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A revised taxonomy of the gecko genus *Ptychozoon* Kuhl and Van Hasselt, 1822, including the formal erection of two new genera to accommodate the most divergent taxa and description of ten new species.

RAYMOND T. HOSER

488 Park Road, Park Orchards, Victoria, 3134, Australia.
***Phone*: +61 3 9812 3322 *Fax*: 9812 3355 *E-mail*: snakeman (at) snakeman.com.au**
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ABSTRACT

The genus *Ptychozoon* Kuhl and Van Hasselt, 1822 includes the so-called flying or gliding geckos of south-east Asia. Molecular studies published over the past decade have indicated that the genus as currently understood includes forms of significant divergence and greater species diversity than the current taxonomy indicates (Brown *et al*. 2012, Pyron *et al*. 2013).

To correct the anomaly and in accordance with the rules of the *International Code of Zoological Nomenclature* the most morphologically divergent species are herein placed in two new genera. Ten new species within *Ptychozoon sensu lato* are also formally named for the first time.

Keywords: Reptile; Taxonomy; Nomenclature; *Ptychozoon*; *Pteropleura*; *kuhli*; neotype; *rhacophorus*; *lionotum*; *horsfieldii;* New genus; *Alexteescolotes*; *Cliveevattcolotes*; new species; *teesi*; *steveteesi*; *cliveevatti*; *sumatraensis*; *malayaensis*; *johorensis*; *engannoensis*; *sulawesiensis*; *borneoensis*; *wallaceaensis*.

INTRODUCTION

The genus *Ptychozoon* Kuhl and Van Hasselt, 1822 as currently recognized includes the iconic so-called Flying Geckos, alternatively known as the Parachute Geckos, the latter name actually being the most descriptive in terms of how they jump of tree trunks and limbs.

They are endemic to forested areas in South-east Asia.

All species are characterized by cryptic coloration designed to merge with lichen-covered tree bark and possess elaborate webs surrounding the neck, limbs, trunk, and tail.

These membranes also help to conceal the gecko against trees. When aroused and in order to flee a potential predator, the gecko leaps into the air, the flaps are used to generate lift and allow the gecko to control its fall. Besides being able to glide up to 60 metres they typically do a swoop at the end of their flight to land softly.

Molecular studies published over the past decade have indicated that the genus as currently understood includes forms of significant divergence and greater species diversity than the current taxonomy indicates (Brown *et al*. 2012, Pyron *et al*. 2013).

Most authorities recognize nine valid species, but molecular data published to date (Brown *et al*. 2012, Pyron *et al*. 2013), clearly shows that the actual number of valid species in the assemblage is in excess of 20.

While all species within *Ptychozoon* Kuhl and Van Hasselt, 1822 do fall within a single clade, this clade is of deep divergence and includes three clearly divergent species groups. Each is sufficiently divergent to be worthy of recognition at the genus level.

To correct these anomalies and in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al*. 1999) the most morphologically divergent species are herein placed in two new genera, both of which are named for the first time due to the unavailability of any synonym names. Ten new species within *Ptychozoon sensu lato* are also formally named for the first time.

They have been known for some time (see for example Brown 2012), but remain unnamed.

This is an untenable situation based on the existential threats to these species and their conservation significance and so this is corrected herein.

The first and most important step in the conservation of any species is the recognition of its existence and the formal naming of it in accordance with the rules used by zoologists and wildlife managers worldwide.

MATERIALS, METHODS AND RESULTS

As part of a global audit spanning the world's gecko species, obviously unnamed clades at the genus level have been identified and are subject of papers such as this to correctly name them in accordance with the rules of the *International Code of Zoological Nomenclature* (Ride *et al*. 1999).

Unless a correct genus-level framework is used to organize known and potentially threatened taxa, governments and NGO's cannot properly assign scarce resources to those taxa in greatest need of protection.

The same applies at the species level. To that end, 10 obviously unnamed species are also formally named for the first time in this paper. In every case, these species have been misidentified as similar already described species.

