

The inevitable break-up of the Australian legless lizard genera *Delma* Gray, 1831 and *Aprasia* Gray, 1839, formal descriptions of 13 well-defined Pygopodid species, as well as a further improvement in Pygopodid taxonomy and nomenclature.

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ABSTRACT

The Australian legless lizards of the family Pygopodidae have been subject of several major taxonomic reviews by very competent herpetologists.

The result has been an excellent understanding of most species groups, generic level classifications and divergences between these entities.

However until now, the species within the genus *Delma* Gray, 1831 *sensu lato* as understood to date have been placed in this group based on superficial morphological similarities.

Molecular studies published in the post 2000 period have shown divergences within this genus (*sensu lato*) being wider than between other long recognized genera of Australian Pygopodids (e.g. *Pygopus* Merrem, 1820 and *Paradelma* Kinghorn, 1926).

To correct this anomaly, the genus *Delma*, as defined in texts such as Cogger (2014) is divided appropriately into seven genus level groups of similar divergences as seen for the delineation of other previously defined genera of Pygopodids.

Names are available for three genera, and four new genus groups are formally named herein.

Two subgenera are also named.

Following on from several molecular studies and direct observations of many hundreds of specimens from relevant areas, this paper also formally describes 11 well defined and geographically separated species within the genus *Delma* as defined in texts such as Cogger 2014 as well as two regionally distinct forms of the Common Scalyfoot *Pygopus lepidopodus* Lacépède, 1804.

With three exceptions, all are supported by previously published molecular data as cited herein. The remainder are all divided by barriers which similarly affect other reptiles for which molecular work has been done and time divergences at the species level previously established (as cited).

The genus *Aprasia* Gray, 1831, long known to consist of four main species groups is formally divided at the genus level four ways on the basis of divergences of at least 15 MYA, with two formally named for the first time.

Furthermore the Pygopodidae is formally divided into four well-defined tribes, three further subdivided into three, two and two subtribes, two of these being named for the first time at the family level of classification. In summary there are now 17 recognized genera within the Pygopodidae.

Keywords: Taxonomy; lizards; *Delma*; *Nisara*; *Pseudodelma*; *Aclys*; *Abilaena*; *Pletholax*; *Aprasia*; *Lialis*; *Pygopus*; *Cryptodelma*; *Ophidiocephalus*; *Paradelma*; *Pygopodid*; Australia; new tribe; Aprasiaini; Pygopusini; Lialisini; Sloppopini; new subtribe; Aprasiaina; Pletholaxina; Ophidiocaphalina; Pygopusina; Paradelmaina; Sloppopina; Crottyopina; new genus; *Crottyopus*; *Sloppopus*; *Wellingtonopus*; *Wellsopus*; *Brettbarnettus*; *Maryannmartinekea*; new subgenus *Gracileopus*; *Honlamopus*; new species; *megleesae*; *cummingae*; *jamesbondi*; *stevebennetti*; *grahamrichardsoni*; *shanekingi*; *brianbarnetti*; *kylienaughtonae*; *michaelguiheneufii*; *richardwarneri*; *robwatsoni*; *brettbarnetti*; *woolfi*.

INTRODUCTION

Nearly all herpetologists in Australia are familiar with the abundant legless lizards in the genus *Delma* Gray, 1831 as defined in texts such as Cogger (2014) or Wilson and Swan (2013), these being the most widely used identification manuals in Australia as of 2017.

Because they are defined in these and numerous other similar texts, there is no need for a background summary of these lizards here.

Outside of the relatively small group of herpetologists who have worked on the taxonomy of these lizards, they remain a largely unknown group in that they are small, innocuous and common, but not of interest in terms of the reptile keeping fraternity or worth any dollar value.

Hence there is relatively little published on the group and doing a literature audit on the group was not difficult.

Also when most specimens are seen or caught by herpetologists, they are tentatively identified by way of an educated guess (e.g. "it is a *Delma*") and not much more is said.

Notwithstanding this and in part due to the large numbers that end up in museum collections as inadvertently killed "baby snakes", taxonomists have been able to identify and name a significant number of species and in all probability most of them.

Outside of the genus *Delma sensu lato*, the other species of Pygopodid are generally larger or more distinctive and so genera have been erected for each obvious group and there appear to be no as yet obviously unnamed genus level groups.

Exceptional to this is the genus *Aprasia* Gray, 1839, quite properly recently split into two by Richard Wells in 2007 (Wells, 2007) along obvious phylogenetic lines.

That genus (*Aprasia*) *sensu lato* also consisted of morphologically similar, small and innocuous species.

In terms of the divergence of the two main groups of species in *Aprasia sensu lato*, the divergence of the genus *Abilaena* Wells, 2007 from *Aprasia*, estimated at about 15 million years by Jennings *et al.* (2003) is taken as a baseline level by which to divide the genus *Delma sensu lato* into relevant species groups.

All of the seven obvious species groups defined within this paper sits outside this time frame, as in a greater time divergence.

One of these unnamed groups known presently as the *Delma nasuta* Kluge, 1974 group (identified herein as *Wellingtonopus gen. nov.*) is believed to have diverged from its nearest relatives about 15 MYA. The second group which already has an available name (*Pseudodelma* Fischer, 1882), diverged from its nearest relatives (*Delma* Gray, 1831 *sensu stricto*) about 19 MYA. The rest diverged at about 20 MYA or earlier based on the results of Jennings *et al.* (2003), clearly making all worthy of genus level recognition.

The need to split the genus *Delma sensu lato* has also been repeatedly referred to by the cited earlier authors.

For example, Shea (1991) wrote of the *Delma impar* group of species, the following:

"These two species, together with *D. torquata*, share the derived character state of only two pre-anal scales, and may constitute a species group, the *D. impar* group, occurring in southeastern Australia, especially in basaltic soils."

These comments predated the molecular studies of the following two decades that confirmed this view.

The name *Pseudodelma* Fischer (1882) is available for that group and is therefore applied within this paper.

Shea (1991) also wrote of another group within the genus "*Delma*" as recognized at the time:

"They appear to comprise a species group, the *D. tincta* group, diagnosable by the usual presence of only a single elongate upper temporal scale bordering the parietals, a character otherwise common in *Delma* only in *D. plebeia*."

In the absence of a formal name for the group, this paper formally erects the genus *Wellsopus gen. nov.*

to accommodate the relevant species.

Much the same applies in terms of Maryan *et al.* (2015a), who wrote in the PRINO (peer reviewed in name only) journal *Zootaxa*:

"Based on phylogenetic affinities and shared morphologies, a *D. australis* species-group is proposed to accommodate *D. australis*, *D. torquata* and the new species (*D. hebessa*) described herein."

That group is herein assigned to the genus *Crottyopus gen. nov.*

While *Zootaxa* is NOT peer reviewed in any accepted sense of the term, the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999), does not preclude such publications and acts within them from being nomenclaturally available. Hence the taxon described as "*Delma hebessa*" is recognized herein as validly named and is treated as such herein.

At the species level, numerous authors have published revisions of the genus *Delma sensu lato*, either in full or in part, including for example Kluge (1974), Maryan *et al.* (2007, 2015a), Shea (1987, 1991), Storr (1987) and Wells and Wellington (1985), all of whom named one or more species within the genus as currently recognized.

On top of these results, the results of phylogenetic studies have also been published including those of Jennings *et al.* (2003) and more recently that of Brennan (2014).

Both these studies identified potentially unnamed species, which were confirmed by myself after inspecting specimens from the relevant localities. Further unnamed species-level taxa have also become apparent over the past 3 decades of fieldwork in many parts of Australia, including a population from the East Pilbara until now referred to the species *D. elegans* Kluge, 1974.

As the conservation and management of all reptiles depends on relevant taxa being identified and formally named, this paper takes that important first step and names those previously unnamed forms as well defined species-level taxa.

In passing I note that all 11 morphologically defined and named species within this paper within *Delma sensu lato* are also corroborated and confirmed by the molecular data of Brennan (2014), Jennings *et al.* (2003) and Maryan *et al.* (2015a).

The only exception to this is the species described herein as *Wellsopus robwatsoni sp. nov.* from the East Pilbara, Western Australia which has until now referred to the species "*D. elegans* Kluge, 1974".

There is no available molecular data for this taxon, however the morphological differences between the populations of *W. robwatsoni sp. nov.* and *W. elegans* Kluge, 1974 appear to be consistent and both populations are well and truly separated by a zone incorporating the Fortescue River drainage and the different habitat and suite of species that it includes.

Other similar but separated species, confirmed by molecular data are affected by the same geographical barrier, including the two species of *Odatria (Pilbaravaranus)* Hoser, 2013, as defined by Maryan *et al.* (2014), which previously had been treated as a single species.

The Pilbara Death Adders (*Acanthophis wellsei*) *sensu lato* are also affected by the same Fortescue River drainage barrier, with this barrier being inhabited by the Desert Death Adder (*A. pyrrhus*) instead as outlined by Hoser (2014).

All the other 10 species within the genus *Delma sensu lato* as recognized to date that are formally named for the first time here are easily diagnosed by morphological features as outlined in the relevant descriptions and supported by the molecular evidence of Brennan (2014) (see for example his Fig: 3).

Which other species each are most closely related to is made clear in the various descriptions below.

However I note here that *Wellsopus kylienaughtonae sp. nov.*, *W. michaelguitheneufi sp. nov.* and *W. richardwarneri sp. nov.*, have until now all been regarded as regional populations of the

better-known *W. tincta* (De Vis, 1888).

In terms of the genus *Aprasia* Gray, 1839 *sensu lato* the division of the genus into two by Wells (2007), followed by Hoser (2015g) in effect divides two of four main groups in the genus as commonly recognized. However based on obvious morphological, biological and phylogenetic divergences (the latter spelt out by Jennings *et al.* (2003), the two most divergent groups remain unnamed.

These two both diverged from *Aprasia* Gray, 1839 (type species *A. pulchella* Gray, 1839) and *Abilaena* Wells, 2007 (type species *A. repens rostrata* Parker, 1956) some 19 MYA and from one another some 16 MYA.

Both are formally named below as new genera, with all four (genera) within *Aprasia sensu lato* being formally redefined herein.

The wide ranging and locally variable species the Common Scalyfoot *Pygopus lepidopodus* (Lacépède, 1804), has until now been treated as a single species. However I also note the recent description of the taxon *Pygopus robertsi* Oliver, Couper and Amey, 2010 in the PRINO (peer reviewed in name only) Journal *Zootaxa*, for the population previously referred to this species from north-east Queensland. However particular populations in southern Australia of *P. lepidopodus* are geographically isolated from one another and so two quite morphologically distinct forms are formally named herein as species within this paper, on the basis that they are taxonomically distinct.

That the Common Scalyfoot consists of more than one species has been known for a long time. However problematic for taxonomists has been the fact that a number of synonyms do exist and yet no one seemed to know the provenance of the relevant specimens. Hence names were available for some forms, but exactly which wasn't known.

For the first time ever, I audited the available names to ascertain which forms of Scalyfoot were the name bearing ones for the given names.

The original specimens of *Pygopus lepidopodus* (Lacépède, 1804), originally described as *Bipes lepidopodus* Lacépède, 1804, as well as *Sheltopusik novaehollandiae* Oppel, 1811, conformed with the so-called "Heath Form" of the lizard, this being known only from the south and west of Australia in a general region being west of the Great Dividing Range, commencing from central-western New South Wales and nearby Victoria, through the centre of the state, and across South Australia to Western Australia, including the mid-west coast, as outlined in Gray (1845) on page 67.

Pygopus squamiceps Gray, 1845 as described on page 68 of the same publication describes a colour variant most common in the Victorian Mallee and again only known from the southern part of Australia west of the East Coast and Great Dividing range.

Pygopus longicaudatus Tepper (1882) is also listed as coming from near Adelaide in South Australia.

The morphologically different East Coast populations are well separated from the south and western ones by the colder parts of the Great Dividing Range in South-east Australia.

Hoser (2013) showed a divergence of about 4 MYA between the species *Pantherosaurus kuringai* Wells and Wellington, 1985, from NSW, and *P. rosenbergi* (Mertens, 1957) from South Australia and Western Australia.

These taxa have a mirror distribution to that of *Pygopus lepidopodus* (Lacépède, 1804), as currently recognized and so if the East and West forms are two species for one group, it must be reasonably believed that the same applies to the other.

In terms of the relevant monitor species Hoser (2013) wrote of a paper by Smith *et al.* (2007), "Their crude results were a mitochondrial divergence of 8.2 per cent between the West Australian population (type for "*rosenbergi*") and the geographically isolated east Australian population, described by Wells and Wellington in 1985 as "*kuringai*")."

This means that the two well-known forms of *Pygopus* from the East Coast in NSW and South East Queensland remain effectively unnamed and without any available names. Hence they are both named for the first time herein as full species.

The form with a distribution centred around the NSW Central Coast (including Sydney's major National Parks) is herein named *Pygopus brettbarnetti* sp. nov., while the significantly larger form found north of the Brisbane River and on the Sunshine Coast is herein named *Pygopus woolfi* sp. nov..

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. 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).

As mentioned already, names coined in non peer reviewed or online PRINO (peer reviewed in name only) journals (e.g. *Zootaxa*) are now available under the relevant rules of the *International Code of Zoological Nomenclature* as amended and so are treated as valid and used when appropriate herein.

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 and genera 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 above), 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.

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.

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 *Delma* Gray, 1831 *sensu lato*, *Aprasia* Gray, 1839, *Pygopus* Merrem, 1820 and all the taxonomic judgements and conclusions herein (including with reference to the other pygopodids) include: Bamford (1998), Boulenger (1885, 1903), Brennan (2014), Brennan *et al.* (2015), Bush (1981), Bush and Maryan (2006), Bush *et al.* (2007), Cogger (2014), Cogger *et al.* (1983), Covacevich *et al.* (1998), Crouch (1977), Davis and Wilcox (2008), De Vis (1888), Dorrough (1999), Dorrough *et al.* (1996), Duméril and Bibron (1839), Garman (1901), Glauert (1956), Gray (1831, 1867), Günther (1873), Hall (1905), Hines *et al.* (2000), Hoser (1989, 2013, 2014, 2015g), Husband (1995), Jennings *et al.* (2003), Kinghorn (1924, 1926), Kluge (1974, 1976), Lacépède (1804), Lethbridge and Hawkes (1994), Lindholm (1905), Longman (1916), Lütken (1863), Maryan (1985, 2005), Maryan *et al.* (2007, 2013a, 2013b, 2014, 2015a, 2015b), Merrem (1820), Oliver *et al.* (2010), Oppel (1811), Pianka (1969, 1986, 2010),

Rosen (1905), Shea (1987, 1991, 1993), Smith *et al.* (2007), Storr (1987), Swan (1997), Tepper (1882), Wells (2007), Wells and Wellington (1985), Wilson and Knowles (1988), Wilson and Swan (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), 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).

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 genus (and subgenus) level descriptions followed by the species 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) as they are both simple and can be employed easily in the field.

The tribe and subtribe descriptions for the entire Pygopodidae follow these descriptions.

Also presented with this paper is a list of the seven genera and their component species, which as a group were included within the genus *Delma* as recognized in most recent publications, including Cogger (2014) and Wilson and Swan (2013), although these publications and the online database of Peter Uetz (known as "The Reptile Database") do not in fact list all (until now) recognized species.

All are listed herein.

Following these descriptions are descriptions of all the tribes within the Pygopodidae, using available names and/or erecting new names for hitherto unnamed tribes, this being the first time ever a proper tribe arrangement has been made for the group. A summary of this new taxonomy is also presented in the form of a list.

Family-level treatment of several genera has been done in the past, but not at the tribe level and this is outlined in some detail on pages 45 and 46 of Kluge (1974) and is therefore not rehashed (repeated) here.

THE STATUS OF "DELMA WOLLEMI WELLS AND WELLINGTON, 1985" – WHY THE TAXON IS APPARENTLY VALID AND A REDESCRIPTION.

