. calurus* and *T. muski sp. nov.* have well-defined black blotches and similar markings on the upper surface of the head, versus poorly defined in *T. xorum sp. nov.*

The three species, *T. calurus*, *T. muski sp. nov.* and *T. xorum sp. nov.* are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma*

schomburgkii Peters, 1863 and *Matherus gen. nov.* type species, *Matherus matheri sp. nov.* by the following unique combination of characters:

Pattern consisting of 5 thin yellow/white longitudinal stripes on the dorsum, including a vertebral line and the two laterodorsal lines, all being unbroken and well defined on an otherwise black background.

Flanks with a thick upper black band, followed by a white band of moderate thickness, below which is a thin of thick black or blackish line on the lower flank; the pattern does not include any series of spots or ocelli; tail is transversely marked below with black, especially at the anterior end; size is small being 50 mm snout-vent length, with a slender build and pointed snout; nasal is weakly or not grooved; 24-28 midbody scale rows; 7 upper labials; 4 supraoculars; nasals usually in contact, but sometimes narrowly separated; 3-5 ear lobules; toes moderately or strongly compressed; 20-24 subdigital lamellae under the fourth toe which are sharply keeled and mucronate; the series of plantars opposite fourth toe are enlarged and keeled; tail is less than twice as long as the snout-vent length;

T. xorum sp. nov. is depicted in life in Wilson and Swan (2021) on page 263 second from top and online at:

https://www.flickr.com/photos/zimny_anders/50385012997/

and

<https://www.inaturalist.org/observations/63785344>

and

<https://www.inaturalist.org/observations/123287439>

and

<https://www.inaturalist.org/observations/45575043>

T. calurus is depicted in life in Cogger (2014) on page 489 at bottom, Storr *et al.* (1981), on plate 9, photo 8, bottom right and online at:

https://www.flickr.com/photos/brian_busho/16508116443/

and

<https://www.inaturalist.org/observations/156197299>

T. calurus muski subsp. nov. is depicted in life online at:

https://www.flickr.com/photos/colonel_007/49103744853/

Distribution: *T. muski sp. nov.* occurs south-west of the Cape Range near the mid-west Australian coast (just south of the Pilbara region) in sand and dune habitat wedged between regions of hilly uplands and flooding plains.

T. xorum sp. nov. occurs in the sandy deserts and adjacent sandy areas of central Australia in the Northern Territory, northern South Australia and the far west of Queensland in the sandy eastern extremity of the Simpson Desert.

East of this zone and throughout most of the interior of Western Australia *T. calurus* occurs.

That species is generally absent from the western third of Western Australia.

Etymology: Named in honour of American Billionaire Elon Musk.

Refer to the preceding etymology for *T. xorum* sp. nov. for further detail.

TANTALOSCINCUS KATTERI SP. NOV.

LSIDurn:lsid:zoobank.org:act:4A74E88C-EB56-4BD7-9A34-7BB247EE8419

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R42743 collected from 84 km north of Muttaborra, Queensland, Australia, Latitude -21.92 S., Longitude 144.42 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 R55734 collected from 19 km south of Julia Creek on the Julia Creek-Kynuna Road, Queensland, Australia, Latitude -20.8239 S., Longitude 141.7464 E.

Diagnosis: Until now *Tantaloscincus katteri* sp. nov. has been treated as a northern population of the putative species "*Ctenotus strauchii* (Boulenger, 1887)" with a type locality of Gayndah, Queensland (east of the Great Dividing Range).

T. katteri sp. nov. is known only from the localities of the type (Muttaborra), paratype (Julia Creek), Ilfracome and Belyando, all in inland north Queensland (being a straight line distance of about 500 km between the two furthest points). It is a separate taxon from the type form of *T. strauchii* (herein confined to the east of the Great Dividing Range) and *T. hattoni* sp. nov. a taxon mainly from the upper Darling River basin, in New South Wales and southern Queensland, previously also treated as putative *T. strauchii* by most herpetologists to the current time (both of which are more morphologically alike than either is to *T. katteri* sp. nov.).

The preceding trio are also separate to the other closely related taxa, named "*Ctenotus allotropis* Storr, 1981", type locality of the Round Hill Fauna Reserve, near Euabalong, New South Wales, being from western New South Wales and nearby southern Queensland away from the coast as well as "*Ctenotus strauchii varius* Storr, 1981" (herein treated as a full species based on publicly available molecular data as published by Singhal *et al.* 2017), with a type locality of Charlotte Waters in the far southeast of the Northern Territory, being a taxon from the Cooper's Creek / Lake Eyre drainage system in western Queensland, southern Northern Territory and northern South Australia.

In all these species, except *T. katteri* sp. nov., there is on each side of the body, a narrow white dorsolateral stripe from above the eye to the tail, on which it

becomes wider and suffused with brown.

However, in *T. katteri* sp. nov. to the exclusion of all the other four species, instead of brown suffusions on the (original) tail, this is replaced by a series of short white oblique dashes, readily separating it from those species.

T. katteri sp. nov. is further separated from the other four species by the fact that the upper surface of the (original) tail is light as in light beige, light yellow, cream or white, versus brownish or reddish in all the other species.

The white line slightly below the midline of the lateral surface is thick in *T. katteri* sp. nov. versus thin in the other species.

T. katteri sp. nov. has 9-11 spots, pairs or clusters of orange spots along the black band of the upper flank, versus 13-19 in *T. strauchii* and *T. hattoni* sp. nov., or 26-32 in *T. varius* or 10-15 in *T. allotropis*.

The other relevant species, formerly treated as populations of *T. strauchii* or closely allied taxa are separated from one another by the following unique combinations of characters:

T. strauchii is separated from the morphologically similar *T. hattoni* sp. nov. by the absence of a vertebral stripe or one that is not obvious and distinct; the black laterodorsal stripe is very wide (versus only moderately wide); the limbs are considerably longer and there are 20-22 subdigital lamellae under the fourth toe, versus 14-19 in *T. hattoni* sp. nov..

All of *T. strauchii*, *T. katteri* sp. nov. and *T. hattoni* sp. nov. are defined as having prefrontals widely separated, second supraocular usually narrower than the third, ear lobules are very small, subdigital keels fine and mucronate and a body pattern that includes an obvious series of orangish spots or blotches along the black bar of the upper flank (the latter trait separating these species from the closely related *T. zebrilla* (Storr, 1981) and *T. zebrilla confusaidem* subsp. nov..).

T. varius is separated from each of *T. strauchii*, *T. katteri* sp. nov., *T. hattoni* sp. nov. and *T. allotropis* by its pale coloration, diffuse colour pattern (including the higher number of 26-32 light spots or patches on the dark upper lateral line), more numerous presuboculars (3 versus 2 in the other species) and upper labials (7-9, usually 8, versus usually 7 and rarely 8 in the other species),

supraciliaries decreasing gradually in size from first to penultimate, and ear lobules more disparate in size.

T. varius is further separated by having sharply keeled subdigital lamellae under the fourth toe.

The closely related taxon, *T. allotropis* is separated from the preceding four species by having nasals in contact and prefrontals widely separated, and is further separated by having 17-22 lamellae under the fourth toes, each with a relatively wide blackish-brown keel (proximal keels obtuse, distal keels

fine and mucronate).

The five preceding species, being *T. strauchii*, *T. katteri* sp. nov., *T. hattoni* sp. nov., *T. varius* and *T. allotropis* are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Pattern consists of longitudinal lines, stripes and/or series of spots, but not including obvious ocelli; nasal weakly or not grooved; 24-32 midbody scale rows; adults small (snout-vent length up to 62 cm); toes moderately or strongly compressed; tail less than twice as long as snout-vent; nasals usually forming a median suture (in contact); prefrontals widely separated (rarely close); 2-3 very short ear lobules; 16-20 subdigital lamellae under fourth toe that are sharply keeled and mucronate; adpressed hindleg is 33-41 percent of snout-vent length and a body pattern that includes an obvious series of orangish spots or blotches along the black bar of the upper flank.

Images of the type form of *T. strauchii* in life are depicted online at:

<https://www.flickr.com/photos/elliottbudd/51937727237/> and

<https://www.inaturalist.org/observations/190286562>

Images of *T. katteri* sp. nov. in life are depicted in Wilson (2022) on page 143 at top left and online at:

<https://www.flickr.com/photos/gondwanareptileproducts/50827262947/>

Images of *T. hattoni* sp. nov. in life are depicted in Swan et al. (2022) on page 145 top and online at:

<https://www.flickr.com/photos/whawha88/15402116191/>

Images of *T. varius* in life are depicted online at:

<https://www.inaturalist.org/observations/42305418> and

<https://www.inaturalist.org/observations/102389001>

Images of *T. allotropis* in life are depicted in Cogger (2014) on page 482 top right, Swan et al. (2022) on page 133, Wilson and Swan (2021) on page 255 middle, Wilson (2022) on page 128 top left and online at:

https://www.flickr.com/photos/zimny_anders/30026582643/

and

<https://www.flickr.com/photos/54876436@N08/29083266790/>

Analysis of the relevant available sequences, indicates that *T. katteri* sp. nov. appears to have a divergence of 2.3-2.5 MYA from its nearest relative being *T. hattoni* sp. nov.. As it is also very divergent morphologically, it warrants species-level recognition.

Distribution: *T. katteri* sp. nov. is known only from the localities of the type (Muttaborra), paratype Julia Creek), Ilfracome and Belyando, all in inland north Queensland (being a straight-line distance of about 500 km between the two furthest points).

Etymology: *T. katteri* sp. nov. is named in honour of Bob Katter.

Robert Bellarmine Carl Katter is an Australian politician who has been a member of the House of Representatives since 1993. He was previously active in Queensland state politics from 1974 to 1992. Katter was a member of the National Party until 2001, when he left to sit as an independent.

He is portrayed by the government controlled and Murdoch media as a right-wing lunatic, but the reality is quite the opposite.

He is a level headed politician who advocates for what is right and what is best for honest Australians, their families and the future of this country. He has also made significant contributions to wildlife conservation in Australia, including facilitating critically important scientific fieldwork by myself in his own electorate of Kennedy in north Queensland.

This is an area which includes the biodiverse regions of the Selwyn Ranges (Mount Isa area), the dry and wet tropics of the lower Cape York, including Cairns and the Cassowary Coast and the Gulf of Carpentaria, all being areas I have worked extensively in over some decades.

Bob Katter has at times squashed the bureaucratic monsters in the Queensland National Parks and Wildlife Service (QNPWS) and forced them to comply with their own ridiculous laws to direct them to issue relevant permits to conduct herpetological research in the State of Queensland.

These permits were permits that the QNPWS were unlawfully refusing to issue.

TANTALOSCINCUS HATTONI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:5CFECD0D-28AC-451C-A46C-4A0A172DC542

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R45516 collected at Mutawintji National Park, New South Wales, Australia, Latitude -31.07 S., Longitude 142.55 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 R36883 collected from the Thargomindah to Nocatungah Road, 110 km west of Thargomindah, Queensland, Australia, Latitude

-27.72 S., Longitude 142.8 E.

Diagnosis: Until now *Tantaloscincus hattoni* sp. nov. a taxon mainly from the upper Darling River basin, in New South Wales and southern Queensland, has been treated as putative *T. strauchii* by most herpetologists in Australia.

Tantaloscincus katteri sp. nov. has also been treated as a northern population of the putative species "*Ctenotus strauchii* (Boulenger, 1887)" with a type locality of Gayndah, Queensland (east of the Great Dividing Range).

T. katteri sp. nov. is known only from the localities of the type (Muttaborra), paratype (Julia Creek), Ilfracome and Belyando, all in inland north Queensland (being a straight line distance of about 500 km between the two furthest points). It is a separate taxon from the type form of *T. strauchii* (herein confined to the east of the Great Dividing Range) and *T. hattoni* sp. nov..

The preceding trio are also separate to the other closely related taxa, named "*Ctenotus allotropis* Storr, 1981", type locality of the Round Hill Fauna Reserve, near Euabalong, New South Wales, being from western New South Wales and nearby southern Queensland away from the coast as well as "*Ctenotus strauchii varius* Storr, 1981" (herein treated as a full species based on publicly available molecular data as published by Singhal *et al.* 2017), with a type locality of Charlotte Waters in the far southeast of the Northern Territory, being a taxon from the Cooper's Creek / Lake Eyre drainage system in western Queensland, southern Northern Territory and northern South Australia.

In all these species, except *T. katteri* sp. nov., there is on each side of the body, a narrow white dorsolateral stripe from above the eye to the tail, on which it becomes wider and suffused with brown.