The basis of the review of *Ptychozoon* Kuhl and Van Hasselt, 1822, *sensu lato* included via an examination of literature and specimens.

In the case of *Ptychozoon* Kuhl and Van Hasselt, 1822 two other clades besides the nominate one were identified (Brown *et al.* 2012, Pyron *et al.* 2013).

The only available synonym for the genus *Ptychozoon* was the name *Pteropleura* Gray, 1827, type species *Pteropleura horsfieldii* Gray, 1827 (Gray, 1827).

That taxon sits within the same clade of species as *Lacerta homalocephala* Creveldt, 1809 the type species of the genus *Ptychozoon* Kuhl and Van Hasselt, 1822, now known as *P. kuhli* Stejneger, 1902 (as shown by Brown *et al.* 2012).

Therefore two new generic names are formally assigned herein for each divergent group as identified in the relevant papers cited herein including Brown *et al.* (2012(and Pyron *et al.* (2013).

An audit of relevant species groups revealed numerous well-known regional forms that have at times been identified by earlier authors as putative unnamed species, but never formally named.

Those 10 species are all formally named herein for the first time. As noted already, the basis of the taxonomy herein comes from an inspection of the relevant literature and specimens of each putative taxon. This is the materials and methods.

I should also note that there is still greater diversity within this assemblage awaiting formal description and I hope that this occurs while the relevant species remain extant in ever dwindling forests and before their only legacy is a few corpses in a museum somewhere.

In summary *Ptychozoon* is herein restricted to the majority of species in the current genus, save for the three most divergent species, one of which is named herein for the first time.

The new genus *Alexteescolotes gen. nov.* has been erected to accommodate the most divergent species level taxon in the group, namely *Gecko rhacophorus* Boulenger, 1899, a species more recently placed within *Ptychozoon* as well as a newly described and closely related taxon, also from Borneo, although geographically and morphologically divergent.

The species *Ptychozoon lionotum* Annandale, 1905 is placed in the newly named genus *Cliveevattcolotes gen. nov*. along with a second species that had until now been treated as conspecific with *P. lionotum*, namely *C. steveteesi sp. nov.*.

Within *Ptychozoon*, the species *P. kuhli* Stejneger, 1902 has long been known to include a complex of morphologically similar species. Eight of these forms are formally described herein as new species.

These are *P. sumatraensis sp. nov.*, *P. malayaensis sp. nov.*, *P. cliveevatti sp. nov.*, *P. johorensis sp. nov.*, *P. engannoensis sp. nov.*, *P. sulawesiensis sp. nov.*, *P. wallaceaensis sp. nov.* and *P. borneoensis sp. nov.*.

The species *Ptychozoon horsfieldii* (Gray, 1827) known from populations in Borneo and Sumatra is also divided into two with the Sumatran population being formally named *Ptychozoon cliveevatti sp. nov.*.

The species *Pteropleura horsfieldii* Gray, 1827 is evidently based upon relevant specimens at the Museum of Natural History which clearly conform to the form found on the island of Borneo, which is why the Sumatran form is that which is newly named herein.

The species *P. kuhli* Stejneger, 1902 did not have a type locality specified in the original description as published by Creveldt in 1809 and none was added when the taxon was given a new name by Stejneger (1902). However it is clear from the original description and subsequent material (e.g. Boulenger 1885), that at the time (1809), the original type material had originated from Java.

The holotype has also been lost (De Lisle *et al.* 2013) and so it is appropriate in these circumstances to designate a neotype in accordance with the rules of *the International Code of Zoological Nomenclature* (Ride *et al.* 1999) as stated at Article 75. This is done within this paper.