I note that without any scientific justification whatsoever, the taxon described as "*Delma wollemi* Wells and Wellington, 1985" from the Hunter Valley in New South Wales (herein placed in the genus *Pseudodelma* Fischer, 1882), has been effectively ignored by all other authors since. However almost without exception, none have ever sighted the relevant taxon and refuse to accept it on the basis of pressure from the Wüster gang.

I note herein that the gang leader, Wolfgang Wüster is based in Wales in the UK and therefore has probably never even sighted a *Delma*-type legless lizard in the flesh, but has no hesitation in directing others what taxonomy and nomenclature they must use.

Having personally observed specimens referable to that taxon ("D. Wollemi") and type Queensland "*Delma plebia* De Vis, 1888", there are consistent differences between them, making the isolated southern population most certainly worthy of taxonomic recognition.

Hence my acceptance of the Wells and Wellington taxonomy and the ICZN rules compliant nomenclature that follows.

Put simply, because the Wells and Wellington (1985) description complied with the relevant edition of the *International Code of Zoological Nomenclature* (Hoser, 2007), the species name is accepted and used herein.

I do note that as of this date there is no molecular data supporting whether the Wells and Wellington taxon is distinctive at the molecular level and therefore I am not 100% certain whether recognition should be at the species or subspecies level. Therefore my recognition herein of "*Delma wollemi* Wells and Wellington, 1985" as a full species within the resurrected genus *Paradelma* Fischer, 1882 is only tentative.

However there is no doubt that it is sufficiently different from and reproductively isolated from type *D. plebia*, and therefore it must have some form of taxonomic recognition.

Hence my use of the name herein.

In passing, I also note the continual derision by many of the Wells and Wellington, 1985 descriptions, which in the main are not properly justified.

Critics blame the two men for brevity of descriptions and lack of diagnostic characters and the criticisms are either baseless or where justified do in fact have legitimate explanations.

In the case of "*Delma wollemi* Wells and Wellington, 1985" and the similar species, "*D. plebia*", Wells and Wellington referred to two images (one for each taxon) in the published literature which display typical specimens of each taxon.

From those images alone, it is clear that the two legless lizards are sufficiently different to warrant recognition as such, or at least Wells and Wellington made a case for this.

Of course, it is likely that few if any other later workers on the genus *Delma* even went through the simple intellectual exercise of matching the images of each species to see if Wells and Wellington had made out their case for their taxonomic judgement, or for that matter examined relevant holotypes, or examples of the relevant taxa in life to confirm if the depicted specimens were in fact typical of each area.

I have done all three, in that:

1/ I cross matched the images from Cogger (1983), Plate 491 ("*wollemi*") and that of Kluge (1974). ("*plebia*") as referred to in the Wells and Wellington (1985) description, noting the obvious differences in the depicted animals;

2/ I also inspected both holotypes (which in turn matched the animals in the depicted images) and;

3/ I inspected numerous specimens of each taxon in life in the wild and/or recently caught or photographed.

In summary, the Wells and Wellington taxon checked out as different on all counts and so must be afforded taxonomic recognition at the species level of classification.

The differences between the species "*plebia*" and "*wollemi*" are obvious at a glance and as they have not been published as such in the past as a clear cut diagnosis, they are given here.

- 1/ "*wollemi*" consistently has a distinctive patch of darkened pigment on the crown, which is absent in "*plebia*";
- 2/ the three to four dark bars across the labials are large in "*plebia*" but narrow to medium in "*wollemi*";
- 3/ the medium to large dark bar running under the eye is triangular in "*plebia*", but not so in "*wollemi*". In the latter taxon this bar is more-or-less rectangular;
- 4/ there is significant white on the upper labials in "*plebia*", but this is not the case for "*wollemi*".
- 5/ "*wollemi*" is characterised by having 3-4 semi-distinct oblique darker bands on the lower flanks of the front neck and these are absent in "*plebia*".

The above is significant in that as far back as 1985, Richard Wells and Cliff Ross Wellington correctly identified and described a hitherto unrecognized taxon and yet more than 20 years later the taxon remains effectively unknown in Australian herpetology because quite improperly later authors have ignored the taxon and it has also not appeared in the general identification books for Australian reptiles.

By the way, the preceding redescription is NOT a description in accordance with the rules of the ICZN and does not need to be. The name "*wollemi*" was made available by Wells and Wellington in 1985, and so there is no need for the preceding "redescription" to be code compliant in the accepted sense of the term. "*wollemi*" is the correct ICZN Code compliant species name for the taxon referred to herein as *Paradelma wollemi* (Wells and Wellington, 1985).

CRYPTODELMA FISCHER, 1882

This genus was erected for the species described as *Cryptodelma nigriceps* Fischer, 1882. However *Cryptodelma* was synonymised with *Pygopus* Merrem, 1820 by Cogger *et al.* (1983) and this appears to have been the general usage ever since. As the two nominate taxa diverged about 18 MYA ago according to Jennings *et al.* (2003) also forming distinct species groups, I hereby resurrect *Cryptodelma* as a valid genus to accommodate the *nigriceps* species group.

I should note that neither genus arising from this split is monotypic and that this lack of monotypy predates this paper.

GENUS DELMA GRAY, 1831

Type species: *Delma fraseri* Gray, 1831.

Diagnosis: The Pygopodidae are a family embedded within the Gekkota, that is confined to the continental Australian bioregion. All species are effectively confined to Australia except for three within the genus *Lialis* Gray, 1835 of which one occurs in Australia and New Guinea (*L. burtonis* Gray, 1835) and two in New Guinea only (*L. jicari* Boulenger, 1903 and *L. cuneirostris* (Lindholm, 1905)). The members of this family are characterised and separated from all other lizards in Australasia by the following suite of characters: Forelimbs are absent and the hindlimbs are either not obvious or normal for a lizard. Instead the hindlimbs are represented by a scaly flap, just above the vent. The eyes lack an eyelid and are snake-like in that they are covered by a non-movable spectacle. An external ear opening may or may not be visible. As a rule all females lay 2 eggs, (rarely 1 or 3). While most are insectivorous, some also feed on small reptiles and spiders. Tails are typically long and readily broken and the regenerated tails are of distinctive appearance, not ever getting quite as long as the original.

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus* *gen. nov.*, *Pseudodelma* Fischer, 1882, *Sloppopus* *gen. nov.*, *Wellingtonopus* *gen. nov.* and *Wellsopus* *gen. nov.* (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no

pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

The genus *Delma* Gray, 1831 is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus* *gen. nov.*, *Pseudodelma* Fischer, 1882, *Sloppopus* *gen. nov.*, *Wellingtonopus* *gen. nov.* and *Wellsopus* *gen. nov.* by the following suite of characters: Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; lateral lip pattern and dorsal head bands may be present or absent; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; and one or other of the following two:

1/ Conspicuous dorsal cross-bands are present on the head and nape; there is rarely a conspicuous dark lateral stripe present posteriorly; rostral noticeably projecting between the anterior pair of supranasals; strong dark bars or reticulations on the throat; usually more than five infralabials and three hindlimb scales (*D. fraseri* and *D. petersoni*), or:

2/ Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail (*D. grayi*, *D. inornata* and *D. megleesae* *sp. nov.*).

The subgenus *Honlamopus* *subgen. nov.* is separated from the other subgenus *Delma* Gray, 1831 by the following suite of characters:

Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail, no conspicuous lip pattern and flesh coloured ventral surfaces (in life) (*D. inornata* and *D. megleesae* *sp. nov.*).

The genus *Aclys* Kluge, 1974 is readily separated from the genera *Crottyopus* *gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* *gen. nov.*, *Wellingtonopus* *gen. nov.* and *Wellsopus* *gen. nov.* by having the anterior nasal scales separated by the rostral (as opposed to being in contact), 20 mid-body scale rows (as opposed to less than 20), striated or keeled dorsal scales (as opposed to smooth).

The genus *Pseudodelma* Fischer, 1882 is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus* *gen. nov.*, *Delma* Gray, 1831, *Sloppopus* *gen. nov.*, *Wellingtonopus* *gen. nov.* and *Wellsopus* *gen. nov.* by the following suite of characters: One or other of the following four:

1/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; one or two narrow whitish dorso-lateral stripes on the body and tail; nasal and first supralabial fused anterior to the nostril (*P. impar* and *P. cummingae* *sp. nov.*), or:

2/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 18 mid-body scale rows; 5 scales on top of the snout between the rostral and the frontal; ventrals or

conspicuously wider than adjacent body scales; no dark pigmentation on the throat (*P. mollerii*), or:

3/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually two pre-anal scales; conspicuous lateral lip pattern present; dorsal head bands absent (*P. plebia* and *P. wollemi*), or:

4/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; lateral lip pattern and dorsal head bands may be present or absent; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; conspicuous dorsal cross-bands are present on the head and nape; there is usually a conspicuous dark lateral strip posteriorly; sharply demarcating the dark lateral from the pale ventral surfaces; rostral is not or scarcely projecting between the anterior pair of supranasals (*P. mitella*).

The genus *Crottyopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by one or other of the following two suites of characters:

1/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 16-20 midbody rows, usually 18 at midbody, but sometimes varying elsewhere on the body; five scales on top of the snout between the rostral and frontal; ventral scales usually scarcely wider than adjacent body scales; dark reticulations usually present on the throat (*C. jamesbondi sp. nov.*, *C. australis*, *C. hebessa*) (subgenus *Crottyopus gen. nov.*), or:

2/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; five scales on top of the snout between the rostral and the frontal; third supralabial below the eye and two pre-anal scales (*C. torquata*) (subgenus *Gracileopus gen. nov.*).

The genus *Sloppopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by the following suite of characters: smooth glossy scales; 16-18 midbody rows; a moderate and rounded snout; seven scales on the upper snout between the rostral and frontal; nasal and first supralabial are distinct; four scales border the nostril; the fourth supralabial sits beneath the eye; there are 16 scales along a line across the top of the head at the angle of the mouth on each side; ventral scales are paired and noticeably wider than the adjacent body scales; there are three scales along the lower margin of the hindlimb flap; typically three enlarged pre-anal scales; rich red-brown or grey above; immaculate cream below; the top of the head is uniform brown but the lips, side of the head and neck are characterised by having a series of alternating cream and yellow-brown vertically

aligned bars; the throat and ventral surfaces are an immaculate cream in colour (*S. labialis*).

The genus *Wellingtonopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, and *Wellsopus gen. nov.* by the following suite of characters, being one or other of the following two:

1/ Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 16-18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; fourth or fifth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals; usually less than six infralabials and three hindlimb scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are wavy in outline and there are usually some extra pale narrow bands on the side of the head between the pale dorsal bands; there is rarely a conspicuous dark lateral stripe present posteriorly; strong dark bars or reticulations absent from the throat; (*W. haroldi*), or:

2/ 15-18 midbody rows (usually 16), and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually seven scales on top of the snout between the rostral and frontal; usually three often enlarged pre-anal scales; lateral lip pattern and dorsal head bands are absent or just flecking as opposed to lined; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; ventral scales with or without dark edges; there are usually 16 scales along a line across the top of the head and usually 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; there is no dark dorso-lateral stripe extending from the posterior third of the body to the tail, (*Wellingtonopus stevebennetti sp. nov.*, *W. butleri*, *W. grahamrichardsoni sp. nov.*, *W. nasuta*).

The genus *Wellsopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, and *Wellingtonopus gen. nov.* by the following suite of characters, being one or other of the following four:

1/ Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 14-16 (usually 16) mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; 2-3 scales along the lower margin of the hindlimb flap; usually three pre-anal scales; fourth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals; usually less than six infralabials and three hindlimb scales; 11-14 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are straight in outline and there are no additional pale bands on the side of the head between the pale dorsal bands, these all being bounded by thick black sections. Thickest pale band at the rear of the head. Snout is moderate and rounded (*W. shanekingi sp. nov.* and *W. borea*), or:

2/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; seven scales on top of the snout between the rostral and frontal; fourth supralabial below the eye; three pre-anal scales (*W. elegans* and *W. robwatsoni sp. nov.*).

3/ Smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; nasal and first supralabials are therefore very distinct; two dark transverse bands posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 14 midbody scale rows (rarely 12 or 16); five scales on top of the snout between the rostral and frontal; 10-13 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; colouration is a uniform grey or greyish brown above and immaculate white below (*W. richardwarneri* sp. nov., *W. tincta*, *W. kylienaughtonae* sp. nov., *W. michaelguiheneufi* sp. nov.), or:

4/ Third supralabial is usually below the eye and there is an absence of dark pigmentation from the throat and venter; there are usually three pre-anal scales and a lateral lip pattern and dorsal head bands may be present or absent; 18 or less midbody rows; usually seven scales on top of the snout between the rostral and frontal; smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; (*W. pax*, *W. desmosa*, *W. tealei*).

The genus *Nisara* Gray, 1867, type species *Delma grayi* Smith, 1849 is in the same species group as *Delma fraseri* Gray, 1831 and is therefore this genus name is treated as a junior synonym of *Delma* and is also therefore not an available name for the other previously unnamed species groups.

Distribution: The genus *Delma* as defined herein is generally found in drier parts of southern Australia.

Content: *Delma fraseri* Gray, 1831 (Type species); *D. grayii* Smith, 1849; *D. inornata* Kluge, 1974; *D. megleesae* sp. nov.; *D. petersoni* Shea, 1991.

SUBGENUS HONLAMOPUS GEN. NOV.

Type species: *Delma inornata* Kluge, 1974.

Diagnosis: The subgenus *Honlamopus* subgen. nov. is separated from the other (nominate) subgenus *Delma* Gray, 1831, by the following suite of characters:

Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail, no conspicuous lip pattern and flesh coloured ventral surfaces (in life) (*D. inornata* and *D. megleesae* sp. nov.).

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

The genus *Delma* Gray, 1831 is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. by the following suite of characters: Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and

frontal; usually three pre-anal scales; lateral lip pattern and dorsal head bands may be present or absent; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; and one or other of the following two:

1/ Conspicuous dorsal cross-bands are present on the head and nape; there is rarely a conspicuous dark lateral stripe present posteriorly; rostral noticeably projecting between the anterior pair of supranasals; strong dark bars or reticulations on the throat; usually more than five infralabials and three hindlimb scales (*D. fraseri* and *D. petersoni*), or:

2/ Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail (*D. grayi*, *D. inornata* and *D. megleesae* sp. nov.).

Distribution: Drier parts of south-eastern Australia including most of Victoria and the Murray Darling River basin.

Etymology: The subgenus is named in honour of Mr Hon Lam, owner of the Park Orchards, Fish Cafe, for his magnificent efforts catering to the staff at Snakebusters, Australia's best reptiles displays over the best part of a decade preceding year 2017. People who work hard to give logistical support to frontline conservationists and educators should not have their efforts go unrecognized.

Content: *Delma (Honlamopus) inornata* Kluge, 1974; *D. (Honlamopus) megleesae* sp. nov.

GENUS ACLYS KLUGE, 1974

Type species: *Aclys concinna* Kluge, 1974

Diagnosis: The genus *Aclys* Kluge, 1974 is readily separated from the genera *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. by having the anterior nasal scales separated by the rostral (as opposed to being in contact), 20 mid-body scale rows (as opposed to less than 20), striated or keeled dorsal scales (as opposed to smooth).

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: Coastal sand plains of south-western Australia (*A. concinna*) and in the Shark Bay region (*A. major*).

Content: *Aclys concinna* Kluge, 1974 (Type species); *A. major* (Storr, 1987).

GENUS PSEUODELMA FISCHER, 1882

Type species: *Pseudodelma impar* Fischer, 1882.