However, in *T. katteri* sp. nov. to the exclusion of all the other four species, instead of brown suffusions on the (original) tail, this is replaced by a series of short white oblique dashes, readily separating it from those species.

T. katteri sp. nov. is further separated from the other four species by the fact that the upper surface of the (original) tail is light as in light beige, light yellow, cream or white, versus brownish or reddish in all the other species.

The white line slightly below the midline of the lateral surface is thick in *T. katteri* sp. nov. versus thin in the other species.

T. katteri sp. nov. has 9-11 spots, pairs or clusters of orange spots along the black band of the upper flank, versus 13-19 in *T. strauchii* and *T. hattoni* sp. nov., or 26-32 in *T. varius* or 10-15 in *T. allotropis*.

The other relevant species, formerly treated as populations of *T. strauchii* or closely allied taxa are separated from one another by the following unique combinations of characters:

T. strauchii is separated from the morphologically similar *T. hattoni* sp. nov. by the absence of a vertebral stripe or one that is not obvious and distinct; the black laterodorsal stripe is very wide (versus only moderately wide); the limbs are considerably longer and there are 20-22 subdigital lamellae under the fourth toe, versus 14-19 in *T. hattoni* sp. nov..

All of *T. strauchii*, *T. katteri* sp. nov. and *T. hattoni* sp. nov. are defined as having prefrontals widely separated, second supraocular usually narrower than the third, ear lobules are very small, subdigital keels fine and mucronate and a body pattern that includes an obvious series of orangish spots or blotches along the black bar of the upper flank (the latter trait separating these species from the closely related *T. zebrilla* (Storr, 1981) and *T. zebrilla confusaidem* subsp. nov..).

T. varius is separated from each of *T. strauchii*, *T. katteri* sp. nov., *T. hattoni* sp. nov. and *T. allotropis* by its pale coloration, diffuse colour pattern (including the higher number of 26-32 light spots or patches on the dark upper lateral line), more numerous presuboculars (3 versus 2 in the other species) and upper labials (7-9, usually 8, versus usually 7 and rarely 8 in the other species),

supraciliaries decreasing gradually in size from first to penultimate, and ear lobules more disparate in size.

T. varius is further separated by the sharply keeled subdigital lamellae under the fourth toe.

The closely related taxon, *T. allotropis* is separated from the preceding four species by having nasals in contact and prefrontals widely separated, and is further separated by having 17-22 lamellae under the fourth toes, each with a relatively wide blackish-brown keel (proximal keels obtuse, distal keels fine and mucronate).

The five preceding species, being *T. strauchii*, *T. katteri* sp. nov., *T. hattoni* sp. nov., *T. varius* and *T. allotropis* are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Pattern consists of longitudinal lines, stripes and/or series of spots, but not including obvious ocelli; nasal weakly or not grooved; 24-32 midbody scale rows; adults small (snout-vent length up to 62 cm); toes moderately or strongly compressed; tail less than twice as long as snout-vent; nasals usually forming a median suture (in contact); prefrontals widely separated (rarely close); 2-3 very short ear lobules; 16-20 subdigital

lamellae under fourth toe that are sharply keeled and mucronate; adpressed hindleg is 33-41 percent of snout-vent length and a body pattern that includes an obvious series of orangish spots or blotches along the black bar of the upper flank.

Images of the type form of *T. strauchii* in life are depicted online at:

<https://www.flickr.com/photos/elliottbudd/51937727237/> and

<https://www.inaturalist.org/observations/190286562>

Images of *T. katteri* sp. nov. in life are depicted in Wilson (2022) on page 143 at top left and online at:

<https://www.flickr.com/photos/gondwanareptileproducts/50827262947/>

Images of *T. hattoni* sp. nov. in life are depicted in Swan et al. (2022) on page 145 top and online at:

<https://www.flickr.com/photos/whawha88/15402116191/>

Images of *T. varius* in life are depicted online at:

<https://www.inaturalist.org/observations/42305418> and

<https://www.inaturalist.org/observations/102389001>

Images of *T. allotropis* in life are depicted in Cogger (2014) on page 482 top right, Swan et al. (2022) on page 133, Wilson and Swan (2021) on page 255 middle, Wilson (2022) on page 128 top left and online at:

https://www.flickr.com/photos/zimny_anders/30026582643/

and

<https://www.flickr.com/photos/54876436@N08/29083266790/>

Analysis of the relevant available sequences, indicates that *T. hattoni* sp. nov. appears to have a divergence of 2.3-2.5 MYA from its nearest relative being *T. katteri* sp. nov.. As it is also very divergent morphologically, it warrants species-level recognition.

Distribution: *T. hattoni* sp. nov. is a taxon mainly from the upper Darling River basin, in New South Wales and southern Queensland and some immediately nearby areas of similar habitat.

Etymology: *T. hattoni* sp. nov. is named in honour of John Edward Hatton (born 29 May 1933).

He was the independent member of the Legislative Assembly of the New South Wales parliament for the seat of South Coast from 1973 to 1995.

After I spoke with him numerous times about the endemic police corruption in New South Wales in the 1970's and 1980's, he agreed to push for a proper government inquiry into the NSW Police. As a lone independent, he had no power to do anything and his calls for an inquiry into the police consistently failed.

However, in 1994 when he gained the balance of power in a hung parliament, he was able to force the minority Fahey Government to establish the Wood

Royal Commission into Police Corruption. This inquiry exposed the systematic entrenched corruption within the NSW Police, judiciary and public service at large. A number of police were ultimately jailed, but they represented the tip of the iceberg in a force where, as a rule, only corrupt cops were allowed to remain in the job.

In 2024, corruption in the NSW Police remains wholly systemic.

TANTALOSCINCUS ZEBRILLA CONFUSAIDEM SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:5031D555-0552-43BE-88CB-915F12F61750

Holotype: A preserved specimen at the South Australian Museum, Adelaide, South Australia, Australia, specimen number R55848 collected at Breakneck Gully, 45 km north-west of Charters Towers, north Queensland, Australia, Latitude -19.8175 S., Longitude 146.0314 E.

This government owned facility allows access to its holdings.

Diagnosis: The putative taxon "*Ctenotus zebrilla* Storr, 1981", type locality of Venture Creek, 62 km east of Croydon, Queensland, Australia, (Latitude 18.13 S., Longitude 142.49 E.) is herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984. It occurs in north Queensland generally west of the Great Dividing Range at the Burdekin dry zone and south-east of the Gulf of Carpentaria.

It has long been known to be a morphologically variable taxon.

Wilson and Swan (2021) generally only provide one photo of each species in their field guide, but chose to provide photos of two different looking specimens of *T. zebrilla* in their book.

One specimen that morphologically appeared to be most similar to *Tantaloscincus katteri* sp. nov. until now treated as *T. strauchii* (Boulenger, 1887), was found by Rabovsky *et al.* (2014) and Prates *et al.* (2022a) to be most similar genetically to *T. zebrilla*. That specimen (South Australian Museum registration number R55848) was collected at Breakneck Gully, 45 km north-west of Charters Towers, north Queensland. This is a location between the known ranges of both *T. katteri* sp. nov. and *T. zebrilla*, being to the south-west and north-west respectively.

Notwithstanding the morphological divergence of the specimen, it appears to be recently divergent of *T. zebrilla*, as in about 1 MYA or less and so it is formally described herein as a new subspecies.

T. zebrilla confusaidem subsp. nov..

Each of *T. katteri* sp. nov., *T. zebrilla* and *T. zebrilla confusaidem* subsp. nov. appear to be allopatric in distribution and with no known gene flow between populations.

T. zebrilla confusaidem subsp. nov. is separated from *T. zebrilla* by having wholly broken or absent mid-

dorsal stripes, versus intact or barely broken in *T. zebrilla* (occasionally absent in some *T. zebrilla*) as well as having distinct orange spots or blotches on the black of the upper flank, versus either non-existent or only semi-distinct in *T. zebrilla*.

The upper surface of the tail in both *T. zebrilla confusaidem* subsp. nov. and *T. zebrilla* is brown, rather than beige as is seen in the closely related *T. katteri* sp. nov. (refer to that description in this paper as part of this formal description).

T. zebrilla confusaidem subsp. nov. and *T. zebrilla* are separated from the closely related and morphologically similar taxa *T. strauchii*, *T. katteri* sp. nov., *T. hattoni* sp. nov., *T. varius* (Storr, 1981) and *T. allotropis* (Storr, 1981) by lacking an obvious series of orangeish spots or blotches along the black bar of the upper flank which those species have.

All of *T. strauchii*, *T. katteri* sp. nov., *T. hattoni* sp. nov., *T. varius*, *T. allotropis*, *T. zebrilla confusaidem* subsp. nov. and *T. zebrilla* are defined as having prefrontals widely separated, second supraocular usually narrower than the third, ear lobules are very small, and subdigital keels fine and mucronate.

The six preceding species and one subspecies being *T. strauchii*, *T. katteri* sp. nov., *T. hattoni* sp. nov., *T. varius*, *T. allotropis*, *T. zebrilla* and *T. zebrilla confusaidem* subsp. nov. are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Pattern consists of longitudinal lines, stripes and/or series of spots, but not including obvious ocelli; nasal weakly or not grooved; 24-32 midbody scale rows; adults small (snout-vent length up to 62 cm); toes moderately or strongly compressed; tail less than twice as long as snout-vent; nasals usually forming a median suture (in contact); prefrontals widely separated (rarely close); 2-3 very short ear lobules; 16-20 subdigital lamellae under fourth toe that are sharply keeled and mucronate; adpressed hindleg is 33-41 percent of snout-vent length and a body pattern that may or may not include an obvious series of orangeish spots or blotches along the black bar of the upper flank.

It is important to note that Storr's original 1981 description of *T. zebrilla* was based on a single specimen from the Eastern Gulf district. Attribution of specimens from the Charters Towers area, six hours drive to the east to the same subspecies level taxon by later herpetologists has clearly been in error.

Distribution: *T. zebrilla confusaidem* subsp. nov. is

only known from the immediate vicinity of the type locality to the immediate north of Charters Towers, Queensland. It is likely to be more widespread in the nearby eastern part of the lower Cape York. However, specimens from Greenvale, about 170 km by road north of the type locality and Porcupine Gorge about 250 km by road to the west, all conform to the type form of *T. zebrilla*. Furthermore *T. katteri* sp. nov. occupies Belyando, about 3 hours drive to the south in effect limiting the likely maximum distribution of *T. zebrilla confusaidem* subsp. nov. to well within this area.

This assumes the three taxa are allopatric.

Etymology: *T. zebrilla confusaidem* subsp. nov. is named in reflection of the taxonomic history of this subspecies. In Latin the words "*confusa idem*" means confused identification.

TANTALOSCINCUS OXYI SP. NOV.

LSIDurn:lsid:zoobank.org:act:6E6F3ED5-BC38-4B25-92B7-0F937B9600A4

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R172261 collected at the Great Victoria Desert, Western Australia, Australia, Latitude -28.353611 S., Longitude 127.540833 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 R163448 and R163449 both collected from the Neale Junction Nature Reserve, Western Australia, Australia, Latitude -28.283333 S., Longitude 125.816667 E., 2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R166713 collected at Tropicana Mine, Western Australia, Australia, Latitude -29.316389 S., Longitude 124.515556 E.

Diagnosis: Until now, most publishing authors have treated all of *Tantaloscincus oxyi* sp. nov., *T. crottyi* sp. nov., *T. sloppi* sp. nov., *T. pallescens* (Storr, 1970), *T. fischeri* (Boulenger, 1887), *T. fischeri yinggarda* subsp. nov. and *T. fischeri martu* subsp. nov. as populations of the pan-Australian putative species *T. schomburgkii* (Peters, 1863).

In its current concept, *T. schomburgkii* (Peters, 1863) has been placed in the genus *Ctenotus* Storr, 1964, however all the eight preceding listed taxa are herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

In its current concept, *T. schomburgkii* occurs throughout arid Australia in all mainland Australian states, but is not found in the far north of the tropics as in the Kimberley district, the top end of the Northern Territory, Cape York, the east coast and pretty much all of Victoria.

A more distantly related associated species is the

recently described "*Ctenotus kutjupa* Hutchinson, Prates and Rabosky, 2022" from the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and far northwest South Australia, a taxon well recognized by herpetologists as not being *T. schomburgkii*.

The relevant nine taxa are found in the following areas: *T. schomburgkii* with a type locality of Gawler, South Australia, is effectively confined to the eastern half of South Australia and immediately adjoining parts of far north-west Victoria, New South Wales, South Australia and the Northern Territory.