Literature relevant to the new taxonomic arrangement within this paper, including an outline of the taxonomy and nomenclature of relevant species to date, molecular and morphological analysis of each species-level taxon comes from the following publications, Annandale (1905a, 1905b), Auliya (2006), Boistel *et al.* (2011), Boulenger (1885, 1890, 1899), Brown (1999), Brown *et al.* (1997, 2012, 2013), Chan-ard *et al.* (1999, 2015), Cox *et al.* (1998), Creveldt (1809), Cuvier (1831), Das (2004), Das and Vijayakumar (2009), De Lisle *et al.* (2013), de Rooij (1915), Duméril and Bibron (1836), Fitzsimons (2017), Fitzinger (1843), Goldberg and Grismer (2016), Gray (1827, 1845), Grismer (2011a, 2011b), Grismer *et al.* (2002), Grossmann (2009), Günther (1864), Hartmann *et al.* (2014), Klaver (2007), Koch (2002), Kopstein (1938), Law and Law (2016), Lönnberg (1899), Manthey (1982a, 1982b), Manthey and Grossmann (1997), Mertens and Senfft (1929), Min and Das (2012), Murthy (2010), Onn *et al.* (2010), Pawar and Bismas (2001), Pyron *et al.* (2013), Ride *et al.* (1999), Rösler (1995), Sang *et al.* (2009), Smith (1935), Stejneger (1902), Sumontha (1963), Sumontha *et al.* (2012), Sy *et al.* (2014),Taylor (1915, 1922, 1963), Teynié *et al.* (2010), Tweedie (1954), Venugopal (2010), Wang *et al.* (2016), Wood *et al.* (2004) and sources cited therein.

In terms of the descriptions below, the following should be noted. Spellings of names, including in order to change gender, should not be altered in any way unless absolutely mandatory according to the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999). In the unlikely event that a later author or so-called "first reviser" seeks to merge named taxa, then the name to be used should be that first used in this paper, as dictated by page priority and order in the keywords of the abstract.

Material may be repeated in sequential descriptions in order to ensure that each complies wholly with the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

DESIGNATION OF A NEOTYPE FOR *PTYCHOZOON KUHLI* STEJNEGER, 1902

To remove potential confusion and instability in the taxonomy of this species group, a neotype for *Ptychozoon kuhli* Stejneger, 1902 is designated herein, in accordance with Article 75 of the current edition of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999), as in edition number 4 as amended online by the ICZN prior to 2018.

De Lisle *et al.* (2013), (p. 219) determined that the holotype for *Ptychozoon kuhli* Stejneger, 1902

had been lost. Brown *et al.* (2012), further determined that lizards assigned to the taxon *Ptychozoon kuhli* Stejneger, 1902 from various parts of south-east Asia are in fact a species complex and not just a single species. One or more of these has also been formally named as a new species (e.g. *Ptychozoon nicobarensis* Das and Vijayakumar, 2009).

In accordance with Article 75.3 of the code it is herein noted that there is further potential for recognition of further species within what is now identified as *Ptychozoon kuhli* Stejneger, 1902 including within this paper.

As a result of these relevant factors and under Article 75.3.1 of the code the neotype is assigned to clarify the status of "typical" *Ptychozoon kuhli* Stejneger, 1902 to be a reference point for the taxon.

Under Article 75.3.2 of the code, I refer to the diagnosis of the species-group taxon *Ptychozoon kuhli* Stejneger, 1902 as described within this paper under the heading for that species.

Under Articles 75.3.3. and 75.3.7. of the *International Code of Zoological Nomenclature*, I herein designate the neotype for *Ptychozoon kuhli* Stejneger, 1902 as a preserved specimen at the University of Colorado Museum of Natural History collection, specimen number: UCM Amphibian and reptile specimens No. 59352, collected from Central Java in 1997. This facility allows access to its holdings.

Under Article 75.3.4. I herein state that the original holotype specimen for *Ptychozoon kuhli* Stejneger, 1902 has apparently been permanently lost and searches have been unable to locate it. Refer to the account by De Lisle *et al.* (2013).

Based on the original description of the holotype by Creveldt in 1809, the neotype matches the same species within the description. Relevant to article 75.3.5 of the code, this detail has been effectively corroborated by Boulenger (1895).

