*Australasian Journal of Herpetology* 34:36-56. Published 20 July 2017.



## A break-up of the Australian gecko genus *Strophurus* Fitzinger, 1843 *sensu lato* as currently recognized, from one to four genera, with two new subgenera defined, description of nine new species and two new subspecies.

### **RAYMOND T. HOSER**

488 Park Road, Park Orchards, Victoria, 3134, Australia. *Phone*: +61 3 9812 3322 *Fax*: 9812 3355 *E-mail*: snakeman (at) snakeman.com.au Received 15 January 2017, Accepted 20 May 2017, Published 20 July 2017.

### ABSTRACT

The genus *Strophurus* Fitzinger, 1843 *sensu lato* has been the subject of numerous taxonomic reviews in recent years.

With the exception of Wells and Wellington (1985), no recently publishing herpetologists have broken up the genus beyond that defined by Cogger (2014), which sums up the current position in Australian herpetology.

Recognizing recent molecular work on the assemblage (e.g. Sadlier, Omeally and Shea (2005) or Nielsen *et al.* 2016), *Strophurus* is herein divided into four obvious and divergent genera. One is formally named for the first time.

One of these genera is subdivided three ways into subgenera, two being named for the first time.

In spite of four species being named in the past three years (two as subspecies, but elevated herein to species status on the basis of time of divergence), molecular evidence clearly shows numerous unnamed forms.

To partially correct this situation, nine new easily diagnosed species and two new subspecies are formally named for the first time.

A complete list of recognized and valid species, confirmed by published molecular data is also provided.

**Keywords:** Taxonomy; lizards; Australia; Western Australia; Northern Territory; Queensland; Gecko; *Strophurus; Eremiastrophrurus; Oedurella*; new genus; *Adelyndactylus*; new subgenus; *Graciledactylus; Parvusdactylus*; new species; *jackyae*; *dannybrowni*; *gedyei*; *chriswilliamsi*; *jenandersonae*; *alba*; *jamielindi*; *garystephensoni*; *sonnemanni*; new subspecies; *obscurum*; *minima*.

#### INTRODUCTION

The genus *Strophurus* Fitzinger, 1843 more recently applied to the so-called spiny tailed geckos, was effectively ignored by most herpetologists until resurrected by Wells and Wellington in their major work of 1985 (Wells and Wellington, 1985).

Since then the genus has been widely recognized in Australian herpetology as being separate from other species within the genus *Oedura* Gray, 1842 *sensu lato* with this group (*Strophurus*) including all the species with caudal mucous glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae.

The rest of Oedura Gray, 1842 sensu lato is dealt with in a

separate paper published at the same time as this (Hoser, 2017a) and is therefore ignored for the purposes of this paper.

In terms of *Strophurus sensu lato*, while all species are united by caudal mucous glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae, the individual species form distinct morphologically distinct groups.

On this basis, Wells and Wellington (1985) resurrected the genus *Oedurella* Lönnberg and Andersson, 1913, for the divergent and small so-called "phasmid gecko", originally described as "*Oedurella taeniata* Lönnberg and Andersson, 1913", and also created a new genus, *Eremiastrophrurus* 

Wells and Wellington, 1985, for the divergent species described as "*Diplodactylus elderi* Stirling and Zeitz, 1893".

At the same time, they divided the two main populations of the species "*Diplodactylus elderi*" as then recognized into two.

In spite of overwhelming evidence accumulating in favour of the Wells and Wellington actions in the three decades since their publication of 1985, spearheaded by a gang of thieves known as the Wüster gang as described by Hoser (2015a-f), not one single publishing herpetologist has used either the Wells and Wellington genus name or recognized the species *Eremiastrophrurus manhoodi* as originally described by them.

This attests to the power of threats of violence and other forms of personal harm made on herpetologists by members of the Wüster gang over the three decades since publication of Wells and Wellington (1985) and the immense damage done to the science of herpetology by this gang.

In terms of overwhelming evidence in favour of the taxonomy and nomenclature of Wells and Wellington with regards to the genus *Eremiastrophrurus*, or the formal recognition of the species *Eremiastrophrurus manhoodi*, one need look no further than the publication of Nielsen *et al.* (2016) at Fig. 1, page 486, which shows a significant divergence at both genus and species levels for the relevant taxa. Alternatively, one may look at the very animals themselves, or for those who prefer not to leave the comfort of their own armchair, merely take a look at page 355 of Brown (2014) and one sees pictures of both taxa, side by side at the bottom of the page (*Eremiastrophrurus manhoodi* to the right), with all their obvious differences, including those identified and spelt out

by Wells and Wellington in 1985. On this basis, the very valid and properly identified Wells and Wellington taxa are herein formally recognized and their nomenclaturally available names are used in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

Illegal names for these or other taxa coined by the Wüster gang in online PRINO (peer reviewed in name only) journals they have hijacked, such as *Zootaxa*, should be ignored and not used under any circumstance.

However, I recognize the ongoing threats and harassment of scientists who go against the terrorist like edicts and demands of Wolfgang Wüster and his associated band of thugs and thieves.

It is also a matter of public record that illegal actions of the Wüster gang and associates have caused deaths of a number of very competent herpetologists, including for example Luke Yeomans in the UK and Nathan Garrod in Queensland, Australia.

For defying the demands of the Wüster gang, myself and my family have been subject of criminal attacks to both our persons and property, as have many of my co-workers and it is the fear of such occurring that has been forcing many competent herpetologists to bow down to the illegal demands of the Wüster gang and using the illegal nomenclature (coined in breach of the *International Code of Zoological Nomenclature*) instead of the legal nomenclature.

The publication of the paper by Nielsen et al. (2016)

coincided with an audit of *Strophurus sensu lato* (as defined by Cogger (2014) and similar texts) by myself, with a view to dividing the genus along obvious morphological and phylogenetic lines.

At the same time I audited the known species within the group to see if there were any unrecognized groups in need of either being formally recognized and/or formally named for the first time.

Long aware of the illegal suppression of the works of Wells and Wellington by the Wüster gang and long aware of the fact that valid and appropriate Wells and Wellington names for taxa were not being used, this paper already had a reason for publication on that basis alone.

Also having spent more than 30 years active across Australia catching and observing relevant species, I was well aware that the recognized species diversity of the group as listed in Cogger (2014) or the Wüster gang controlled "The Reptile Database" managed by Peter Uetz, listing just 19 species as at end 2016, was an understatement of the total, so I decided to identify and name obvious unnamed taxa, which is done in this paper.

#### MATERIALS AND METHODS

The identification of the relevant genus and species groups was easily achieved by simple inspection of relevant specimens, live in the field, in museums and via images sent to me by others with accurate locality and/or other data. In terms of species level groups, biological barriers were identified by combining known locality data with known geographical barriers, most of which have become well known to myself in my various researches on other reptile groups inhabiting the same regions.

The formal naming exercises are a direct result of a review of the relevant literature to identify all previously named groups at both species and genus level, including known synonyms and potentially available names according to the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

I should mention that any names coined in online non peer reviewed or PRINO (peer reviewed in name only) journals like *Zootaxa* are usually available under the current and relevant rules of the *International Code of Zoological Nomenclature* as amended online and so are treated as valid and used when appropriate herein.

This assumes that the names are not junior synonyms of earlier properly proposed names.

Available names are used as appropriate (in the paper below) and where none was available the relevant entities are named according to the provisions of the *International Code of Zoological Nomenclature.* 

While the species, genera and subgenera diagnosed herein are done so on the basis of their own physical characters, it is important to note the guidance given by relevant earlier publications (quoted herein), which in combination show that the taxonomic conclusions within this paper are not only logical, but are in fact a mere statement of the obvious.

Divergence times of species or genus level groups are taken from the published literature as cited herein. How long it will take other herpetologists to adopt and use the taxonomy within this paper will not depend on the merits of what is published herein, so much as how willing they are to brave the hatred and harassment from a group known as the Wüster gang, who will seek to do all they can to stop others from using any taxonomy or nomenclature formally proposed by myself (see Hoser 2015a-f).

Their actions are dictated by personal hatred and an illegal desire to steal the intellectual property of others rather than any scientific arguments they may allege.

The unscientific and highly illegal actions of this group have been documented in detail in the papers of Hoser (2015a-f) and sources cited therein and even publicly condemned by judges in law courts (Court of Appeal 2014, Victorian Civil and Administrative Tribunal (VCAT) 2015).

Key publications relevant to the genus Strophurus Fitzinger, 1843 sensu lato, and all the taxonomic judgements and conclusions herein as well as the legal nomenclature that follows on from this, include: Andrews et al. (2013), Barts and Hulbert (2004), Bauer (2013), Bauer et al. (1989), Böhme and Sering (1997), Boulenger (1885, 1887), Brown (2014), Brown et al. (2012), Cogger (1975, 1983, 2000, 2014), Cogger et al. (1983), Colgan et al. (2009), Covacevich et al. (1998), De Vis (1886), Doody et al. (2013), Duméril and Bibron (1836), Escoriza Boj (2005), Even (2005), Fallend (2007), Fitzinger (1843), Glauert (1952, 1956), Gray (1842), Greer (1989), Han et al. (2004), Hoser (1989, 2005, 2007, 2015a-f, 2016a-b, 2017a-b), ICZN (1991), Kay et al. (2013), Kinghorn (1924, 1929), Kluge (1963), Laube (1993, 1997), Laube and Langner (2007), Laube and Seipp (1998), Longman (1916), Lönnberg and Andersson (1913), Loveridge (1934), Maryan (2005), Mayer (2014), Michael et al. (2011), Mitchell (1955), Nielsen et al. (2016), Ogilby (1892), Oliver and Bauer (2011), Oliver and Doughty (2016), Oliver and McDonald (2016), Oliver and Parkin (2014), Oliver et al. (2010, 2012, 2014a, 2014b), Pavey et al. (2016), Pianka (1969, 1986), Pianka and Pianka (1976), Pianka and Vitt (2003), Porter (2001, 2002), Ride et al. (1999), Rosauer et al. (2016), Rosenberg and Russell (1980), Rösler (1995, 2000a, 2000b), Sadlier et al. (2015), Shea and Wells (1984), Smith (1995), Stirling and Zietz (1893), Storr (1978, 1979, 1983, 1988a, 1988b, 1988c), Storr, Smith and Johnstone (1990), Tremper Jr (1999), Vanderduys (2016), Wellington (2016), Wells and Wellington (1984, 1985), Werner (1910), Wilson and Knowles (1988), Wilson and Swan (2010, 2013) and sources cited therein.

Some material within descriptions below may be repeated for different described taxa and this is in accordance with the provisions of the *International Code of Zoological Nomenclature* and the legal requirements for each description. I make no apologies for this.

I also note that, notwithstanding the theft of relevant materials from this author in an illegal armed raid on 17 August 2011, which were not returned in breach of undertakings to the court (Court of Appeal Victoria 2014 and VCAT 2015), I have made a decision to publish this paper.

This is in view of the conservation significance attached to the formal recognition of unnamed taxa at all levels and on the basis that further delays may in fact put these presently unnamed or potentially improperly assigned taxa at greater risk of extinction.

This comment is made noting the extensive increase in human population in Australia and the general environmental destruction across the continent as documented by Hoser (1991, 1993, 1996), including low density areas without a large permanent human population. I also note the abysmal environmental record of various Australian National, State and Local governments in the relevant Australian region over the past 200 years as detailed by Hoser (1989, 1991, 1993 and 1996). **RESULTS** 

#### RESULTS

An audit of the relevant literature identified significant and compelling reasons to divide the genus *Strophurus sensu lato* into four genera, for which names are available for three genera. The fourth is formally named for the first time herein.

One of these generic groupings also has a basis for a three-way division at the genus level, but the morphological similarity of all species, best known as the "Phasmid Geckos" has led me to define each of the three relevant groups as subgenera within the resurrected genus *Oedurella* Lönnberg and Andersson, 1913.

While numerous papers provide a molecular basis for the preceding, Nielsen *et al.* (2016) at Fig. 1, page 486 provides a recent basis for this.

The morphological basis for the four-way division of the genera defined herein is seen by inspection of the lizards themselves, or for that matter perusal of an identification manual such as Cogger (2014), or earlier texts such as Wilson and Knowles (1988) of Wilson and Swan (2013).

I should note that the newly created genus has a divergence of about 15 MYA from common ancestors of other genera and that the relevant named subgenera all diverged from one another about 10 MYA according to the data provided by Nielsen *et al.* (2016).

At the species and subspecies level, Nielsen *et al.* (2016) also identify numerous potential species in the phylogeny presented at Fig. 1, page 486.

Following on from that and from direct inspection of relevant specimens, in life, in museums and by way of locality based images, I was able to identify nine taxa worthy of full species level recognition.

And two more as subspecies. All taxa appear to be allopatric with respect to the species they have until now been classified as.

I note that as per the edicts of the Wüster gang, Nielsen *et al.* (2016) failed to recognize Wells and Wellington named taxa at either the genus or species level, even though their molecular results clearly confirmed both.

Therefore on the basis of the evidence of Nielsen *et al.* (2016) all relevant taxonomic and nomenclatural actions by Wells and Wellington are adopted in this paper.

This includes for example recognition of the genera *Oedurella* Lönnberg and Andersson, 1913 for the so-called Phasmid geckos and also *Eremiastrophrurus* Wells and Wellington, 1985 for the "*Diplodactylus elderi* Stirling and Zietz, 1893" group of species.

Also recognized is the taxon *Eremiastrophrurus mahoodi* Wells and Wellington, 1985 based on the unequivocal molecular evidence provided by Nielsen *et al.* (2016).

The divergent species currently known as *Strophurus wilsoni* (Storr, 1983) is herein placed in the monotypic genus *Adelyndactylus gen. nov.* 

At the time Brown *et al.* (2012) divided the species *Strophurus taenicauda* (De Vis, 1886) into three subspecies, I was of the view that the three taxa should be treated as full species.