Diagnosis: The genus *Pseudodelma* Fischer, 1882 is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. by the following suite of characters: One or other of the following four:

1/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; one or two narrow whitish dorso-lateral stripes on the body and tail; nasal and first supralabial fused anterior to the nostril (*P. impar* and *P. cummingae*), or:

2/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail;

nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 18 mid-body scale rows; 5 scales on top of the snout between the rostral and the frontal; ventrals or conspicuously wider than adjacent body scales; no dark pigmentation on the throat (*P. mollerii*), or:

3/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually two pre-anal scales; conspicuous lateral lip pattern present; dorsal head bands absent (*P. plebeia* and *P. wollemi*), or:

4/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; lateral lip pattern and dorsal head bands may be present or absent; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; conspicuous dorsal cross-bands are present on the head and nape; there is usually a conspicuous dark lateral strip posteriorly; sharply demarcating the dark lateral from the pale ventral surfaces; rostral is not or scarcely projecting between the anterior pair of supranasals (*P. mitella*).

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: Mainly south-eastern Australia, extending to the wetter parts of South Australia and far north-east Queensland in the southern wet tropics.

Content: *Pseudodelma impar* Fischer, 1882 (Type species); *P. cummingae* sp. nov., *P. mitella* (Shea, 1987); *P. mollerii* (Lütken, 1863); *P. plebeia* (De Vis, 1888); *P. wollemi* (Wells and Wellington, 1985).

GENUS CROTTYOPUS GEN. NOV.

Type species: *Crottyopus jamesbondi* sp. nov. (Type species) (formally described in this paper).

Diagnosis: The genus *Crottyopus* gen. nov. is readily separated from the genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. by one or other of the following two suites of characters:

1/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 16-20 midbody rows, usually 18 at midbody, but sometimes varying elsewhere on the body; five scales on top of the snout between the rostral and frontal; ventral scales usually scarcely wider than adjacent body scales; dark reticulations usually present on the

throat (*C. jamesbondi* sp. nov., *C. australis*, *C. hebesa*) (subgenus *Crottyopus* gen. nov.), or:

2/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; five scales on top of the snout between the rostral and the frontal; third supralabial below the eye and two pre-anal scales (*C. torquata*) (subgenus *Gracileopus* subgen. nov.).

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: Drier parts of southern Australia (subgenus *Crottyopus* subgen. nov.) and coastal areas of south-east Queensland in drier habitats (subgenus *Gracileopus* subgen. nov.).

Etymology: Named in honour of a deceased Great Dane Röttweiler pet named "Crotalus", or "Crotty" for short. Lived from 1989 to about 2002, this dog guarded my research facility from thieves and allowed significant herpetological research to continue unimpeded. I have no hesitation to name a taxon in honour of an animal that has made a valuable contribution to in wildlife conservation.

Content: *Crottyopus jamesbondi* sp. nov. (Type species); *C. australis* (Kluge, 1974); *C. hebesa* (Marian, Brennan, Adams and Aplin, 2015); *C. torquata* (Kluge, 1974).

SUBGENUS GRACILEOPUS SUBGEN. NOV.

Type species: *Delma torquata* Kluge, 1974.

Diagnosis: The subgenus *Gracileopus* subgen. nov. is separated from the subgenus *Crottyopus* subgen. nov. and the six genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. by the following suite of characters:

Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; five scales on top of the snout between the rostral and the frontal; third supralabial below the eye and two pre-anal scales (*C. torquata*).

The subgenus *Crottyopus* subgen. nov. is separated from the subgenus *Gracileopus* subgen. nov. and the six genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. by the following suite of characters:

Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 16-20 midbody rows, usually 18 at midbody, but sometimes varying elsewhere on the body; five scales on top of the snout between the rostral and frontal; ventral scales usually scarcely wider than adjacent body scales; dark reticulations usually present on the throat (*C. jamesbondi* sp. nov., *C. australis*, *C. hebesa*).

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882,

Sloppopus gen. nov., *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: Coastal areas of south-east Queensland in drier habitats.

Etymology: Named in reflection of the gracile nature of the lizards in the subgenus.

Content: *Crottyopus (Gracileopus) torquata* (Kluge, 1974) (Monotypic).

SUBGENUS CROTTYOPUS SUBGEN. NOV.

Type species: *Crottyopus jamesbondi sp. nov.* (Type species) (formally described in this paper).

Diagnosis: The subgenus *Crottyopus gen. nov.* is readily separated from the subgenus *Gracileopus subgen. nov.* and the genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by the following suite of characters: Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 16-20 midbody rows, usually 18 at midbody, but sometimes varying elsewhere on the body; five scales on top of the snout between the rostral and frontal; ventral scales usually scarcely wider than adjacent body scales; dark reticulations usually present on the throat (*C. jamesbondi sp. nov.*, *C. australis*, *C. hebesa*) (subgenus *Crottyopus gen. nov.*).

The subgenus *Gracileopus subgen. nov.* is readily separated from the subgenus *Crottyopus gen. nov.* and the genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by the following suite of characters: Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; five scales on top of the snout between the rostral and the frontal; third supralabial below the eye and two pre-anal scales (*C. torquata*) (subgenus *Gracileopus subgen. nov.*).

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: Drier parts of southern Australia.

Etymology: Named in honour of a deceased Great Dane Rottweiler pet named "*Crotalus*", or "*Crotty*" for short. Lived from 1989 to about 2002, this dog guarded my research facility and young children from thieves and allowed significant herpetological research to continue unimpeded. I have no hesitation to name a taxon in honour of an animal that has made a valuable contribution to in wildlife conservation.

Content: *Crottyopus (Crottyopus) jamesbondi sp. nov.* (Type

species); *C. (Crottyopus) australis* (Kluge, 1974); *C. (Crottyopus) hebesa* (Maryan, Brennan, Adams and Aplin, 2015).

GENUS SLOPPOPUS GEN. NOV.

Type species: *Delma labialis* Shea, 1987.

Diagnosis: The genus *Sloppopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by the following suite of characters: smooth glossy scales; 16-18 midbody rows; a moderate and rounded snout; seven scales on the upper snout between the rostral and frontal; nasal and first supralabial are distinct; four scales border the nostril; the fourth supralabial sits beneath the eye; there are 16 scales along a line across the top of the head at the angle of the mouth on each side; ventral scales are paired and noticeably wider than the adjacent body scales; there are three scales along the lower margin of the hindlimb flap; typically three enlarged pre-anal scales; rich red-brown or grey above; immaculate cream below; the top of the head is uniform brown but the lips, side of the head and neck are characterised by having a series of alternating cream and yellow-brown vertically aligned bars; the throat and ventral surfaces are an immaculate cream in colour (*S. labialis*).

Distribution: The region from Townsville to Mackay in north-east Queensland, including offshore islands.

Etymology: Named in honour of a nearly five year old (as of 2017) Great Dane owned by the Hoser family, named Slopp. This dog has guarded our research and conservation facility from illegal incursions by animal haters motivated by a desire for financial aggrandisement and who seek to undermine our wildlife conservation and education efforts to get what they seek to obtain illegally. I have no hesitation to name a taxon in honour of an animal that has made a valuable contribution to in wildlife conservation.

Content: *Sloppopus labialis* (Shea, 1987) (Monotypic).

GENUS WELLINGTONOPUS GEN. NOV.

Type species: *Wellingtonopus stevebennetti sp. nov.* (formally described in this paper).

Diagnosis: The genus *Wellingtonopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, and *Wellsopus gen. nov.* by the following suite of characters, being one or other of the following two:

1/ Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 16-18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; fourth or fifth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals; usually less than six infralabials and three hindlimb scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are wavy in outline and there are usually some extra pale narrow bands on the side of the head between the pale dorsal bands; there is rarely a conspicuous dark lateral stripe present posteriorly; strong dark bars or reticulations absent from the throat; (*W. haroldi*), or:
2/ 15-18 midbody rows (usually 16), and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually seven scales on top of the snout between the rostral and frontal; usually three often enlarged pre-anal scales; lateral lip pattern and dorsal head bands are absent or just flecking as opposed to lined; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; ventral scales with or without dark edges; there are usually 16 scales along a line across the top of the head and usually 17 scales along a line across the throat, each line extending from

the angle of the mouth on each side; there is no dark dorso-lateral stripe extending from the posterior third of the body to the tail, (*Wellingtonopus stevebennetti* sp. nov., *W. butleri*, *W. grahamrichardsoni* sp. nov., *W. nasuta*).

The genus *Delma* Gray, 1831, and the six genera *Aclyx* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: Most of the drier western two thirds of Australia.

Etymology: Named in honour of Cliff Ross Wellington of New South Wales, Australia and who is one of the leading lights in Australian herpetology spanning many decades. He is best known to many as a co-author of papers with Richard Wells, but whose massive contributions to herpetology go well beyond this.

Content: *Wellingtonopus stevebennetti* sp. nov. (Type species); *W. butleri* (Storr, 1987); *W. grahamrichardsoni* sp. nov.; *W. haroldi* (Storr, 1987); *W. nasuta* (Kluge, 1974)

GENUS WELLSOPUS GEN. NOV.

Type species: *Wellsopus shanekingi* sp. nov. (formally described in this paper).

Diagnosis: The genus *Wellsopus* gen. nov. is readily separated from the genera *Aclyx* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., and *Wellingtonopus* gen. nov. by the following suite of characters, being one or other of the following four:

1/ Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 14-16 (usually 16) mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; 2-3 scales along the lower margin of the hindlimb flap; usually three pre-anal scales; fourth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals; usually less than six infralabials and three hindlimb scales; 11-14 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are straight in outline and there are no additional pale bands on the side of the head between the pale dorsal bands, these all being bounded by thick black, blackish or grey sections. Thickest pale band at the rear of the head. Snout is moderate and rounded (*W. shanekingi* sp. nov., *W. brianbarnetti* sp. nov. and *W. borea*), or:

2/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; seven scales on top of the snout between the rostral and frontal; fourth supralabial below the eye; three pre-anal scales (*W. elegans* and *W. robwatsoni* sp. nov.).

3/ Smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; nasal and first supralabials are therefore very distinct; two dark transverse bands posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 14 midbody scale rows (rarely 12 or 16); five scales on top of the snout between the rostral and frontal; 10-13 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent

scales; colouration is a uniform grey or greyish brown above and immaculate white below (*W. richardwarneri* sp. nov., *W. tincta*, *W. kylienaughtonae* sp. nov., *W. michaelguiheneufi* sp. nov.), or:

4/ Third supralabial is usually below the eye and there is an absence of dark pigmentation from the throat and venter; there are usually three pre-anal scales and a lateral lip pattern and dorsal head bands may be present or absent; 18 or less midbody rows; usually seven scales on top of the snout between the rostral and frontal; smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; (*W. pax*, *W. desmosa*, *W. tealei*).

The genus *Delma* Gray, 1831, and the six genera *Aclyx* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: Most of the northern three quarters of Australia, except for the far south and wetter south-east, although most species are confined to the western parts of Australia.

Etymology: Named in honour of Richard Wells of New South Wales, Australia and who is one of the leading lights in Australian herpetology spanning many decades. He is best known to many as a co-author of papers with Cliff Ross Wellington, but whose massive contributions to herpetology go well beyond this.

Content: *Wellsopus shanekingi* sp. nov. (Type species); *W. brianbarnetti* sp. nov., *W. borea* (Kluge, 1974); *W. desmosa* (Maryan, Aplin and Adams, 2007); *W. elegans* (Kluge, 1974); *W. kylienaughtonae* sp. nov.; *W. michaelguiheneufi* sp. nov.; *W. pax* (Kluge, 1974); *W. richardwarneri* sp. nov.; *W. robwatsoni* sp. nov.; *W. tealei* (Maryan, Aplin and Adams, 2007); *W. tincta* (De Vis, 1888).

GENUS APRASIA GRAY, 1839

Type species: *Aprasia pulchella* Gray, 1839.

Diagnosis: The genus *Aprasia* Gray, 1839 is separated from the genera *Abilaena* Wells, 2007, *Brettbarnettus* gen. nov. and *Maryannmartinekeke* gen. nov. by one or other of the following two suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and two pre-anal scales (*Aprasia pulchella*), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; head including the upper lips are black or dark brownish-black, the tail tip is freckled with black and there is a small but distinct postocular scale (*Aprasia picturata*).

The genus *Abilaena* Wells, 2007 is separated from the genera *Aprasia* Gray, 1839, *Brettbarnettus* gen. nov. and *Maryannmartinekeke* gen. nov. by one or other of the following four suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril;

usually 14 (rarely 12) mid-body scale rows; two preanal scales; the snout is long and pointed and projecting when viewed dorsally and laterally (*Abilaena rostrata*, *A. litorea*), or:

2/ External ear opening is absent; prefrontal is in contact with the subocular labial and there are four supralabials (*Abilaena haroldi*), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; tail tip and/or head, excluding the lips are black; there is no distinct postocular scale it having fused with the fourth supralabial (*Abilaena smithi*), or:

4/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; postocular scale absent, the fourth supralabial contacts the supraocular (*Abilaena repens*, *A. clairae*, *A. wicherina*).

This genus is also the group of lizards described by Maryan *et al.* (2013a) as the "*Aprasia repens* species-group" which they defined as follows: "Compared to other *Aprasia*, the members of this group have a more slender body, a narrower head with a longer, more angular snout profile, and the postocular is almost always fused to the second last supralabial."

While offering a defacto recognition of the genus *Abilaena* Wells, 2007, the politics of the Western Australian Museum and their ban on usage of anything by Richard Wells, led to Maryan *et al.* being forced to pretend that *Abilaena* Wells, 2007 did not exist and that they (Maryan *et al.*) were the first to define and recognize their so-called "*Aprasia repens* species-group". In summary the deliberate non-use of *Abilaena* Wells, 2007 and the remanufacturing of the Richard Wells genus concept as "new" was an act of scientific fraud.

The genus *Brettbarnettus gen. nov.* is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007 and *Maryannmartinekeia gen. nov.* by the presence of an external ear opening (as opposed to none in the other genera) although in this genus it is partially hidden beneath a temporal scale. *Brettbarnettus gen. nov.* is further characterised by the suite of characters described on page 380 of Cogger (2014) under the heading "*Aprasia aurita* Kluge, 1974".

The genus *Maryannmartinekeia gen. nov.* is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007, and *Brettbarnettus gen. nov.* by one or other of the following three suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and three pre-anal scales (*Maryannmartinekeia parapulchella* Kluge, 1974, *M. pseudopulchella* Kluge, 1974), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; a single postocular scale separates the fourth supralabial from the supraocular (*Maryannmartinekeia striolata* Lütken, 1863), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 14 (rarely 12) mid-body scale rows; three preanal scales;

the snout is rounded and not strongly projecting when viewed dorsally and laterally (*Maryannmartinekeia inaurita* Kluge, 1974).

The subtribe *Aprasiaina subtribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007, *Brettbarnettus gen. nov.*, *Maryannmartinekeia gen. nov.*).

The other two subtribes within *Aprasiaina tribe nov.* are separated from all other all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following two:

1/ Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864) (Subtribe *Pletholaxina subtribe nov.*), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897) (Subtribe *Ophidiocephalina subtribe nov.*).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: *Aprasia* as defined above are found in southwestern Western Australia, including areas inland from the coast.

Content: *Aprasia pulchella* Gray, 1839 (Type species); *Aprasia picturata* Smith and Henry, 1999.

GENUS ABILAENA WELLS, 2007

Type species: *Aprasia repens rostrata* Parker, 1956.

Diagnosis: The genus *Abilaena* Wells, 2007 is separated from the genera *Aprasia* Gray, 1839, *Brettbarnettus gen. nov.* and *Maryannmartinekeia gen. nov.* by one or other of the following four suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 14 (rarely 12) mid-body scale rows; two preanal scales; the snout is long and pointed and projecting when viewed dorsally and laterally (*Abilaena rostrata*, *A. litorea*), or:

2/ External ear opening is absent; prefrontal is in contact with the subocular labial and there are four supralabials (*Abilaena haroldi*), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; tail tip and/or head, excluding the lips are black; there is no distinct postocular scale it having fused with the fourth supralabial (*Abilaena smithi*), or:

4/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; postocular scale absent, the fourth supralabial contacts the supraocular (*Abilaena repens*, *A. clairae*, *A. wicherina*).