In accordance with Article 75.3.6 of the code, I note that the type locality of the neotype is as close as possible to the exact location the holotype originated in as much as both came from the island of Java in what is now known as Indonesia.

GENUS *PTYCHOZOON* KUHL AND VAN HASSETT, 1822.

Diagnosis: Lizards of the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 as currently recognized are readily separated from all other living geckos by the following unique combination of characters: Digits strongly dilated, entirely webbed, with undivided lamellae below; all but the thumb and inner toe have a compressed curved distal phalanx with retractile claw, originating a little before the extremity of the digital expansion. Limbs and sides of head, body and tail with much developed membranous expansions acting as parachutes when lizards jump from elevated surfaces. Upper surfaces of the body are covered with juxtaposed granular scales and tubercles; lower surfaces have small, slightly imbricated scales; the parachute-membrane is covered above with imbricated square scales arranged like the bricks of a wall to support it and are scaleless inferiorly. The genus *Alexteescolotes gen. nov.* is separated from *Ptychozoon* by the absence of these support scales and it was until now included in the same genus. Caudal lobe angling is slight to strong. Pupil is vertical. Males with praeanal pores. Adults range from 60-110 mm maximal snout-vent length.

The genus *Alexteescolotes gen. nov.* type species *Gecko rhacophorus* Boulenger, 1899, more recently known *Ptychozoon rhacophorus* (Boulenger, 1899) and species formerly included in the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 and diagnosed as above, is readily separated from *Ptychozoon* by the absence of imbricate parachute support scales which are present in all species of *Ptychozoon* and *Cliveevattcalotes gen. nov*. the species within *Cliveevattcalotes gen. nov*. also until now being included in *Ptychozoon.*

Alexteescolotes gen. nov. is further separated from both other genera by the absence of an infra-auricular cutaneous expansion as seen in all other species.

The genus *Cliveevattcalotes gen. nov.* including the species until now known as *Ptychozoon lionotum* Annandale, 1905 and an allied form herein described as *Cliveevattcalotes steveteesi sp. nov*. and type species for the genus, is separated from both *Ptychozoon* and *Alexteescolotes gen. nov*. by the presence of a predigital notch in a preantebrachial expansion, versus none in all other species in both other genera.

Distribution: South-east Asia ranging from east Indian Territory to the Moluccas and including southern China and the Philippines. Most species are found in Sundaland.

Content: *Ptychozoon kuhli* (Stejneger, 1902) (type species); *P. bannaense* Wang, Wang and Liu, 2016; *P. borneoensis sp. nov.; P. cliveevatti sp. nov.; P. engannoensis sp. nov.; P. horsfieldii* (Gray, 1827); *P. intermedium* Taylor, 1915; *P. johorensis sp. nov.; P. kaengkrachanense* Sumontha, Pauwels, Kunya, Limlikhitaksorn, Ruksue, Taokratok, Ansermet and Chanhome, 2012; *P. malayaensis sp. nov.; P. nicobarensis* Das and Vijayakumar, 2009; *P. sulawesiensis sp. nov.; P. sumatraensis sp. nov.; P. trinotaterra* Brown, 1999; *P. wallaceaensis sp. nov.*

GENUS *ALEXTEESCOLOTES GEN. NOV.*

Type species: *Gecko rhacophorus* Boulenger, 1899.

Diagnosis: The genus *Alexteescolotes gen. nov*. type species *Gecko rhacophorus* Boulenger, 1899, more recently known *Ptychozoon rhacophorus* (Boulenger, 1899) and consisting of one species formerly included in the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 as well as a second taxon described within this paper, is readily separated from *Ptychozoon* by the absence of imbricate parachute support scales which are present in all species of *Ptychozoon* and *Cliveevattcalotes gen. nov*. the species within *Cliveevattcalotes gen. nov*. also until now being included in *Ptychozoon.*

Alexteescolotes gen. nov. is further separated from both other genera by the absence of an infra-auricular cutaneous expansion as seen in all other species.