Their own molecular data supported that contention, as does that of Nielsen *et al.* (2016) and so I have elevated

the trio of taxa to full species for the first time.

Species level taxa clearly warranting splits as identified in the results of Nielsen *et al.* (2016) and Sadlier, Omeally and Shea (2005), include *Strophurus intermedius* (Ogilby, 1892), *Strophurus krisalys* Sadlier, Omeally and Shea, 2005, *Strophurus williamsi* (Kluge, 1963) and *Strophurus wellingtonae* (Storr, 1988). In terms of the first two, and the fourth, these species are split two ways with a new species formally named in each case. *S. williamsi* is split three ways with two new species formally named for the first time.

For *Strophurus intermedius* (Ogilby, 1892), the south-west Australian population is also formally named herein as a subspecies.

Another taxon conservatively described herein as a subspecies is the eastern population of the species identified herein as *Oedurella taeniata* Lönnberg and Andersson, 1913.

Two other related and similar north-west Australian species, *Oedurella mcmillani* (Storr, 1978) and *Oedurella robinsoni* (Smith, 1995) are divided into a total of six morphologically and genetically divergent species, four being formally named for the first time. The new species have at times been treated as both *O. mcmillani* and *O. robinsoni*.

The species described as *Strophurus congoo* Vanderduys, 2016 is left in that genus on the basis of morphological similarity to others within *Strophurus* as defined in this paper, as well as the molecular evidence cited by Vanderduys (2016).

## NOTES ON THE DESCRIPTIONS FOR ANY POTENTIAL REVISORS

Unless mandated by the rules of the *International Code of Zoological Nomenclature*, none of the spellings of the newly proposed names should be altered in any way. The names created herein have also been created with a view to avoiding any potential homonymy with earlier established names.

Should one or more newly named taxa be merged by later authors to be treated as a single entity, the order of priority of retention of names should be the order (page priority) of the descriptions within this text (which is the same as that listed in the abstract).

Below are the appropriate genus (and subgenus) level descriptions followed by the (new) species and subspecies descriptions. In terms of the latter, they are placed within the genera as outlined in the following section of this paper, this being the new taxonomy and nomenclature for the relevant group/s of reptiles.

Characters used to identify each genus described below are largely derived from the standardized accounts given in Cogger (2014) and Wilson and Swan (2013) as they are all simple and can be employed easily in the field.

Latitude and Longitude information is given in degrees (first two digits) and minutes (second two digits after the period).

Below I also define and diagnose for the first time the four relevant genera formerly included within *Strophurus sensu lato.* 

The only species and subspecies taxon levels defined herein are those newly named for the first time.

For the other relevant species (as appears in the species list with this paper), diagnostic information can be found in the relevant descriptions.

In terms of all previously named species, one should note that except for *Strophurus aberrans* Glauert, 1952, *Strophurus albiocularis* Brown, Worthington, Wilmer and Macdonald, 2012, *Strophurus congoo* Vanderduys, 2016, *Strophurus triaureus* Brown, Worthington, Wilmer and Macdonald, 2012, *Eremiastrophrurus mahoodi* Wells and Wellington, 1985 and *Oedurella horneri* (Oliver and Parkin, 2014), comparative descriptive and diagnostic information can be found in Cogger (2014) at pages 332 to 344.

For the other six (just listed) species, diagnostic information separating them from their nearest congeners can be found in the original descriptions.

I note in passing that this also includes for the formal description of *Eremiastrophrurus mahoodi* Wells and Wellington, 1985, which does properly differentiate this taxon from the similar *Eremiastrophrurus elderi* (Stirling and Zeitz, 1893) and is therefore NOT a "*nomen nudem*" as defined in the *International Code of Zoological Nomenclature*, as has been unlawfully alleged by members of the Wüster gang.

#### **GENUS STROPHURUS FITZINGER, 1843**

**Type species:** *Diplodactylus* (*Strophurus*) *dumerilii* Fitzinger, 1843.

**Diagnosis:** The genus *Strophurus* Fitzinger, 1843 is within a tribe that was included with

the genus *Oedura* Gray, 1842 as defined in another paper published at the same time as this one (Hoser 2017a).

The subtribe is separated from the other four subtribes by presence of caudal glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae.

Strophurus species are further characterised and diagnosed by having labials that are larger than the other adjacent scales on the snout. Postmentals are usually enlarged. Digits are relatively short, wide and obviously horizontally flattened. Apical plates are greatly enlarged. Undivided secondary lamellae are broad. Primary, secondary and tertiary lamellae are distinct. A lateral pair of cloacal bones are absent in the males. Scales above the distal expansions are more or less equal in size to those above the basal parts of the digits. Digits lie flat to the surface when viewed laterally (i.e. through glass). All digits have claws that are small, retractile and lie in a groove between the distal lamellae.

The preceding is in effect the diagnosis of the genus *Strophurus* as defined in Cogger (2014) and similar contemporary texts which included all species in the relevant subtribe herein included in four newly defined and separated genera.

In terms of the four newly separated and defined genera, *Strophurus* is alone in having males with pre-anal pores, readily separating it from the three others.

The genus *Eremiastrophrurus* Wells and Wellington, 1985 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is incomplete, extending only half way down the rostral; the body is of a moderate build, nostril surrounded by fewer than seven scales, no ventral stripe; there are scattered enlarged tubercles along the body.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build and there is a ventral stripe.

Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus gen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus gen. nov.* Both these subgenera are separated from the subgenus

*Parvusdactylus subgen. nov.* by having less than seven scales surrounding the nostril, versus more than seven in *Parvusdactylus subgen. nov.* 

The genus *Adelyndactylus gen. nov.* is separated from other genera by the following suite of characters: no preanal pores in males; no enlarged dorso-lateral or scattered tubercles along the body, tail only about 50% of the snoutvent length; dorsal colour pattern of faint longitudinal stripes and body of moderate build.

**Distribution:** Most of continental Australia, except for the coldest parts including Tasmania.

**Content:** *Strophurus strophurus* (Duméril and Bibron, 1836) (Type species);

*S. aberrans* (Glauert, 1952); *S. albiocularis* Brown, Worthington, Wilmer and Macdonald, 2012; *S. assimilis* (Storr, 1988); *S. ciliaris* (Boulenger, 1885); *S. congoo* Vanderduys, 2016; *S. chriswilliamsi sp. nov.*; *S. dannybrowni sp. nov.*; *S. gedyei sp. nov.*; *S. jackyae sp. nov.*; *S. jenandersonae sp. nov.*; *S. intermedius* (Ogilby, 1892); *S. krisalys* Sadlier, Omeally and Shea, 2005; *S. rankini* (Storr, 1979); *S. spinigerus* (Gray, 1842); *S. taenicauda* (De Vis, 1886); *S. triaureus* Brown, Worthington, Wilmer and Macdonald, 2012; *S. wellingtonae* (Storr, 1988); *S. williamsi* (Kluge, 1963).

## GENUS EREMIASTROPHURUS WELLS AND WELLINGTON, 1985

**Type species:** *Diplodactylus elderi* Stirling and Zeitz, 1893. **Diagnosis:** The genus *Eremiastrophrurus* Wells and Wellington, 1985, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Eremiastrophrurus* Wells and Wellington, 1985 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Oedurella* Lönnberg and Andersson, 1913 and *Adelyndactylus gen. nov.* by the following suite of characters: no pre-anal pores in males; vertical rostral crease is incomplete, extending only half way down the rostral; the body is of a moderate build, nostril surrounded by fewer than seven scales, no ventral stripe and scattered enlarged tubercles along the body.

The subtribe including these four genera are separated from the other four subtribes in the species grouping by presence of caudal glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae.

*Eremiastrophrurus, Strophurus, Oedurella* and *Adelyndactylus gen. nov* species are further characterised and diagnosed by having labials that are larger than the other adjacent scales on the snout. Postmentals are usually enlarged. Digits are relatively short, wide and obviously horizontally flattened. Apical plates are greatly enlarged. Undivided secondary lamellae are broad. Primary, secondary and tertiary lamellae are distinct. Lateral pair of cloacal bones are absent in the males. Scales above the distal expansions are more or less equal in size to those above the basal parts of the digits. Digits lie flat to the surface when viewed laterally (i.e. through glass). All digits have claws that are small, retractile and lie in a groove between the distal lamellae.

The preceding is in effect the diagnosis of the genus *Strophurus* as defined in Cogger (2014) and similar contemporary texts which included all species in the relevant subtribe herein included in four newly defined and separated genera.

In terms of the four newly separated and defined genera, *Strophurus* is alone in having males with pre-anal pores, readily separating it from the three others.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build and there is a ventral stripe.

Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus gen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus gen. nov.* Both these subgenera are separated from the subgenus *Parvusdactylus subgen. nov.* by having less than seven scales surrounding the nostril, versus more than seven in *Parvusdactylus subgen. nov.* 

The genus *Adelyndactylus gen. nov.* is separated from other genera by the following suite of characters: no preanal pores in males; no enlarged dorso-lateral or scattered tubercles along the body, tail is only about 50% of the snout-vent length; dorsal colour pattern of faint longitudinal stripes and a body of moderate build.

**Distribution:** Drier parts of central, southern and Western Australia, excluding the farthest south and tropical areas.

**Content:** *Eremiastrophrurus elderi* (Stirling and Zeitz, 1893) (Type species); *E. mahoodi* Wells and Wellington, 1985; *E. michaelseni* (Werner, 1910).

#### GENUS OEDURELLA LÖNNBERG AND ANDERSSON, 1913

**Type species:** *Oedurella taeniata* Lönnberg and Andersson, 1913.

**Diagnosis:** The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build and there is a ventral stripe.

Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus subgen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus subgen. nov.* Both these subgenera are separated from the subgenus

*Parvusdactylus subgen. nov.* by having less than seven scales surrounding the nostril, versus more than seven in *Parvusdactylus subgen. nov.* 

Lizards in the subtribe containing the four genera *Oedurella, Strophurus, Eremiastrophrurus* and *Adelyndactylus gen. nov.* are separated from the other four subtribes of Australian gecko by the presence of caudal glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae.

Oedurella, Strophurus, Eremiastrophrurus and Adelyndactylus gen. nov. species are further characterised and diagnosed by having labials that are larger than the other adjacent scales on the snout. Postmentals are usually enlarged. Digits are relatively short, wide and obviously horizontally flattened. Apical plates are greatly enlarged. Undivided secondary lamellae are broad. Primary, secondary and tertiary lamellae are distinct. A lateral pair of cloacal bones are absent in the males. Scales above the distal expansions are more or less equal in size to those above the basal parts of the digits. Digits lie flat to the surface when viewed laterally (i.e. through glass). All digits have claws that are small, retractile and lie in a groove between the distal lamellae.

The preceding is in effect the diagnosis of the genus *Strophurus* as defined in Cogger (2014) and similar contemporary texts which included all species in the relevant subtribe herein included in four newly defined and separated genera (*Oedurella, Strophurus*,

Eremiastrophrurus and Adelyndactylus gen. nov.).

In terms of the four newly separated and defined genera, *Strophurus* is alone in having males with pre-anal pores, readily separating it from the three others.

The genus *Eremiastrophrurus* Wells and Wellington, 1985 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is incomplete, extending only half way down the rostral; the body is of a moderate build, nostril surrounded by fewer than seven scales, no ventral stripe and scattered enlarged tubercles along the body.

The genus *Adelyndactylus gen. nov.* is separated from other genera by the following suite of characters: no preanal pores in males; no enlarged dorso-lateral or scattered tubercles along the body, tail is only about 50% of the snout-vent length; dorsal colour pattern of faint longitudinal stripes and the body is of a moderate build.

**Distribution:** North-west Australia, mainly in Spinifex covered hills and dunes.

**Content:** Oedurella taeniata Lönnberg and Andersson, 1913 (Type species); O. alba sp. nov.; O. garystephensoni sp. nov.; O. horneri (Oliver and Parkin, 2014); O. jamielindi sp. nov.; O. jeanae (Storr, 1988); O. mcmillani (Storr, 1978); O. robinsoni (Smith, 1995); O. sonnemanni sp. nov.

#### SUBGENUS GRACILEDACTYLUS SUBGEN. NOV.

Type species: Diplodactylus jeanae Storr, 1988.

**Diagnosis:** Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus subgen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus subgen. nov.* Both these subgenera are separated from the subgenus *Parvusdactylus subgen. nov.* by having less than seven scales surrounding the nostril, versus more than seven in Parvusdactylus subgen. nov..

The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build and there is a ventral stripe.

Lizards in the subtribe containing the four genera *Oedurella, Strophurus, Eremiastrophrurus* and *Adelyndactylus gen. nov.* are separated from the other four subtribes of Australian gecko by the presence of caudal glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae.

Oedurella, Strophurus, Eremiastrophrurus and Adelyndactylus gen. nov. species are further characterised and diagnosed by having labials that are larger than the other adjacent scales on the snout. Postmentals are usually enlarged. Digits are relatively short, wide and obviously horizontally flattened. Apical plates are greatly enlarged. Undivided secondary lamellae are broad. Primary, secondary and tertiary lamellae are distinct. A lateral pair of cloacal bones are absent in the males. Scales above the distal expansions are more or less equal in size to those above the basal parts of the digits. Digits lie flat to the surface when viewed laterally (i.e. through glass). All digits have claws that are small, retractile and lie in a groove between the distal lamellae.

The preceding is in effect the diagnosis of the genus *Strophurus* as defined in Cogger (2014) and similar contemporary texts which included all species in the relevant subtribe herein included in four newly defined and separated genera (*Oedurella, Strophurus, Eremiastrophrurus* and *Adelyndactylus gen. nov.*).

In terms of the four newly separated and defined genera, *Strophurus* is alone in having males with pre-anal pores, readily separating it from the three others.

The genus *Eremiastrophrurus* Wells and Wellington, 1985 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is incomplete, extending only half way down the rostral; the body is of a moderate build, nostril surrounded by fewer than seven scales, no ventral stripe and scattered enlarged tubercles along the body.