The morphologically similar *T. oxyi* sp. nov. occurs in the western half of South Australia, away from the coast and into the eastern part of the southern half of Western Australia, being found south of the central Australian lakes and floodplains and north of the coast.

T. crottyi sp. nov. occurs in the drier parts of the western half of Western Australia except for the cooler south-east or the Pilbara, Great Sandy Desert or Kimberley districts.

The closely related *T. sloppi* sp. nov. occurs in the dry country to the south of the Kimberley district and into the sandy and range areas of the south of the Northern territory.

North-east of the red centre and primarily on the Barkly Tableland in the Northern Territory, *T. pallescens* (Storr, 1970) occurs. It has a type locality of Morphett Creek, 7 miles south of Banka Banka, Northern Territory (Latitude 18.53 S., Longitude 134.05 E.).

In the Pilbara district generally, the species *T. fischeri* (Boulenger, 1887) occurs.

That species is split into three subspecies.

The nominate form with a type locality of Nickol Bay, Western Australia occurs in the main Pilbara region mainly south of the Fortescue River and including the Pilbara coast, north of the Fortescue River around the type locality Nickol Bay (Karratha).

T. fischeri yinggarda subsp. nov. is found south of the main Pilbara district in the dune country south of the Cape Range and inland past to Shark Bay to New Forrest Station, Murchison, Western Australia.

T. fischeri martu subsp. nov. is a taxon from the Great Sandy Desert and adjacent parts of the north Pilbara region, generally north of the Fortescue River.

The associated taxon *T. kutjupa* with a type locality of 5.3 km south southeast of the Pungkulpirri Waterhole, Western Australia (Latitude 24.4226 S., Longitude 128.4537 E) occurs in the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and northwest South Australia.

The preceding taxa treated as species are believed to have diverged from their nearest related taxon by more than 1.5 MYA, while the subspecies are believed to have diverged less than 1.5 MYA.

The above-named preceding species and subspecies are separated from one another by the following

relevant characteristics and combinations:

T. schomburgkii has a black back with four orangish to yellowish orange lines running longitudinally down it. It has thin, well defined sharp edged yellow dorsolateral lines. Below this a thick black lateral band running from the back of the eye and neck, along the body and above the rear leg to the tail, where it continues somewhat thinner along but for more than half the tail length (original tail). Between snout and eye, the same line is thinner and brownish in colour. Between ear and back leg on the black upper lateral line are 15-17 orange blotches (or pairs). Below this is a thin to medium, well defined white line, with sharp top and bottom borders, commencing on the upper labials and running across the ear (where it breaks) before continuing along the neck, over the front leg and along the mid lower flank, running through the hind leg and also along most of the length of the tail.

Below this is a dark zone being a combination of orange and brown and white with an uneven lower edge that meets the pale venter.

T. oxyi sp. nov. is essentially similar in most respects to *T. schomburgkii* detailed above but differs from that species by having four brownish to olive-coloured lines running longitudinally down the back. In addition, the area below the white line on the lower flank is a well-defined thick dark line, only with slight smudges of orange on the line itself, but with a sharp well defined lower edge as well as a sharp well defined upper edge.

The orange blotches running along the dark upper lateral line are squarish or irregular in shape. The head is a similar brown colour to the body, rarely showing a slight orangish or reddish tinge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. crottyi sp. nov. is quite different in overall appearance to the two preceding species. It is unusual and unique in the complex in that its dorsum is usually olive green, grey or brown all over, although sometimes with a partially or fully formed black mid vertebral stripe. The head is chocolate or reddish brown in colour grading to grey brown at the rear of the dorsum, with the (original) tail having a reddish dorsal edge. The area below the white line on the lower flank is not a well-defined thick dark line. Instead, it is a line containing black, white and usually orange and with a distinctly jagged lower edge where it meets the whitish venter.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. sloppi sp. nov. is morphologically similar to *T. oxyi* sp. nov. as described above. It is separated from that taxon by having the orange blotches running along the dark upper lateral line being circular in shape and oriented closer to the dorsolateral line, rather than down the midline of the dark upper lateral line. The head of *T. sloppi* sp. nov. is orange-red and the rear body beige-brown.

In common with *T. oxyi* sp. nov. the area below the white line on the lower flank is a well-defined thick dark blackish coloured line, only with slight smudges of orange or any other colour on the line itself, but with a very sharp well defined lower edge as well as a sharp well defined upper edge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. fischeri of the nominate form is readily separated from all other species in this complex by having 10-12 orange blotches (or pairs) between ear and back leg on the black upper lateral line.

These blotches are reduced in size and number, with greater black interspaces between them.

In *T. fischeri* the dorsum is also effectively brown in colour. This is caused by a merging in brown of the brown longitudinal lines running down the back on either side of the black vertebral line (as in what are dark interspaces in the previous species, are in this species merely of the same colour as the lines themselves).

Between the outer of these lines is another thin black line between it and the also faded yellow dorsolateral line.

This in effect means that the dorsum is brown, but with a thin black vertebral line and two thin black lines near the lateral edges (one on either side).

Unusual for this subspecies as compared to the others in this complex, all these lines terminate abruptly on the anterior of the tail, immediately past the back legs and do not run along the length of the tail, with the black midline extending only slightly further than the other two.

In all other species and subspecies in the group, the dark midline runs a reasonable way along the upper surface of the length of the tail.

In *T. fischeri* the white line along the lower flank is straight edged top and bottom and well defined, with a straight sharp boundary both top and bottom. Below this is a relatively straight unbroken black line, with 1-3 small orangish blotches within the black.

T. fischeri yinggarda subsp. nov. is morphologically radically different to the nominate form of *T. fischeri* and were it not for the limited genetic divergence, I would not have hesitated to assign it full species status.

Colour wise it is strongly superficially reminiscent of *T. schomburgkii*, *T. oxyi* sp. nov. and *T. sloppi* sp. nov.. However, it is significantly different to all. On the dorsum there are two thin orange longitudinal lines running either side of the black vertebral line. Between these lines and the yellow laterodorsal line is a row of small but wide and irregularly shaped orange spots along the middle of the black background or line.

On the black line of the upper flank the orange spots are enlarged and square shaped, with the upper and lower edges completely intersecting squarely the white

lines running longitudinally above and below. Between ear and back leg on the black upper lateral line, are 16-18 orange blotches (or pairs).

Below the lower white line on the flank is a near complete boundary of medium-sized orange, blackish and white patches, forming a series of intrusions as opposed to a jagged edge into the white of the ventral surface. Upper surfaces of head are orangish, rear of body overall is patterned but darkish in colour and upper surface of most of the tail is yellowish or beige. The lines of dark that run completely along the length of the tail in nominate *T. fischeri* are broken in *T. fischeri yinggarda* subsp. nov. with the yellow beige of the upper surfaces cutting it up. Thus, the dark markings on the lateral surfaces of the tail have a checkered appearance.

T. fischeri martu subsp. nov. is superficially most similar to the nominate form of *T. fischeri* as described above. This includes in the colour formation of the dorsum, except for the fact that the merging of the brown lines on the back is not wholly complete and there is a sliver of a black line between the wider brown areas of the longitudinal lines.

Most importantly there are between ear and back leg on the black upper lateral line, 21-23 orange blotches (or pairs), these being close together and generally small in size.

T. fischeri martu subsp. nov. has the white line along the lower flank that is curved edged both top and bottom, at least anteriorly. Below this line is a series of mainly merged black blotches which are the interface between the white line and the white underparts, meaning that they are in effect usually joined in parts, at least at the anterior part of the body. The black markings on the lower flank do not have any orange spots within them.

T. pallescens is morphologically most similar to *T. schomburgkii* but is separated from that taxon and the other preceding taxa by the following combination of characters:

Having a body colour with a brown back, with or without a pattern (a dark vertebral and modified laterodorsal stripe), but is usually nearly patternless in adults; an upper lateral zone consisting of 17 alternating dark and orange rectangular blotches, with the upper edges of the blotches squarely abutting the light dorsolateral line, but a thin black sliver between the blotches lower surfaces and the lower white lateral line; the lower white lateral line is dead straight with well-defined top and bottom edges, the bottom edge being another straight-edged line of alternating blackish and orange squares, being straight edged top and bottom where it meets the whitish undersurface; a higher average number of midbody scale-rows than all the preceding species (28-30 versus 25-30), fewer subdigital lamellae (on average), than the preceding species (being 18-22, versus 19-24); a narrow second loreal (being 1.1-1.3 times as high as wide, versus 1.4-2.5 times in the other species); distinctive white

circles on the upper surfaces of the fore and hind limbs (not seen in any of the other 8 species); on the lower flanks, below the lower white stripe are dark blackish patches with well-defined white or whitish blotches within them.

T. kutjupa is separated from all the preceding eight species by having seven narrow dark dorsal stripes, including a vertebral stripe that becomes more prominent on the (unbroken) tail and runs almost the full length of the tail in most individuals; by having prefrontals and nasals usually in strong medial contact (versus rarely so for either pair in the preceding species); lack of a strong continuation of the white midlateral stripe along the upper labials (versus continuation present in all the preceding species), instead showing a crescentic whitish marking that curves up behind the eye; and by having a dark vertebral stripe that becomes more prominent on the tail and continues for almost all of its length in most individuals (versus a vertebral stripe that fades out on the tail and terminates at

about the halfway point or earlier in the other species).

The preceding nine taxa, being *T. schomburgkii*, *T. oxyi* sp. nov., *T. crottyi* sp. nov., *T. sloppi* sp. nov., *T. pallescens*, *T. fischeri*, *T. fischeri yinggarda* subsp. nov., *T. fischeri martu* subsp. nov. and *T. kutjupa*, are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Dorsal pattern is not ocellate; back is black with 4 reddish or greenish white longitudinal lines that are bold, sharp edged and well-developed; or alternatively brownish with a black vertebral line (in *C. crottyi* sp. nov.); head and neck not bold red; black upper lateral zone encloses a series of pale reddish spots; 2 presuboculars: prefrontals usually separated; nasals separated; nasal is weakly or not grooved; toes strongly compressed; subdigital lamellae with a fine sharp keel ending in a mucron or short spine; head relatively low and snout long and narrow; hindleg more than 40 percent of snout vent; size small (snout-vent length is up to 50 mm).

T. schomburgkii is depicted in life in Cogger (2014) on page 520 at bottom, Swan *et al.* (2022) page 14 at top, Wilson and Swan (2021) on page 297 middle right and online at:

<https://www.flickr.com/photos/95482238@N02/23749637701/>

and

<https://www.flickr.com/photos/jayceebarnes/50635735947/>

and

<https://www.flickr.com/photos/189037423@N06/51013050468/>

T. oxyi sp. nov. is depicted in life in Wilson and Knowles (1988) on page 273 bottom left and online at:

<https://www.inaturalist.org/observations/144968830>

T. pallescens is depicted in life in Wilson and Swan (2021) on page 287 bottom and online at:

https://www.flickr.com/photos/zimny_anders/51194840824/

T. crottyi sp. nov. is depicted in life in Storr *et al.* (1981) in plate 9 second from top on left, Wilson and Knowles (1988) page 273 middle right and online at:

<https://www.inaturalist.org/observations/98964672>

and

<https://www.inaturalist.org/observations/46690895>

and

<https://www.inaturalist.org/observations/103303441>

and

<https://www.flickr.com/photos/stephenmahony/49676549367/>

and

<https://www.inaturalist.org/observations/192033048>

T. sloppi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/153623890>

T. fischeri of the type form subspecies is depicted online at:

<https://www.flickr.com/photos/reptileshots/53208619121/>

and

<https://www.flickr.com/photos/58349528@N02/53195952153/>

T. fischeri yinggarda subsp. nov. is depicted in life in Storr (1981) plate 9, photo 1, top left and online at:

<https://www.flickr.com/photos/moloch05/53376714598/>

T. fischeri martu subsp. nov. is depicted in life online at:

<https://www.flickr.com/photos/jaricornelis/51772802322/>

T. kutjupa is depicted in life in Prates *et al.* (2022a) on page 12, photos A and B and online at:

<https://www.flickr.com/photos/ingirumimusnocte/albums/72157647583792509/>

and

<https://www.flickr.com/photos/ingirumimusnocte/15324070396/>

Distribution: *T. oxyi* sp. nov. occurs in the western half of South Australia, away from the coast and into the eastern part of the southern half of Western Australia, being found south of the central Australian lakes and floodplains and north of the southern coast.