Lizards of the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 as currently recognized are readily separated from all other living geckos by the following unique combination of characters: Digits strongly dilated, entirely webbed, with undivided lamellae below; all but the thumb and inner toe have a compressed curved distal phalanx with retractile claw, originating a little before the extremity of the digital expansion. Limbs and sides of head, body and tail with much developed membranous expansions acting as parachutes when lizards jump from elevated surfaces. Upper surfaces of the body are covered with juxtaposed granular scales and tubercles; lower surfaces have small, slightly imbricated scales; the parachute-membrane is covered above with imbricated square scales arranged like the bricks of a wall to support it and are scaleless inferiorly. The genus *Alexteescolotes gen. nov*. is separated from *Ptychozoon* by the absence of these support scales and it was until now included in the same genus. Caudal lobe angling is slight to strong. Pupil is vertical. Males with praeanal pores. Adults range from 60-110 mm maximal snout-vent length.

The genus *Cliveevattcalotes gen. nov.* including the species until now known as *Ptychozoon lionotum* Annandale, 1905 and an allied form herein described as *Cliveevattcalotes steveteesi sp. nov*. and type species for the genus is separated from both *Ptychozoon* and *Alexteescolotes gen. nov*. by the presence of a predigital notch in a preantebrachial expansion, versus none in all other species in both other genera.

Distribution: Elevated parts of northern Borneo (Sabah) and also south-west Borneo (Sarawak).

Etymology: Named in honour of human rights lawyer, Alex Tees of Bondi, New South Wales, Australia for services to wildlife conservation globally.

Content: *Alexteescolotes rhacophorus* (Boulenger, 1899); *A. teesi sp. nov.* (this paper).

GENUS *CLIVEEVATTCOLOTES GEN. NOV.*

Type species: *Cliveevattcalotes steveteesi sp. nov*. (this paper).

Diagnosis: The genus *Cliveevattcalotes gen. nov.* including the species until now known as *Ptychozoon lionotum* Annandale, 1905 and an allied form herein described as *Cliveevattcalotes steveteesi sp. nov*. and type species for the genus is separated from both *Ptychozoon* and *Cliveevattcalotes gen. nov*. by the presence of a predigital notch in a preantebrachial expansion, versus none in all other species in both other genera.

The genus *Alexteescolotes gen. nov*. type species *Gecko rhacophorus* Boulenger, 1899, more recently known *Ptychozoon rhacophorus* (Boulenger, 1899) and consisting of one species formerly included in the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 is readily separated from *Ptychozoon* by the absence of imbricate parachute support scales which are present in all species of *Ptychozoon* and *Cliveevattcalotes gen. nov*. the species within *Cliveevattcalotes gen. nov*. also until now being included in *Ptychozoon.*

Alexteescolotes gen. nov. is further separated from both other genera by the absence of an infra-auricular cutaneous expansion as seen in all other species.

Lizards of the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 as currently recognized are readily separated from all other living geckos by the following unique combination of characters: Digits strongly dilated, entirely webbed, with undivided lamellae below; all but the thumb and inner toe have a compressed curved distal phalanx with retractile claw, originating a little before the extremity of the digital expansion. Limbs and sides of head, body and tail with much developed membranous expansions acting as parachutes when lizards jump from elevated surfaces. Upper surfaces of the body are covered with juxtaposed granular scales and tubercles; lower surfaces have small, slightly imbricated scales; the parachute-membrane is covered above

with imbricated square scales arranged like the bricks of a wall to support it and are scaleless inferiorly. The genus *Alexteescolotes gen. nov*. is separated from *Ptychozoon* by the absence of these support scales and it was until now included in the same genus. Caudal lobe angling is slight to strong. Pupil is vertical. Males with praeanal pores. Adults range from 60-110 mm maximal snout-vent length.

Distribution: Burma and Vietnam, south to Malaysia on the Malay Peninsula.

Etymology: Named in honour of human rights barrister, Clive Andreas Evatt of Turramurra, New South Wales, Australia for services to wildlife conservation globally.