This genus is also the group of lizards described by Maryan *et*

al. (2013a) as the “*Aprasia repens* species-group” which they defined as follows: “Compared to other *Aprasia*, the members of this group have a more slender body, a narrower head with a longer, more angular snout profile, and the postocular is almost always fused to the second last supralabial.”

While offering a defacto recognition of the genus *Abilaena* Wells, 2007, the politics of the Western Australian Museum and their ban on usage of anything by Richard Wells, led to Maryan *et al.* being forced to pretend that *Abilaena* Wells, 2007 did not exist and that they (Maryan *et al.*) were the first to define and recognize their so-called “*Aprasia repens* species-group”. In summary the deliberate non-use of *Abilaena* Wells, 2007 and the remanufacturing of the Richard Wells genus concept as “new” was an act of scientific fraud.

The genus *Aprasia* Gray, 1839 is separated from the genera *Abilaena* Wells, 2007, *Brettbarnettus gen. nov.* and *Maryannmartinekeke gen. nov.* by one or other of the following two suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and two pre-anal scales (*Aprasia pulchella*), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; head including the upper lips are black or dark brownish-black, the tail tip is freckled with black and there is a small but distinct postocular scale (*Aprasia picturata*).

The genus *Brettbarnettus gen. nov.* is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007 and *Maryannmartinekeke gen. nov.* by the presence of an external ear opening (as opposed to none in the other genera) although in this genus it is partially hidden beneath a temporal scale.

Brettbarnettus gen. nov. is further characterised by the suite of characters described on page 380 of Cogger (2014) under the heading “*Aprasia aurita* Kluge, 1974”.

The genus *Maryannmartinekeke gen. nov.* is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007, and *Brettbarnettus gen. nov.* by one or other of the following three suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and three pre-anal scales (*Maryannmartinekeke parapulchella* Kluge, 1974, *M. pseudopulchella* Kluge, 1974), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; a single postocular scale separates the fourth supralabial from the supraocular (*Maryannmartinekeke striolata* Lütken, 1863), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 14 (rarely 12) mid-body scale rows; three preanal scales; the snout is rounded and not strongly projecting when viewed dorsally and laterally (*Maryannmartinekeke inaurita* Kluge, 1974).

The subtribe *Aprasiaina subtribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters: Head covered with enlarged

symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007, *Brettbarnettus gen. nov.*, *Maryannmartinekeke gen. nov.*).

The other two subtribes within *Aprasiaina tribe nov.* are separated from all other all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following two:

1/ Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864) (Subtribe *Pletholaxina subtribe nov.*), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897) (Subtribe *Ophidiocephalina subtribe nov.*).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or “fin” on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: The west coast of Western Australia and nearby areas.

Content: *Abilaena rostrata* (Parker, 1956) (Type species); *A. clairae* (Maryan, How and Adams, 2013); *A. haroldi* (Storr, 1978); *A. litorea* (Maryan, Bush and Adams, 2013); *A. repens* (Fry, 1914); *A. smithi* (Storr, 1970); *A. wicherina* (Maryan, Adams and Aplin, 2015).

GENUS BRETTBARNETTUS GEN. NOV.

Type species: *Aprasia aurita* Kluge, 1974.

Diagnosis: The genus *Brettbarnettus gen. nov.* is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007 and *Maryannmartinekeke gen. nov.* by the presence of an external ear opening (as opposed to none in the other genera) although in this genus it is partially hidden beneath a temporal scale. *Brettbarnettus gen. nov.* is further characterised by the suite of characters described on page 380 of Cogger (2014) under the heading “*Aprasia aurita* Kluge, 1974”.

The genus *Aprasia* Gray, 1839 is separated from the genera *Abilaena* Wells, 2007, *Brettbarnettus gen. nov.* and *Maryannmartinekeke gen. nov.* by one or other of the following two suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and two pre-anal scales (*Aprasia pulchella*), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; head including the upper lips are black or dark brownish-black, the tail tip is freckled with black and there is a small but distinct postocular scale (*Aprasia picturata*).

The genus *Abilaena* Wells, 2007 is separated from the genera *Aprasia* Gray, 1839, *Brettbarnettus gen. nov.* and *Maryannmartinekeke gen. nov.* by one or other of the following four suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril;

usually 14 (rarely 12) mid-body scale rows; two preanal scales; the snout is long and pointed and projecting when viewed dorsally and laterally (*Abilaena rostrata*, *A. litorea*), or:

2/ External ear opening is absent; prefrontal is in contact with the subocular labial and there are four supralabials (*Abilaena haroldi*), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; tail tip and/or head, excluding the lips are black; there is no distinct postocular scale it having fused with the fourth supralabial (*Abilaena smithi*), or:

4/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; postocular scale absent, the fourth supralabial contacts the supraocular (*Abilaena repens*, *A. clairae*, *A. wicherina*).

This genus is also the group of lizards described by Maryan *et al.* (2013a) as the "*Aprasia repens* species-group" which they defined as follows: "Compared to other *Aprasia*, the members of this group have a more slender body, a narrower head with a longer, more angular snout profile, and the postocular is almost always fused to the second last supralabial."

While offering a defacto recognition of the genus *Abilaena* Wells, 2007, the politics of the Western Australian Museum and their ban on usage of anything by Richard Wells, led to Maryan *et al.* being forced to pretend that *Abilaena* Wells, 2007 did not exist and that they (Maryan *et al.*) were the first to define and recognize their so-called "*Aprasia repens* species-group". In summary the deliberate non-use of *Abilaena* Wells, 2007 and the remanufacturing of the Richard Wells genus concept as "new" was an act of scientific fraud.

The genus *Maryannmartineke* *gen. nov.* is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007, and *Brettbarnettus* *gen. nov.* by one or other of the following three suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and three pre-anal scales (*Maryannmartineke parapulchella* Kluge, 1974, *M. pseudopulchella* Kluge, 1974), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; a single postocular scale separates the fourth supralabial from the supraocular (*Maryannmartineke striolata* Lütken, 1863), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 14 (rarely 12) mid-body scale rows; three preanal scales; the snout is rounded and not strongly projecting when viewed dorsally and laterally (*Maryannmartineke inaurita* Kluge, 1974).

The subtribe *Aprasiaina subtribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007, *Brettbarnettus* *gen. nov.*, *Maryannmartineke* *gen. nov.*).

The other two subtribes within *Aprasiaina* *tribe nov.* are separated from all other all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following two:

1/ Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864) (Subtribe *Pletholaxina subtribe nov.*), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897) (Subtribe *Ophidiocephalina subtribe nov.*).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Northwest Victoria and nearby parts of south-east South Australia and New South Wales.

Content: *Brettbarnettus aurita* (Kluge, 1974) (Monotypic).

GENUS MARYANMARTINEKEA GEN. NOV.

Type species: *Aprasia parapulchella* Kluge, 1974 (Type species).

Diagnosis: The genus *Maryannmartineke* *gen. nov.* is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007, and *Brettbarnettus* *gen. nov.* by one or other of the following three suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and three pre-anal scales (*Maryannmartineke parapulchella* Kluge, 1974, *M. pseudopulchella* Kluge, 1974), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; a single postocular scale separates the fourth supralabial from the supraocular (*Maryannmartineke striolata* Lütken, 1863), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 14 (rarely 12) mid-body scale rows; three preanal scales; the snout is rounded and not strongly projecting when viewed dorsally and laterally (*Maryannmartineke inaurita* Kluge, 1974).

The genus *Aprasia* Gray, 1839 is separated from the genera *Abilaena* Wells, 2007, *Brettbarnettus* *gen. nov.* and *Maryannmartineke* *gen. nov.* by one or other of the following two suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial completely or partially fused posterior to the nostril and two pre-anal scales (*Aprasia pulchella*), or:

2/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; head

including the upper lips are black or dark brownish-black, the tail tip is flecked with black and there is a small but distinct postocular scale (*Aprasia picturata*).

The genus *Abilaena* Wells, 2007 is separated from the genera *Aprasia* Gray, 1839, *Brettbarnettus* gen. nov. and *Maryannmartinekea* gen. nov. by one or other of the following four suites of characters:

1/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 14 (rarely 12) mid-body scale rows; two preanal scales; the snout is long and pointed and projecting when viewed dorsally and laterally (*Abilaena rostrata*, *A. litorea*), or:

2/ External ear opening is absent; prefrontal is in contact with the subocular labial and there are four supralabials (*Abilaena haroldi*), or:

3/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip sharply contrast with the colour of the rest of the body; tail tip and/or head, excluding the lips are black; there is no distinct postocular scale it having fused with the fourth supralabial (*Abilaena smithi*), or:

4/ External ear opening is absent; prefrontal is not in contact with the subocular labial and there are five supralabials bordering the upper lip on each side; colour of the head and tail tip do not sharply contrast with the colour of the rest of the body; nasal and first supralabial are not fused posterior to the nostril; usually 12 mid-body scale rows; postocular scale absent, the fourth supralabial contacts the supraocular (*Abilaena repens*, *A. clairae*, *A. wicherina*).

This genus is also the group of lizards described by Maryan *et al.* (2013a) as the "*Aprasia repens* species-group" which they defined as follows: "Compared to other *Aprasia*, the members of this group have a more slender body, a narrower head with a longer, more angular snout profile, and the postocular is almost always fused to the second last supralabial."

While offering a defacto recognition of the genus *Abilaena* Wells, 2007, the politics of the Western Australian Museum and their ban on usage of anything by Richard Wells, led to Maryan *et al.* being forced to pretend that *Abilaena* Wells, 2007 did not exist and that they (Maryan *et al.*) were the first to define and recognize their so-called "*Aprasia repens* species-group". In summary the deliberate non-use of *Abilaena* Wells, 2007 and the remanufacturing of the Richard Wells genus concept as "new" was an act of scientific fraud.

The genus *Brettbarnettus* gen. nov. is separated from the genera *Aprasia* Gray, 1839, *Abilaena* Wells, 2007 and *Maryannmartinekea* gen. nov. by the presence of an external ear opening (as opposed to none in the other genera) although in this genus it is partially hidden beneath a temporal scale. *Brettbarnettus* gen. nov. is further characterised by the suite of characters described on page 380 of Cogger (2014) under the heading "*Aprasia aurita* Kluge, 1974".

The subtribe *Aprasiaina subtribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007, *Brettbarnettus* gen. nov., *Maryannmartinekea* gen. nov.).

The other two subtribes within *Aprasiaina tribe nov.* are separated from all other all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following two:

1/ Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864) (Subtribe *Pletholaxina*

subtribe nov.), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897) (Subtribe *Ophidiocephalina subtribe nov.*).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Southern Australia.

Content: *Maryannmartinekea parapulchella* (Kluge, 1974) (Type species); *M. inaurita* (Kluge, 1974); *M. pseudopulchella* (Kluge, 1974); *M. striolata* (Lütken, 1863).

DELMA (HONLAMOPUS) MEGLEESAE SP. NOV.

Holotype: A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R.142790 collected from Sunrise Property, Ironmines Road, 6.4 km south of the Yass-Goulburn Road, New South Wales, Australia, Lat. -34.70, Long. 149.05.

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

Paratype: A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R. 84293 collected from Yass, New South Wales, Australia, Lat. -34.85, Long. 148.92.

Diagnosis: *Delma megleesae* sp. nov. is similar in most respects to *D. inornata* Kluge, 1974, the species it has been treated as until now.

D. megleesae sp. nov. is readily separated from *D. inornata* by a strongly yellow chin, snout and upper labials, versus cream or at best light yellow in *D. inornata*. *D. megleesae* sp. nov. is also readily separated from *D. inornata* by the absence of obviously dark etched scales on the top and sides of the head and neck, which is seen in *D. inornata*. In *D. inornata* the dark etched scales are formed by the rear of each scale having a dark etching, giving the entirety of each brownish scale a dark etched appearance.

The subgenus *Honlamopus subgen. nov.* which includes the species *D. inornata* and *D. megleesae* sp. nov. are separated from the other subgenus *Delma* Gray, 1831 by the following suite of characters:

Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail, no conspicuous lip pattern and flesh coloured ventral surfaces (in life).

The genus *Delma* Gray, 1831 is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. by the following suite of characters: Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; lateral lip pattern and

dorsal head bands may be present or absent; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; and one or other of the following two:

1/ Conspicuous dorsal cross-bands are present on the head and nape; there is rarely a conspicuous dark lateral stripe present posteriorly; rostral noticeably projecting between the anterior pair of supranasals; strong dark bars or reticulations on the throat; usually more than five infralabials and three hindlimb scales (*D. fraseri* and *D. petersoni*), or:

2/ Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail (*D. grayi*, *D. inornata* and *D. meglesae* sp. nov.).

The genus *Delma* Gray, 1831, and the six genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: *Delma meglesae* sp. nov. is restricted to the basaltic and granite plains of the ACT and nearby parts of Southern New South Wales, in association with the drier plateaux and near western slopes of the southern Great Dividing Range in southern NSW and the ACT. *D. inornata* Kluge, 1974, is found in a broad region from the drier parts of south-east South Australia, not including arid areas in the north across most of Victoria north and west of the Great Dividing Range, through most of the western slopes and nearby plains of New South Wales, into nearby parts of southern Queensland, west of the Great Dividing Range.

Etymology: In honour of Meg Heather Lees (née Francis, born 19 October 1948). She was a member of the Australian Senate from 1990 to 2005, representing the state of South Australia. She represented the Australian Democrats from 1990 to 2002, and was her party's Senate leader from 1997 – 2001. After being deposed by Natasha Stott Despoja, she quit the party to sit as an independent senator in 2002, adopting the party designation Australian Progressive Alliance from 2003 until her electoral defeat in 2005. Her greatest achievement was in 1993, when in association with News Limited Journalist Fia Cumming (of Canberra, ACT), she publicly denounced an illegal ban of the best-selling book *Smuggled: The Underground Trade in Australia's Wildlife* by the New South Wales National Parks and Wildlife Service (NPWS).

The actions of Lees played a pivotal role in having the illegal ban lifted. As a result of the publication of that book and a sequel (*Smuggled-2: Wildlife Trafficking, Crime and Corruption in Australia*), draconian and anti-conservation wildlife laws were forcibly rewritten in all Australian states, reversing a decades old ban on private ownership of wildlife including humble species like snakes and lizards.

Consequently it can be said without exaggeration that the actions of Lees made a significant and permanent positive impact on wildlife conservation in Australia.

Details of the actions of Lees and others such as Fia Cumming and publisher Charles Pierson in those critically important months of May 1993 are within the text of *Smuggled-2: Wildlife Trafficking, Crime and Corruption in Australia* and are mandatory reading for all persons with a genuine interest in wildlife conservation in Australia.

PSEUODELMA CUMMINGAE SP. NOV.

Holotype: A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R.31621 collected from Gungahlin, Australian Capital Territory, Australia.

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

Paratypes: 1/ A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R.14349 collected from Barton, Australian Capital Territory, Australia.

2/ A preserved specimen at the South Australian Museum, Australia, specimen number: R43328 collected from the Australian Capital Territory, Australia.

Diagnosis: *P. cummingae* sp. nov. is similar in most respects to *P. cummingae* sp. nov. Fischer, 1882, which it was until now treated as being a population of.

Both *P. impar* and *P. cummingae* sp. nov. are separated from all other species within *Pseudodelma* and the six genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Crottyopus* gen. nov., *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) by the following suite of characters: they are two moderate-sized species of "*Delma*" (SVL up to 101 mm) with a single pair of supranasals, fused rostrally with first supralabial and caudally with the postnasal, two pre-anal scales, and usually with a series of distinct narrow pale stripes laterally and dorso-lateral stripes on the body and tail, with series of dark spots between these stripes, often merged to form dark lines.

P. cummingae sp. nov. is separated from *P. impar* by the fact that in *P. impar* each of the lateral white stripes commences either above the ear or anterior to it. In *P. cummingae* sp. nov. this line commences well posterior to the ear.