The genus *Adelyndactylus gen. nov.* is separated from other genera by the following suite of characters: no preanal pores in males; no enlarged dorso-lateral or scattered tubercles along the body, tail is only about 50% of the snout-vent length; dorsal colour pattern of faint longitudinal stripes and the body is of a moderate build.

**Distribution:** Arid areas from the Pilbara in Western Australia to Central parts of the Northern Territory.

**Etymology:** The subgenus name is taken from the Latin "Gracile" meaning thin and "Dactylus" for the fact the lizards have claws on each digit.

**Content:** *Oedurella* (*Graciledactylus*) *jeanae* (Storr, 1988) (Monotypic).

#### SUBGENUS PARVUSDACTYLUS SUBGEN. NOV.

**Type species:** *Oedurella alba sp. nov.* (this paper). **Diagnosis:** Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus subgen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus subgen. nov.* Both these subgenera are separated from the subgenus *Parvusdactylus subgen. nov.* by having less than seven scales surrounding the nostril, versus more than seven in *Parvusdactylus subgen. nov.*.

The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build and there is a ventral stripe.

Lizards in the subtribe containing the four genera *Oedurella, Strophurus, Eremiastrophrurus* and *Adelyndactylus gen. nov.* are separated from the other four subtribes of Australian gecko by the presence of caudal glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae.

Oedurella, Strophurus, Eremiastrophrurus and Adelyndactylus gen. nov. species are further characterised and diagnosed by having labials that are larger than the other adjacent scales on the snout. Postmentals are usually enlarged. Digits are relatively short, wide and obviously horizontally flattened. Apical plates are greatly enlarged. Undivided secondary lamellae are broad. Primary, secondary and tertiary lamellae are distinct. A lateral pair of cloacal bones are absent in the males. Scales above the distal expansions are more or less equal in size to those above the basal parts of the digits. Digits lie flat to the surface when viewed laterally (i.e. through glass). All digits have claws that are small, retractile and lie in a groove between the distal lamellae.

The preceding is in effect the diagnosis of the genus *Strophurus* as defined in Cogger (2014) and similar contemporary texts which included all species in the relevant subtribe herein included in four newly defined and separated genera (*Oedurella, Strophurus,* 

*Eremiastrophrurus* and *Adelyndactylus gen. nov.*). In terms of the four newly separated and defined genera, *Strophurus* is alone in having males with pre-anal pores, readily separating it from the three others.

The genus *Eremiastrophrurus* Wells and Wellington, 1985 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is incomplete, extending only half way down the rostral; the body is of a moderate build, nostril surrounded by fewer than seven scales, no ventral stripe and there are scattered enlarged tubercles along the body.

The genus *Adelyndactylus gen. nov.* is separated from other genera by the following suite of characters: no preanal pores in males; no enlarged dorso-lateral or scattered tubercles along the body, the tail is only about 50% of the snout-vent length; dorsal colour pattern of faint longitudinal stripes and the body is of a moderate build.

**Distribution:** North Kimberley Region of Western Australia extending to the Keep River area in the Northern Territory, near the WA border.

**Etymology:** The subgenus name is taken from the Latin "Parvus" meaning small and "Dactylus" for the fact the lizards have claws on each digit.

**Content:** Oedurella (Parvusdactylus) alba sp. nov. (Type species); O. (Parvusdactylus) garystephensoni sp. nov.; O. (Parvusdactylus) jamielindi sp. nov.; O. (Parvusdactylus) mcmillani (Storr, 1978); O. (Parvusdactylus) robinsoni (Smith, 1995); O. (Parvusdactylus) sonnemanni sp. nov..

#### SUBGENUS OEDURELLA LÖNNBERG AND ANDERSSON, 1913

Type species: Oedurella taeniata Lönnberg and Andersson, 1913.

**Diagnosis:** The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by most or all publishing authors except for Wells and Wellington (1985) as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build and there is a ventral stripe.

Within Oedurella there are three subgenera. The nominate subgenus Oedurella subgen. nov. is separated from the subgenus Graciledactylus subgen. nov. by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus Graciledactylus subgen. nov. Both these subgenera are separated from the subgenus Parvusdactylus subgen. nov. by having less than seven scales surrounding the nostril, versus more than seven in Parvusdactylus subgen. nov.

For more detail see for the genus (previous in this paper). **Distribution:** Seasonally dry areas of tropical north-west and northern Australia, mainly away from the humid coasts and arid areas to the south, although also in dry hilly areas of the top end.

Content: Oedurella taeniata Lönnberg and Andersson, 1913 (Type species); O. horneri (Oliver and Parkin, 2014). GENUS ADELYNDACTYLUS GEN. NOV.

Type species: Diplodactylus wilsoni Storr, 1983.

**Diagnosis:** The lizard species in the genus *Adelyndactylus gen. nov.* has until now been treated by publishing authors as being within *Strophurus* Fitzinger, 1843, even though molecular data shows that the species identified by this name is worthy of genus level recognition due to its morphological divergence from other species and time of divergence ascertained by molecular studies. Hence this diagnosis.

The genus *Adelyndactylus gen. nov.* is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Oedurella* Lönnberg and Andersson, 1913 and *Eremiastrophrurus* Wells and Wellington, 1985 and by the following suite of characters: no pre-anal pores in males; no enlarged dorso-lateral or scattered tubercles or spines along the body, tail only about 50% of the snout-vent length; dorsal colour pattern of faint longitudinal stripes and the body is of a moderate build.

These are small, short-snouted, short-tailed, semi-arboreal lizards (up to 8 cm long) with scales on top of the tail much larger and higher than others.

The genus *Strophurus* Fitzinger, 1843 is within a tribe that was included with the genus *Oedura* Gray, 1842 as defined in another paper published at the same time as this one (Hoser 2017a).

The subtribe is separated from the other four subtribes by presence of caudal glands and associated ejection mechanisms, and transversely enlarged (as opposed to rounded and paired) proximal subdigital lamellae.

Strophurus, Adelyndactylus gen. nov, Oedurella Lönnberg and Andersson, 1913 and Eremiastrophrurus Wells and Wellington, 1985 are further characterised and diagnosed by having labials that are larger than the other adjacent scales on the snout. Postmentals are usually enlarged. Digits are relatively short, wide and obviously horizontally flattened. Apical plates are greatly enlarged. Undivided secondary lamellae are broad. Primary, secondary and tertiary lamellae are distinct. Lateral pair of cloacal bones are absent in the males. Scales above the distal expansions are more or less equal in size to those above the basal parts of the digits. Digits lie flat to the surface when viewed laterally (i.e. through glass). All digits have claws that are small, retractile and lie in a groove between the distal lamellae.

The preceding is in effect the diagnosis of the genus *Strophurus* as defined in Cogger (2014) and similar contemporary texts which included all species in the relevant subtribe herein included in four newly defined and separated genera (namely *Strophurus, Adelyndactylus gen. nov, Oedurella* Lönnberg and Andersson, 1913 and *Eremiastrophrurus* Wells and Wellington, 1985).

In terms of the four newly separated and defined genera, *Strophurus* is alone in having males with pre-anal pores, readily separating it from the three others.

The genus *Eremiastrophrurus* Wells and Wellington, 1985 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is incomplete, extending only half way down the rostral; the body is of a moderate build, nostril surrounded by fewer than seven scales, no ventral stripe and there are scattered enlarged tubercles along the body.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from other genera by the following suite of characters: no pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build and there is a ventral stripe.

Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus gen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus gen. nov.*. Both these subgenera are separated from the subgenus

Parvusdactylus subgen. nov. by having less than seven

scales surrounding the nostril, versus more than seven in *Parvusdactylus subgen. nov.* 

**Distribution:** Arid mid western interior of Western Australia.

**Etymology:** Named in honour of my (now) 18 year old daughter, Adelyn Hoser in recognition of a lifetime's dedicated work in wildlife conservation and "Dactylus" for the fact the lizards have claws on each digit. May I add that the hate statements about her posted on Wikipedia by Mark O'Shea and others in the Wüster gang stating as a "fact" that I killed my 10 Year old daughter (Adelyn Hoser) testing surgically devenomized snakes on her in 2011, is a complete fabrication by them (Wüster *et al.* 2012).

Their associated claims that the snakes had regenerated venom were also fabricated and found to be such in courts of law in 2012, 2013, 2014 (twice) and 2015 (see Court of Appeal 2014 and VCAT 2015).

Content: Adelyndactylus wilsoni (Storr, 1983) (Monotypic). STROPHURUS JACKYAE SP. NOV.

**Holotype:** A preserved specimen in the South Australian Museum, Adelaide, South Australia, Australia, specimen number: R25518 collected from the southern boundary of the Dangalli Conservation Park, South Australia (near the New South Wales border), Latitude -33.36 S., Longitude 140.53 E.

The South Australian Museum, Adelaide, South Australia, Australia is a government-owned facility that allows access to its holdings.

**Paratypes:** 1/ A preserved specimen in the South Australian Museum, Adelaide, South Australia, Australia, specimen number: R41425, collected at 4.4 km South South-east of 9 Mile Tank, South Australia, Latitude -33.41 S., Longitude 140.25 E.

2/ A preserved specimen in the South Australian Museum, Adelaide, South Australia, Australia, specimen number: R53808, collected at Gluepot Reserve, 64 km north of Waikerie, South Australia, Latitude -33.45 S., Longitude 140.11 E.

**Diagnosis:** The species *Strophurus jackyae sp. nov.* has until now been treated as a regional population of the widespread species, *Strophurus williamsi* (Kluge, 1963). *Strophurus jackyae sp. nov.* is restricted to the Victorian Mallee and adjacent parts of South Australia and nearby New South Wales, the type form of *S. williamsi* from the Warrumbungle Ranges in New South Wales, is found throughout north-west New South Wales and into adjacent dry parts of south-east Queensland, Australia.

*S. jackyae sp. nov.* is readily separated from *S. williamsi* by having few if any well defined black spots on the toes, versus a moderate to dense number in *S. williamsi.* 

*S. dannybrowni sp. nov.*, previously regarded as the North Queensland population of this species also lacks prominent black spotting on the limbs.

*S. jackyae sp. nov.* is also characterised by having light orange spines on the lower back and tail, versus dark orange spines on the back and tail in *S. williamsi* and *S. dannybrowni sp. nov.*.

When all three species of adult size are lined up next to one another, *S. williamsi* has noticeably larger coloured spines on the body and tail.

*S. williamsi* has a reddish brown iris. By contrast both *S. jackyae sp. nov.* and *S. dannybrowni sp. nov.* have an

#### orange iris.

*S. dannybrowni sp. nov.* is differentiated from the other two species by having dense flecking on the forebody configured to form a reticulated pattern including two or more wavy lines running anterior from the head. This is not seen in the other species. The dorsal pattern of *S. williamsi* is generally grey, but dominated by scattered black spots. This is not the case in the other two species.

In *S. dannybrowni sp. nov.* the dorsal pattern consists of dark brown (as opposed to black) spots or flecks merging to form an indistinct reticulated pattern. The dorsal pattern of *S. jackyae sp. nov.* is a combination of spots and flecks, both black and greyish brown, forming both a spotted and slightly reticulated pattern.

The head of *S. dannybrowni sp. nov.* has an obvious pattern, whereas this is not the case in *S. jackyae sp. nov.*.

Diagnostic information for both *S. jackyae sp. nov., S. dannybrowni sp. nov.* and *S. williamsi* treated as one species (*S. williamsi*) is found on pages 343 and 344 of Cogger (2014). On page 344 of Cogger (2014) is depicted a photo of a typical *S. williamsi* showing the scattered well-defined black spots on the toes, a feature that readily differentiates that taxon from *S. jackyae sp. nov.* 

**Distribution:** *S. jackyae sp. nov.* is found in the general region of the border of Victoria, South Australia and New South Wales. This population is divided in far western New South Wales from the population of *S. williamsi* which is found throughout most of north-west New South Wales and nearby Queensland, excluding the most arid areas, the wetter south-east and the region generally near Mackay, Townsville and drier areas further north, where *S. dannybrowni sp. nov.* occurs.

**Etymology:** Named in honour of my (now) 16 year old daughter, Jacky Hoser in recognition of a lifetime's dedicated work in wildlife conservation.

May I add that the hate statements about her posted on Wikipedia by Mark O'Shea and others in the Wolfgang Wüster gang (of thieves and law-breakers) stating as a "fact" that I killed my 10 Year old daughter are false (Wüster *et al.* 2012).

Adelyn Hoser the subject of the original claim was 12 at the time (but misreported in the media reports they incited as being ten) and so it was then claimed by O'Shea and their gang that Jacky was the one killed, as she was in fact the ten year old daughter.

The claim that I had killed them was part of a concocted story that I (Raymond Hoser) had tested surgically devenomized snakes on her in 2011 and killed her.

The story was a complete fabrication by them which they peddled to a global audience, including on hate pages they created on "Wikipedia".

They then put "robots" on the pages to ensure that the obvious lies could not be corrected by anyone else.

Their associated claims that the devenomized (venomoid) snakes had regenerated venom were also fabricated and found to be such in courts of law in 2012, 2013, 2014 (twice) and 2015 (see Court of Appeal 2014 and VCAT 2015).

The claims of venom regeneration were also scientifically disproven as far back as 2006, but that hasn't stopped the Wüster gang (of thieves and law-breakers) repeating the lies of venom regeneration beyond that time and including 2017.

As of 2017, Mark O'Shea still posting on Wikipedia as "Papblak" still makes these ridiculous claims in order to incite hatred against myself and the dedicated team at Snakebusters Reptile Shows as part of his self-serving anti-conservation agenda.

The Wüster gang (of thieves and law-breakers) also create hatred against myself, my vulnerable young children and others they seek to steal from as a basis to justify illegal theft of works that their gang of thieves rebadge as "new science", published in predatory online PRINO (peer reviewed in name only) journals like *Zootaxa* that the gang have a despotic control over (Hoser 2015a-f).