Content: *Cliveevattcolotes steveteesi sp. nov.* (this paper) (type species); *C. lionotum* (Annandale, 1905).

ALEXTEESCOLOTES TEESI SP. NOV.

Holotype: A preserved specimen in the museum of IBEC, University Malaysia, Sarawak, Malaysia, specimen number: UNIMAS P0500, collected from Gunung Penrissen, Padawan, Sarawak State, Borneo (Malaysia), Latitude: 01.12 N., Longitude: 110.21 E. and at an elevation of 1,230 metres above sea level. This facility allows access to its holdings.

Paratype: A preserved specimen in the museum of IBEC, University Malaysia, Sarawak, Malaysia, specimen number: UNIMAS P0501, collected from Gunung Penrissen, Padawan, Sarawak State, Borneo (Malaysia), Latitude: 01.12°N., Longitude: 110.21°E. and at an elevation of 1,230 metres above sea level.

Diagnosis: This taxon, *Alexteescolotes teesi sp. nov.* has until now been treated as an outlier population of *Alexteescolotes rhacophorus* (Boulenger, 1899) and is separated from all other species by way of the same diagnosis as for that taxon. *A. teesi sp. nov.* is however readily separated from *A. rhacophorus* by coloration. *A. rhacophorus* has a strongly greenish iris, versus one that is only weakly greenish or even reddish brown in *A. teesi sp. nov.*. The anterior and posterior of the dorsal body surface and anterior tail of *A. rhacophorus* has a pattern including obvious greenish white markings in the form of blotches and spots of irregular shape. These are absent in *A. teesi sp. nov.*. The feet of *A. teesi sp. nov.*. are characterized by darkening to a blackish colour at the ends of the digits, which is not seen in *A. rhacophorus*. The reddish blotch of irregular shape at the posterior of the dorsal surface narrows and runs continuously on the tail of *A. teesi sp. nov*, but this is broken and not continuous in *A. rhacophorus.*

The genus *Alexteescolotes gen. nov*. type species *Gecko rhacophorus* Boulenger, 1899, more recently known *Ptychozoon rhacophorus* (Boulenger, 1899) and consisting of one species formerly included in the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 as well as the second taxon *Alexteescolotes teesi sp. nov.*, is readily separated from *Ptychozoon* by the absence of imbricate parachute support scales which are present in all species of *Ptychozoon* and *Cliveevattcalotes gen. nov*. the species within *Cliveevattcalotes gen. nov*. also until now being included in *Ptychozoon.*

Alexteescolotes gen. nov. is further separated from both other genera by the absence of an infra-auricular cutaneous expansion as seen in all other species.

Lizards of the genus *Ptychozoon* Kuhl and Van Hasselt, 1822 as currently recognized are readily separated from all other living geckos by the following unique combination of characters: Digits strongly dilated, entirely webbed, with undivided lamellae below; all but the thumb and inner toe have a compressed curved distal phalanx with retractile claw, originating a little before the extremity of the digital expansion. Limbs and sides of head, body and tail with much developed membranous expansions acting as parachutes when lizards jump from elevated surfaces. Upper surfaces of the body are covered with juxtaposed granular scales and tubercles; lower surfaces have small, slightly imbricated scales; the parachute-membrane is covered above with imbricated square scales arranged like the bricks of a wall to support it and are scaleless inferiorly. The genus *Alexteescolotes gen. nov*. is separated from *Ptychozoon* by the absence of these support scales and it was until now included in the same genus. Caudal lobe angling is slight to strong. Pupil is vertical. Males with praeanal pores. Adults range from 60-110 mm maximal snout-vent length.

The genus *Cliveevattcalotes gen. nov.* including the species until now known as *Ptychozoon lionotum* Annandale, 1905 and an allied form herein described as *Cliveevattcalotes steveteesi sp. nov*. and type species for the genus is separated from both *Ptychozoon* and *Cliveevattcalotes gen. nov*. by the presence of a predigital notch in a preantebrachial expansion, versus none in all other species in both other genera.