P. impar is characterised by having a strong yellow flush across otherwise whiteish scales on the upper and lower labials posterior to the eye and running down the upper neck. *P. cummingae* sp. nov. rarely has a strong yellow flush in this region, instead having at best a faint yellowish flush and even then it is confined to the upper labials.

In *P. cummingae* sp. nov. the darker region of the crown fades into the lighter labials at a level just below the eye and posterior to it. In *P. impar* there is a sharp and well-defined transition from the dark to the light in the same region.

Distribution: The basaltic plains of the ACT and immediately adjoining areas in NSW. *P. impar* is herein confined to Victoria and nearby South Australia. A single record of a specimen previously assigned to *P. impar* allegedly from Alpine Way, in Kosciuszko National Park, 9 KM west of Thredbo is likely to be either *P. cummingae* sp. nov. or *P. impar* as opposed to a third species.

THE CONSERVATION STATUS OF BOTH *P. IMPAR* AND *P. CUMMINGAE* SP. NOV.

Other than by direct removal of habitat for urban development or high intensity agriculture, there is absolutely no evidence of decline or recent rarity of either taxon.

The only serious known threat to either taxon is the "Big Australia policy" this being a Federal and (all states) State Government policy to ensure Australia increases the human population tenfold in the next 200 years, meaning it will be home to over 250 million people as opposed to the 25 million (approximately) at present.

Government funds spent doing "surveys" for either species are in effect a total waste of time and resources if the human population continues to increase, ultimately leading to the habitat for both species literally being paved over.

In the short to medium term (next 50 years), there is absolutely no point in "protection" of either species (read this as "banning" the public from being able to catch, keep, interact or even kill either species).

Ill informed people will continue to kill specimens in mistake for

venomous snakes and this toll has no discernable impact on populations in any event as evidenced by the current situation arising after 200 years of people killing these species when finding them.

There is no need to ban or restrict private individuals from catching, keeping or studying these species as they are so small and innocuous that collection of specimens for any pet trade would not be likely to impact on populations (most would be missed and undetected) and in any event, there is no significant demand (if any) for people to keep these lizards in captivity anyway.

To date, most if not all direct human collection of specimens of both species have been within the auspices of wildlife surveys, scientific research, or hobbyists seeking to find and photograph specimens only.

Government departments spending money on these species on the basis they are "endangered" are merely diverting precious resources away from other species that may be genuinely endangered in the short to medium term. Also by listing species such as *P. cummingae* sp. nov. or *P. impar* as threatened, vulnerable or endangered and promoting them as the same, government officials are in fact devaluing the status of those other species that really are genuinely threatened or endangered.

Etymology: Named in honour of leading Australian journalist Fia Cumming, who over a 20 year period was often the only news reporter employed with the mainstream media with the courage to take on the corruption and lies from government officials who sought to outlaw all private ownership of reptiles in Australia.

Without her efforts, including her being the first and main reporter to break the news story of the illegal banning of the book *Smuggled: The Underground Trade in Australia's Wildlife* (Hoser 1993) in May 1993, there would be no person in Australia allowed to have contact with reptiles in any way, save for a handful of privileged persons in government run zoos and the like.

That was the legal situation in most of Australia before the publication of the *Smuggled* books in 1993 and 1996 (Hoser 1993, 1996).

Every man, woman and child in Australia who in 2017 enjoys the legal right to keep live reptiles as pets in their home, or who sees a mobile reptile or wildlife display at their school, event or party owes Fia Cumming an eternal debt of gratitude, as without her courageous efforts, that right would not exist in Australia.

CROTTYOPUS JAMESBONDI SP. NOV.

Holotype: A preserved specimen at the South Australian Museum in Adelaide, South Australia, Australia, specimen number: R46980 collected from 5.6 km SSE from Mosquito Camp Dam, far north South Australia, Latitude -26.16, Longitude 134.51

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

Paratype: A specimen in the Northern Territory Museum in Darwin, NT, Australia, specimen number: NTM R35854, collected from the top of the Krichauff Ranges, near the gas plant, at Hermannsburg, NT, Latitude -24.03, Longitude 132.42.

Diagnosis: *Crottyopus jamesbondi* sp. nov., *C. australis* (Kluge, 1974) and *C. hebesa* (Maryan, Brennan, Adams and Aplin, 2015) are all separated from the other species of *Crottyopus* gen. nov. and the six genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma*, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) by the following suite of characters: Smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one pair of supranasals, six upper labials with the fourth below the eye, supraloreal in contact with second upper labial, one or no broad dark transverse bands, sometimes faded in adults that are

posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 16-20 midbody rows, usually 18 at midbody, but sometimes varying elsewhere on the body; five scales on top of the snout between the rostral and frontal; ventral scales usually scarcely wider than adjacent body scales; SV up to 64 mm with a moderately robust body and relatively short tail (less than 2.5 times length of body).

Crottyopus jamesbondi sp. nov. is readily separated from the morphologically similar *C. australis* and *C. hebesa* by the distinctly weakened facial and throat banding, versus strong markings in the latter two species (as seen for example on page 145 of Wilson and Swan 2013, top image).

Crottyopus jamesbondi sp. nov. is further separated from *C. australis* and *C. hebesa* by its generally inornate colouration, and brownish body, versus a distinctively much darker head in the other two species.

Distribution: Found in a huge area from the western Lake Eyre drainage in South Australia, into the extreme southern Northern Territory (the main population), with apparently isolated outlier populations in Western Australia including the North West Cape, south-central Western Australia and Shark Bay.

Etymology: Named in honour of James Bond (yes the real one), of 496 Park Road, Park Orchards, Victoria, Australia, who over more than a decade has provided amazing assistances and logistical support to the wildlife conservation efforts of Snakebusters: Australia's best reptiles shows. Maintaining wildlife cages, facilities and the like is often boring and monotonous work and James Bond has assisted our efforts over many years and without ever asking for so much as a cent in payment or any other reward, merely being satisfied he has helped preserve the planet for future generations.

WELLINGTONOPUS STEVEBENNETTI SP. NOV.

Holotype: A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R.130986 collected from 19.7km North of the Coombah Roadhouse on the Silver City Highway, New South Wales, Australia.

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

Paratypes: 1/ A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R. 130988 collected from 19.7km North of the Coombah Roadhouse on the Silver City Highway, New South Wales, Australia.

2/ A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R. 156715 collected at Yarra Property, 35km From Mt Hope on the Euabalong Road, New South Wales, Australia. Latitude -32.95, Longitude 146.19.

Diagnosis: *Wellingtonopus stevebennetti* sp. nov. and *W. butleri* (Storr, 1987) are separated from the other species of *Wellingtonopus* gen. nov. and the six genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma*, *Sloppopus* gen. nov., and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) by the following suite of characters: 15-18 midbody rows (usually 16), and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually seven scales on top of the snout between the rostral and frontal; usually three often enlarged pre-anal scales; lateral lip pattern and dorsal head bands are absent or just flecking as opposed to lined; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; ventral scales with or without dark edges; there are usually 16 scales along a line across the top of the head and usually 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; there is no dark dorso-lateral stripe extending from the posterior third of the body to the tail, dorsal scales are dark brown in colour and finely

etched with blackish colour; ventral scales lack dark edges, or if present are indistinct.

Wellingtonopus stevebennetti sp. nov. is separated from the similar *W. butleri* by the generally olive dorsal colouration versus brownish in *W. butleri*. *W. butleri* has a well defined white patch posterior to the eye, which is not the case in *W. stevebennetti* sp. nov.. The bars or spots on the upper labials are well-defined in *W. butleri*, versus indistinct in *W. stevebennetti* sp. nov..

Distribution: The Murray Darling River basin and nearby areas in NSW, Victoria and South Australia. The status of specimens assigned to *W. butleri* in most parts of South Australia and nearby parts of the NT and Qld is not known. *W. butleri terra typica* (*sensu stricto*) are herein restricted to Western Australia and immediately adjacent parts of South Australia.

Etymology: Named in honour of Steve Bennett, of Narre Warren South, Victoria, Australia in recognition of a significant contribution to wildlife conservation in Australia over some decades, including at times by maintaining the fleet of vehicles used by the educational reptile displays of the Snakebusters: Australia's best reptiles team.

WELLINGTONOPUS GRAHAMRICHARDSONI SP. NOV.

Holotype: A preserved specimen at the Northern Territory Museum, Darwin, Australia, specimen number NTM R35899 collected from Camooweal, Queensland, Australia, Lat. -19.92, Longitude 138.12.

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

Paratype: A preserved specimen at the Queensland Museum, Brisbane, Australia, specimen number J39044 collected from 9.5 km east of Camooweal, Queensland, Australia.

Diagnosis: Until now, *W. grahamrichardsoni* sp. nov. has been treated as a population of *W. nasuta* Kluge, 1974. However *W. grahamrichardsoni* sp. nov. can be readily separated from *W. nasuta* by the following characters: At the rear lower margin of the eye are one or more obviously dark grey or black scales, forming a patch or comma. This feature is absent in *W. nasuta*. Most of the width of the posterior of each scale on the tail of *W. nasuta* is etched with dark brown or black, whereas this is not the case in *W. grahamrichardsoni* sp. nov.. When there is etching at the rear of the scales on the tail of *W. grahamrichardsoni* sp. nov. it occupies less than half the scale width, versus more than half in *W. nasuta*.

W. grahamrichardsoni sp. nov. is characterised by yellow under the front chin shields versus cream or white in *W. nasuta*.

The genus *Wellingtonopus* gen. nov. is readily separated from the genera *Aclyis* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., and *Wellsopus* gen. nov. by the following suite of characters, being one or other of the following two:

1/ Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 16-18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; fourth or fifth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals; usually less than six infralabials and three hindlimb scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are wavy in outline and there are usually some extra pale narrow bands on the side of the head between the pale dorsal bands; there is rarely a conspicuous dark lateral stripe present posteriorly; strong dark bars or reticulations absent from the throat; (*W. haroldi*), or:
2/ 15-18 midbody rows (usually 16), and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually seven

scales on top of the snout between the rostral and frontal; usually three often enlarged pre-anal scales; lateral lip pattern and dorsal head bands are absent or just flecking as opposed to lined; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; ventral scales with or without dark edges; there are usually 16 scales along a line across the top of the head and usually 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; there is no dark dorso-lateral stripe extending from the posterior third of the body to the tail, (*Wellingtonopus stevebennetti* sp. nov., *W. butleri*, *W. grahamrichardsoni* sp. nov., *W. nasuta*).

W. grahamrichardsoni sp. nov. and *W. nasuta* are separated from *Wellingtonopus stevebennetti* sp. nov. and *W. butleri* by the presence of dorsal scales that are pale brown, spotted and flecked or etched with darker brown and ventral scales that are usually dark edged. By contrast *Wellingtonopus stevebennetti* sp. nov. and *W. butleri* have dark brown dorsal scales that are finely edged with blackish pigment and ventral scales that lack dark edges.

The genus *Delma* Gray, 1831, and the six genera *Aclyis* Kluge, 1974, *Crottyopus* gen. nov., *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., *Wellingtonopus* gen. nov. and *Wellsopus* gen. nov. (all until now treated as being within *Delma*) are separated from all other Australasian Pygopodids by the following suite of characters: The head is covered with enlarged symmetrical shields; the ventral scales are smooth; there are no pre-anal pores; parietal scales are present; the external ear opening is present and obvious; there are more than 8 scales along a line across the top of the head joining the angle of the mouth on each side.

Distribution: *W. grahamrichardsoni* sp. nov. is found in northwest Queensland and the far north-east of the Northern Territory near the southern edge of the Gulf of Carpentaria, in a region generally north and east of the black soiled plains of the Diamantina River System and east of the Simpson Desert. *W. nasuta* Kluge, 1974 is found in most parts of continental Australia beyond this region, excluding the top end of the Northern Territory and also the far south, including the southern half of South Australia, the south-west of Western Australia and along near coastal areas north to about Shark Bay.

Etymology: Named in honour of Graham Frederick Richardson (born 27 September 1949), a former Australian politician, who was a Senator for New South Wales from 1983-94 for the Australian Labor Party. He was a senior minister in Hawke and Keating governments, but best known for his significant contributions to wildlife conservation and the cause of environmental protection.

Significantly and as a major power-broker in the Australian Labor Party he wrote the forward to the best-selling book *Smuggled: The Underground Trade in Australia's Wildlife*, which was unlawfully banned by the New South Wales National Parks and Wildlife Service when the book was first published in May 1993.

Canberra-based News limited Journalist Fia Cumming spearheaded a campaign to have the illegal ban lifted which succeeded in June 1993.

As a result of the publication of that book and a sequel (*Smuggled-2: Wildlife Trafficking, Crime and Corruption in Australia*), draconian and anti-conservation wildlife laws were forcibly rewritten in all Australian states, reversing a decades old ban on private ownership of wildlife including humble species like snakes and lizards.

Consequently it can be said that the actions of Graham Richardson in demanding that the contents of the book *The Underground Trade in Australia's Wildlife* be read and acted upon, made a significant and permanent positive impact on wildlife conservation in Australia.

Details of the actions of Lees and others such as Fia Cumming

and publisher Charles Pierson in those critically important months of May 1993 to get the ban on that book lifted are within the text of *Smuggled-2: Wildlife Trafficking, Crime and Corruption in Australia* and both books are mandatory reading for all persons with a genuine interest in wildlife conservation in Australia.

WELLSOPUS SHANEKINGI SP. NOV.

Holotype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R157937, collected from Barrow Island, Western Australia, Australia, Latitude -20.80, Longitude 115.44. The Western Australian Museum in Perth, Western Australia, Australia, is a government-owned facility that allows scientists access to its holdings.

Paratype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R157938, collected from Barrow Island, Western Australia, Australia, Latitude -20.80, Longitude 115.44.

Diagnosis: *Wellsopus shanekingi sp. nov.* and the similar *W. brianbarnetti sp. nov.* and *W. borea* (Kluge, 1974) are separated from the other species of *Wellsopus gen. nov.* and the six genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma*, *Sloppopus gen. nov.*, and *Wellingtonopus gen. nov.* (all until now treated as being within *Delma*) by the following suite of characters: Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 14-16 (usually 16) mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; 2-3 scales along the lower margin of the hindlimb flap; usually three pre-anal scales; fourth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals (there being two pairs); usually less than six infralabials and three hindlimb scales; 11-14 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are straight in outline and there are no additional pale bands on the side of the head between the pale dorsal bands, these all being bounded by thick black, blackish or grey sections; the thickest pale band is at the rear of the head, with narrower ones anterior running immediately behind the eye and another posterior on neck, this being the thinner of the trio; the snout is moderate and rounded.

While *Wellsopus shanekingi sp. nov.*, *W. brianbarnetti sp. nov.* and *W. borea* (Kluge, 1974) are all very similar in appearance, they can all be readily distinguished from one another when viewed together, or alternatively one their own after one has viewed many specimens of each. The differences are very consistent, even across the wide range of each species.

W. borea (Kluge, 1974) is characterised by four dark blackish bands across the snout, head and upper neck interspersed with thin, yellowish-orange and white cross bands. While the patterning is much the same in both *W. shanekingi sp. nov.* and *W. brianbarnetti sp. nov.* the snout is brownish as opposed to blackish, meaning that the first of the four dark cross-bands is in effect absent. These start at the second dark cross-band above the eyes. However this cross-band is so faded in *W. shanekingi sp. nov.* as to be barely noticeable, in contrast to the other two species, in which it is prominent and obvious.

W. shanekingi sp. nov. is further separated from the other two species by having indistinct greyish blotches along the flanks and sides of the forebody.

W. borea (Kluge, 1974) is further separated from both *W. shanekingi sp. nov.* and *W. brianbarnetti sp. nov.* by the configuration of dark patches on the upper and lower labials. In *W. borea* (Kluge, 1974) the black patch on the lower labial (yes lower, not upper), below the eye is large and forms a blob. It is also effectively joined to the black of the upper labial and the

eye.

By contrast in *W. brianbarnetti sp. nov.* the same black patch is significantly reduced in size, forming a small spot, separated from above by a line of white, while in *W. shanekingi sp. nov.* it is a narrow line joining the dark in the upper labial.