Etymology: *T. oxyi* sp. nov. is named in honour of a Great Dane dog named "Oxyuranus" or "Oxy" that our family owned for 8 and a half years before he died of age-related heart disease. He guarded our wildlife breeding and research facility against numerous attempts to steal animals and materials. His loyalty is herein recognised. It is objectionable that serial animal abusers like Mark O'Shea (a UK reptile fancier) and his troll mate Darren Naish (from Southampton in the UK), find it improper for an animal to be honoured as a patronym for a scientific name. It is even more objectionable that Mark O'Shea and Darren Naish plaster the internet with hate and vitriol about this.

TANTALOSCINCUS CROTTYI SP. NOV.

LSIDurn:lsid:zoobank.org:act:5B2B04DD-5745-4518-B59A-309D6CA2AEA0

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R145348 collected from Goongarrie station, Western Australia, Australia, Latitude -29.920833 S., Longitude 121.147778 E.

This government owned facility allows access to its holdings.

Paratypes: Six preserved specimens at the Western Australian Museum, Perth, Western Australia, Australia, being: 1/ Specimen numbers R126391 and R126395 both collected from Bungalbin Sandplain, Western Australia, Australia, Latitude -30.253611 S., Longitude 119.79 E., 2/ Specimen number R172435 collected from Credo Station, Western Australia, Australia, Latitude -30.4325 S., Longitude 120.6375 E., 3/ Specimen number R145278 collected from 10 km northwest of Broad Arrow, Western Australia, Australia, Latitude -30.426389 S., Longitude 121.260278 E., 4/ Specimen number R165892 collected from 40.3 km northeast of Holt Rock, Western Australia, Australia, Latitude -32.411111 S., Longitude 119.695278 E., 5/ Specimen number R167495, being an adult male collected at 40.2 km north-west of Lake Way, Western Australia, Australia, Latitude -27.241944 S., Longitude 120.697778 E.

Diagnosis: Until now, most publishing authors have treated all of *Tantaloscincus oxyi* sp. nov., *T. crottyi* sp. nov., *T. oxyi* sp. nov., *T. pallescens* (Storr, 1970), *T. fischeri* (Boulenger, 1887), *H. fischeri yinggarda* subsp. nov. and *H. fischeri martu* subsp. nov. as populations of the pan-Australian putative species *T. schomburgkii* (Peters, 1863).

In its current concept, *T. schomburgkii* (Peters, 1863) has been placed in the genus *Ctenotus* Storr, 1964, however all the eight preceding listed taxa are herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

In its current concept, *T. schomburgkii* occurs throughout arid Australia in all mainland Australian states, but is not found in the far north of the tropics as in the Kimberley district, the top end of the Northern Territory, Cape York, the east coast and pretty much all

of Victoria.

A more distantly related associated species is the recently described "*Ctenotus kutjupa* Hutchinson, Prates and Rabosky, 2022" from the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and far northwest South Australia, a taxon well recognized by herpetologists as not being *T. schomburgkii*.

The relevant nine taxa are found in the following areas: *T. schomburgkii* with a type locality of Gawler, South Australia, is effectively confined to the eastern half of South Australia and immediately adjoining parts of far north-west Victoria, New South Wales, South Australia and the Northern Territory.

The morphologically similar *T. oxyi* sp. nov. occurs in the western half of South Australia, away from the coast and into the eastern part of the southern half of Western Australia, being found south of the central Australian lakes and floodplains and north of the coast.

T. crottyi sp. nov. occurs in the drier parts of the western half of Western Australia except for the cooler south-east or the Pilbara, Great Sandy Desert or Kimberley districts.

The closely related *T. sloppi* sp. nov. occurs in the dry country to the south of the Kimberley district and into the sandy and range areas of the south of the Northern territory.

North-east of the red centre and primarily on the Barkly Tableland in the Northern Territory, *T. pallescens* (Storr, 1970) occurs. It has a type locality of Morphett Creek, 7 miles south of Banka Banka, Northern Territory (Latitude 18.53 S., Longitude 134.05 E.).

In the Pilbara district generally, the species *T. fischeri* (Boulenger, 1887) occurs.

That species is split into three subspecies.

The nominate form with a type locality of Nickol Bay, Western Australia occurs in the main Pilbara region mainly south of the Fortescue River and including the Pilbara coast, north of the Fortescue River around the type locality Nickol Bay (Karratha).

T. fischeri yinggarda subsp. nov. is found south of the main Pilbara district in the dune country south of the Cape Range and inland past to Shark Bay to New Forrest Station, Murchison, Western Australia.

T. fischeri martu subsp. nov. is a taxon from the Great Sandy Desert and adjacent parts of the north Pilbara region, generally north of the Fortescue River.

The associated taxon *T. kutjupa* with a type locality of 5.3 km south southeast of the Pungkulpirri Waterhole, Western Australia (Latitude 24.4226 S., Longitude 128.4537 E) occurs in the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and northwest South Australia.

The preceding taxa treated as species are believed to have diverged from their nearest related taxon by more than 1.5 MYA, while the subspecies are believed to have diverged less than 1.5 MYA.

The above-named preceding species and subspecies are separated from one another by the following relevant characteristics and combinations:

T. schomburgkii has a black back with four orangish to yellowish orange lines running longitudinally down it. It has thin, well defined sharp edged yellow dorsolateral lines. Below this a thick black lateral band running from the back of the eye and neck, along the body and above the rear leg to the tail, where it continues somewhat thinner along but for more than half the tail length (original tail). Between snout and eye, the same line is thinner and brownish in colour. Between ear and back leg on the black upper lateral line are 15-17 orange blotches (or pairs). Below this is a thin to medium, well defined white line, with sharp top and bottom borders, commencing on the upper labials and running across the ear (where it breaks) before continuing along the neck, over the front leg and along the mid lower flank, running through the hind leg and also along most of the length of the tail.

Below this is a dark zone being a combination of orange and brown and white with an uneven lower edge that meets the pale venter.

T. oxyi sp. nov. is essentially similar in most respects to *T. schomburgkii* detailed above, but differs from that species by having four brownish to olive coloured lines running longitudinally down the back. In addition, the area below the white line on the lower flank is a well-defined thick dark line, only with slight smudges of orange on the line itself, but with a sharp well defined lower edge as well as a sharp well defined upper edge.

The orange blotches running along the dark upper lateral line are squarish or irregular in shape. The head is a similar brown colour to the body, rarely showing a slight orangish or reddish tinge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. crottyi sp. nov. is quite different in overall appearance to the two preceding species. It is unusual and unique in the complex in that its dorsum is usually olive green, grey or brown all over, although sometimes with a partially or fully formed black mid vertebral stripe. The head is chocolate or reddish brown in colour grading to grey brown at the rear of the dorsum, with the (original) tail having a reddish dorsal edge. The area below the white line on the lower flank is not a well-defined thick dark line. Instead, it is a line containing black, white and usually orange and with a distinctly jagged lower edge where it meets the whitish venter.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. sloppi sp. nov. is morphologically similar to *T. oxyi sp. nov.* as described above. It is separated from that taxon by having the orange blotches running along the dark upper lateral line being circular in shape and oriented closer to the dorsolateral line, rather than down the midline of the dark upper lateral line. The

head of *T. sloppi sp. nov.* is orange-red and the rear body beige-brown.

In common with *T. oxyi sp. nov.* the area below the white line on the lower flank is a well-defined thick dark blackish coloured line, only with slight smudges of orange or any other colour on the line itself, but with a very sharp well defined lower edge as well as a sharp well defined upper edge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. fischeri of the nominate form is readily separated from all other species in this complex by having 10-12 orange blotches (or pairs) between ear and back leg on the black upper lateral line.

These blotches are reduced in size and number, with greater black interspaces between them.

In *T. fischeri* the dorsum is also effectively brown in colour. This is caused by a merging in brown of the brown longitudinal lines running down the back on either side of the black vertebral line (as in what are dark interspaces in the previous species, are in this species merely of the same colour as the lines themselves).

Between the outer of these lines is another thin black line between it and the also faded yellow dorsolateral line.

This in effect means that the dorsum is brown, but with a thin black vertebral line and two thin black lines near the lateral edges (one on either side).

Unusual for this subspecies as compared to the others in this complex, all these lines terminate abruptly on the anterior of the tail, immediately past the back legs and do not run along the length of the tail, with the black midline extending only slightly further than the other two.

In all other species and subspecies in the group, the dark midline runs a reasonable way along the upper surface of the length of the tail.

In *T. fischeri* the white line along the lower flank is straight edged top and bottom and well defined, with a straight sharp boundary both top and bottom. Below this is a relatively straight unbroken black line, with 1-3 small orangish blotches within the black.

T. fischeri yinggarda subsp. nov. is morphologically radically different to the nominate form of *T. fischeri* and were it not for the limited genetic divergence, I would not have hesitated to assign it full species status.

Colour wise it is strongly superficially reminiscent of *T. schomburgkii*, *T. oxyi sp. nov.* and *T. sloppi sp. nov.*. However, it is significantly different to all. On the dorsum there are two thin orange longitudinal lines running either side of the black vertebral line. Between these lines and the yellow laterodorsal line is a row of small but wide and irregularly shaped orange spots along the middle of the black background or line. On the black line of the upper flank the orange spots

are enlarged and square shaped, with the upper and lower edges completely intersecting squarely the white lines running longitudinally above and below. Between ear and back leg on the black upper lateral line, are 16-18 orange blotches (or pairs).

Below the lower white line on the flank is a near complete boundary of medium-sized orange, blackish and white patches, forming a series of intrusions as opposed to a jagged edge into the white of the ventral surface. Upper surfaces of head are orangish, rear of body overall is patterned but darkish in colour and upper surface of most of the tail is yellowish or beige. The lines of dark that run completely along the length of the tail in nominate *T. fischeri* are broken in *T. fischeri yinggarda subsp. nov.* with the yellow beige of the upper surfaces cutting it up. Thus, the dark markings on the lateral surfaces of the tail have a checkered appearance.

T. fischeri martu subsp. nov. is superficially most similar to the nominate form of *T. fischeri* as described above. This includes in the colour formation of the dorsum, except for the fact that the merging of the brown lines on the back is not wholly complete and there is a sliver of a black line between the wider brown areas of the longitudinal lines.

Most importantly there are between ear and back leg on the black upper lateral line, 21-23 orange blotches (or pairs), these being close together and generally small in size.

T. fischeri martu subsp. nov. has the white line along the lower flank that is curved edged both top and bottom, at least anteriorly. Below this line is a series of mainly merged black blotches which are the interface between the white line and the white underparts, meaning that they are in effect usually joined in parts, at least at the anterior part of the body. The black markings on the lower flank do not have any orange spots within them.

T. pallescens is morphologically most similar to *T. schomburgkii* but is separated from that taxon and the other preceding taxa by the following combination of characters:

Having a body colour with a brown back, with or without a pattern (a dark vertebral and modified laterodorsal stripe), but is usually nearly patternless in adults; an upper lateral zone consisting of 17 alternating dark and orange rectangular blotches, with the upper edges of the blotches squarely abutting the light dorsolateral line, but a thin black sliver between the blotches lower surfaces and the lower white lateral line; the lower white lateral line is dead straight with well-defined top and bottom edges, the bottom edge being another straight-edged line of alternating blackish and orange squares, being straight edged top and bottom where it meets the whitish undersurface; a higher average number of midbody scale-rows than all the preceding species (28-30 versus 25-30), fewer subdigital lamellae (on average), than the preceding species (being 18-22, versus 19-24); a narrow second

loreal (being 1.1-1.3 times as high as wide, versus 1.4-2.5 times in the other species); distinctive white circles on the upper surfaces of the fore and hind limbs (not seen in any of the other 8 species); on the lower flanks, below the lower white stripe are dark blackish patches with well-defined white or whitish blotches within them.

T. kutjupa is separated from all the preceding eight species by having seven narrow dark dorsal stripes, including a vertebral stripe that becomes more prominent on the (unbroken) tail and runs almost the full length of the tail in most individuals; by having prefrontals and nasals usually in strong medial contact (versus rarely so for either pair in the preceding species); lack of a strong continuation of the white midlateral stripe along the upper labials (versus continuation present in all the preceding species), instead showing a crescentic whitish marking that curves up behind the eye; and by having a dark vertebral stripe that becomes more prominent on the tail and continues for almost all of its length in most individuals (versus a vertebral stripe that fades out on the tail and terminates at

about the halfway point or earlier in the other species).