Min and Das (2012) wrote of the lizard that they identified as "*Ptychozoon rhacophorus* (Boulenger, 1899)", "Since the coloration in life of this poorly-known species remains unpublished, we provide here notes we took of both specimens in life" then providing a description and photo of their lizard, now herein treated as the types of *A. teesi sp. nov.*. Had these authors seen quality photos of both "*Ptychozoon rhacophorus*" from Sabah and their lizard in life which they also identified as the same species-level taxon, I am sure they too would have concluded that there were in fact two species involved.

While it is highly likely that there are further populations of *Alexteescolotes gen. nov.* in the 700 km plus range between known populations in Borneo where none have been found to date as speculated by Min and Das (2012), the population in this zone will certainly be disjunct and of ancient divergence, as evidenced by the large areas of unsuitable lowlands habitat between the known collection localities of both described species and the clear inability of specimens to cross these barriers in recent geological times.

A photo of the holotype of *A. teesi sp. nov*. in life is depicted in Lim and Das (2012) at page 178. A photo of *A. rhacophorus* from Sabah is depicted in Brown *et al*. (2012) on page 356 at the top of the page.

Distribution: Known only from the type locality, Gunung Penrissen, Padawan, Sarawak State, Borneo (Malaysia).

Etymology: Named in honor of human rights lawyer, Alex Tees of Bondi, New South Wales, Australia for services to wildlife conservation globally.

CLIVEEVATTCALOTES STEVETEESI SP. NOV.

Holotype: A preserved specimen at the Field Museum of Natural History, Chicago, Illinois, USA, specimen number: FMNH 185455, collected from Selangor, Peninsula Malaysia. The Field Museum of Natural History, Chicago, Illinois, USA allows access to its collection.

Paratype: A preserved specimen at the Texas Memorial Museum, at the University of Texas at Austin in Austin, Texas, USA, specimen number: TNHC 54805, collected from Ulu Gomback, Peninsula Malaysia.

Diagnosis: Until now, the species *Cliveevattcolotes steveteesi sp. nov.* has been treated as a variant of *C. lionotum* (Annandale, 1905), formerly known as *Ptychozoon lionotum* Annandale, 1905.

Cliveevattcolotes steveteesi sp. nov. is readily separated from *C. lionotum* by the absence of one or more thick dark bars or markings on the upper labials as seen in *C. lionotum.*

C. steveteesi sp. nov. is further separated from *C. lionotum* by the absence of obvious blackish etchings on the borders of the cross markings on the dorsal surface of the body.

In *C. steveteesi sp. nov.* the posterior lighter blotch is commonly (but not always) crescent-shaped, as opposed to be being irregular in shape.

While colour intensity does vary according to time of day and shedding cycle, it is evident that the northern species *C. lionotum* is generally of better defined and contrasting colour and pattern than the southern species *C. steveteesi sp. nov.*

Both *C. steveteesi sp. nov.* and *C. lionotum* (Annandale, 1905)

can be readily separated from all other species of *Ptychozoon* and *Alexteescolotes gen. nov.* by the presence of a predigital notch in a preantebrachial expansion, versus none in all other species in both other genera.

Both *C. steveteesi sp. nov.* and *C. lionotum* (Annandale, 1905) can further be readily separated from morphologically similar species of *Ptychozoon* found in the same areas by the presence of four dark dorsal chevrons between the axilla and the groin (versus three in *P. trinotaterra* and *P. kaengkrachanense*) and a non-expanded tail terminus, as opposed to *P. kuhli* and related species in that complex, including those formally named in this paper, which possesses a widely expanded terminal flap.

Distribution: Southern parts of the Malay Peninsula in Malaysia. The species *C. lionotum* (Annandale, 1905) is herein confined to Thailand and Cambodia at the northern extremity of the Malay Peninsula region.

Etymology: Named in honor of Steve Tees formerly of Bondi New South Wales, Australia, son of Alex Tees, human rights lawyer, for services to wildlife conservation in Australia.