With rare exceptions, the dark head bands in *W. brianbarnetti sp. nov.* are somewhat faded black, as opposed to a rich dark black in *W. borea*. In *W. shanekingi sp. nov.* the dark head bands are so faded as to be grey in colour.

Distribution: *W. shanekingi sp. nov.* is found on Barrow Island, Western Australia and north along the adjacent coastline of Western Australia to about Broome. *W. borea* is confined to the tropical NT near Darwin and within about 50 KM south of there in a zone continuing along the north coast of the NT to at least the Gove Peninsula. In most other parts of the Northern Territory, including the western interior, Victoria River Region and the Kimberley Ranges, specimens previously referred to *W. borea*, are now referred to the species *W. brianbarnetti sp. nov.* formally described below.

Specimens from the East Coast of the top end of the Northern Territory are also referred to *W. borea*.

Etymology: Named in honour of Shane King, formerly of Bendigo, now of Mildura in Victoria, Australia for his services to herpetology over some decades.

WELLSOPUS BRIANBARNETTI SP. NOV.

Holotype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R171025, collected from Saint Andrew Island, Western Australia, Australia, Latitude -15.36, Longitude 125.00. The Western Australian Museum in Perth, Western Australia, Australia, is a government-owned facility that allows scientists access to its holdings.

Paratype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R171015, collected from Adolphus Island, Western Australia, Australia, Latitude -15.08, Longitude 128.14.

Diagnosis: *Wellsopus shanekingi sp. nov.* and the similar *W. brianbarnetti sp. nov.* and *W. borea* (Kluge, 1974) are separated from the other species of *Wellsopus gen. nov.* and the six genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma*, *Sloppopus gen. nov.*, and *Wellingtonopus gen. nov.* (all until now treated as being within *Delma*) by the following suite of characters: Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 14-16 (usually 16) mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; 2-3 scales along the lower margin of the hindlimb flap; usually three pre-anal scales; fourth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals (there being two pairs); usually less than six infralabials and three hindlimb scales; 11-14 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are straight in outline and there are no additional pale bands on the side of the head between the pale dorsal bands, these all being bounded by thick black, blackish or grey sections; the thickest pale band is at the rear of the head, with narrower ones anterior running immediately behind the eye and another posterior on neck, this being the thinner of the trio; the snout is moderate and rounded.

While *Wellsopus shanekingi sp. nov.*, *W. brianbarnetti sp. nov.* and *W. borea* (Kluge, 1974) are all very similar in appearance, they can all be readily distinguished from one another when viewed together, or alternatively one their own after one has viewed many specimens of each. The differences are very consistent, even across the wide range of each species.

W. borea (Kluge, 1974) is characterised by four dark blackish bands across the snout, head and upper neck interspersed with thin, yellowish-orange and white cross bands. While the patterning is much the same in both *W. shanekingi* sp. nov. and *W. brianbarnetti* sp. nov. the snout is brownish as opposed to blackish, meaning that the first of the four dark cross-bands is in effect absent. These start at the second dark cross-band above the eyes. However this cross-band is so faded in *W. shanekingi* sp. nov. as to be barely noticeable, in contrast to the other two species, in which it is prominent and obvious.

W. shanekingi sp. nov. is further separated from the other two species by having indistinct greyish blotches along the flanks and sides of the fore-body.

W. borea (Kluge, 1974) is further separated from both *W. shanekingi* sp. nov. and *W. brianbarnetti* sp. nov. by the configuration of dark patches on the upper and lower labials. In *W. borea* (Kluge, 1974) the black patch on the lower labial (yes lower, not upper), below the eye is large and forms a blob. It is also effectively joined to the black of the upper labial and the eye.

By contrast in *W. brianbarnetti* sp. nov. the same black patch is significantly reduced in size, forming a small spot, separated from above by a line of white, while in *W. shanekingi* sp. nov. it is a narrow line joining the dark in the upper labial.

With rare exceptions, the dark head bands in *W. brianbarnetti* sp. nov. are somewhat faded black, as opposed to a rich dark black in *W. borea*. In *W. shanekingi* sp. nov. the dark head bands are so faded as to be grey in colour.

Distribution: *W. shanekingi* sp. nov. as described in this paper is found on Barrow Island, Western Australia and north along the adjacent coastline of Western Australia to about Broome. *W. borea* is confined to the tropical NT near Darwin and within about 50 KM south of there in a zone continuing along the north coast of the NT to at least the Gove Peninsula. In most other parts of the Northern Territory, including the western interior, Victoria River Region and the Kimberley Ranges (both east and west and offshore islands), specimens previously referred to *W. borea*, are now referred to the species *W. brianbarnetti* sp. nov. as formally described and named here.

Specimens from the East Coast of the top end of the Northern Territory are also referred to *W. borea*.

WELLSOPUS KYLIENAUGHTONAE SP. NOV.

Holotype: A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R. 151607 collected from 14.8km south of the Olive Downs Homestead, Connia Creek, Jump-Up Loop Road in the Sturt National Park, North-west, New South Wales, Australia, Latitude 29.17, Longitude 141.87.

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

Diagnosis: *Wellsopus kylienaughtonae* sp. nov., *W. richardwarneri* sp. nov., *W. tincta* (De Vis, 1888), and *W. michaelguiheneufi* sp. nov. are readily separated from other species in the genus *Wellsopus* gen. nov. and the genera *Aclyis* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., and *Wellingtonopus* gen. nov. by the following suite of characters:

Smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; nasal and first supralabials are therefore very distinct; two dark transverse bands posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 14 mid-body scale rows (rarely 12 or 16); five scales on top of the snout between the rostral and frontal; 10-13 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; colouration is a uniform grey or greyish brown above and immaculate white below.

Wellsopus kylienaughtonae sp. nov., *W. richardwarneri* sp. nov., *W. tincta*, and *W. michaelguiheneufi* sp. nov. are readily separated from one another by the following consistent traits:

W. kylienaughtonae sp. nov. from northwest New South Wales and nearby southern Queensland has no light cross band anterior to the eye. Instead this is reduced to yellowish upticks on the front labials above the eye. There are no further cross-bands or partially formed cross-bands beyond the last of the 3 obvious ones on the head and neck. There is a reddish tinge in the dorsal scales throughout the length of the body.

W. tincta from north-east Queensland always has four well-defined lighter bands across head and upper neck, including the head band anterior to the eye. There are no further cross-bands or partially formed cross-bands beyond the last of these. The lower flanks have minor reddening.

W. richardwarneri sp. nov. from the Pilbara in Western Australia and areas south-west of there is identified by the fact that all the darker head bands widen considerably as they commence from a narrow base on the upper labials (surrounded by white), versus more-or-less even width on labials and crown in the other three forms for those dark headbands behind the eyes. Beyond the four darker headbands (including the upper neck) there are two to three partially formed darker cross-bands running up the lower flanks, (this is not seen in the other three species).

W. michaelguiheneufi sp. nov. of the Kimberley division of Western Australia is characterised by there being no narrowing of the yellow with white crossband across the crown of the head behind the eyes as seen in the species *W. richardwarneri* sp. nov. and *W. tincta*, where the band narrows across the crown. The same band is effectively incomplete in *W. kylienaughtonae* sp. nov..

Distribution: Far north-west New South Wales and nearby parts of far south-west Queensland.

Etymology: Named in honour of Kylie Naughton of 484 Park Road, Park Orchards, Victoria, Australia for her services to wildlife conservation in Australia including by assisting in the critically important wildlife conservation and education work of Snakebusters: Australia's best reptiles shows.

WELLSOPUS MICHAELGUIHENEUFI SP. NOV.

Holotype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R137953, collected from 35 Kilometers, North, North-east of Kunnanurra, Western Australia, Australia, Latitude -15.59, Longitude 128.98.

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

Diagnosis: *W. michaelguiheneufi* sp. nov., *Wellsopus kylienaughtonae* sp. nov., *W. richardwarneri* sp. nov. and *W. tincta* (De Vis, 1888) are readily separated from other species in the genus *Wellsopus* gen. nov. and the genera *Aclyis* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., and *Wellingtonopus* gen. nov. by the following suite of characters:

Smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; nasal and first supralabials are therefore very distinct; two dark transverse bands posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 14 mid-body scale rows (rarely 12 or 16); five scales on top of the snout between the rostral and frontal; 10-13 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; colouration is a uniform grey or greyish brown above and immaculate white below.

Wellsopus michaelguiheneufi sp. nov., *W. kylienaughtonae* sp. nov., *W. richardwarneri* sp. nov. and *W. tincta* are readily separated from one another by the following consistent traits:

W. michaelguiheneufi sp. nov. of the Kimberley division of Western Australia is characterised by there being no narrowing of the yellow with white crossband across the crown of the head behind the eyes as seen in the species *W. richardwarneri* sp. nov. and *W. tincta*, where the band narrows across the crown. The same band is effectively incomplete in *W. kylienaughtonae* sp. nov.. There are no further cross-bands or partially formed cross-bands beyond the last of the 3 most obvious ones on the head and neck.

W. kylienaughtonae sp. nov. from northwest New South Wales and nearby southern Queensland has no light cross band anterior to the eye. Instead this is reduced to yellowish upticks on the front labials above the eye. There are no further cross-bands or partially formed cross-bands beyond the last of the 3 obvious ones on the head and neck. There is a reddish tinge in the dorsal scales throughout the length of the body.

W. tincta from north-east Queensland always has four well-defined lighter bands across head and upper neck, including the head band anterior to the eye. There are no further cross-bands or partially formed cross-bands beyond the last of these. The lower flanks have minor reddening.

W. richardwarneri sp. nov. from the Pilbara in Western Australia and areas south-west of there is identified by the fact that all the darker head bands widen considerably as they commence from a narrow base on the upper labials (surrounded by white), versus more-or-less even width on labials and crown in the other three forms for those dark headbands behind the eyes. Beyond the four darker headbands (including the upper neck) there are two to three partially formed darker cross-bands running up the lower flanks, (this is not seen in the other three species).

Distribution: Apparently restricted to the Kimberley division of north-west Western Australia.

Etymology: Named in honour of Michael Guiheneufi of 484 Park Road, Park Orchards, Victoria, Australia for his services to wildlife conservation in Australia including by assisting in the critically important wildlife conservation and education work of Snakebusters: Australia's best reptiles shows.

WELLSOPUS RICHARDWARNERI SP. NOV.

Holotype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R129587, collected from 120 Kilometers, North-west of Newman, Western Australia, Australia, Latitude -22.92, Longitude 118.9.

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

Paratype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R158202, collected from 52.2 Kilometers, west of Roy Hill, Western Australia, Australia, Latitude -22.74, Longitude 120.47.

Diagnosis: *W. richardwarneri* sp. nov., *W. michaelguiheneufi* sp. nov., *Wellsopus kylienaughtonae* sp. nov. and *W. tincta* (De Vis, 1888) are readily separated from other species in the genus *Wellsopus* gen. nov. and the genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., and *Wellingtonopus* gen. nov. by the following suite of characters:

Smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; nasal and first supralabials are therefore very distinct; two dark transverse bands posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 14 mid-body scale rows (rarely 12 or 16); five scales on top of the snout between the rostral and frontal; 10-13 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; colouration is a uniform grey or greyish brown above and immaculate white below.

Wellsopus richardwarneri sp. nov., *W. michaelguiheneufi* sp. nov., *W. kylienaughtonae* sp. nov. and *W. tincta* are readily separated from one another by the following consistent traits:

W. richardwarneri sp. nov. from the Pilbara in Western Australia and areas south-west of there is identified by the fact that all the darker head bands widen considerably as they commence from a narrow base on the upper labials (surrounded by white), versus more-or-less even width on labials and crown in the other three forms for those dark headbands behind the eyes. Beyond the four darker headbands (including the upper neck) there are two to three partially formed darker cross-bands running up the lower flanks, (this is not seen in the other three species).

W. michaelguiheneufi sp. nov. of the Kimberley division of Western Australia is characterised by there being no narrowing of the yellow with white crossband across the crown of the head behind the eyes as seen in the species *W. richardwarneri* sp. nov. and *W. tincta*, where the band narrows across the crown. The same band is effectively incomplete in *W. kylienaughtonae* sp. nov.. There are no further cross-bands or partially formed cross-bands beyond the last of the 3 most obvious ones on the head and neck.

W. kylienaughtonae sp. nov. from northwest New South Wales and nearby southern Queensland has no light cross band anterior to the eye. Instead this is reduced to yellowish upticks on the front labials above the eye. There are no further cross-bands or partially formed cross-bands beyond the last of the 3 obvious ones on the head and neck. There is a reddish tinge in the dorsal scales throughout the length of the body.

W. tincta from north-east Queensland always has four well-defined lighter bands across head and upper neck, including the head band anterior to the eye. There are no further cross-bands or partially formed cross-bands beyond the last of these. The lower flanks have minor reddening.

Distribution: The Pilbara of Western Australia and regions to the south-east of there in Western Australia.

Etymology: Named in honour of Richard Warner of Donvale, Victoria, Australia for his extended services to the care of the elderly and otherwise disabled people, done over many years and without ever asking for payment or any other financial rewards.

WELLSOPUS ROBWatSONI SP. NOV.

Holotype: A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: WAM R112733, collected from the old Meentheena Homestead, Western Australia, Australia, Latitude -21.17, Longitude 120.28.

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

Paratypes: 1/ A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: R139247, collected from Meentheena, Western Australia, Australia, Latitude -21.26, Longitude 120.46.

2/ A preserved specimen at the Western Australian Museum in Perth, Western Australia, Australia, specimen number: R139307, collected from Meentheena, Western Australia, Australia, Latitude -21.17, Longitude 120.27.

Diagnosis: *Wellsopus robwatsoni* sp. nov. and *W. elegans* (Kluge, 1974) are readily separated from all other *Wellsopus* gen. nov. and members of the genera *Aclys* Kluge, 1974, *Crottyopus* gen. nov., *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus* gen. nov., and *Wellingtonopus* gen. nov. by the following suite of characters: Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; seven scales on top of the snout between

the rostral and frontal; fourth supralabial below the eye; three pre-anal scales.

W. robwatsoni sp. nov. is readily separated from *W. elegans* by colouration. In *W. robwatsoni* sp. nov. the dorsal head bands are relatively indistinct on the upper surface (crown area, back of head and neck) as opposed to distinct in *W. elegans*. The front of the snout in *W. robwatsoni* sp. nov. is dark, versus light in *W. elegans*.

Numerous specimens of *W. robwatsoni* sp. nov. have an area of white at the rear of each dorsal scale on the body, giving specimens a distinctive appearance. Dorsally *W. robwatsoni* sp. nov. are pinkish-reddish brown, as opposed to brown with a red tinge in *W. elegans*.

Distribution: *W. robwatsoni* sp. nov. is found in the general region of the Chichester Range and nearby areas in the north-east Pilbara in Western Australia, bounded in the south by the Fortescue River drainage and associated floodplains.

South of here in the Hamersley Ranges and nearby the similar *W. elegans* is found.

Etymology: Named in honour of Robert (Bob) Watson of Brisbane, Queensland, Australia, owner of South Eastern Reptiles, Brisbane, Queensland, Australia doing snake catching and wildlife rescuing for many years in South East Queensland and highlighting reptile conservation at the same time.

PYGOPUS BRETTBARNETTI SP. NOV.

Holotype: A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R174855 collected from 100m past the entrance to WRCS flying field at Morgan Road, Belrose, New South Wales, Australia, Latitude 33.71, Longitude 151.24.

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

Paratype: A preserved specimen at the Australian Museum in Sydney, NSW, Australia, specimen number R174855 collected from Forestville, New South Wales, Australia, Latitude 33.77, Longitude 151.22.

Diagnosis: *Pygopus lepidopodus* (Lacépède, 1804) from southern Australia are characterised by two downward pointing rectangular dark patches on the lower labials, the first beneath the eye and the second at the rear of the jaw.