#### STROPHURUS DANNYBROWNI SP. NOV.

**Holotype:** A preserved specimen in the Queensland Museum, Brisbane, Queensland, Australia,

specimen number: J48398, collected at Townsville, Queensland, Australia, Latitude -19.27 S., Longitude 146.82 E.

The Queensland Museum, Brisbane, Queensland, Australia Australia, is a government-owned facility that allows access to its holdings.

**Paratypes:** Two preserved specimens in the Queensland Museum, Brisbane, Queensland, Australia,

Specimen numbers: J75529 and J75530, collected at Bluewater Creek Road, 2 km south-west of Bluewater, Queensland, Latitude -19.19 S., Longitude 146.54 E.

**Diagnosis:** Like the species *Strophurus jackyae sp. nov.*, *S. dannybrowni sp. nov.* has also until now been treated as a regional population of the widespread species, *Strophurus williamsi* (Kluge, 1963).

*S. dannybrowni sp. nov.* is found in dry near coastal areas north of about Mackay in Queensland, including drier parts of Cape York.

Strophurus jackyae sp. nov. is restricted to the Victorian Mallee and adjacent parts of South Australia and nearby New South Wales. The type form of *S. williamsi* with a type locality of the Warrumbungle Ranges in New South Wales, is found throughout north-west New South Wales and into adjacent dry parts of south-east Queensland, Australia.

*S. jackyae sp. nov.* is readily separated from *S. williamsi* by having few if any well defined black spots on the toes, versus a moderate to dense number in *S. williamsi.* 

*S. dannybrowni sp. nov.*, previously regarded as the North Queensland population of *S. williamsi* also lacks prominent black spotting on the limbs.

*S. jackyae sp. nov.* is also characterised by having light orange spines on the lower back and tail, versus dark orange spines on the back and tail in *S. williamsi* and *S. dannybrowni sp. nov.*.

When all three species of adult size are lined up next to one another, *S. williamsi* has noticeably larger coloured spines on the body and tail.

*S. williamsi* has a reddish brown iris. By contrast both *S. jackyae sp. nov.* and *S. dannybrowni sp. nov.*. have an orange iris.

*S. dannybrowni sp. nov.* is differentiated from the other two species by having dense flecking on the fore-body configured to form a reticulated pattern including two or more wavy lines running anterior from the head. This is not seen in the other species. The dorsal pattern of *S. williamsi* is generally grey, but dominated by scattered black spots. This is not the case in the other two species.

In *S. dannybrowni sp. nov.* the dorsal pattern consists of dark brown (as opposed to black) spots or flecks merging to form an indistinct reticulated pattern. The dorsal pattern of *S. jackyae sp. nov.* is a combination of spots and flecks, both black and greyish brown, forming both a spotted and slightly reticulated pattern.

The head of *S. dannybrowni sp. nov.* has an obvious pattern, whereas this is not the case in *S. jackyae sp. nov.*.

Diagnostic information for both *S. jackyae sp. nov., S. dannybrowni sp. nov.* and *S. williamsi* treated as one species (*S. williamsi*) is found on pages 343 and 344 of Cogger (2014). On page 344 of Cogger (2014) is depicted a photo of a typical *S. williamsi* showing the scattered well-defined black spots on the toes, a feature that readily differentiates that taxon from *S. jackyae sp. nov.* 

**Distribution:** *S. dannybrowni sp. nov.* occurs in the region of Queensland generally near Mackay, Townsville and drier areas further north.

*S. jackyae sp. nov.* is found in the general region of the border of Victoria, South Australia and New South Wales. This population is divided in far western New South Wales from the population of *S. williamsi* which is found throughout most of north-west New South Wales and nearby Queensland, excluding the most arid areas and the wetter parts of the south-east.

**Etymology:** Named in honour of Veterinary Surgeon, Danny Brown of Deception Bay Queensland, who over some decades has published some of the most fantastic and in depth books on Australian reptiles and their captive husbandry, many of which by any reasonable and objective analysis must be regarded as being "best in class".

#### STROPHURUS GEDYEI SP. NOV.

**Holotype:** A preserved specimen in the Australian Museum in Sydney, New South Wales, Australia,

Specimen number: R.143866 collected at 27.8km southwest of the Landsborough Highway on Boulia Rd, near Winton, Queensland, Australia, Latitude -22.19 S., Longitude 142.43 E.

The Australian Museum in Sydney, New South Wales, Australia, is a government-owned facility that allows access to its holdings.

**Paratype:** 2/ A preserved specimen in the Australian Museum in Sydney, New South Wales, Australia Specimen number: R.143867 collected at 27.8km southwest of the Landsborough Highway on Boulia Rd, near Winton, Queensland, Australia, Latitude -22.19 S., Longitude 142.43 E.

**Diagnosis:** Until now, *Strophurus gedyei sp. nov.* has been treated as a southern population of the recently described species *Strophurus krisalys* Sadlier, Omeally and Shea, 2005. However the differences between the nominate population from further north and north-west and this newly described taxon have been known for some time (see Brown 2014, p. 344, in image at bottom right of the page, who provides comparative photos of both taxa, listed as the "northern" (nominate) and "southern" form), or the molecular results of Nielsen *et al.* (2016) as well as the original molecular results of Sadlier, Omeally and Shea, (2005).

*S. krisalys* is readily separated from *S. gedyei sp. nov.* by having an obviously mottled pattern on the limbs (front and back) versus none in *S. krisalys.* By contrast, the limbs in *S. gedyei sp. nov.* are grey with black flecks in young

specimens, becoming plain grey with some indistinct flecks in adults.

*S. gedyei sp. nov.* has a lightish zig-zag running down the back bounded by a line of closely placed black dots, versus no such dots bordering the zig-zag in the northern specimens (being *S. krisalys*).

*S. krisalys* have significant patches of dark and light pigment on the head forming a well defined pattern, versus a whitish head with numerous black specks in *S. gedyei sp. nov.*.

Original tails of *S. krisalys* are patterned with lightish beige blotches surrounded by darker grey pigment as roughly 50:50 dark and light, versus a generally light grey tail in *S. gedyei sp. nov.* with joined blackish flecks forming broken and indistinct markings on the tail. Side by side, the tail spines of *S. krisalys* are relatively larger and longer than seen in *S. gedyei sp. nov.* as depicted in the image at the bottom right of page 344 of Brown (2014).

Cogger (2014) at pages 337-338 provides a diagnosis of both species (separating them from congeners) as *S. krisalys.* At the bottom of p. 337, Cogger (2014) provides an image of an adult *S. gedyei sp. nov.*, from Winton in Queensland. Brown (2014) at p. 355 provides an image of a young *S. krisalys* from Lake Moondarah in Queensland and *S. gedyei sp. nov.* from Croydon, Queensland, side by side, from which clear differences can be seen, including the somewhat larger and more prominent orange tubercles and more spinose tail in *S. gedyei sp. nov.*.

**Distribution:** *S. gedyei sp. nov.* is found in the driest parts of Western Queensland, generally south of Winton and almost as far south as the New South Wales border.

*S. krisalys* is found generally north and west of here, commencing in a broad line from about Hughenden in the east and Camooweal in the west and north to the Gulf of Carpentaria and the drier parts of the western side of lower Cape York.

**Etymology:** Named in honour of Andrew Gedye, formerly of Cheltenham, Victoria and now of the Cairns district in far north Queensland, Australia, in recognition of many years valuable work breeding rare and potentially threatened reptile species and for other important contributions to Australian herpetology.

#### STROPHURUS CHRISWILLIAMSI SP. NOV.

**Holotype:** A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: R127476 collected at the Munjina Roadhouse, Western Australia, Australia, Latitude -22.55 S., Longitude 118.65 E.

The Western Australian Museum in Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

**Paratype:** A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: R127477 collected at the Munjina Roadhouse, Western Australia, Australia, Latitude -22.55 S., Longitude 118.65 E.

**Diagnosis:** *Strophurus chriswilliamsi sp. nov.* has until now been treated as a northern population of *S. wellingtonae* (Storr, 1988).

Strophurus chriswilliamsi sp. nov. is found in the Pilbara region of Western Australia, whereas *S. wellingtonae* is found in the drier areas to the south and south-west, excluding the far south and generally away from the coast.

*Strophurus chriswilliamsi sp. nov.* is characterised by having 15 or more orange spots in each of the two rows (main row of spots) running down the back versus usually less than 15 in *S. wellingtonae.* 

Strophurus chriswilliamsi sp. nov. is readily distinguished from *S. wellingtonae* by having three rows of orange spines at base of the tail, or what can be described as odd spines away from the two dorsal rows running from the base of the tail to the end, versus only spines in 2 well defined rows in *S. wellingtonae* and no odd spines away from these. These descriptions are taken from "original" tails.

*Strophurus chriswilliamsi sp. nov.* has little if any black spotting on the snout, versus a lot of black spotting on the snout in *S. wellingtonae*.

**Distribution:** *Strophurus chriswilliamsi sp. nov.* is found in the Pilbara region of Western Australia, whereas *S. wellingtonae* is found in the drier areas to the south and south-west, excluding the far south and generally away from the coast.

**Etymology:** Named in honour of Chris Williams of New South Wales, Australia who has worked at a live reptile sales business called "The Snake Ranch" and also previously at Taronga Park Zoo in Sydney and also a past president of the Australian Herpetological Society in Sydney, in recognition of his contributions to herpetology in Australia.

#### STROPHURUS JENANDERSONAE SP. NOV.

**Holotype:** A preserved specimen in the Northern Territory Museum, Darwin, Northern Territory, Australia, specimen number: R17753, collected from Namatjira Drive, 2 km east of the Ormiston Gorge turn off, Northern Territory (central Australia), Australia, Latitude -23.68 S., Longitude 132.72 E.

The Northern Territory Museum, Darwin, Northern Territory Australia is a government-owned facility that allows access to its holdings.

**Paratypes:** 1/ A preserved specimen in the Northern Territory Museum, Darwin, Northern Territory, Australia, specimen number: R21148 collected at Sadadeen, Alice Springs, Northern Territory (central Australia), Australia, Latitude -23.70 S., Longitude 133.87 E.

2/ A preserved specimen in the Northern Territory Museum, Darwin, Northern Territory, Australia, specimen number: R00747, collected from 27 km north of Alice Springs, Northern Territory (central Australia), Australia, Latitude -23.43 S., Longitude 133.82 E.

**Diagnosis:** The species *Strophurus jenandersonae sp. nov.* has until now been treated as a central Australian population of *S. intermedius*, the species which it is clearly most closely related to.

The diagnosis for *S. intermedius* at page 336 of Cogger (2014) applies to all of *S. jenandersonae sp. nov.* and *S. intermedius* including all subspecies, these being *S. intermedius burrelli* Hoser, 2005 and *S. intermedius obscurum subsp. nov.* as formally described and named in this paper.

*S. jenandersonae sp. nov.* is readily separated from all forms and subspecies of *S. intermedius* by the general absence of an indistinct grey pattern on the body (as seen in others from NSW and nearby SA) (nominate form and *S. intermedius burrelli*), instead being covered more-or-less evenly with dense grey flecks to give a greyish pattern only punctuated with light orange spines, versus an indistinct

grey pattern, especially on the upper flanks with dark edged white patches obvious on the upper body in NSW and nearby SA *S. intermedius*.

*S. intermedius obscurum subsp. nov.* is readily separated from all other *S. intermedius* (nominate form and *S. intermedius burrelli*) by having a well defined dorsal pattern consisting of a zig-zag light zone running down either side of the upper flanks, bounded by dark zoned pigment, with a similar zig-zag running along the midline of the (original) tail. *S. intermedius obscurum subsp. nov.* also has well marked limbs and toes, versus speckling on legs in *S. jenandersonae sp. nov.* from the Northern Territory and indistinct markings on legs in other forms (nominate form and *S. intermedius burrelli*).

For further diagnostic information separating *S. intermedius burrelli* from *S. intermedius intermedius*, (the typical east Australian form, with which it is most similar and would otherwise key as on the basis of information herein) refer to the original description in Hoser (2005).

Brown (2014) at p. 357 provides an image of *S. jenandersonae sp. nov.* from Alice Springs in the Northern Territory, identified as "*Strophurus intermedius*, Alice Springs, Northern Territory".

**Distribution:** *S. jenandersonae sp. nov.* is confined to the MacDonnell Ranges bioregion of the Northern Territory, Australia, more-or-less centred on the town of Alice Springs.

**Etymology:** Named in honour of Jen Anderson of Ringwood, Victoria, Australia in recognition for her excellent work with reptiles and wildlife conservation through her ongoing services with Snakebusters: Australia's best wildlife displays, being the only wildlife displays in Australia that let people hold the animals at our displays and/or without charging them an extortionate fee for the right to do so.

## STROPHURUS INTERMEDIUS OBSCURUM SUBSP. NOV.

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R157858 collected at the Balladonia Roadhouse, western side of the Nullarbor Plain, Western Australia, Latitude -32.28 S., Longitude 123.48 E.

The Western Australian Museum, Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

**Paratypes:** 1/ A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R127888 collected at Arubiddy, Western Australia, Australia, Latitude -31.48 S., Longitude 125.55 E.

2/ A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R91350 collected 4 km south-west of Haig, Western Australia, Australia, Latitude -31.03 S., Longitude 126.05 E.

**Diagnosis:** The subspecies *Strophurus intermedius obscurum subsp. nov.* has until now been treated as a western Australian population of *S. intermedius*, the taxon which it is clearly most closely related to. However it is readily separated from that taxon (the nominate subspecies) by morphological differences.

*S. intermedius obscurum subsp. nov.* is readily separated from all other *S. intermedius* (nominate form and *S.* 

# 46

*intermedius burrelli*) by having a very well defined dorsal pattern consisting of a zig-zag light zone running down either side of the upper flanks, bounded by dark zoned pigment, with a similar zig-zag running along the midline of the (original) tail. *S. intermedius obscurum subsp. nov.* also has well marked limbs and toes, versus speckling on legs in *S. jenandersonae sp. nov.* (described as a new species in this paper) from the Northern Territory and indistinct markings on legs in other forms (nominate form and *S. intermedius burrelli*).