The preceding nine taxa, being *T. schomburgkii*, *T. oxyi sp. nov.*, *T. crottyi sp. nov.*, *T. sloppi sp. nov.*, *T. pallescens*, *T. fischeri*, *T. fischeri yinggarda subsp. nov.*, *T. fischeri martu subsp. nov.* and *T. kutjupa*, are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* type species, *Matherus matheri sp. nov.* by the following unique combination of characters:

Dorsal pattern is not ocellate; back is black with 4 reddish or greenish white longitudinal lines that are bold, sharp edged and well-developed; or alternatively brownish with a black vertebral line (in *C. crottyi sp. nov.*); head and neck not bold red; black upper lateral zone encloses a series of pale reddish spots; 2 presuboculars: prefrontals usually separated; nasals separated; nasal is weakly or not grooved; toes strongly compressed; subdigital lamellae with a fine sharp keel ending in a mucron or short spine; head relatively low and snout long and narrow; hindleg more than 40 percent of snout vent; size small (snout-vent length is up to 50 mm).

T. schomburgkii is depicted in life in Cogger (2014) on page 520 at bottom, Swan *et al.* (2022) page 14 at top, Wilson and Swan (2021) on page 297 middle right and online at:

<https://www.flickr.com/photos/95482238@N02/23749637701/>

and

<https://www.flickr.com/photos/jayceebarnes/50635735947/>

and

<https://www.flickr.com/photos/189037423@N06/51013050468/>

T. oxyi sp. nov. is depicted in life in Wilson and Knowles (1988) on page 273 bottom left and online at: <https://www.inaturalist.org/observations/144968830>

T. pallescens is depicted in life in Wilson and Swan (2021) on page 287 bottom and online at:

https://www.flickr.com/photos/zimny_anders/51194840824/

T. crottyi sp. nov. is depicted in life in Storr *et al.* (1981) in plate 9 second from top on left, Wilson and Knowles (1988) page 273 middle right and online at:

<https://www.inaturalist.org/observations/98964672>

and

<https://www.inaturalist.org/observations/46690895>

<https://www.inaturalist.org/observations/103303441>

and

<https://www.flickr.com/photos/stephenmahony/49676549367/>

and

<https://www.inaturalist.org/observations/192033048>

T. sloppi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/153623890>

T. fischeri of the type form subspecies is depicted online at:

<https://www.flickr.com/photos/reptileshots/53208619121/>

and

<https://www.flickr.com/photos/58349528@N02/53195952153/>

T. fischeri yinggarda subsp. nov. is depicted in life in Storr (1981) plate 9, photo 1, top left and online at:

<https://www.flickr.com/photos/moloch05/53376714598/>

T. fischeri martu subsp. nov. is depicted in life online at:

<https://www.flickr.com/photos/jaricornelis/51772802322/>

T. kutjupa is depicted in life in Prates *et al.* (2022a) on page 12, photos A and B and online at:

<https://www.flickr.com/photos/ingirumimusnocte/albums/72157647583792509/>

and

<https://www.flickr.com/photos/ingirumimusnocte/15324070396/>

Distribution: *T. crottyi* sp. nov. occurs in the drier parts of the western half of Western Australia except for the cooler south-east or the Pilbara, Great Sandy Desert or Kimberley districts.

Etymology: *T. crottyi* sp. nov. is named in honour of a Great Dane cross Rottweiler dog named “*Crotalus*” AKA “*Crotty*” that our family owned for nearly 13 years before he died of age-related heart disease. He guarded our wildlife breeding and research facility against numerous attempts to steal animals and research materials. His loyalty is herein recognised. It is objectionable that serial animal abusers like Mark O’Shea (a UK reptile fancier) and his troll mate Darren Naish (from Southampton in the UK), find it improper for an animal to be honoured as a patronym for a scientific name. It is even more objectionable that Mark O’Shea and Darren Naish plaster the internet with hate and vitriol about this.

TANTALOSCINCUS SLOPPI SP. NOV.

LSIDurn:lsid:zoobank.org:act:5DDD18C6-7F63-466C-AB66-EEC95CFA1D56

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R157443 collected from the Tanami Desert in Western Australia, Australia, Latitude -19.593333 S., Longitude 128.861111 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.26942 collected from 30 miles north northwest of the Granites, Tanami Desert, Northern Territory, Australia, Latitude -20.15 S., Longitude 130.25 E, 2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R24407 collected from 27 km south of Ti Tree, Northern Territory, Australia, Latitude -22.366667 S., Longitude 133.383333 E.

Diagnosis: Until now, most publishing authors have treated all of *Tantaloscincus oxyi* sp. nov., *T. crottyi* sp. nov., *T. oxyi* sp. nov., *T. pallescens* (Storr, 1970), *T. fischeri* (Boulenger, 1887), *H. fischeri yinggarda* subsp. nov. and *H. fischeri martu* subsp. nov. as populations of the pan-Australian putative species *T. schomburgkii* (Peters, 1863).

In its current concept, *T. schomburgkii* (Peters, 1863) has been placed in the genus *Ctenotus* Storr, 1964, however all the eight preceding listed taxa are herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

In its current concept, *T. schomburgkii* occurs throughout arid Australia in all mainland Australian states, but is not found in the far north of the tropics as in the Kimberley district, the top end of the Northern Territory, Cape York, the east coast and pretty much all of Victoria.

A more distantly related associated species is the recently described “*Ctenotus kutjupa* Hutchinson, Prates and Rabosky, 2022” from the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and far northwest South Australia, a taxon well recognized by herpetologists as not being

T. schomburgkii.

The relevant nine taxa are found in the following areas: *T. schomburgkii* with a type locality of Gawler, South Australia, is effectively confined to the eastern half of South Australia and immediately adjoining parts of far north-west Victoria, New South Wales, South Australia and the Northern Territory.

The morphologically similar *T. oxyi* sp. nov. occurs in the western half of South Australia, away from the coast and into the eastern part of the southern half of Western Australia, being found south of the central Australian lakes and floodplains and north of the coast.

T. crottyi sp. nov. occurs in the drier parts of the western half of Western Australia except for the cooler south-east or the Pilbara, Great Sandy Desert or Kimberley districts.

The closely related *T. sloppi* sp. nov. occurs in the dry country to the south of the Kimberley district and into the sandy and range areas of the south of the Northern Territory.

North-east of the red centre and primarily on the Barkly Tableland in the Northern Territory, *T. pallescens* (Storr, 1970) occurs. It has a type locality of Morphett Creek, 7 miles south of Banka Banka, Northern Territory (Latitude 18.53 S., Longitude 134.05 E.).

In the Pilbara district generally, the species *T. fischeri* (Boulenger, 1887) occurs.

That species is split into three subspecies.

The nominate form with a type locality of Nickol Bay, Western Australia occurs in the main Pilbara region mainly south of the Fortescue River and including the Pilbara coast, north of the Fortescue River around the type locality Nickol Bay (Karratha).

T. fischeri yinggarda subsp. nov. is found south of the main Pilbara district in the dune country south of the Cape Range and inland past to Shark Bay to New Forrest Station, Murchison, Western Australia.

T. fischeri martu subsp. nov. is a taxon from the Great Sandy Desert and adjacent parts of the north Pilbara region, generally north of the Fortescue River.

The associated taxon *T. kutjupa* with a type locality of 5.3 km south southeast of the Pungkulpirri Waterhole, Western Australia (Latitude 24.4226 S., Longitude 128.4537 E) occurs in the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and northwest South Australia.

The preceding taxa treated as species are believed to have diverged from their nearest related taxon by more than 1.5 MYA, while the subspecies are believed to have diverged less than 1.5 MYA.

The above-named preceding species and subspecies are separated from one another by the following relevant characteristics and combinations:

T. schomburgkii has a black back with four orangish to yellowish orange lines running longitudinally down it. It has thin, well defined sharp edged yellow dorsolateral lines. Below this a thick black lateral band running

from the back of the eye and neck, along the body and above the rear leg to the tail, where it continues somewhat thinner along but for more than half the tail length (original tail). Between snout and eye, the same line is thinner and brownish in colour. Between ear and back leg on the black upper lateral line are 15-17 orange blotches (or pairs). Below this is a thin to medium, well defined white line, with sharp top and bottom borders, commencing on the upper labials and running across the ear (where it breaks) before continuing along the neck, over the front leg and along the mid lower flank, running through the hind leg and also along most of the length of the tail.

Below this is a dark zone being a combination of orange and brown and white with an uneven lower edge that meets the pale venter.

T. oxyi sp. nov. is essentially similar in most respects to *T. schomburgkii* detailed above but differs from that species by having four brownish to olive-coloured lines running longitudinally down the back. In addition, the area below the white line on the lower flank is a well-defined thick dark line, only with slight smudges of orange on the line itself, but with a sharp well defined lower edge as well as a sharp well defined upper edge.

The orange blotches running along the dark upper lateral line are squarish or irregular in shape. The head is a similar brown colour to the body, rarely showing a slight orangish or reddish tinge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. crottyi sp. nov. is quite different in overall appearance to the two preceding species. It is unusual and unique in the complex in that its dorsum is usually olive green, grey or brown all over, although sometimes with a partially or fully formed black mid vertebral stripe. The head is chocolate or reddish brown in colour grading to grey-brown at the rear of the dorsum, with the (original) tail having a reddish dorsal edge. The area below the white line on the lower flank is not a well-defined thick dark line. Instead, it is a line containing black, white and usually orange and with a distinctly jagged lower edge where it meets the whitish venter.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. sloppi sp. nov. is morphologically similar to *T. oxyi* sp. nov. as described above. It is separated from that taxon by having the orange blotches running along the dark upper lateral line being circular in shape and oriented closer to the dorsolateral line, rather than down the midline of the dark upper lateral line. The head of *T. sloppi* sp. nov. is orange-red and the rear body beige-brown.

In common with *T. oxyi* sp. nov. the area below the white line on the lower flank is a well-defined thick dark blackish coloured line, only with slight smudges of orange or any other colour on the line itself, but with a very sharp well defined lower edge as well as a sharp

well defined upper edge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. fischeri of the nominate form is readily separated from all other species in this complex by having 10-12 orange blotches (or pairs) between ear and back leg on the black upper lateral line.

These blotches are reduced in size and number, with greater black interspaces between them.

In *T. fischeri* the dorsum is also effectively brown in colour. This is caused by a merging in brown of the brown longitudinal lines running down the back on either side of the black vertebral line (as in what are dark interspaces in the previous species, are in this species merely of the same colour as the lines themselves).

Between the outer of these lines is another thin black line between it and the also faded yellow dorsolateral line.

This in effect means that the dorsum is brown, but with a thin black vertebral line and two thin black lines near the lateral edges (one on either side).

Unusual for this subspecies as compared to the others in this complex, all these lines terminate abruptly on the anterior of the tail, immediately past the back legs and do not run along the length of the tail, with the black midline extending only slightly further than the other two.

In all other species and subspecies in the group, the dark midline runs a reasonable way along the upper surface of the length of the tail.

In *T. fischeri* the white line along the lower flank is straight edged top and bottom and well defined, with a straight sharp boundary both top and bottom. Below this is a relatively straight unbroken black line, with 1-3 small orangish blotches within the black.

T. fischeri yinggarda subsp. nov. is morphologically radically different to the nominate form of *T. fischeri* and were it not for the limited genetic divergence, I would not have hesitated to assign it full species status.

Colour wise it is strongly superficially reminiscent of *T. schomburgkii*, *T. oxyi sp. nov.* and *T. sloppi sp. nov.*. However, it is significantly different to all. On the dorsum there are two thin orange longitudinal lines running either side of the black vertebral line. Between these lines and the yellow laterodorsal line is a row of small but wide and irregularly shaped orange spots along the middle of the black background or line. On the black line of the upper flank the orange spots are enlarged and square shaped, with the upper and lower edges completely intersecting squarely the white lines running longitudinally above and below. Between ear and back leg on the black upper lateral line, are 16-18 orange blotches (or pairs).

Below the lower white line on the flank is a near complete boundary of medium-sized orange, blackish

and white patches, forming a series of intrusions as opposed to a jagged edge into the white of the ventral surface. Upper surfaces of head are orangish, rear of body overall is patterned but darkish in colour and upper surface of most of the tail is yellowish or beige. The lines of dark that run completely along the length of the tail in nominate *T. fischeri* are broken in *T. fischeri yinggarda subsp. nov.* with the yellow beige of the upper surfaces cutting it up. Thus, the dark markings on the lateral surfaces of the tail have a checkered appearance.

T. fischeri martu subsp. nov. is superficially most similar to the nominate form of *T. fischeri* as described above. This includes in the colour formation of the dorsum, except for the fact that the merging of the brown lines on the back is not wholly complete and there is a sliver of a black line between the wider brown areas of the longitudinal lines.