In *Pygopus brettbarnetti* sp. nov. the second of these patches on the lower labials is rectangular in a horizontal pattern. The dorsal body colour of adult *Pygopus brettbarnetti* sp. nov. may be either grey or brown and sometimes with russet down the sides.

By contrast *Pygopus woolfi* sp. nov. are of a brick red dorsum, this red colouration extending down the tail. This species is not characterised by two downward pointing rectangular dark patches on the lower labials. Unlike both *Pygopus lepidopodus* (Lacépède, 1804) and *Pygopus brettbarnetti* sp. nov. the lower forebody in *P. woolfi* sp. nov. is generally immaculate and whitish in colour and lacking darker spots as seen in the other two species.

Large adult *Pygopus lepidopodus* (Lacépède, 1804) and *Pygopus brettbarnetti* sp. nov. rarely exceed 60 cm in total length (original tails), whereas *P. woolfi* sp. nov. attain up to 90 cm in total length making them easily the largest Pygopodid in the world.

Pygopus robertsi Oliver, Couper and Amey, 2010 are readily separated from the other three species by having 9 dorsal scale rows, versus 10-15 in the other three species and having the supraciliaries in a single row.

All species in the genus *Pygopus* Merrem, 1820 as defined herein are defined by the following combination of character states: heavily built large legless lizards with large hind-limb flaps and conspicuous external ear openings. The dorsal surface of head covered with large and small scales, 3 to 5 post-mental scales, parietals and other head scales are enlarged and symmetrical, 21 or more mid-body scale rows, dorsal body

scales strongly keeled, there are no dark bars across the head, adults of both sexes have 9 or more pre-anal pores.

The genus *Cryptodelma* Fischer, 1882, is readily separated from *Pygopus* by the less rugose dorsal scales and at least one dark bar across the head or neck.

Distribution: *Pygopus brettbarnetti* sp. nov. has its centre of distribution in New South Wales in the vicinity of Sydney. It is also found along the NSW Coast and adjacent highlands, including far north-east Victoria and presumably into far south-east Queensland. North of the Brisbane River and on the Sunshine Coast in Queensland, the species *P. brettbarnetti* sp. nov. is replaced by the larger *P. woolfi* sp. nov.. *Pygopus lepidopodus* (Lacépède, 1804) occurs from far south-west NSW and nearby Victoria, across southern Australia to Western Australia and north along the coast. Specimens taken from south of Melbourne, Victoria conform to the species *P. lepidopodus*.

Pygopus robertsi Oliver, Couper and Amey, 2010 are restricted to eastern Cape York.

Etymology: Named in honour of Brett Barnett of Ardeer, Victoria in recognition of his monumental contribution to herpetology over many decades. Brett is known to many as the elder son of Brian Barnett, the foundation president of the Victorian Herpetological Society (VHS). However in the 20 years preceding the publication of this paper (in 2017), Brett has been the driving force behind the herpetology and conservation efforts of Brian Barnett, as Brian Barnett's health and ability to do things has declined.

PYGOPUS WOOLFI SP. NOV.

Holotype: A preserved specimen at the Queensland Museum in Brisbane, Queensland, Australia, specimen number J70147 collected from the Mount Glorious area, north-west of Brisbane, Queensland, Australia, Latitude 27.33, Longitude 152.77.

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

Paratype: A preserved specimen at the Queensland Museum in Brisbane, Queensland, Australia, specimen number J9902 collected from the Mount Glorious area, north-west of Brisbane, Queensland, Australia, Latitude 27.33, Longitude 152.77.

Diagnosis: By contrast *Pygopus woolfi* sp. nov. are easily recognized by their distinctive bright brick red dorsum, this red colouration extending down the tail. This species is not characterised by two downward pointing rectangular dark patches on the lower labials as seen in *Pygopus lepidopodus* (Lacépède, 1804). Unlike both *P. lepidopodus* and *Pygopus brettbarnetti* sp. nov. the lower forebody in *P. woolfi* sp. nov. is generally immaculate and whitish in colour and lacking darker spots as seen in the other two species.

Large adult *Pygopus lepidopodus* (Lacépède, 1804) and *Pygopus brettbarnetti* sp. nov. rarely exceed 60 cm in total length (original tails), whereas *P. woolfi* sp. nov. attain up to 90 cm in total length making them easily the largest Pygopodid in the world.

If there is a dark patch on the lower labials at the end of the mouth it is usually in the form of a small spot, or occasionally a horizontal or near horizontal dash. It is not in the form of a downward pointing rectangle.

Pygopus lepidopodus (Lacépède, 1804) from southern Australia are characterised by two downward pointing rectangular dark patches on the lower labials, the first beneath the eye and the second at the rear of the jaw.

In *Pygopus brettbarnetti* sp. nov. the second of these patches on the lower labials is rectangular in a horizontal pattern. The dorsal body colour of adult *Pygopus brettbarnetti* sp. nov. may be either grey or brown and sometimes with russet down the sides.

Pygopus robertsi Oliver, Couper and Amey, 2010 are readily separated from the other three species by having 9 dorsal scale

rows, versus 10-15 in the other three species and having the supraciliaries in a single row.

All species in the genus *Pygopus* Merrem, 1820 as defined herein are defined by the following combination of character states: heavily built large legless lizards with large hind-limb flaps and conspicuous external ear openings. The dorsal surface of head covered with large and small scales, 3 to 5 post-mental scales, parietals and other head scales are enlarged and symmetrical, 21 or more mid-body scale rows, dorsal body scales strongly keeled, there are no dark bars across the head, adults of both sexes have 9 or more pre-anal pores.

The genus *Cryptodelma* Fischer, 1882, is readily separated from *Pygopus* by the less rugose dorsal scales and at least one dark bar across the head or neck.

Distribution: *P. woolfi* sp. nov. is found in the hilly region north and north west of the Brisbane River Valley in south-east Queensland, including the Sunshine Coast and nearby areas. Specimens of *Pygopus* from near Rockhampton while potentially of this species, may quite likely be another as yet undescribed species.

Pygopus brettbarnetti sp. nov. has its centre of distribution in New South Wales in the vicinity of Sydney. It is also found along the NSW Coast and adjacent highlands, including far north-east Victoria and presumably into far south-east Queensland. North of the Brisbane River and on the Sunshine Coast in Queensland, the species *P. brettbarnetti* sp. nov. is replaced by the larger *P. woolfi* sp. nov..

Pygopus lepidopodus (Lacépède, 1804) occurs from far south-west NSW and nearby Victoria, across southern Australia to Western Australia and north along the coast. Specimens taken from south of Melbourne, Victoria conform to the species *P. lepidopodus*.

Pygopus robertsi Oliver, Couper and Amey, 2010 are restricted to eastern Cape York.

Etymology: Named in honour of Paul Woolf of Walloon, Queensland, Australia, the foundation president of the Herpetological Society of Queensland Incorporated (HSQI), publisher of the journal *Boydii*, in recognition of his immense contributions to herpetology spanning some decades.

TRIBE APRASIAINI TRIBE NOV.

(Terminal taxon: *Aprasia pulchella*, Gray, 1839)

Diagnosis: The tribe Aprasiaina *tribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following three:

1/ Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007, *Brettbarnettus* gen. nov., *Maryannmartinekea* gen. nov.) (Subtribe Aprasiaina *subtribe nov.*), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Various localities across the southern half of Australia, mainly in the southern third, excluding very wet areas.

Content: *Aprasia* Gray, 1839; *Abilaena* Wells, 2007;

Brettbarnettus gen. nov.; *Maryannmartinekea* gen. nov.; *Ophidiocephalus* Lucas and Frost, 1897; *Pletholax* Cope, 1864.

SUBTRIBE APRASIAINA SUBTRIBE NOV.

(Terminal taxon: *Aprasia pulchella*, Gray, 1839)

Diagnosis: The subtribe Aprasiaina *subtribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007, *Brettbarnettus* gen. nov., *Maryannmartinekea* gen. nov.). The other two subtribes within Aprasiaina *tribe nov.* are separated from all other all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following two:

1/ Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864) (Subtribe Pletholaxina *subtribe nov.*), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897) (Subtribe Ophidiocephalina *subtribe nov.*).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Various localities across the southern half of Australia, mainly in the southern third, excluding very wet areas.

Content: *Aprasia* Gray, 1839; *Abilaena* Wells, 2007; *Brettbarnettus* gen. nov.; *Maryannmartinekea* gen. nov..

SUBTRIBE PLETHOLAXINA SUBTRIBE NOV.

(Terminal taxon: *Pletholax gracilis* Cope, 1864)

Diagnosis: The subtribe Pletholaxina *subtribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters: Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864).

The other two subtribes within Aprasiaina *tribe nov.* are separated from all other all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following two:

1/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007, *Brettbarnettus* gen. nov., *Maryannmartinekea* gen. nov.) (Subtribe Aprasiaina *subtribe nov.*), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897) (Subtribe Ophidiocephalina *subtribe nov.*).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Coastal areas of Western Australia from the Shark Bay area south to the lower west coast.

Content: *Pletholax* Cope, 1864.

SUBTRIBE OPHIDIOCEPHALINA SUBTRIBE NOV.

(Terminal taxon: *Ophidiocephalus taeniatus* Lucas and Frost, 1897)

Diagnosis: The subtribe *Ophidiocephalina subtribe nov.* are separated from all other Australasian Pygopodids (the rest of the family) by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is very small and generally hidden by the overlying temporal scales; fewer than eight scales along a line across the top of the head joining the angle of the mouth on each side (*Ophidiocephalus* Lucas and Frost, 1897).

The other two subtribes within *Aprasiaini tribe nov.* are separated from all other all other Australasian Pygopodids (the rest of the family) by the following suite of characters, being one or other of the following two:

1/ Head covered with enlarged symmetrical shields, keeled ventral scales (*Pletholax* Cope, 1864) (Subtribe *Pletholaxina subtribe nov.*), or:

2/ Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales absent (*Aprasia* Gray, 1839, *Abilaena* Wells, 2007) (Subtribe *Aprasiaina subtribe nov.*). Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Inland areas of far north east South Australia and nearby parts of the Northern Territory, Australia.

Content: *Ophidiocephalus* Lucas and Frost, 1897.

PYGOPUSINI TRIBE NOV.

(Terminal taxon: *Bipes lepidopodus* Lacépède, 1804)

Diagnosis: Specimens within the tribe *Pygopusini tribe nov.* are readily separated from all other Australian Pygopodids by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores present.

Specimens in the subtribe *Paradelmaina subtribe nov.* are separated from the nominate subtribe *Pygopusina subtribe nov.* by four pre-anal pores versus eight or more in the nominate subtribe.

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Most parts of mainland Australia, but not known from Tasmania or New Guinea.

Content: *Pygopus* Merrem, 1820; *Paradelma* Kinghorn, 1926; *Cryptodelma* Fischer, 1882.

PYGOPUSINA SUBTRIBE NOV.

(Terminal taxon: *Bipes lepidopodus* Lacépède, 1804)

Diagnosis: Specimens within the tribe *Pygopusini tribe nov.* are readily separated from all other Australian Pygopodids by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores present.

Specimens in the subtribe *Paradelmaina subtribe nov.* are separated from the nominate subtribe *Pygopusina subtribe nov.* by four pre-anal pores versus eight or more in the nominate subtribe.

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or

normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Most parts of mainland Australia, but not known from Tasmania or New Guinea.

Content: *Pygopus* Merrem, 1820; *Cryptodelma* Fischer, 1882.

PARADELMAINA SUBTRIBE NOV.

(Terminal taxon: *Delma orientalis* Günther, 1876)

Diagnosis: Specimens within the tribe *Pygopusini tribe nov.* are readily separated from all other Australian Pygopodids by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores present.

Specimens in the subtribe *Paradelmaina subtribe nov.* are separated from the nominate subtribe *Pygopusina subtribe nov.* by four pre-anal pores versus eight or more in the nominate subtribe.

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Most parts of mainland Australia, but not known from Tasmania or New Guinea.

Content: *Paradelma* Kinghorn, 1926.

TRIBE LIALISINI TRIBE NOV.

(Terminal taxon: *Lialis burtonis* Gray, 1835)

Diagnosis: Specimens within the tribe *Lialisini tribe nov.* are readily separated from all other Australian Pygopodids by the fact that the head is covered with small irregular head shields as opposed to enlarged symmetrical shields in all the other species. Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Most parts of mainland Australia except for the coldest parts of the south-east, including all of Tasmania and the coldest parts of the south-west and also found in southern New Guinea near to Torres Strait.

Content: *Lialis* Gray, 1835.

TRIBE SLOPPOPINI TRIBE NOV.

(Terminal taxon: *Delma labialis* Shea, 1987)

Diagnosis: Specimens within the tribe *Sloppopini tribe nov.* are readily separated from all other Australian Pygopodids by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is present and obvious; there are more than eight scales along a line across the top of the head joining the angle of the mouth on each side.

The nominate subtribe *Sloppopina subtribe nov.* is separated from the other subtribe *Crottyopina subtribe nov.* by the possession of one or other of the following suites of characters: 1/ Smooth glossy scales; 16-18 midbody rows; a moderate and rounded snout; seven scales on the upper snout between the rostral and frontal; nasal and first supralabial are distinct; four scales border the nostril; the fourth supralabial sits beneath the eye; there are 16 scales along a line across the top of the head at the angle of the mouth on each side; ventral scales are paired and noticeably wider than the adjacent body scales; there are

three scales along the lower margin of the hindlimb flap; typically three enlarged pre-anal scales; rich red-brown or grey above; immaculate cream below; the top of the head is uniform brown but the lips, side of the head and neck are characterised by having a series of alternating cream and yellow-brown vertically aligned bars; the throat and ventral surfaces are an immaculate cream in colour (*Sloppopus gen. nov.*), or:

2/ The anterior nasal scales are separated by the rostral (as opposed to being in contact), 20 mid-body scale rows (as opposed to less than 20), striated or keeled dorsal scales (as opposed to smooth) (*Aclys*, Kluge, 1974).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Most parts of mainland Australia except for the very coldest parts. Apparently absent from Tasmania and New Guinea.

Content: *Sloppopus gen. nov.*; *Aclys* Kluge, 1974; *Crottyopus gen. nov.*; *Delma* Gray, 1831; *Pseudodelma* Fischer, 1882.; *Wellingtonopus gen. nov.*; *Wellsopus gen. nov.*.

SUBTRIBE SLOPPOPINA SUBTRIBE NOV.

(Terminal taxon: *Delma labialis* Shea, 1987)

Diagnosis: Specimens within the tribe Sloppopini *tribe nov.* are readily separated from all other Australian Pygopodids by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is present and obvious; there are more than eight scales along a line across the top of the head joining the angle of the mouth on each side.

The nominate subtribe Sloppopina *Subtribe nov.* is separated from the other subtribe Crottyopina *subtribe nov.* by the possession of one or other of the following suites of characters: 1/ Smooth glossy scales; 16-18 midbody rows; a moderate and rounded snout; seven scales on the upper snout between the rostral and frontal; nasal and first supralabial are distinct; four scales border the nostril; the fourth supralabial sits beneath the eye; there are 16 scales along a line across the top of the head at the angle of the mouth on each side; ventral scales are paired and noticeably wider than the adjacent body scales; there are three scales along the lower margin of the hindlimb flap; typically three enlarged pre-anal scales; rich red-brown or grey above; immaculate cream below; the top of the head is uniform brown but the lips, side of the head and neck are characterised by having a series of alternating cream and yellow-brown vertically aligned bars; the throat and ventral surfaces are an immaculate cream in colour (*Sloppopus gen. nov.*), or:

2/ The anterior nasal scales are separated by the rostral (as opposed to being in contact), 20 mid-body scale rows (as opposed to less than 20), striated or keeled dorsal scales (as opposed to smooth) (*Aclys*, Kluge, 1974).

See also for the description of the subtribe Crottyopina *subtribe nov.* published below.