For further diagnostic information separating *S. intermedius burrelli* from *S. intermedius intermedius*, (the typical east Australian form, with which it is most similar and would otherwise key as on the basis of information herein) refer to the original description in Hoser (2005).

The diagnosis for *S. intermedius* at page 336 of Cogger (2014) applies to all of *S. jenandersonae sp. nov.* and *S. intermedius* including all subspecies, these being *S. intermedius burrelli* Hoser, 2005 and *S. intermedius obscurum subsp. nov.* as formally described and named in this paper.

*S. jenandersonae sp. nov.* is readily separated from all forms and subspecies of *S. intermedius* by the general absence of an indistinct grey pattern on the body (as seen in others from NSW and nearby SA) (nominate form and *S. intermedius burrelli*), instead being covered more-or-less evenly with dense grey flecks to give a greyish pattern only punctuated with light orange spines, versus an indistinct grey pattern, especially on the upper flanks with dark edged white patches obvious on the upper body in NSW and nearby SA *S. intermedius*.

*S. intermedius obscurum subsp. nov.* is also characterised by a large whiteish triangle formed under the eye, between the eye and the labial line of the mouth as well as extremely prominent dark and light markings on the upper

parts of the head. These features are not seen in any of *S.* intermedius burrelli, *S.* intermedius intermedius or *S.* jenandersonae sp. nov..

Storr, Smith and Johnstone (1990) at p. 72, image 3, have a photo of *S. intermedius obscurum subsp. nov.* identified as "*Diplodactylus intermedius*".

**Distribution:** *S. intermedius obscurum subsp. nov.* occurs in the general region west of about Kimba in South Australia westwards across the Nullarbor into nearby parts of southern Western Australia.

*S. intermedius burrelli* appears to be restricted to the Yorke Peninsula in South Australia and immediately adjacent areas and *S. intermedius intermedius* occurs in South Australia in the general region west of Whyalla, into northern western Victoria, most of New South Wales and drier parts of far south-east Queensland.

*S. jenandersonae sp. nov.* is confined to the MacDonnell Ranges bioregion of the Northern Territory, Australia, more-or-less centred on the town of Alice Springs.

**Etymology:** The name obscurum (Latin for hidden) reflects the fact that this taxon has been effectively hidden from herpetologists as a unique biological entity until now.

#### OEDURELLA (OEDURELLA) TAENIATA MINIMA SUBSP. NOV.

**Holotype:** A preserved specimen in the South Australian Museum, Adelaide, South Australia, Australia, specimen number: R55298 collected from Phosphate Hill in North Queensland, Australia, Latitude -21.48 S., Longitude

139.54 E.

The South Australian Museum, Adelaide, South Australia, Australia is a government-owned facility that allows access to its holdings.

**Paratypes:** 1/ A preserved specimen in the Queensland Museum, Brisbane, Queensland, Australia, specimen number: J89557, collected from 150 km South East of Mount Isa, Queensland, Latitude -21.94. S., Longitude 140.45 E.

2/ A preserved specimen in the Queensland Museum, Brisbane, Queensland, Australia, specimen number: J39029 collected from 30.5 km east of Mount Isa, Queensland on the Barkly Highway, Latitude -20.72 S., Longitude 139.77 E.

**Diagnosis:** Oedurella taeniata minima subsp. nov. has until now been regarded as an eastern population of Oedurella taeniata Lönnberg and Andersson, 1913, the type species for the genus and subgenus Oedurella Lönnberg and Andersson, 1913. Molecular evidence of Nielsen *et al.* (2016) places this eastern taxon at the cusp between species and subspecies and so it is herein conservatively named and diagnosed at the subspecies level.

*Oedurella taeniata* from north-west Australia and immediately adjacent parts of the north-west Northern Territory, this being the nominate subspecies *O. taeniata taeniata* is characterised by having two orange stripes down each side, versus at least one of these being yellow (usually both) in *O. taeniata minima subsp. nov.* from northwest Queensland and the north-east of the Northern Territory.

There is usually some whitening of the pigment posterior to the eye in *O. taeniata minima subsp. nov.* that is not seen in *O. taeniata taeniata..* 

Both *O. taeniata minima subsp. nov.* and *O. taeniata taeniata* have some pattern or dark and light markings on the limbs, but these are prominent in *O. taeniata minima subsp. nov.* and indistinct in *O. taeniata taeniata.* 

*O. taeniata minima subsp. nov.* also has obvious dark flecks on the forelimbs and these are not seen in *O. taeniata taeniata.* 

*O. taeniata taeniata* has an obvious black boundary on the dark side stripe which is either absent or barely visible in *O. taeniata minima subsp. nov.*.

In *O. taeniata minima subsp. nov.* there are two semidistinct whitish stripes that run into the eye from the snout (one on top of the eye and one to the lower eye) versus just one to the top of the eye in *O. taeniata taeniata.* Diagnosis for both taxa, treated as "*Strophurus taeniatus*" separating them from all other species in *Strophurus* as defined by Cogger (2014) is on pages 341 and 342 of Cogger (2014).

On page 342 of Cogger (2014) and page 357 of Brown (2014) are images in life of typical *O. taeniata minima subsp. nov.* showing yellow (not orange) side stripes on the body and two white stripes running from the snout to the eye.

**Distribution:** *Oedurella taeniata minima subsp. nov.* is found in the Selwyn Range and nearby parts of Queensland and the Northern Territory extending to the eastern half of the top-end including the Arnhem Land Escarpment. The nominate subspecies *O. taeniata taeniata* is confined to the Kimberley district of Western Australia

and nearby parts of the Northern Territory, including and west of the Victoria River district.

**Etymology:** Named after the Latin word "Minima" meaning very small, in reflection of the physical size of the taxon.

#### OEDURELLA (PARVUSDACTYLUS) ALBA SP. NOV.

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R172333 collected at Theda Station, North Kimberley, Western Australia, Australia, Latitude -14.81 S., Longitude 126.51 E.

The Western Australian Museum, Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

**Paratype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R57323 collected at the Old Theda Homestead, North Kimberley, Western Australia, Australia, Latitude -14.82 S., Longitude 126.72 E.

**Diagnosis:** Oedurella (Parvusdactylus) alba sp. nov. has until now been regarded as a population of the Oedurella (Parvusdactylus) mcmillani (Storr, 1978) or more recently Oedurella (Parvusdactylus) robinsoni (Smith, 1995). Molecular evidence of Neilsen *et al.* (2016) indicates that the divergence between this morphologically distinct population and those from the type localities of each other species (and the others formally named in this paper) is sufficient to warrant recognition at the species level.

The subgenus *Parvusdactylus subgen. nov.* includes six species, although until now, only two of these have been generally recognized (*Oedurella (Parvusdactylus) mcmillani* (Storr, 1978) and *Oedurella (Parvusdactylus) robinsoni* (Smith, 1995)). The other four are formally described within this paper and have until now been treated as populations of one or other or sometimes both the other two species. Therefore this diagnosis effectively separates out each species from one another.

*O. alba sp. nov.* from the area around Theda Station in the North Kimberley in Western Australia, is readily separated from *O. mcmillani* by the presence of four prominent rows of small black spots running from the snout to the eye, which is not seen in the nominate form (although sometimes appears as faint rows). *O. alba sp. nov.* is further differentiated by the presence of obvious specks on forelimbs versus none in *O. mcmillani*.

*O. alba sp. nov.* has a distinctive white stripe running from the eye along the mid flank of either side of the body. Less distinct longitudinal white stripes also run down the back. In *O. mcmillani* the white lateral stripe is yellowish brown in colour as opposed to white.

In terms of dorsal pattern, *O. alba sp. nov.* is clearly the most brilliant and well-marked species in the subgenus.

The similar species *O. jamielindi sp. nov.* from Bigge Island, West Kimberley District, Australia, is readily separated from the similar species *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. mcmillani* (Storr, 1978), *O. robinsoni* (Smith, 1995) and *O. sonnemanni sp. nov.* by the presence of a whitish line running from the eye to the tail that is noticeably wider on the body than adjacent darker (brownish) lines, versus same width or narrower, or absent in all other species.

In contrast to *O. mcmillani* the relevant lateral stripe is bright and distinctive, as opposed to being faded, the bright and distinct lateral stripe also being the case in *O. alba sp.* 

nov. However overall, the general dorsal pattern of O. jamielindi sp. nov. is otherwise dull as for O. mcmillani.

The species *O. sonnemanni sp. nov.* known only from the Keep River drainage in the Northern Territory, immediately adjacent to the Western Australian border is separated from *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* (Storr, 1978), and *O. robinsoni* (Smith, 1995) by its dorsal colouration, being essentially unmarked save for a single thin noticeable, but very faded yellowish line running along the mid flank of the body, and no other lines on the body or tail.

All of O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978) also have lateral running lines on either side of the tail, which is not the case for O. sonnemanni sp. nov.. O. robinsoni differs from the other species by having a general body colour of greyish or brownish with numerous tightly joined black flecks, forming a series of narrow reticulations or very thin lines running down the body with all adjoining areas being of a similar greyish or brown colour, as opposed to being of different shades of brown in the other species forming dorsolateral lines). In the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978), any dark flecks forming lines or boundaries, separate areas of pigment of different colour giving the lizard a pattern of indistinct stripes. As mentioned already, dorsally at least O. sonnemanni sp. nov. is essentially unmarked, or any markings present are extremely indistinct and barely noticeable, which is not the case in the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978).

In line with *O. alba sp. nov.*, *O. sonnemanni sp. nov.* is distinctive in the subgenus by having a well defined boundary between the darker upper body and the light venter at the lower flanks, as opposed to a gradual fading in the other four species (*O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* and *O. robinsoni*).

Both *O. robinsoni* and *O. sonnemani sp. nov.* lack any well defined head markings or a well defined temporal streak as seen in the other four species in the subgenus.

The species *O. garystephensoni sp. nov.* from the southern Kimberley District in Western Australia has been confused with both *O. mcmillani* and *O. robinsoni*, and is separated from all five other species in the subgenus by its dorsal colouration and pattern, consisting of a semi-distinct pattern of longitudinal lines of similar brownish grey colours, with some black flecking and lines running down the tail (original tails).

*O. alba sp. nov.*, *O. jamielindi sp. nov.* and *O. mcmillani* are characterised by having limbs that have a semidistinct pattern of linked black flecks forming stripes running down the limbs. *O. jamielindi sp. nov.* and *O. mcmillani* also have black flecks separate from these scattered over the limbs.

*O. garystephensoni sp. nov., O. robinsoni* and *O. sonnemani sp. nov.* only have scattered black flecks on the limbs.

The dorsal pattern of *O. garystephensoni sp. nov.* as just described, contrasts with the largely unmarked dorsum of *O. sonnemani sp. nov.*, save for the indistinct stripe on the flanks, and the one colour body of *O. robinsoni* overlain with the joined black flecks forming a series of narrow thin blackish lines running down the body, but with all adjacent areas being effectively one colour.

Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus subgen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus subgen. nov.* Both these subgenera are separated from the subgenus *Parvusdactylus subgen. nov.* (including the six species in this subgenus) by having less than seven scales surrounding the nostril, versus more than seven in *Parvusdactylus subgen. nov.*.

The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build, there is a ventral stripe.

**Distribution:** *Oedurella* (*Parvusdactylus*) *alba sp. nov.* is known only from the vicinity of Theda Station in the North Kimberley district of Western Australia.

**Etymology:** Named after the Latin word "Alba", which means striped in reflection of the colouration of the taxon. **OEDURELLA (PARVUSDACTYLUS)** 

## GARYSTEPHENSONI SP. NOV.

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R172795 collected at Manning Gorge, on Mount Barnett Station, Kimberley District, Western Australia,

Australia, Latitude -16.39 S., Longitude 125.55 E.

The Western Australian Museum, Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

**Paratype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R172855 collected at Manning Gorge, South-west Kimberley District, Western Australia, Australia, Latitude -16.39 S., Longitude 125.55 E.

**Diagnosis:** Oedurella (Parvusdactylus) garystephensoni sp. nov. has until now been regarded as a population of the Oedurella (Parvusdactylus) mcmillani (Storr, 1978) or more recently Oedurella (Parvusdactylus) robinsoni (Smith, 1995). Molecular evidence of Neilsen *et al.* (2016) indicates that the divergence between this morphologically distinct population and those from the type localities of each other species (and the others formally named in this paper) is sufficient to warrant recognition at the species level.

The subgenus *Parvusdactylus subgen. nov.* includes six species, although until now, only two of these have been generally recognized (*Oedurella (Parvusdactylus) mcmillani* (Storr, 1978) and *Oedurella (Parvusdactylus) robinsoni* (Smith, 1995)). The other four are formally described within this paper and have until now been treated as populations of one or other or sometimes both the other two species. Therefore this diagnosis effectively separates out each species from one another.

O. alba sp. nov. from the area around Theda Station in the

North Kimberley in Western Australia, is readily separated from *O. mcmillani* by the presence of four prominent rows of small black spots running from the snout to the eye, which is not seen in the nominate form (although sometimes appears as faint rows). *O. alba sp. nov.* is further differentiated by the presence of obvious specks on forelimbs versus none in *O. mcmillani*.

*O. alba sp. nov.* has a distinctive white stripe running from the eye along the mid flank of either side of the body. Less distinct longitudinal white stripes also run down the back. In *O. mcmillani* the white lateral stripe is yellowish brown in colour as opposed to white.

In terms of dorsal pattern, *O. alba sp. nov.* is clearly the most brilliant and well-marked species in the subgenus. The similar species *O. jamielindi sp. nov.* from Bigge Island, West Kimberley District, Australia, is readily separated from the similar species *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. mcmillani* (Storr, 1978), *O. robinsoni* (Smith, 1995) and *O. sonnemanni sp. nov.* by the presence of a whitish line running from the eye to the tail that is noticeably wider on the body than adjacent darker (brownish) lines, versus same width or narrower, or absent in all other species.