Most importantly there are between ear and back leg on the black upper lateral line, 21-23 orange blotches (or pairs), these being close together and generally small in size.

T. fischeri martu subsp. nov. has the white line along the lower flank that is curved edged both top and bottom, at least anteriorly. Below this line is a series of mainly merged black blotches which are the interface between the white line and the white underparts, meaning that they are in effect usually joined in parts, at least at the anterior part of the body. The black markings on the lower flank do not have any orange spots within them.

T. pallescens is morphologically most similar to *T. schomburgkii* but is separated from that taxon and the other preceding taxa by the following combination of characters:

Having a body colour with a brown back, with or without a pattern (a dark vertebral and modified laterodorsal stripe), but is usually nearly patternless in adults; an upper lateral zone consisting of 17 alternating dark and orange rectangular blotches, with the upper edges of the blotches squarely abutting the light dorsolateral line, but a thin black sliver between the blotches lower surfaces and the lower white lateral line; the lower white lateral line is dead straight with well-defined top and bottom edges, the bottom edge being another straight-edged line of alternating blackish and orange squares, being straight edged top and bottom where it meets the whitish undersurface; a higher average number of midbody scale-rows than all the preceding species (28-30 versus 25-30), fewer subdigital lamellae (on average), than the preceding species (being 18-22, versus 19-24); a narrow second loreal (being 1.1-1.3 times as high as wide, versus 1.4-2.5 times in the other species); distinctive white circles on the upper surfaces of the fore and hind limbs (not seen in any of the other 8 species); on the lower flanks, below the lower white stripe are dark blackish patches with well-defined white or whitish blotches within them.

T. kutjupa is separated from all the preceding eight species by having seven narrow dark dorsal stripes, including a vertebral stripe that becomes more prominent on the (unbroken) tail and runs almost the full length of the tail in most individuals; by having prefrontals and nasals usually in strong medial contact (versus rarely so for either pair in the preceding species); lack of a strong continuation of the white midlateral stripe along the upper labials (versus continuation present in all the preceding species), instead showing a crescentic whitish marking that curves up behind the eye; and by having a dark vertebral stripe that becomes more prominent on the tail and continues for almost all of its length in most individuals (versus a vertebral stripe that fades out on the tail and terminates at

about the halfway point or earlier in the other species).

The preceding nine taxa, being *T. schomburgkii*, *T. oxyi* sp. nov., *T. crottyi* sp. nov., *T. sloppi* sp. nov., *T. pallescens*, *T. fischeri*, *T. fischeri yinggarda* subsp. nov., *T. fischeri martu* subsp. nov. and *T. kutjupa*, are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagogus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. with a type species of *Matherus matheri* sp. nov. by the following unique combination of characters:

Dorsal pattern is not ocellate; back is black with 4 reddish or greenish white longitudinal lines that are bold, sharp edged and well-developed; or alternatively brownish with a black vertebral line (in *C. crottyi* sp. nov.); head and neck not bold red; black upper lateral zone encloses a series of pale reddish spots; 2 presuboculars: prefrontals usually separated; nasals separated; nasal is weakly or not grooved; toes strongly compressed; subdigital lamellae with a fine sharp keel ending in a mucron or short spine; head relatively low and snout long and narrow; hindleg more than 40 percent of snout vent; size small (snout-vent length is up to 50 mm).

T. schomburgkii is depicted in life in Cogger (2014) on page 520 at bottom, Swan *et al.* (2022) page 14 at top, Wilson and Swan (2021) on page 297 middle right and online at:

<https://www.flickr.com/photos/95482238@N02/23749637701/>

and

<https://www.flickr.com/photos/jayceebarnes/50635735947/>

and

<https://www.flickr.com/photos/189037423@N06/51013050468/>

T. oxyi sp. nov. is depicted in life in Wilson and Knowles (1988) on page 273 bottom left and online at: <https://www.inaturalist.org/observations/144968830>

T. pallescens is depicted in life in Wilson and Swan (2021) on page 287 bottom and online at:

https://www.flickr.com/photos/zimny_anders/51194840824/

T. crottyi sp. nov. is depicted in life in Storr *et al.* (1981) in plate 9 second from top on left, Wilson and Knowles (1988) page 273 middle right and online at:

<https://www.inaturalist.org/observations/98964672>

and

<https://www.inaturalist.org/observations/46690895>

and

<https://www.inaturalist.org/observations/103303441>

and

<https://www.flickr.com/photos/stephenmahony/49676549367/>

and

<https://www.inaturalist.org/observations/192033048>

T. sloppi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/153623890>

T. fischeri of the type form subspecies is depicted online at:

<https://www.flickr.com/photos/reptileshots/53208619121/>

and

<https://www.flickr.com/photos/58349528@N02/53195952153/>

T. fischeri yinggarda subsp. nov. is depicted in life in Storr (1981) plate 9, photo 1, top left and online at:

<https://www.flickr.com/photos/moloch05/53376714598/>

T. fischeri martu subsp. nov. is depicted in life online at:

<https://www.flickr.com/photos/jaricornelis/51772802322/>

T. kutjupa is depicted in life in Prates *et al.* (2022a) on page 12, photos A and B and online at:

<https://www.flickr.com/photos/ingirumimusnocte/albums/72157647583792509/>

and

<https://www.flickr.com/photos/ingirumimusnocte/15324070396/>

Distribution: *T. sloppi* sp. nov. occurs in the dry country to the south of the Kimberley district and into the sandy and range areas of the south of the Northern territory.

Etymology: *T. sloppi* sp. nov. is named in honour of a Great Dane dog named "Slop" or "Slopp" that our family owned for 12 years before he died of age-related cancer in mid-2013. He guarded our wildlife breeding and research facility against numerous attempts to steal animals and research materials. His loyalty is herein recognised. It is objectionable

that serial animal abusers like Mark O'Shea (a UK reptile fancier) and his troll mate Darren Naish (from Southampton in the UK) find it improper for an animal to be honoured as a patronym for a scientific name. It is even more objectionable that Mark O'Shea and Darren Naish plasters the internet with hate and vitriol about this.

TANTALOSCINCUS FISCHERI YINGGARDA SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:95161733-5582-4EAD-8114-6B52BAE3C6DA

Holotype: A preserved adult female specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R122899 collected 10 km east southeast of Mardathuna Homestead, Western Australia, Australia, Latitude -24.511389 S., Longitude 114.636667 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 R158345 and R158353 both collected from Giralia Station, Western Australia, Australia, Latitude -22.763889 S., Longitude 114.273056 E.

Diagnosis: Until now, most publishing authors have treated all of *Tantaloscincus oxyi* sp. nov., *T. crottyi* sp. nov., *T. oxyi* sp. nov., *T. pallescens* (Storr, 1970), *T. fischeri* (Boulenger, 1887), *H. fischeri yinggarda subsp. nov.* and *H. fischeri martu subsp. nov.* as populations of the pan-Australian putative species *T. schomburgkii* (Peters, 1863).

In its current concept, *T. schomburgkii* (Peters, 1863) has been placed in the genus *Ctenotus* Storr, 1964, however all the eight preceding listed taxa are herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

In its current concept, *T. schomburgkii* occurs throughout arid Australia in all mainland Australian states, but is not found in the far north of the tropics as in the Kimberley district, the top end of the Northern Territory, Cape York, the east coast and pretty much all of Victoria.

A more distantly related associated species is the recently described "*Ctenotus kutjupa* Hutchinson, Prates and Rabosky, 2022" from the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and far northwest South Australia, a taxon well recognized by herpetologists as not being *T. schomburgkii*.

The relevant nine taxa are found in the following areas: *T. schomburgkii* with a type locality of Gawler, South Australia, is effectively confined to the eastern half of South Australia and immediately adjoining parts of far north-west Victoria, New South Wales, South Australia and the Northern Territory.

The morphologically similar *T. oxyi* sp. nov. occurs

in the western half of South Australia, away from the coast and into the eastern part of the southern half of Western Australia, being found south of the central Australian lakes and floodplains and north of the coast.

T. crottyi sp. nov. occurs in the drier parts of the western half of Western Australia except for the cooler south-east or the Pilbara, Great Sandy Desert or Kimberley districts.

The closely related *T. sloppi* sp. nov. occurs in the dry country to the south of the Kimberley district and into the sandy and range areas of the south of the Northern Territory.

North-east of the red centre and primarily on the Barkly Tableland in the Northern Territory, *T. pallescens* (Storr, 1970) occurs. It has a type locality of Morphet Creek, 7 miles south of Banka Banka, Northern Territory (Latitude 18.53 S., Longitude 134.05 E.).

In the Pilbara district generally, the species *T. fischeri* (Boulenger, 1887) occurs.

That species is split into three subspecies.

The nominate form with a type locality of Nickol Bay, Western Australia occurs in the main Pilbara region mainly south of the Fortescue River and including the Pilbara coast, north of the Fortescue River around the type locality Nickol Bay (Karratha).

T. fischeri yinggarda subsp. nov. is found south of the main Pilbara district in the dune country south of the Cape Range and including that peninsula and inland to near Shark Bay to New Forrest Station, Murchison, Western Australia.

T. fischeri martu subsp. nov. is a taxon from the Great Sandy Desert and adjacent parts of the north Pilbara region, generally north of the Fortescue River.

The associated taxon *T. kutjupa* with a type locality of 5.3 km south southeast of the Pungkulpirri Waterhole, Western Australia (Latitude 24.4226 S., Longitude 128.4537 E) occurs in the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and northwest South Australia.

The preceding taxa treated as species are believed to have diverged from their nearest related taxon by more than 1.5 MYA, while the subspecies are believed to have diverged less than 1.5 MYA.

The above-named preceding species and subspecies are separated from one another by the following relevant characteristics and combinations:

T. schomburgkii has a black back with four orangish to yellowish orange lines running longitudinally down it. It has thin, well defined sharp edged yellow dorsolateral lines. Below this a thick black lateral band running from the back of the eye and neck, along the body and above the rear leg to the tail, where it continues somewhat thinner along but for more than half the tail length (original tail). Between snout and eye, the same line is thinner and brownish in colour. Between ear and back leg on the black upper lateral line are 15-17 orange blotches (or pairs). Below this is a thin

to medium, well defined white line, with sharp top and bottom borders, commencing on the upper labials and running across the ear (where it breaks) before continuing along the neck, over the front leg and along the mid lower flank, running through the hind leg and also along most of the length of the tail.

Below this is a dark zone being a combination of orange and brown and white with an uneven lower edge that meets the pale venter.

T. oxyi sp. nov. is essentially similar in most respects to *T. schomburgkii* detailed above but differs from that species by having four brownish to olive-coloured lines running longitudinally down the back. In addition, the area below the white line on the lower flank is a well-defined thick dark line, only with slight smudges of orange on the line itself, but with a sharp well defined lower edge as well as a sharp well defined upper edge.

The orange blotches running along the dark upper lateral line are squarish or irregular in shape. The head is a similar brown colour to the body, rarely showing a slight orangish or reddish tinge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. crottyi sp. nov. is quite different in overall appearance to the two preceding species. It is unusual and unique in the complex in that its dorsum is usually olive green, grey or brown all over, although sometimes with a partially or fully formed black mid vertebral stripe. The head is chocolate or reddish brown in colour grading to grey-brown at the rear of the dorsum, with the (original) tail having a reddish dorsal edge. The area below the white line on the lower flank is not a well-defined thick dark line. Instead, it is a line containing black, white and usually orange and with a distinctly jagged lower edge where it meets the whitish venter.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. sloppi sp. nov. is morphologically similar to *T. oxyi* sp. nov. as described above. It is separated from that taxon by having the orange blotches running along the dark upper lateral line being circular in shape and oriented closer to the dorsolateral line, rather than down the midline of the dark upper lateral line. The head of *T. sloppi* sp. nov. is orange-red and the rear body beige-brown.

In common with *T. oxyi* sp. nov. the area below the white line on the lower flank is a well-defined thick dark blackish coloured line, only with slight smudges of orange or any other colour on the line itself, but with a very sharp well defined lower edge as well as a sharp well defined upper edge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. fischeri of the nominate form is readily separated from all other species in this complex by having 10-12 orange blotches (or pairs) between ear and back leg on the black upper lateral line.

These blotches are reduced in size and number, with greater black interspaces between them.

In *T. fischeri* the dorsum is also effectively brown in colour. This is caused by a merging in brown of the brown longitudinal lines running down the back on either side of the black vertebral line (as in what are dark interspaces in the previous species, are in this species merely of the same colour as the lines themselves).