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: The coastal region between Townsville and Mackay in Queensland, and offshore islands (*Sloppopus gen. nov.*) and the lower west coast of south-western West Australia and the Shark Bay region of West Australia (*Aclys* Kluge, 1974).

Content: *Sloppopus gen. nov.*; *Aclys* Kluge, 1974.

CROTTYOPINA SUBTRIBE NOV.

(Terminal taxon: *Crottyopus jamesbondi sp. nov.*)

Diagnosis: Specimens within the tribe Sloppopini *tribe nov.* are readily separated from all other Australian Pygopodids by the following suite of characters: Head covered with enlarged symmetrical shields, smooth ventral scales, pre-anal pores absent, parietal scales present, external ear opening is present and obvious; there are more than eight scales along a line across the top of the head joining the angle of the mouth on each side.

The nominate subtribe subtribe Crottyopina *subtribe nov.* is separated from the other subtribe Sloppopina *Subtribe nov.* by the possession of one or other of the following five suites of characters:

Suite 1/ The genus *Delma* Gray, 1831 is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by the following suite of characters: Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; lateral lip pattern and dorsal head bands may be present or absent; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; and one or other of the following two:

A/ Conspicuous dorsal cross-bands are present on the head and nape; there is rarely a conspicuous dark lateral stripe present posteriorly; rostral noticeably projecting between the anterior pair of supranasals; strong dark bars or reticulations on the throat; usually more than five infralabials and three hindlimb scales (*D. fraseri* and *D. petersoni*), or:

B/ Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail (*D. grayi*, *D. inornata* and *D. megleesae sp. nov.*).

The subgenus *Honlamopus subgen. nov.* is separated from the other subgenus *Delma* Gray, 1831 by the following suite of characters:

Conspicuous dorsal cross-bands are not present on the head and nape in adults; ventral scales lack dark edges; there are usually fewer than 16 scales along a line across the top of the head and fewer than 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; no dark dorso-lateral stripe extending from the posterior third of the body to the tail, no conspicuous lip pattern and flesh coloured ventral surfaces (in life) (*D. inornata* and *D. megleesae sp. nov.*).

Suite 2/ The genus *Pseudodelma* Fischer, 1882 is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Sloppopus gen. nov.*, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by the following suite of characters: One or other of the following four:

A/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; one or two narrow whitish dorso-lateral stripes on the body and tail; nasal and first supralabial fused anterior to the nostril (*P. impar* and *P. cummingae*), or:

B/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal

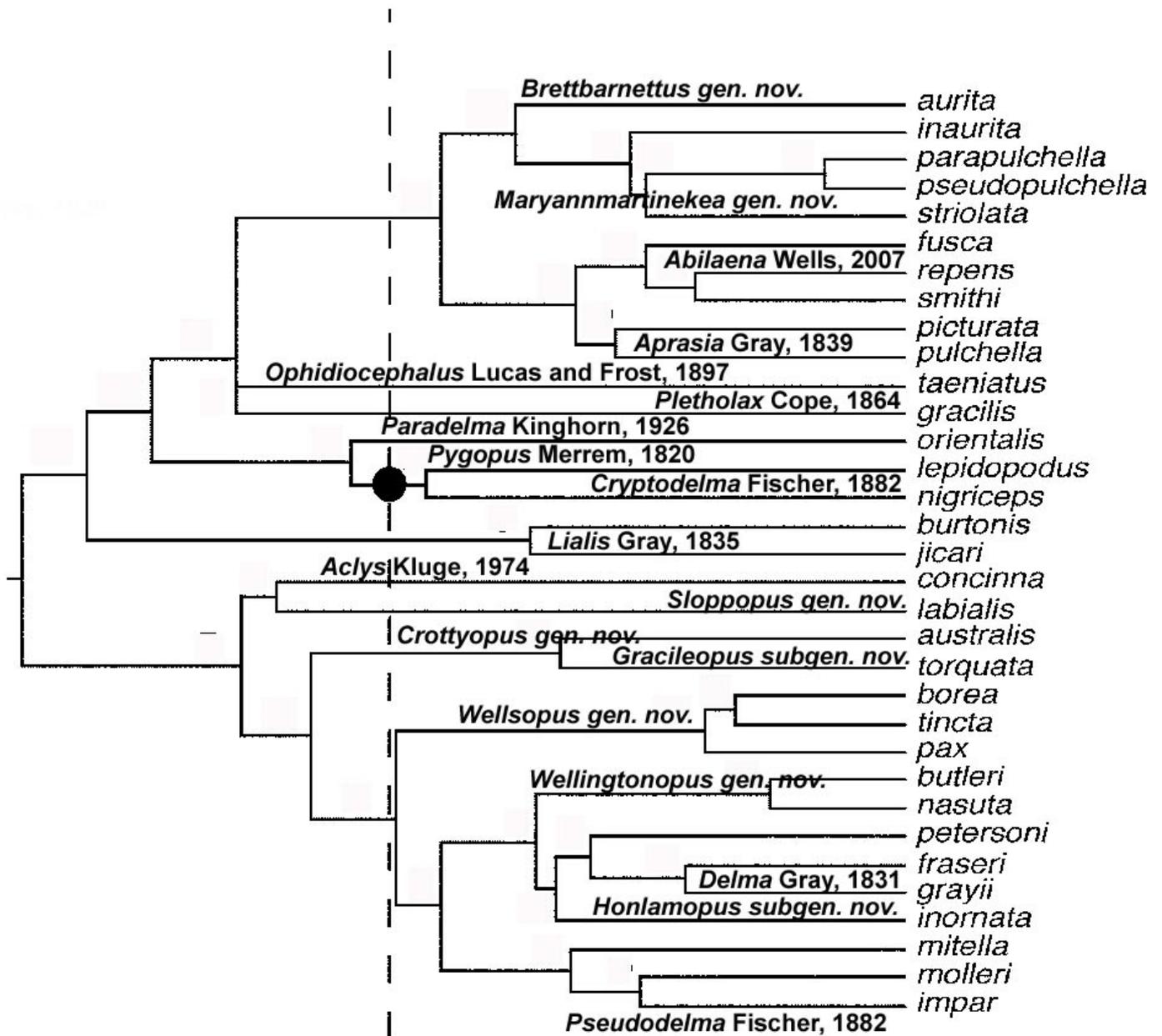


Fig. 1. Pygopodid molecular clock tree based on combined mtDNA and nDNA data as presented by Jennings *et al.* (2003) modified by the addition of the new generic arrangement of species presented in this paper as indicated. The dashed line represents 23 MYA.

scales or to any dark transverse band fully or partly enclosing the parietal scales; 18 mid-body scale rows; 5 scales on top of the snout between the rostral and the frontal; ventrals or conspicuously wider than adjacent body scales; no dark pigmentation on the throat (*P. mollerii*), or:

C/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually two pre-anal scales; conspicuous lateral lip pattern present; dorsal head bands absent (*P. plebia* and *P. wollemi*), or:

D/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually fewer than 18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; lateral lip pattern and dorsal head bands may be present or absent; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; conspicuous dorsal cross-bands are present on the head and nape; there is usually a conspicuous dark lateral strip posteriorly; sharply demarcating the dark lateral from the pale ventral surfaces; rostral is not or scarcely projecting between the anterior pair of supranasals (*P. mitella*).

Suite 3/ The genus *Crottyopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, *Wellingtonopus gen. nov.* and *Wellsopus gen. nov.* by one or other of the following two suites of characters:

A/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 16-20 midbody rows, usually 18 at midbody, but sometimes varying elsewhere on the body; five scales on top of the snout between the rostral and frontal; ventral scales usually scarcely wider than adjacent body scales; dark reticulations usually present on the throat (*C. jamesbondi sp. nov.*, *C. australis*, *C. hebesa*) (subgenus *Crottyopus gen. nov.*), or:

B/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; five scales on top of the snout between the rostral and the frontal; third supralabial below the eye and two pre-anal scales (*C. torquata*) (subgenus *Gracileopus gen. nov.*).

Suite 4/ The genus *Wellingtonopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, and *Wellsopus gen. nov.* by the following suite of characters, being one or other of the following two:

A/ Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 16-18 mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; usually three pre-anal scales; fourth or fifth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals; usually less than six infralabials and three hindlimb scales; conspicuous but

pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are wavy in outline and there are usually some extra pale narrow bands on the side of the head between the pale dorsal bands; there is rarely a conspicuous dark lateral stripe present posteriorly; strong dark bars or reticulations absent from the throat; (*W. haroldi*), or: B/ 15-18 midbody rows (usually 16), and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; no dark transverse bands posterior either to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; usually seven scales on top of the snout between the rostral and frontal; usually three often enlarged pre-anal scales; lateral lip pattern and dorsal head bands are absent or just flecking as opposed to lined; fourth or fifth supralabial is usually below the eye; dark pigment on the throat or venter may be present or absent; ventral scales with or without dark edges; there are usually 16 scales along a line across the top of the head and usually 17 scales along a line across the throat, each line extending from the angle of the mouth on each side; there is no dark dorso-lateral stripe extending from the posterior third of the body to the tail, (*Wellingtonopus stevebennetti sp. nov.*, *W. butleri*, *W. grahamrichardsoni sp. nov.*, *W. nasuta*).

Suite 5/ The genus *Wellsopus gen. nov.* is readily separated from the genera *Aclys* Kluge, 1974, *Crottyopus gen. nov.*, *Delma* Gray, 1831, *Pseudodelma* Fischer, 1882, *Sloppopus gen. nov.*, and *Wellingtonopus gen. nov.* by the following suite of characters, being one or other of the following four:

A/ Anterior nasals in contact and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; 14-16 (usually 16) mid-body scale rows; usually seven scales on top of the snout between the rostral and frontal; 2-3 scales along the lower margin of the hindlimb flap; usually three pre-anal scales; fourth supralabial is usually below the eye; four scales border the nostril; rostral noticeably projecting between the anterior pair of supranasals; usually less than six infralabials and three hindlimb scales; 11-14 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; conspicuous but pale dorsal cross-bands are present on the head and nape; the pale bands on the head and neck are straight in outline and there are no additional pale bands on the side of the head between the pale dorsal bands, these all being bounded by thick black sections. Thickest pale band at the rear of the head. Snout is moderate and rounded (*W. shanekingi sp. nov.* and *W. borea*), or:

B/ Anterior nasals in contact, or fewer than 20 mid-body rows, and smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; two broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; seven scales on top of the snout between the rostral and frontal; fourth supralabial below the eye; three pre-anal scales (*W. elegans* and *W. robwatsoni sp. nov.*).

C/ Smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; nasal and first supralabials are therefore very distinct; two dark transverse bands posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; 14 midbody scale rows (rarely 12 or 16); five scales on top of the snout between the rostral and frontal; 10-13 scales along a line across the top of the head which joins the angle of the mouth on each side; ventrals paired and noticeably wider than adjacent scales; colouration is a uniform grey or greyish brown above and immaculate white below (*W. richardwarneri sp. nov.*, *W. tincta*, *W. kylienaughtonae sp. nov.*, *W. michaelguiheneufi sp. nov.*), or:

D/ Third supralabial is usually below the eye and there is an absence of dark pigmentation from the throat and venter; there are usually three pre-anal scales and a lateral lip pattern and

dorsal head bands may be present or absent; 18 or less midbody rows; usually seven scales on top of the snout between the rostral and frontal; smooth dorsal scales; no pale stripes on the body or tail; nasal and first supralabial are not fused anterior to the nostril; one or no broad dark transverse bands, sometimes faded in adults that are posterior to the parietal scales or to any dark transverse band fully or partly enclosing the parietal scales; (*W. pax*, *W. desmosa*, *W. tealei*).

Conversely, the nominate subtribe *Sloppopina* *Subtribe nov.* is separated from the other subtribe *Crottyopina* *subtribe nov.* by the possession of one or other of the following two suites of characters:

Suite 1/ Smooth glossy scales; 16-18 midbody rows; a moderate and rounded snout; seven scales on the upper snout between the rostral and frontal; nasal and first supralabial are distinct; four scales border the nostril; the fourth supralabial sits beneath the eye; there are 16 scales along a line across the top of the head at the angle of the mouth on each side; ventral scales are paired and noticeably wider than the adjacent body scales; there are three scales along the lower margin of the hindlimb flap; typically three enlarged pre-anal scales; rich red-brown or grey above; immaculate cream below; the top of the head is uniform brown but the lips, side of the head and neck are characterised by having a series of alternating cream and yellow-brown vertically aligned bars; the throat and ventral surfaces are an immaculate cream in colour (*Sloppopus gen. nov.*), or:

Suite 2/ The anterior nasal scales are separated by the rostral (as opposed to being in contact), 20 mid-body scale rows (as opposed to less than 20), striated or keeled dorsal scales (as opposed to smooth) (*Aclyx*, Kluge, 1974).

Australasian Pygopodids are separated from all other lizards in the region by the following suite of characters: No obvious or normal limbs although many may have a scaly flap or "fin" on either side of the anal region. Ventral scales are in two longitudinal rows which are usually noticeably larger than the adjoining body scales on the lower flanks (adapted from Cogger 2014).

Distribution: Most parts of mainland Australia except for the very coldest parts. Apparently absent from Tasmania and New Guinea.

Content: *Crottyopus gen. nov.*; *Delma* Gray, 1831; *Pseudodelma* Fischer, 1882.; *Wellingtonopus gen. nov.*; *Wellsopus gen. nov.*

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NEW TAXONOMY AND NOMENCLATURE OF *DELMA SENSU LATO.*

Delma Gray, 1831

Delma fraseri Gray, 1831 (Type species)

Delma grayii Smith, 1849

Delma petersoni Shea, 1991

Subgenus *Honlamopus* subgen. nov.

Delma (Honlamopus) inornata Kluge, 1974

Aclys Kluge, 1974

Aclys concinna Kluge, 1974

Aclys major Storr, 1987

Pseudodelma Fischer, 1882

Pseudodelma impar Fischer, 1882 (Type species)

Pseudodelma cummingae sp. nov.

Pseudodelma mitella (Shea, 1987)

Pseudodelma mollerii (Lütken, 1863)

Pseudodelma plebeia (De Vis, 1888)

Pseudodelma wollemi (Wells and Wellington, 1985)

Wellingtonopus gen. nov.

Wellingtonopus stevebennetti sp. nov. (Type species)

Wellingtonopus butleri (Storr, 1987)

Wellingtonopus haroldi (Storr, 1987)

Wellingtonopus nasuta (Kluge, 1974)

Wellsopus gen. nov.

Wellsopus shanekingi sp. nov. (Type species)

Wellsopus borea (Kluge, 1974)

Wellsopus brianbarnetti sp. nov.

Wellsopus desmosa (Maryan, Aplin and Adams, 2007)

Wellsopus elegans (Kluge, 1974)

Wellsopus kylienaughtonae sp. nov.

Wellsopus michaelguiheneuf sp. nov.

Wellsopus pax (Kluge, 1974)

Wellsopus richardwarneri sp. nov.

Wellsopus robwatsoni sp. nov.

Wellsopus tealei (Maryan, Aplin and Adams, 2007)

Wellsopus tincta (De Vis, 1888)

Crottyopus gen. nov.

Crottyopus jamesbondi sp. nov. (Type species)

Crottyopus australis (Kluge, 1974)

Crottyopus hebesa (Maryan, Brennan, Adams and Aplin, 2015)

Subgenus *Gracileopus* subgen. nov.

Crottyopus torquata (Kluge, 1974)

Sloppopus gen. nov.

Sloppopus labialis (Shea, 1987)

PYGOPODIDAE TRIBES.

Aprasiaini tribe nov.

Subtribes

Aprasiaina Wells, 2007

Ophidiocaphalina subtribe nov.

Pletholaxina subtribe nov.

Pygopusini tribe nov.

Subtribes

Pygopusina subtribe nov.

Paradelmaina subtribe nov.

Lialisini tribe nov.

Sloppopini tribe nov.

Subtribes

Sloppopina subtribe nov.

Crottyopina subtribe nov.

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CONFLICT OF INTEREST

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



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