In contrast to *O. mcmillani* the relevant lateral stripe is bright and distinctive, as opposed to being faded, the bright and distinct lateral stripe also being the case in *O. alba sp. nov.* However overall, the general dorsal pattern of *O. jamielindi sp. nov.* is otherwise dull as for *O. mcmillani.* 

The species *O. sonnemanni sp. nov.* known only from the Keep River drainage in the Northern Territory, immediately adjacent to the Western Australian border is separated from *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* (Storr, 1978), and *O. robinsoni* (Smith, 1995) by its dorsal colouration, being essentially unmarked save for a single thin noticeable, but very faded yellowish line running along the mid flank of the body, and no other lines on the body or tail.

All of O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978) also have lateral running lines on either side of the tail, which is not the case for O. sonnemanni sp. nov.. O. robinsoni differs from the other species by having a general body colour of grevish or brownish with numerous tightly joined black flecks, forming a series of narrow reticulations or very thin lines running down the body with all adjoining areas being of a similar greyish or brown colour, as opposed to being of different shades of brown in the other species forming dorsolateral lines). In the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978), any dark flecks forming lines or boundaries, separate areas of pigment of different colour giving the lizard a pattern of indistinct stripes. As mentioned already, dorsally at least O. sonnemanni sp. nov. is essentially unmarked, or any markings present are extremely indistinct and barely noticeable, which is not the case in the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978).

In line with *O. alba sp. nov.*, *O. sonnemanni sp. nov.* is distinctive in the subgenus by having a well defined boundary between the darker upper body and the light venter at the lower flanks, as opposed to a gradual fading in the other four species (*O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* and *O. robinsoni*).

Both *O. robinsoni* and *O. sonnemani sp. nov.* lack any well defined head markings or a well defined temporal streak as seen in the other four species in the subgenus.

The species *O. garystephensoni sp. nov.* from the southern Kimberley District in Western Australia has been confused with both *O. mcmillani* and *O. robinsoni*, and is separated from all five other species in the subgenus by its dorsal colouration and pattern, consisting of a semi-distinct pattern of longitudinal lines of similar brownish grey colours, with some black flecking and lines running down the tail (original tails).

*O. alba sp. nov.*, *O. jamielindi sp. nov.* and *O. mcmillani* are characterised by having limbs that have a semidistinct pattern of linked black flecks forming stripes running down the limbs. *O. jamielindi sp. nov.* and *O. mcmillani* also have black flecks separate from these scattered over the limbs.

*O. garystephensoni sp. nov., O. robinsoni* and *O. sonnemani sp. nov.* only have scattered black flecks on the limbs.

The dorsal pattern of *O. garystephensoni sp. nov.* as just described, contrasts with the largely unmarked dorsum of *O. sonnemani sp. nov.*, save for the indistinct stripe on the flanks, and the one colour body of *O. robinsoni* overlain with the joined black flecks forming a series of narrow thin blackish lines running down the body, but with all adjacent areas being effectively one colour.

Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus subgen. nov.* by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus subgen. nov.* Both these subgenera are separated from the subgenus *Parvusdactylus subgen. nov.* (including the six species in this subgenus) by having less than seven scales surrounding the nostril, versus more than seven in

#### Parvusdactylus subgen. nov..

The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build, there is a ventral stripe.

**Distribution:** *Oedurella* (*Parvusdactylus*) *garystephensoni sp. nov.* is known only from the vicinity of the type locality in the south-west Kimberley district of Western Australia including at least one immediately adjacent offshore island.

**Etymology:** Named in honour of Gary Stephenson, originally from Bondi Junction in Sydney, New South Wales, Australia in recognition of a lifelong contribution to herpetology in Australia.

When reptiles were effectively "banned" by the New South Wales government entities, the National Parks and Wildlife Service (NPWS) and their business entity, Taronga Zoo, in the 1970's Gary Stephenson was one of the first casualties.

His home was raided in the 1970's and 1980's and he was treated as a criminal by thug wildlife officers, who were in the main disgraced ex-cops.

This effectively ended his pursuit of an academic career in herpetology, much to the detriment of wildlife conservation in Australia.

## OEDURELLA (PARVUSDACTYLUS) JAMIELINDI SP. NOV.

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R168892 collected at Bigge Island, Kimberley District, Western Australia, Australia, Latitude -14.60 S., Longitude 125.17 E.

The Western Australian Museum, Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

**Diagnosis:** Oedurella (Parvusdactylus) jamielindi sp. nov. has until now been regarded as a population of Oedurella (Parvusdactylus) mcmillani (Storr, 1978). Molecular evidence of Neilsen *et al.* (2016) indicates that the divergence between this morphologically distinct population and those from the type localities of other species in the subgenus (and the others formally named in this paper) is sufficient to warrant recognition at the species level.

The subgenus *Parvusdactylus subgen. nov.* includes six species, although until now, only two of these have been generally recognized (*Oedurella (Parvusdactylus) mcmillani* (Storr, 1978) and *Oedurella (Parvusdactylus) robinsoni* (Smith, 1995)). The other four are formally described within this paper and have until now been treated as populations of one or other or sometimes both the other two species. Therefore this diagnosis effectively separates out each species from one another.

*O. alba sp. nov.* from the area around Theda Station in the North Kimberley in Western Australia, is readily separated from *O. mcmillani* by the presence of four prominent rows of small black spots running from the snout to the eye, which is not seen in the nominate form (although sometimes appears as faint rows). *O. alba sp. nov.* is further differentiated by the presence of obvious specks on forelimbs versus none in *O. mcmillani*.

*O. alba sp. nov.* has a distinctive white stripe running from the eye along the mid flank of either side of the body. Less distinct longitudinal white stripes also run down the back. In *O. mcmillani* the white lateral stripe is yellowish brown in colour as opposed to white.

In terms of dorsal pattern, *O. alba sp. nov.* is clearly the most brilliant and well-marked species in the subgenus.

The similar species *O. jamielindi sp. nov.* from Bigge Island, West Kimberley District, Australia, is readily separated from the similar species *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. mcmillani* (Storr, 1978), *O. robinsoni* (Smith, 1995) and *O. sonnemanni sp. nov.* by the presence of a whitish line running from the eye to the tail that is noticeably wider on the body than adjacent darker (brownish) lines, versus same width or narrower, or absent in all other species.

In contrast to *O. mcmillani* the relevant lateral stripe is bright and distinctive, as opposed to being faded, the bright and distinct lateral stripe also being the case in *O. alba sp. nov.* However overall, the general dorsal pattern of *O. jamielindi sp. nov.* is otherwise dull as for *O. mcmillani*. The species *O. sonnemanni sp. nov.* known only from the

Keep River drainage in the Northern Territory, immediately adjacent to the Western Australian border is separated from *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* (Storr, 1978), and *O. robinsoni* (Smith, 1995) by its dorsal colouration, being essentially unmarked save for a single thin noticeable, but very faded yellowish line running along the mid flank of the body, and no other lines on the body or tail.

All of O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978) also have lateral running lines on either side of the tail, which is not the case for O. sonnemanni sp. nov.. O. robinsoni differs from the other species by having a general body colour of grevish or brownish with numerous tightly joined black flecks, forming a series of narrow reticulations or very thin lines running down the body with all adjoining areas being of a similar greyish or brown colour, as opposed to being of different shades of brown in the other species forming dorsolateral lines). In the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978), any dark flecks forming lines or boundaries, separate areas of pigment of different colour giving the lizard a pattern of indistinct stripes. As mentioned already, dorsally at least O. sonnemanni sp. nov. is essentially unmarked, or any markings present are extremely indistinct and barely noticeable, which is not the case in the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978).

In line with *O. alba sp. nov.*, *O. sonnemanni sp. nov.* is distinctive in the subgenus by having a well defined boundary between the darker upper body and the light venter at the lower flanks, as opposed to a gradual fading in the other four species (*O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* and *O. robinsoni*).

Both *O. robinsoni* and *O. sonnemani sp. nov.* lack any well defined head markings or a well defined temporal streak as seen in the other four species in the subgenus.

The species *O. garystephensoni sp. nov.* from the southern Kimberley District in Western Australia has been confused with both *O. mcmillani* and *O. robinsoni*, and is separated from all five other species in the subgenus by its dorsal colouration and pattern, consisting of a semi-distinct pattern of longitudinal lines of similar brownish grey colours, with some black flecking and lines running down the tail (original tails).

*O. alba sp. nov.*, *O. jamielindi sp. nov.* and *O. mcmillani* are characterised by having limbs that have a semidistinct pattern of linked black flecks forming stripes running down the limbs. *O. jamielindi sp. nov.* and *O. mcmillani* also have black flecks separate from these scattered over the limbs.

*O. garystephensoni sp. nov., O. robinsoni* and *O. sonnemani sp. nov.* only have scattered black flecks on the limbs.

The dorsal pattern of *O. garystephensoni sp. nov.* as just described, contrasts with the largely unmarked dorsum of *O. sonnemani sp. nov.*, save for the indistinct stripe on the flanks, and the one colour body of *O. robinsoni* overlain with the joined black flecks forming a series of narrow thin blackish lines running down the body, but with all adjacent areas being effectively one colour.

Within *Oedurella* there are three subgenera. The nominate subgenus *Oedurella subgen. nov.* is separated from the subgenus *Graciledactylus subgen. nov.* by having a rostral

excluded from the nostril, versus one contacting the nostril in the subgenus *Graciledactylus subgen. nov.* Both these subgenera are separated from the subgenus *Parvusdactylus subgen. nov.* (including the six species in this subgenus) by having less than seven scales surrounding the nostril, versus more than seven in *Parvusdactylus subgen. nov.* 

The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build, there is a ventral stripe.

**Distribution:** *Oedurella* (*Parvusdactylus*) *jamielindi sp. nov.* is known only from Bigge Island in the Kimberley district of Western Australia and the immediately adjacent mainland.

**Etymology:** Named in honour of Jamie Lind of Ararat, Victoria, who does wildlife displays under the moniker of Jamie and Kim's Mobile Zoo, whose educational wildlife displays have aided in public awareness and conservation of native animals.

#### OEDURELLA (PARVUSDACTYLUS) SONNEMANNI SP. NOV.

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R67960 collected at "7 km 143 Degree Mount Septimus" (Keep River area), Northern Territory, about 30 km east of Kunnunurra, Western Australia, Australia, Latitude -15.77 S., Longitude 129.02 E.

The Western Australian Museum, Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

**Diagnosis:** Oedurella (Parvusdactylus) sonnemanni sp. nov. has until now been regarded as a population of Oedurella (Parvusdactylus) robinsoni (Smith, 1995) or Oedurella (Parvusdactylus) mcmillani (Storr, 1978). Molecular evidence of Neilsen *et al.* (2016) indicates that the divergence between this morphologically distinct population and those from the type localities of other species in the subgenus (and the others formally named in this paper) is sufficient to warrant recognition at the species level.

The subgenus *Parvusdactylus subgen. nov.* includes six species, although until now, only two of these have been generally recognized (*Oedurella (Parvusdactylus) mcmillani* (Storr, 1978) and *Oedurella (Parvusdactylus) robinsoni* (Smith, 1995)). The other four are formally described within this paper and have until now been treated as populations of one or other or sometimes both the other two species. Therefore this diagnosis effectively separates out each species from one another.

*O. alba sp. nov.* from the area around Theda Station in the North Kimberley in Western Australia, is readily separated from *O. mcmillani* by the presence of four prominent rows

of small black spots running from the snout to the eye, which is not seen in the nominate form (although sometimes appears as faint rows). *O. alba sp. nov.* is further differentiated by the presence of obvious specks on forelimbs versus none in *O. mcmillani*.

*O. alba sp. nov.* has a distinctive white stripe running from the eye along the mid flank of either side of the body. Less distinct longitudinal white stripes also run down the back. In *O. mcmillani* the white lateral stripe is yellowish brown in colour as opposed to white.

In terms of dorsal pattern, *O. alba sp. nov.* is clearly the most brilliant and well-marked species in the subgenus.

The similar species *O. jamielindi sp. nov.* from Bigge Island, West Kimberley District, Australia, is readily separated from the similar species *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. mcmillani* (Storr, 1978), *O. robinsoni* (Smith, 1995) and *O. sonnemanni sp. nov.* by the presence of a whitish line running from the eye to the tail that is noticeably wider on the body than adjacent darker (brownish) lines, versus same width or narrower, or absent in all other species.

In contrast to *O. mcmillani* the relevant lateral stripe is bright and distinctive, as opposed to being faded, the bright and distinct lateral stripe also being the case in *O. alba sp. nov.* However overall, the general dorsal pattern of *O. jamielindi sp. nov.* is otherwise dull as for *O. mcmillani.* 

The species *O. sonnemanni sp. nov.* known only from the Keep River drainage in the Northern Territory, immediately adjacent to the Western Australian border is separated from *O. alba sp. nov.*, *O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* (Storr, 1978), and *O. robinsoni* (Smith, 1995) by its dorsal colouration, being essentially unmarked save for a single thin noticeable, but very faded yellowish line running along the mid flank of the body, and no other lines on the body or tail.

All of O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978) also have lateral running lines on either side of the tail, which is not the case for O. sonnemanni sp. nov.. O. robinsoni differs from the other species by having a general body colour of greyish or brownish with numerous tightly joined black flecks, forming a series of narrow reticulations or very thin lines running down the body with all adjoining areas being of a similar greyish or brown colour, as opposed to being of different shades of brown in the other species forming dorsolateral lines). In the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O. mcmillani (Storr, 1978), any dark flecks forming lines or boundaries, separate areas of pigment of different colour giving the lizard a pattern of indistinct stripes. As mentioned already, dorsally at least O. sonnemanni sp. nov. is essentially unmarked, or any markings present are extremely indistinct and barely noticeable, which is not the case in the four species O. alba sp. nov., O. garystephensoni sp. nov., O. jamielindi sp. nov., and O.