Between the outer of these lines is another thin black line between it and the also faded yellow dorsolateral line.

This in effect means that the dorsum is brown, but with a thin black vertebral line and two thin black lines near the lateral edges (one on either side).

Unusual for this subspecies as compared to the others in this complex, all these lines terminate abruptly on the anterior of the tail, immediately past the back legs and do not run along the length of the tail, with the black midline extending only slightly further than the other two.

In all other species and subspecies in the group, the dark midline runs a reasonable way along the upper surface of the length of the tail.

In *T. fischeri* the white line along the lower flank is straight edged top and bottom and well defined, with a straight sharp boundary both top and bottom. Below this is a relatively straight unbroken black line, with 1-3 small orangish blotches within the black.

T. fischeri yinggarda subsp. nov. is morphologically radically different to the nominate form of *T. fischeri* and were it not for the limited genetic divergence, I would not have hesitated to assign it full species status.

Colour wise it is strongly superficially reminiscent of *T. schomburgkii*, *T. oxyi* sp. nov. and *T. sloppi* sp. nov.. However, it is significantly different to all. On the dorsum there are two thin orange longitudinal lines running either side of the black vertebral line. Between these lines and the yellow laterodorsal line is a row of small but wide and irregularly shaped orange spots along the middle of the black background or line.

On the black line of the upper flank the orange spots are enlarged and square shaped, with the upper and lower edges completely intersecting squarely the white lines running longitudinally above and below. Between ear and back leg on the black upper lateral line, are 16-18 orange blotches (or pairs).

Below the lower white line on the flank is a near complete boundary of medium-sized orange, blackish and white patches, forming a series of intrusions as opposed to a jagged edge into the white of the ventral surface. Upper surfaces of head are orangish, rear of body overall is patterned but darkish in colour and upper surface of most of the tail is yellowish or beige. The lines of dark that run completely along the length of the tail in nominate *T. fischeri* are broken in *T. fischeri yinggarda* subsp. nov. with the yellow beige

of the upper surfaces cutting it up. Thus, the dark markings on the lateral surfaces of the tail have a checkered appearance.

T. fischeri martu subsp. nov. is superficially most similar to the nominate form of *T. fischeri* as described above. This includes in the colour formation of the dorsum, except for the fact that the merging of the brown lines on the back is not wholly complete and there is a sliver of a black line between the wider brown areas of the longitudinal lines.

Most importantly there are between ear and back leg on the black upper lateral line, 21-23 orange blotches (or pairs), these being close together and generally small in size.

T. fischeri martu subsp. nov. has the white line along the lower flank that is curved edged both top and bottom, at least anteriorly. Below this line is a series of mainly merged black blotches which are the interface between the white line and the white underparts, meaning that they are in effect usually joined in parts, at least at the anterior part of the body. The black markings on the lower flank do not have any orange spots within them.

T. pallescens is morphologically most similar to *T. schomburgkii* but is separated from that taxon and the other preceding taxa by the following combination of characters:

Having a body colour with a brown back, with or without a pattern (a dark vertebral and modified laterodorsal stripe), but is usually nearly patternless in adults; an upper lateral zone consisting of 17 alternating dark and orange rectangular blotches, with the upper edges of the blotches squarely abutting the light dorsolateral line, but a thin black sliver between the blotches lower surfaces and the lower white lateral line; the lower white lateral line is dead straight with well-defined top and bottom edges, the bottom edge being another straight-edged line of alternating blackish and orange squares, being straight edged top and bottom where it meets the whitish undersurface; a higher average number of midbody scale-rows than all the preceding species (28-30 versus 25-30), fewer subdigital lamellae (on average), than the preceding species (being 18-22, versus 19-24); a narrow second loreal (being 1.1-1.3 times as high as wide, versus 1.4-2.5 times in the other species); distinctive white circles on the upper surfaces of the fore and hind limbs (not seen in any of the other 8 species); on the lower flanks, below the lower white stripe are dark blackish patches with well-defined white or whitish blotches within them.

T. kutjupa is separated from all the preceding eight species by having seven narrow dark dorsal stripes, including a vertebral stripe that becomes more prominent on the (unbroken) tail and runs almost the full length of the tail in most individuals; by having prefrontals and nasals usually in strong medial contact (versus rarely so for either pair in the preceding species); lack of a strong continuation of the white

midlateral stripe along the upper labials (versus continuation present in all the preceding species), instead showing a crescentic whitish marking that curves up behind the eye; and by having a dark vertebral stripe that becomes more prominent on the tail and continues for almost all of its length in most individuals (versus a vertebral stripe that fades out on the tail and terminates at

about the halfway point or earlier in the other species).

The preceding nine taxa, being *T. schomburgkii*, *T. oxyi sp. nov.*, *T. crottyi sp. nov.*, *T. sloppi sp. nov.*, *T. pallescens*, *T. fischeri*, *T. fischeri yinggarda subsp. nov.*, *T. fischeri martu subsp. nov.* and *T. kutjupa*, are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagopus* Wells and Wellington, 1984, type species: *Gongylus (Lygosoma) labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma (Hinulia) pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus gen. nov.* type species, *Matherus matheri sp. nov.* by the following unique combination of characters:

Dorsal pattern is not ocellate; back is black with 4 reddish or greenish white longitudinal lines that are bold, sharp edged and well-developed; or alternatively brownish with a black vertebral line (in *C. crottyi sp. nov.*); head and neck not bold red; black upper lateral zone encloses a series of pale reddish spots; 2 presuboculars: prefrontals usually separated; nasals separated; nasal is weakly or not grooved; toes strongly compressed; subdigital lamellae with a fine sharp keel ending in a mucron or short spine; head relatively low and snout long and narrow; hindleg more than 40 percent of snout vent; size small (snout-vent length is up to 50 mm).

T. schomburgkii is depicted in life in Cogger (2014) on page 520 at bottom, Swan *et al.* (2022) page 14 at top, Wilson and Swan (2021) on page 297 middle right and online at:

<https://www.flickr.com/photos/95482238@N02/23749637701/>

and

<https://www.flickr.com/photos/jayceebarnes/50635735947/>

and

<https://www.flickr.com/photos/189037423@N06/51013050468/>

T. oxyi sp. nov. is depicted in life in Wilson and Knowles (1988) on page 273 bottom left and online at:

<https://www.inaturalist.org/observations/144968830>

T. pallescens is depicted in life in Wilson and Swan (2021) on page 287 bottom and online at:

https://www.flickr.com/photos/zimny_anders/51194840824/

T. crottyi sp. nov. is depicted in life in Storr *et al.* (1981) in plate 9 second from top on left, Wilson and Knowles (1988) page 273 middle right and online at: <https://www.inaturalist.org/observations/98964672>

and <https://www.inaturalist.org/observations/46690895> and <https://www.inaturalist.org/observations/103303441> and <https://www.flickr.com/photos/stephenmahony/49676549367/>

and <https://www.inaturalist.org/observations/192033048>

T. sloppi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/153623890>

T. fischeri of the type form subspecies is depicted online at:

<https://www.flickr.com/photos/reptileshots/53208619121/>

and <https://www.flickr.com/photos/58349528@N02/53195952153/>

T. fischeri yinggarda subsp. nov. is depicted in life in Storr (1981) plate 9, photo 1, top left and online at:

<https://www.flickr.com/photos/moloch05/53376714598/>

T. fischeri martu subsp. nov. is depicted in life online at:

<https://www.flickr.com/photos/jaricornelis/51772802322/>

T. kutjupa is depicted in life in Prates *et al.* (2022a) on page 12, photos A and B and online at:

<https://www.flickr.com/photos/ingirumimusnocte/albums/72157647583792509/>

and

<https://www.flickr.com/photos/ingirumimusnocte/15324070396/>

Distribution: *T. fischeri yinggarda subsp. nov.* is found south of the main Pilbara district in the dune country south of the Cape Range and including that peninsula and inland to near Shark Bay to New Forrest Station, Murchison, Western Australia.

Etymology: *T. fischeri yinggarda subsp. nov.* is named after the Yinggarda people, being the original Aboriginal inhabitants of the Gascoyne region, Western Australia, which is the centre of distribution of this species. Most were killed by the British invaders in the 1800's, either directly or via the diseases they brought, such as smallpox. The descendants of the survivors carefully eke out a miserable existence scavenging on the edges of towns and settlements ever worried about being bashed, shot or killed by racist white police or in the alternative members of the Wolfgang Wüster cohort, like Seth Pywell, who unusually was convicted in a court of shooting an aboriginal.

TANTALOSCINCUS FISCHERI MARTU SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:C11F2A80-6997-4E1E-AAD7-C9C6403F235A

Holotype: A preserved adult male specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R172568 collected from Cumming Range, Western Australia, Australia, Latitude -19.279722 S., Longitude 127.180278 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 R161348 and R163932 both collected from 43 km east of Goldsworthy Western Australia, Australia, Latitude -20.373611 S., Longitude 119.9325 E., 2/ A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number R161493 collected 24 km northeast of Warrawagine Homestead, Western Australia, Australia, Latitude -20.739167 S., Longitude 120.893889 E.

Diagnosis: Until now, most publishing authors have treated all of *Tantaloscincus oxyi* sp. nov., *T. crottyi* sp. nov., *T. oxyi* sp. nov., *T. pallescens* (Storr, 1970), *T. fischeri* (Boulenger, 1887), *H. fischeri yinggarda subsp. nov.* and *H. fischeri martu subsp. nov.* as populations of the pan-Australian putative species *T. schomburgkii* (Peters, 1863).

In its current concept, *T. schomburgkii* (Peters, 1863) has been placed in the genus *Ctenotus* Storr, 1964, however all the eight preceding listed taxa are herein placed in the genus *Tantaloscincus* Wells and Wellington, 1984.

In its current concept, *T. schomburgkii* occurs throughout arid Australia in all mainland Australian states, but is not found in the far north of the tropics as in the Kimberley district, the top end of the Northern Territory, Cape York, the east coast and pretty much all of Victoria.

A more distantly related associated species is the recently described "*Ctenotus kutjupa* Hutchinson, Prates and Rabosky, 2022" from the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and far northwest South Australia, a taxon well recognized by herpetologists as not being *T. schomburgkii*.

The relevant nine taxa are found in the following areas: *T. schomburgkii* with a type locality of Gawler, South Australia, is effectively confined to the eastern half of South Australia and immediately adjoining parts of far north-west Victoria, New South Wales, South Australia and the Northern Territory.

The morphologically similar *T. oxyi* sp. nov. occurs in the western half of South Australia, away from the coast and into the eastern part of the southern half of Western Australia, being found south of the central Australian lakes and floodplains and north of the coast.

T. crottyi sp. nov. occurs in the drier parts of the western half of Western Australia except for the cooler south-east or the Pilbara, Great Sandy Desert or Kimberley districts.

The closely related *T. sloppi* sp. nov. occurs in the dry country to the south of the Kimberley district and into the sandy and range areas of the south of the Northern Territory.

North-east of the red centre and primarily on the Barkly Tableland in the Northern Territory, *T. pallescens* (Storr, 1970) occurs. It has a type locality of Morphett Creek, 7 miles south of Banka Banka, Northern Territory (Latitude 18.53 S., Longitude 134.05 E.).

In the Pilbara district generally, the species *T. fischeri* (Boulenger, 1887) occurs.

That species is split into three subspecies.

The nominate form with a type locality of Nickol Bay, Western Australia occurs in the main Pilbara region mainly south of the Fortescue River and including the Pilbara coast, north of the Fortescue River around the type locality Nickol Bay (Karratha).

T. fischeri yinggarda subsp. nov. is found south of the main Pilbara district in the dune country south of the Cape Range and including that peninsula and inland to near Shark Bay to New Forrest Station, Murchison, Western Australia.

T. fischeri martu subsp. nov. is a taxon from the Great Sandy Desert and adjacent parts of the north Pilbara region, generally north of the Fortescue River, including the southern edge of the Kimberley district in north-west Western Australia.

The associated taxon *T. kutjupa* with a type locality of 5.3 km south southeast of the Pungkulpirri Waterhole, Western Australia (Latitude 24.4226 S., Longitude 128.4537 E) occurs in the interior region of the southwest of the Northern Territory, nearby parts of Western Australia and northwest South Australia.

The preceding taxa treated as species are believed to have diverged from their nearest related taxon by more than 1.5 MYA, while the subspecies are believed to have diverged less than 1.5 MYA.