In line with *O. alba sp. nov.*, *O. sonnemanni sp. nov.* is distinctive in the subgenus by having a well defined boundary between the darker upper body and the light venter at the lower flanks, as opposed to a gradual fading in the other four species (*O. garystephensoni sp. nov.*, *O. jamielindi sp. nov.*, *O. mcmillani* and *O. robinsoni*).

mcmillani (Storr, 1978).

Both *O. robinsoni* and *O. sonnemani sp. nov.* lack any well defined head markings or a well defined temporal streak as

seen in the other four species in the subgenus.

The species *O. garystephensoni sp. nov.* from the southern Kimberley District in Western Australia has been confused with both *O. mcmillani* and *O. robinsoni*, and is separated from all five other species in the subgenus by its dorsal colouration and pattern, consisting of a semi-distinct pattern of longitudinal lines of similar brownish grey colours, with some black flecking and lines running down the tail (original tails).

*O. alba sp. nov.*, *O. jamielindi sp. nov.* and *O. mcmillani* are characterised by having limbs that have a semidistinct pattern of linked black flecks forming stripes running down the limbs. *O. jamielindi sp. nov.* and *O. mcmillani* also have black flecks separate from these scattered over the limbs.

*O. garystephensoni sp. nov., O. robinsoni* and *O. sonnemani sp. nov.* only have scattered black flecks on the limbs.

The dorsal pattern of *O. garystephensoni sp. nov.* as just described, contrasts with the largely unmarked dorsum of *O. sonnemani sp. nov.*, save for the indistinct stripe on the flanks, and the one colour body of *O. robinsoni* overlain with the joined black flecks forming a series of narrow thin blackish lines running down the body, but with all adjacent areas being effectively one colour.

Within Oedurella there are three subgenera. The nominate subgenus Oedurella subgen. nov. is separated from the subgenus Graciledactylus subgen. nov. by having a rostral excluded from the nostril, versus one contacting the nostril in the subgenus Graciledactylus subgen. nov. Both these subgenera are separated from the subgenus Parvusdactylus subgen. nov. (including the six species in this subgenus) by having less than seven scales surrounding the nostril, versus more than seven in Parvusdactylus subgen. nov..

The genus *Oedurella* Lönnberg and Andersson, 1913, has until now been treated by publishing authors as being a synonym of *Strophurus* Fitzinger, 1843, even though molecular data shows that the assemblage identified by this name is worthy of genus level recognition. Hence this diagnosis.

The genus *Oedurella* Lönnberg and Andersson, 1913 is separated from all species in other genera previously included within *Strophurus*, namely *Strophurus*, *Eremiastrophrurus* Wells and Wellington, 1985 and *Adelyndactylus gen. nov.* by the following suite of characters: No pre-anal pores in males; vertical rostral crease is almost complete or complete, the body is of a slight and slender build, there is a ventral stripe.

**Distribution:** The species *O. sonnemanni sp. nov.* is known only from the type locality, being the Keep River drainage in the Northern Territory, immediately adjacent to the Western Australian border, about 30 km east of Kunnunurra, East Kimberley District, Western Australia.

**Etymology:** Named in honour of Neil Sonnemann of Murmungee, south of Beechworth in North-east Victoria, in recognition of a lifetime's dedicated work in herpetology in Australia. While he is best known for his fantastic captive breeding of rare and sought after reptiles for the pet trade over many decades, he has also conducted significantly important fieldwork on numerous little-known reptile species, including on this very taxon.

#### **REFERENCES CITED**

Andrews, R. M., Brandley, M. C. and Greene, V. W. 2013.

Developmental sequences of squamate reptiles are taxon specific. *Evolution and Development*, 15:326-343. doi: 10.1111/ede.12042

Barts, M. and Hulbert, F. 2004. Die Geckos der Welt. Draco 5(18):4-17.

Bauer, A. M. 2013. *Geckos - The Animal Answer Guide*. Johns Hopkins University Press, USA:159 pp.

Bauer, A. M., Russell, A. P. and Rosenberg, H. I. 1989. Formal taxa, species groups and the perception of the genus *Diplodactylus* (Reptilia: Gekkonidae). *Z. f. Syst. Evolutions f.* 27:44-48.

Böhme, W. and Sering, M. 1997. Tail squirting in Eurydactylodes: independent evolution of caudal defensive glands in a diplodactyline gecko (Reptilia, Gekkonidae). *Zoologischer Anzeiger*, 235:225-229.

Boulenger, G. A. 1885. *Catalogue of the Lizards in the British Museum (Nat. Hist.) I. Geckonidae, Eublepharidae, Uroplatidae, Pygopodidae, Agamidae.* London:450 pp.

Boulenger, G. A. 1887. Catalogue of the Lizards in the British Museum (Nat. Hist.) III. Lacertidae, Gerrhosauridae, Scincidae, Anelytropsidae, Dibamidae, Chamaeleontidae. London:575pp.

Brown, D. 2014. *A guide to … Australian Lizards in Captivity*. Reptile Publications, Burleigh, Qld, Australia: 951 pp.

Brown, D., Wilmer, J. W. and Macdonald, S. 2012. A

revision of *Strophurus taenicauda* (Squamata; Diplodactylidae) with the description of two new subspecies from central Queensland and a southerly range extension. *Zootaxa* (online publication) 3243:1-28.

Cogger, H. G. 1975. *Reptiles and Amphibians of Australia*. First Edition, Reed, NSW, Australia, 584 pp.

Cogger, H. G. 1983. *Reptiles and Amphibians of Australia*. Second Edition, Reed, NSW, Australia, 660 pp.

Cogger, H. G. 2000. *Reptiles and Amphibians of Australia*, Sixth Edition, Ralph Curtis Publishing, Sanibel Island, 808 pp.

Cogger, H. G. 2014. *Reptiles and Amphibians of Australia*. Seventh Edition, CSIRO, Collingwood, Vic, Australia, xxx+1033 pp.

Cogger, H. G., Cameron, E. E. and Cogger, H. M. 1983. *Zoological Catalogue of Australia (1): Amphibia and Reptilia*. Australian Government Publishing Service, Canberra, ACT, Australia:313 pp.

Colgan, D. J., O'Meally, D. and Sadlier, R. A. 2009. Phylogeographic patterns in reptiles on the New England Tablelands at the south-western boundary of the McPherson Macleay Overlap. *Australian Journal of Zoology* 57:317-328.

Court of Appeal Victoria 2014. *Hoser v Department of Sustainability and Environment* [2014] VSCA 206 (5 September 2014).

Covacevich, J. A., Couper, P.J. and McDonald, K. R. 1998. Reptile diversity at risk in the Brigalow Belt, Queensland. *Memoirs of the Queensland Museum* 42(2):475-486.

De Vis, C. W. 1886. On certain geckos in the Queensland Museum. *Proceedings of the Linnean Society of New South Wales* (2)1(I):168-170.

Doody, J. S., James, H., Dunlop, D., D'Amore, D., Edgar, M., Fidel, M., Meadows, D., Walmsley, C. W., Clulow, S.

and McHenry, C. 2013. *Strophurus ciliaris* (northern spinytailed gecko) communal nesting. *Herpetological Review*  44(4):685.

Duméril, A. M. C. and Bibron, G. 1836. *Erpetologie Générale ou Histoire Naturelle Complete des Reptiles*. Vol. 3. Libr. Encyclopédique Roret, Paris, 528 pp.

Escoriza Boj, D. 2005. Australia. Reptiles and Amphibians, Part 2: Desert and tropical savannah. *Reptilia* (UK) (41):52-57.

Even, E. 2005. Reptielen zoeken in Australië. *Lacerta* 63(2):48-65.

Fallend, S. 2007. Auf Geckosuche in Australien. *Draco* 8(29):78-84.

Fitzinger, L. 1843. Systema Reptilium, fasciculus primus, Amblyglossae. Braumüller et Seidel, Wien:106 pp.

Glauert, L. 1952. Herpetological miscellanea. I. Notes of some forms of *Diplodactylus*. Some new western

Australian lizards. *Western Australian Naturalist* 3:166-168. Glauert, L. 1956. Geckonidae (Part II). *Western Australian Naturalist* 5(3):49-56.

Gray, J. E. 1842. Description of some hitherto unrecorded species of Australian reptiles and batrachians. *Zoological Miscellany* 2:51-57 (London: Treuttel, Würtz and Co).

Greer, A. E. 1989. *The biology and evolution of Australian lizards*. Surrey Beatty and Sons, Chipping Norton, NSW, Australia:264 pp.

Han, D., Zhou, K. and Bauer, A. M., 2004. Phylogenetic relationships among gekkotan lizards inferred from C-mos nuclear DNA sequences and a new classification of the Gekkota. *Biol. J. Linn. Soc.* 83:353-368.

Hoser, R. T. 1989. *Australian Reptiles and Frogs.* Pierson and Co., Mosman, NSW, 2088, Australia:238 pp.

Hoser, R. T. 1991. *Endangered Animals of Australia*. Pierson Publishing, Mosman, NSW, 2088, Australia:240 pp.

Hoser, R. T. 1993. *Smuggled: The Underground Trade in Australia's Wildlife*. Apollo Publishing, Moss Vale, NSW, Australia:160 pp.

Hoser, R. T. 1996. *Smuggled-2: Wildlife Trafficking, Crime and Corruption in Australia*. Kotabi Publishing, Doncaster, Victoria, Australia:280 pp.

Hoser, R. T. 2005. A new subspecies of *Strophurus intermedius* (Squamata: Gekkonidae) from South Australia. *Boydii: Journal of the Herpetological Society of Queensland Incorporated*:Spring:14-15.

Hoser, R. T. 2007. Wells and Wellington - It's time to bury the hatchet! *Calodema* (Supplementary Paper No. 1):1-9 on 5 April.

Hoser, R. T. 2015a. Dealing with the "truth haters" ... a summary! Introduction to Issues 25 and 26 of

Australasian Journal of Herpetology. Including "A timeline of relevant key publishing and other events relevant to Wolfgang Wüster and his gang of thieves." and a "Synonyms list". Australasian Journal of Herpetology 25:3-13.

Hoser, R. T. 2015b. The Wüster gang and their proposed "Taxon Filter": How they are knowingly publishing false information, recklessly engaging in taxonomic vandalism and directly attacking the rules and stability of zoological nomenclature. *Australasian Journal of Herpetology* 25:14-38.

Hoser, R. T. 2015c. Best Practices in herpetology: Hinrich Kaiser's claims are unsubstantiated. *Australasian Journal* 

of Herpetology 25:39-52.

Hoser, R. T, 2015d. Comments on *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, ELAPIDAE): request for confirmation of the availability of the generic name and for the nomenclatural validation of the journal in which it was published (Case 3601; see *BZN* 70: 234-237; comments *BZN* 71:30-38, 133-135). (unedited version) *Australasian Journal of Herpetology* 27:37-42.

Hoser, R. T. 2015e. PRINO (Peer reviewed in name only) journals: When quality control in scientific publication fails. *Australasian Journal of Herpetology* 26:3-64.

Hoser, R. T. 2015f. Rhodin *et al.* 2015, Yet more lies, misrepresentations and falsehoods by a band of thieves intent on stealing credit for the scientific works of others. *Australasian Journal of Herpetology* 27:3-36.

Hoser, R. T. 2016a. *Acanthophis lancasteri* Wells and Wellington, 1985 gets hit with a dose of Crypto! ... this is not the last word on Death Adder taxonomy and nomenclature. *Australasian Journal of Herpetology* 31:3-11.

Hoser, R. T. 2016b. Carphodactylidae reviewed: Four new genera, four new subgenera, nine new species and four new subspecies within the Australian gecko family (Squamata: Sauria). *Australasian Journal of Herpetology* 32:3-25.

Hoser, R. T. 2017a. A further break-up of the Australian gecko genus *Oedura* Gray, 1842 *sensu lato* as currently recognized, from four to seven genera, with two new subgenera defined, description of fourteen new species, four new subspecies and formalising of one tribe and five subtribes. *Australasian Journal of Herpetology*, 34:3-35.

Hoser, R. T. 2017b. A brief overview of the taxonomy and nomenclature of the genus *Diplodactylus* Gray 1832 *sensu lato*, with the formal naming of a new subgenus for the *Diplodactylus byrnei* Lucas and Frost, 1896 species group and two new species within this subgenus. *Australasian Journal of Herpetology* 34:57-63.

ICZN 1991. Decision of the commission. Three works by Richard W. Wells and C. Ross Wellington: proposed suppression for nomenclatural purposes. *Bulletin of Zoological Nomenclature* 48(4):337-38.

Kay, G. M., Michael, D., Crane, M., Okada, S., MacGregor, C., Florance, D., Trengove, D., McBurney, L., Blair, D. and Lindenmayer, D. B. 2013. A list of reptiles and amphibians from Box Gum Grassy Woodlands in south-eastern Australia. *Check List* 9(3):476-481.

Kinghorn, J. R. 1924. Reptiles and batrachians from south and south-west Australia. *Records of the Australian Museum* 14(3):163-183.

Kinghorn, J. R. 1929. Herpetological notes No. I. *Records of the Australian Museum* 17(2):76-84.

Kluge, A. G. 1963. A new species of gekkonid lizard, genus *Diplodactylus* Gray, from eastern Australia. *Proceedings of the Linnean Society of New South Wales*, 88:230-234.

Laube, A. 1993. *Diplodactylus williamsi* KLUGE, 1963. *Sauria* 15 Suppl.: 273-276.

Laube, A. 1997. Bemerkungen zur erstmaligen Nachzucht und zum Abwehrverhalten der Juwelengeckos

*Diplodactylus* (*Strophurus*) *elderi. Sauria* 19(4):41-44. Laube, A. and Langner, C. 2007. Die Gattung *Strophurus*. *Draco* 8(29):49-66.

Longman, H. A. 1916. Snakes and lizards from

Queensland and the Northern Territory. *Memoirs of the Queensland Museum* 5:46-51.

Laube, A. and Seipp, R. 1998. *Strophurus spinigerus* (Gray). *Sauria* (Suppl.) 20(3):435-440.

Lönnberg, E. and Andersson, L. G. 1913. Results of Dr. E. Mjöbergs Swedish Scientific Expeditions to Australia 1910-13. III. Reptiles. *Kongliga Svenska Vetenskaps Akademiens Handlingar*, Stockholm, 52:1-17.

Loveridge, A. 1934. Australian reptiles in the Museum of Comparative Zoology, Cambridge, Massachusetts. *Bull. Mus Comp. Zool. Harvard* 77:243-383.

Maryan, B. 2005. A Herpetofauna hotspot, the central west coast of Western Australia. *Western Australian Naturalist* 25(1):1-24.

Mayer, M. 2014. Von Schlangen, Kröten und Krokodilen im tropischen "Top End" Australiens. Ein Reise- und Studienbericht. *Reptilia* (Münster) 19(110):76-85.

Michael, D. R., Lindenmayer, D. B., Crane, M., MacGregor, C., Montague-Drake, R. and McBurney, L. 2011. Reptilia, Murray Catchment, New South Wales, South-eastern Australia. *Check List* 7(1):25-29.

Mitchell, F. J. 1955. Preliminary account of the Reptilia and Amphibia collected by the National Geographic Society -Commonwealth Government - Smithsonian Institution Expedition to Arnhem Land (April to November, 1948). *Records of the South Australian Museum* 11:373-408.

Nielsen, S. V., Oliver, P. M., Laver, R. J., Bauer, A. M. and Noonan, B. P. 2016. Stripes, jewels and spines: further investigations into the evolution of defensive strategies in a chemically defended gecko radiation (*Strophurus*, Diplodactylidae). *Zoologica Scripta*, Royal Swedish Academy of Sciences, 45(5) September:481-493.

Ogilby, J. D. 1892. Descriptions of three new Australian lizards. *Records of the Australian Museum* 2: 6-11.

Oliver, P. M. and Bauer, A. M. 2011. Systematics and evolution of the Australian knob-tail geckos (*Nephrurus*, Carphodactylidae, Gekkota): Pleisomorphic grades and biome shifts through the Miocene. *Molecular Phylogenetics and Evolution* 59(3):664-674.

Oliver, P. M. and Doughty, P. 2016. Systematic revision of the marbled velvet geckos (*Oedura marmorata* species complex, Diplodactylidae) from the Australian arid and semi-arid zones. *Zootaxa* (online publication) 4088(2):151-176.

Oliver, P. M. and McDonald, P. J. 2016. Young relicts and old relicts: a novel palaeoendemic vertebrate from the Australian Central Uplands. *R. Soc. open sci.* 3:160018. Oliver, P. M. and Parkin, T. 2014. A new phasmid gecko (Squamata: Diplodactylidae: *Strophurus*) from the Arnhem Plateau: more new diversity in rare vertebrates from northern Australia. *Zootaxa* (online publication) 3878(1):37-48.

Oliver, P. M., Adams, M. and Doughty, P. 2010. Extreme underestimation of evolutionary diversity within a nominal Australian gecko species (*Crenadactylus ocellatus*). *BMC Evolutionary Biology*, 10:386.

http://dx.doi.org/10.1186/1471-2148-10-386

Oliver, P. M., Bauer, A. M., Greenbaum, E., Jackman, T. and Hobbie, T. 2012. Molecular phylogenetics of the arboreal Australian gecko genus *Oedura* Gray, 1842 (Gekkota: Diplodactylidae): Another plesiomorphic grade?. *Molecular Phylogenetics and Evolution* 63(2):255-264.

Oliver, P. M., Laver, R. J., Melville, J. and Doughty, P. 2014a. A new species of Velvet Gecko (*Oedura*: Diplodactylidae) from the limestone ranges of the southern Kimberley, Western Australia. *Zootaxa* (online publication) 3873 (1):49-61.

Oliver, P. M., Smith, K. L., Laver, R. J., Doughty, P. and Adams, M. 2014b. Contrasting patterns of persistence and diversification in vicars of a widespread Australian lizard lineage (the *Oedura marmorata* complex). *Journal of Biogeography*:1-12.

Pavey, C. R., Vanderduys, E. and Raghu, S. 2016. *Habitat* selection by two focal species; golden- tailed gecko and glossy black-cockatoo. A report to the Gas Industry Social and Environmental Research Alliance (GISERA). CSIRO, Alice Springs, Australia.

Pianka, E. R. 1969. Habitat specificity, speciation, and species density in Australian desert lizards. *Ecology* 50(3):498-502.

Pianka, E. R. 1986. *Ecology and Natural History of Desert Lizards*. Princeton University Press, NJ, USA:205 pp.

Pianka, E. R. and Pianka, H. D. 1976. Comparative ecology of twelve species of nocturnal lizards (Gekkonidae) in the western Australian desert. *Copeia* 1976(1):125-142.

Pianka, E. R. and Vitt, L.J. 2003. *Lizards - Windows to the Evolution of Diversity*. University of California Press, Berkeley, USA:347 pp.

Porter, R. 2001. Captive Maintenance and Breeding of the Golden-tailed Gecko *Diplodactylus taenicauda*. *Gekko* 2(1):2-5.

Porter, R. 2002. The Fringe-toed Velvet Gecko, *Oedura filicipoda* King, 1984- Some Notes on its Natural History and the First Recorded Details of its Captive Maintenance and Breeding. *Gekko* 3(2):9-16.

Ride, W. D. L. (*ed.*) *et al.* (on behalf of the International Commission on Zoological Nomenclature) 1999. *International code of Zoological Nomenclature* (Fourth edition). The Natural History Museum - Cromwell Road, London SW7 5BD, UK (also commonly cited as "The Rules", "Zoological Rules" or "ICZN 1999").

Rosauer, D. F., Blom, M. P. K., Bourke, G., Catalano, S., Donnellan, S., Gillespie, G., Mulder, E., Oliver, P. M., Potter, S., Pratt, R., Rabosky, D. L., Skipworth, P. L. and Moritz, C.

2016. Phylogeography, hotspots and conservation

priorities: An example from the Top End of Australia.

*Biological Conservation*, doi:10.1016/j.biocon.2016.05.002 pp. 1-11 (online with stamp "ARTICLE IN PRESS").

Rosenberg, H. I. and Russell, A. P. 1980. Structural and functional aspects of tail squirting: A unique defense mechanism of *Diplodactylus* (Reptilia: Gekkonidae). *Canadian Journal of Zoology* 58(5):865-881.

Rösler, H. 1995. *Geckos der Welt - Alle Gattungen*. Urania, Leipzig:256 pp.

Rösler, H. 2000a. Kommentierte Liste der rezent, subrezent und fossil bekannten Geckotaxa (Reptilia:

Gekkonomorpha). Gekkota 2:28-153.

Rösler, H. 2000b. Studien an den Begattungsorganen der Geckos (Reptilia: Gekkota) - 3. Die Hemipenismorphologie von Arten der Gattungen *Hoplodactylus* FITZINGER 1843, *Naultinus* GRAY 1842, *Oedura* GRAY 1842, *Rhacodactylus* FITZINGER 1843 und *Strophurus* FITZINGER 1843. *Gekkota* 2:220-248.

Sadlier, R. A., Omeally, D. and Shea, G. M. 2005. A new

species of Spiny-tailed gecko (Squamata: Diplodactylidae: *Strophurus*) from inland Queensland. *Memoirs of the Queensland Museum* 51(2):573-581.

Shea, G. M. and Wells, R. 1984. New records of a skink and a gecko from western New South Wales. *Herpetofauna* (Sydney, Australia) 15(1-2):1-4.

Smith, L. A. 1995. A new *Diplodactylus*, subgenus *Strophurus* (Lacertilia: Gekkonidae) from northern Australia. *Records of the Western Australian Museum* 17(3):351-353.

Stirling, E. C. and Zietz, A. 1893. Scientific results of the Elder Exploring Expedition. Vertebrata. Mammalia, Reptilia. *Transactions of the Royal Society of South Australia*, 16:154-176.

Storr, G. M. 1978. Seven new gekkonid lizards from Western Australia. *Records of the Western Australian Museum* 6:337-352.

Storr, G. M. 1979. Five new lizards from Western Australia. *Records of the Western Australian Museum* 8(1):134-142.

Storr, G. M. 1983. Two new lizards from Western Australia (genera *Diplodactylus* and *Lerista*). *Records of the Western Australian Museum* 11(1):59-62.

Storr, G. M. 1988a. The *Diplodactylus ciliaris* complex (Lacertilia: Gekkonidae) in Western Australia. *Records of the Western Australian Museum* 14:121-133.

Storr, G. M. 1988b. The subspecies of *Diplodactylus spinigerus* (Lacertilia: Gekkonidae). *Records of the Western Australian Museum* 14:177-182.

Storr, G. M. 1988c. A new species of *Diplodactylus* (Lacertilia: Gekkonidae) from northern Australia. *Records* of the Western Australian Museum 14:183-187.

Storr, G. M., Smith, L. A. and Johnstone, R. E. 1990. *Lizards of Western Australia 3. Geckoes and Pygopods.* Western Australian Museum, Perth, Western Australia, Australia:141 pp.

Tremper Jr, P. A. 1999. Captive Husbandry and Propagation of the Australian Eyelash Gecko *Diplodactylus ciliaris ciliaris. Gekko* 1(1):10-15.

Vanderduys, E. 2016. A new species of gecko (Squamata: Diplodactylidae: *Strophurus*) from north Queensland,

Australia. *Zootaxa* (online publication) 4117(3):341-358. Victorian Civil and Administrative Tribunal (VCAT). 2015. *Hoser v Department of Environment Land Water and Planning* (Review and Regulation) [2015] VCAT 1147 (30 July 2015, judgment and transcript).

Wellington, R. 2016. *Acanthophis cryptamydros* Maddock, Ellis, Doughty, Smith & Wüster, 2015 is an invalid junior synonym of *Acanthophis lancasteri* Wells & Wellington, 1985 (Squamata, Elapidae). *Bionomina* 10(1).

Wells, R. W. and Wellington, C. R. 1984. A synopsis of the class Reptilia in Australia. *Australian Journal of Herpetology*, 1(3-4):73-129.

Wells, R. W. and Wellington, C. R. 1985. A classification of the Amphibia and Reptilia of Australia. *Australian Journal of Herpetology Supplementary Series* 1:1-61.

Werner, F. 1910. Reptilia (Geckonidae und Scincidae). In: Michaelsen, W. and Hartmeyer, R. *Die Fauna Südwest-Australiens*. Vol. 2. G. Fischer, Jena, pp. 451-493.

Wilson, S. K. and Knowles, D. G. 1988. *Australia's Reptiles: A Photographic Reference to the Terrestrial Reptiles of Australia*. Cornstalk Publishing, Pymble, NSW, Australia:447 pp.

Wilson, S. and Swan, G. 2010. A complete guide to reptiles of Australia. Third edition. New Holland. Chatswood. NSW:558 pp

Wilson, S. and Swan, G. 2013. A complete guide to reptiles of Australia, Fourth edition. New Holland, Chatswood, NSW, Australia: 592 pp.

Wüster, W. (user Mokele), O'Shea, M. (user PapBlak) et al.

2012. Wikipedia Page "Raymond Hoser" as amended in 2012. online at: https://en.wikipedia.org/wiki/ Raymond\_Hoser (and blocked from independent edits by a "robot" they have placed on the page to maintain statements known to be false). CONFLICT OF INTEREST

The author has no known conflicts of interest in terms of this paper and conclusions within.

### NEW ARRANGEMENT FOR THE SPECIES FORMERLY PLACED WITHIN STROPHURUS FITZINGER, 1843

#### Genus Strophurus Fitzinger, 1843

Strophurus strophurus (Duméril and Bibron, 1836) (Type species) Strophurus aberrans (Glauert, 1952) Strophurus albiocularis Brown, Worthington, Wilmer and Macdonald, 2012 Strophurus assimilis (Storr, 1988) Strophurus ciliaris (Boulenger, 1885) Strophurus chriswilliamsi sp. nov. Strophurus congoo Vanderduys, 2016 Strophurus dannybrowni sp. nov. Strophurus jackyae sp. nov. Strophurus jenandersonae sp. nov. Strophurus gedyei sp. nov. Strophurus intermedius (Ogilby, 1892) Strophurus krisalys Sadlier, Omeally and Shea, 2005 Strophurus rankini (Storr, 1979) Strophurus spinigerus (Gray, 1842) Strophurus taenicauda (De Vis, 1886) Strophurus triaureus Brown, Worthington, Wilmer and Macdonald, 2012. Strophurus wellingtonae (Storr, 1988) Strophurus williamsi (Kluge, 1963)

#### Genus Eremiastrophrurus Wells and Wellington, 1985.

Eremiastrophrurus elderi (Stirling and Zeitz, 1893) (Type species) Eremiastrophrurus mahoodi Wells and Wellington, 1985. Eremiastrophrurus michaelseni (Werner, 1910)

#### Genus Oedurella Lönnberg and Andersson, 1913

Oedurella taeniata Lönnberg and Andersson, 1913 (Type species)

Oedurella horneri (Oliver and Parkin, 2014)

Subgenus Graciledactylus gen. nov.

Oedurella (Graciledactylus) jeanae (Storr, 1988)

Subgenus Parvusdactylus gen. nov.

Oedurella (Parvusdactylus) alba sp. nov. (Type species)

Oedurella (Parvusdactylus) garystephensoni sp. nov.

Oedurella (Parvusdactylus) jamielindi sp. nov. Oedurella (Parvusdactylus) mcmillani (Storr, 1978)

Oedurella (Parvusdactylus) robinsoni (Smith, 1995)

Oedurella (Parvusdactylus) sonnemanni sp. nov.

Genus Adelyndactylus gen. nov. Adelyndactylus wilsoni (Storr, 1983) (Monotypic)