The above-named preceding species and subspecies are separated from one another by the following relevant characteristics and combinations:

T. schomburgkii has a black back with four orangish to yellowish orange lines running longitudinally down it. It has thin, well defined sharp edged yellow dorsolateral lines. Below this a thick black lateral band running from the back of the eye and neck, along the body and above the rear leg to the tail, where it continues somewhat thinner along but for more than half the tail length (original tail). Between snout and eye, the same line is thinner and brownish in colour. Between ear and back leg on the black upper lateral line are 15-17 orange blotches (or pairs). Below this is a thin to medium, well defined white line, with sharp top and bottom borders, commencing on the upper labials

and running across the ear (where it breaks) before continuing along the neck, over the front leg and along the mid lower flank, running through the hind leg and also along most of the length of the tail.

Below this is a dark zone being a combination of orange and brown and white with an uneven lower edge that meets the pale venter.

T. oxyi sp. nov. is essentially similar in most respects to *T. schomburgkii* detailed above but differs from that species by having four brownish to olive-coloured lines running longitudinally down the back. In addition, the area below the white line on the lower flank is a well-defined thick dark line, only with slight smudges of orange on the line itself, but with a sharp well defined lower edge as well as a sharp well defined upper edge.

The orange blotches running along the dark upper lateral line are squarish or irregular in shape. The head is a similar brown colour to the body, rarely showing a slight orangish or reddish tinge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. crottyi sp. nov. is quite different in overall appearance to the two preceding species. It is unusual and unique in the complex in that its dorsum is usually olive green, grey or brown all over, although sometimes with a partially or fully formed black mid vertebral stripe. The head is chocolate or reddish brown in colour grading to grey-brown at the rear of the dorsum, with the (original) tail having a reddish dorsal edge. The area below the white line on the lower flank is not a well-defined thick dark line. Instead, it is a line containing black, white and usually orange and with a distinctly jagged lower edge where it meets the whitish venter.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. sloppi sp. nov. is morphologically similar to *T. oxyi* sp. nov. as described above. It is separated from that taxon by having the orange blotches running along the dark upper lateral line being circular in shape and oriented closer to the dorsolateral line, rather than down the midline of the dark upper lateral line. The head of *T. sloppi* sp. nov. is orange-red and the rear body beige-brown.

In common with *T. oxyi* sp. nov. the area below the white line on the lower flank is a well-defined thick dark blackish coloured line, only with slight smudges of orange or any other colour on the line itself, but with a very sharp well defined lower edge as well as a sharp well defined upper edge.

Between ear and back leg on the black upper lateral line, are 15-17 orange blotches (or pairs).

T. fischeri of the nominate form is readily separated from all other species in this complex by having 10-12 orange blotches (or pairs) between ear and back leg on the black upper lateral line.

These blotches are reduced in size and number, with

greater black interspaces between them.

In *T. fischeri* the dorsum is also effectively brown in colour. This is caused by a merging in brown of the brown longitudinal lines running down the back on either side of the black vertebral line (as in what are dark interspaces in the previous species, are in this species merely of the same colour as the lines themselves).

Between the outer of these lines is another thin black line between it and the also faded yellow dorsolateral line.

This in effect means that the dorsum is brown, but with a thin black vertebral line and two thin black lines near the lateral edges (one on either side).

Unusual for this subspecies as compared to the others in this complex, all these lines terminate abruptly on the anterior of the tail, immediately past the back legs and do not run along the length of the tail, with the black midline extending only slightly further than the other two.

In all other species and subspecies in the group, the dark midline runs a reasonable way along the upper surface of the length of the tail.

In *T. fischeri* the white line along the lower flank is straight edged top and bottom and well defined, with a straight sharp boundary both top and bottom. Below this is a relatively straight unbroken black line, with 1-3 small orangish blotches within the black.

T. fischeri yinggarda subsp. nov. is morphologically radically different to the nominate form of *T. fischeri* and were it not for the limited genetic divergence, I would not have hesitated to assign it full species status.

Colour wise it is strongly superficially reminiscent of *T. schomburgkii*, *T. oxyi sp. nov.* and *T. sloppi sp. nov.*. However, it is significantly different to all. On the dorsum there are two thin orange longitudinal lines running either side of the black vertebral line. Between these lines and the yellow laterodorsal line is a row of small but wide and irregularly shaped orange spots along the middle of the black background or line.

On the black line of the upper flank the orange spots are enlarged and square shaped, with the upper and lower edges completely intersecting squarely the white lines running longitudinally above and below. Between ear and back leg on the black upper lateral line, are 16-18 orange blotches (or pairs).

Below the lower white line on the flank is a near complete boundary of medium-sized orange, blackish and white patches, forming a series of intrusions as opposed to a jagged edge into the white of the ventral surface. Upper surfaces of head are orangish, rear of body overall is patterned but darkish in colour and upper surface of most of the tail is yellowish or beige. The lines of dark that run completely along the length of the tail in nominate *T. fischeri* are broken in *T. fischeri yinggarda subsp. nov.* with the yellow beige of the upper surfaces cutting it up. Thus, the dark

markings on the lateral surfaces of the tail have a checkered appearance.

T. fischeri martu subsp. nov. is superficially most similar to the nominate form of *T. fischeri* as described above. This includes in the colour formation of the dorsum, except for the fact that the merging of the brown lines on the back is not wholly complete and there is a sliver of a black line between the wider brown areas of the longitudinal lines.

Most importantly there are between ear and back leg on the black upper lateral line, 21-23 orange blotches (or pairs), these being close together and generally small in size.

T. fischeri martu subsp. nov. has the white line along the lower flank that is curved edged both top and bottom, at least anteriorly. Below this line is a series of mainly merged black blotches which are the interface between the white line and the white underparts, meaning that they are in effect usually joined in parts, at least at the anterior part of the body. The black markings on the lower flank do not have any orange spots within them.

T. pallescens is morphologically most similar to *T. schomburgkii* but is separated from that taxon and the other preceding taxa by the following combination of characters:

Having a body colour with a brown back, with or without a pattern (a dark vertebral and modified laterodorsal stripe), but is usually nearly patternless in adults; an upper lateral zone consisting of 17 alternating dark and orange rectangular blotches, with the upper edges of the blotches squarely abutting the light dorsolateral line, but a thin black sliver between the blotches lower surfaces and the lower white lateral line; the lower white lateral line is dead straight with well-defined top and bottom edges, the bottom edge being another straight-edged line of alternating blackish and orange squares, being straight edged top and bottom where it meets the whitish undersurface; a higher average number of midbody scale-rows than all the preceding species (28-30 versus 25-30), fewer subdigital lamellae (on average), than the preceding species (being 18-22, versus 19-24); a narrow second loreal (being 1.1-1.3 times as high as wide, versus 1.4-2.5 times in the other species); distinctive white circles on the upper surfaces of the fore and hind limbs (not seen in any of the other 8 species); on the lower flanks, below the lower white stripe are dark blackish patches with well-defined white or whitish blotches within them.

T. kutjupa is separated from all the preceding eight species by having seven narrow dark dorsal stripes, including a vertebral stripe that becomes more prominent on the (unbroken) tail and runs almost the full length of the tail in most individuals; by having prefrontals and nasals usually in strong medial contact (versus rarely so for either pair in the preceding species); lack of a strong continuation of the white midlateral stripe along the upper labials (versus

continuation present in all the preceding species), instead showing a crescentic whitish marking that curves up behind the eye; and by having a dark vertebral stripe that becomes more prominent on the tail and continues for almost all of its length in most individuals (versus a vertebral stripe that fades out on the tail and terminates at

about the halfway point or earlier in the other species).

The preceding nine taxa, being *T. schomburgkii*, *T. oxyi* sp. nov., *T. crottyi* sp. nov., *T. sloppi* sp. nov., *T. pallescens*, *T. fischeri*, *T. fischeri yinggarda* subsp. nov., *T. fischeri martu* subsp. nov. and *T. kutjupa*, are separated from all other species within the genus *Ctenotus* Storr, 1968 and the associated genera as recognised in this paper, being *Kommosagodus* Wells and Wellington, 1984, type species: *Gongylus* (*Lygosoma*) *labillardieri* Duméril and Bibron, 1839, *Magnuscincus* Wells and Wellington, 1984, type species: *Lygosoma* (*Hinulia*) *pantherinum* Peters, 1866 and *Tantaloscincus* Wells and Wellington, 1984 type species: *Lygosoma schomburgkii* Peters, 1863 and *Matherus* gen. nov. type species, *Matherus matheri* sp. nov. by the following unique combination of characters:

Dorsal pattern is not ocellate; back is black with 4 reddish or greenish white longitudinal lines that are bold, sharp edged and well-developed; or alternatively brownish with a black vertebral line (in *C. crottyi* sp. nov.); head and neck not bold red; black upper lateral zone encloses a series of pale reddish spots; 2 presuboculars: prefrontals usually separated; nasals separated; nasal is weakly or not grooved; toes strongly compressed; subdigital lamellae with a fine sharp keel ending in a mucron or short spine; head relatively low and snout long and narrow; hindleg more than 40 percent of snout vent; size small (snout-vent length is up to 50 mm).

T. schomburgkii is depicted in life in Cogger (2014) on page 520 at bottom, Swan *et al.* (2022) page 14 at top, Wilson and Swan (2021) on page 297 middle right and online at:

<https://www.flickr.com/photos/95482238@N02/23749637701/>

and

<https://www.flickr.com/photos/jayceebarnes/50635735947/>

and

<https://www.flickr.com/photos/189037423@N06/51013050468/>

T. oxyi sp. nov. is depicted in life in Wilson and Knowles (1988) on page 273 bottom left and online at: <https://www.inaturalist.org/observations/144968830>

T. pallescens is depicted in life in Wilson and Swan (2021) on page 287 bottom and online at:

https://www.flickr.com/photos/zimny_anders/51194840824/

T. crottyi sp. nov. is depicted in life in Storr *et al.* (1981)

in plate 9 second from top on left, Wilson and Knowles (1988) page 273 middle right and online at:

<https://www.inaturalist.org/observations/98964672>

and

<https://www.inaturalist.org/observations/46690895> and

<https://www.inaturalist.org/observations/103303441>

and

<https://www.flickr.com/photos/stephenmahony/49676549367/>

and

<https://www.inaturalist.org/observations/192033048>

T. sloppi sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/153623890>

T. fischeri of the type form subspecies is depicted online at:

<https://www.flickr.com/photos/reptileshots/53208619121/>

and

<https://www.flickr.com/photos/58349528@N02/53195952153/>

T. fischeri yinggarda subsp. nov. is depicted in life in Storr (1981) plate 9, photo 1, top left and online at:

<https://www.flickr.com/photos/moloch05/53376714598/>

T. fischeri martu subsp. nov. is depicted in life online at:

<https://www.flickr.com/photos/jaricornelis/51772802322/>

T. kutjupa is depicted in life in Prates *et al.* (2022a) on page 12, photos A and B and online at:

<https://www.flickr.com/photos/ingirumimusnocte/albums/72157647583792509/>

and

<https://www.flickr.com/photos/ingirumimusnocte/15324070396/>

Distribution: *T. fischeri martu* subsp. nov. is a taxon from the Great Sandy Desert and adjacent parts of the north Pilbara region, generally well north of the Fortescue River, including the southern edge of the Kimberley district in north-west Western Australia.

Etymology: *T. fischeri martu* subsp. nov. is named after the Martu people, being the original Aboriginal inhabitants of the eastern Great Sandy Desert in Western Australia, which is the centre of distribution of this species. Most were killed by the British invaders in the 1800's, either directly or via the diseases they brought, such as smallpox. The descendants of the survivors carefully eke out a miserable existence scavenging on the edges of towns and settlements ever worried about being bashed, shot or killed by racist white police, or in the alternative members of the Wolfgang Wüster cohort, like Seth Pywell, who unusually was convicted in a court of shooting an aboriginal.

SUMMARY

While this paper expands the Australian skink genus *Ctenotus* Storr, 1964 *sensu lato* by roughly a third in terms of the number of recognized species and subspecies, this is not the last word with respect to the group, even though it is now evident that most species-level taxa are now named.

A number of widespread putative species remain composite, including for example the *Ctenotus inornatus* (Gray, 1845) complex.

It is inevitable that this complex will be further split at some stage in the future.

Some presently recognised species within *Ctenotus* Storr, 1964 *sensu lato* are also likely to be merged and synonymised as has already happened with some previously described and named forms.

It is trite to mention that there cannot be a proper conservation management plan for any relevant species until they are formally identified and named and their distributional limits are fully known (Hoser 2007, 2019a, 2019b).

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