PTYCHOZOON CLIVEEVATTI SP. NOV.

Holotype: A preserved specimen at the Biodiversity Research and Teaching Collections [formerly Texas Cooperative Wildlife Collection], Department of Wildlife and Fisheries Sciences, Texas A and M University, College Station, Texas, specimen number: TCWC 30138 collected from Rumbai Camp, Sumatra Pekanbara, Indonesia. This facility allows access to its holdings.

Paratype: A preserved female specimen at the Museum of Natural History, London, UK, specimen number: 1920.1.16.8 collected at Lebong Tandai, Benkuelen, Sumatra.

Diagnosis: *Ptychozoon cliveevatti sp. nov.* has until now been treated as a population of *Ptychozoon horsfieldii* (Gray, 1827). *P. horsfieldii* is herein confined to Borneo, whereas *P. cliveevatti sp. nov.* is the taxon previously treated as *P. horsfieldii* from central Sumatra.

P. cliveevatti sp. nov. is separated from *P. horsfieldii* by having a faded dorsal pattern and colours incorporating irregular dark blotches running along either side of the side of the neck towards the upper back where they join to form the first of two to four irregularly-shaped cross-bands across the back. This pattern is well-defined in *P. horsfieldii.*

The dark brown line running from the snout to the eye (and beyond) is thin in the anterior portion before the eye in *P. cliveevatti sp. nov.*, as opposed to thick in *P. horsfieldii.* The top of the head is largely whitish in *P. cliveevatti sp. nov.* versus yellow-brown in *P. horsfieldii.*

P. horsfieldii, *P. cliveevatti sp. nov.* and *P. intermedium* Taylor, 1915 form a clade within the genus *Ptychozoon* and are separated from all other species in the genus as defined in this paper by the following: A lack of disposition of dorsal tubercles; 8-19 separated femorals (8-11 in *P. horsfieldii*, *P. cliveevatti sp. nov.* and 12-19 in *P. intermedium*), 10-12 precloacofemorals versus a greater number in all other species in the genus (as defined in this paper), distal lobes are not fused into a long terminal flap in the original tail.

Distribution: *P. cliveevatti sp. nov.* is known only from the island of Sumatra.

Etymology: Named in honour of human rights barrister, Clive Andreas Evatt of Turramurra, New South Wales, Australia in recognition of his services to wildlife conservation globally.

PTYCHOZOON SUMATRAENSIS SP. NOV.

Holotype: A preserved specimen at the Museum of Vertebrate Zoology at the University of California, Berkeley, California, USA, specimen number: MVZ 239588 collected at 46 km E of Bengkulu, Cagar Alam Tabapenangjung, Kecematan Kepahiang, Kabupaten Bengkulu, Sumatra. The Museum of Vertebrate Zoology at the University of California, Berkeley, California, USA allows access to its holdings.

Diagnosis: The species within the so-called *Ptychozoon kuhli* Stejneger, 1902 species complex are those species until now having been treated as variants of it. These are *P. kuhli* Stejneger, 1902, *P. sumatraensis sp. nov., P. malayaensis sp. nov., P. johorensis sp. nov., P. engannoensis sp. nov., P. sulawesiensis sp. nov., P. borneoensis sp. nov.* and *P. wallaceaensis sp. nov.*.

All are diagnosed in relevant texts to date as *P. kuhli.* All species in this group can be readily separated from all other members of the genera *Ptychozoon*, *Alexteescolotes gen. nov.* and *Cliveevattcolotes gen. nov.* by the presence of 2-6 straight rows of dorsal tubercles. All other species within the three genera have either no such rows, irregular rows, scattered rows or one medio-dorsal row only.

While there is variation in the 8 species in terms of number of rows of dorsal tubercles and their shape (some being spinulate, while others are convex) as well as the number of precloacal femorals, the simplest way to differentiate each of the taxa is by way of dorsal coloration and markings.

Ptychozoon kuhli Stejneger, 1902 a taxon herein restricted to Java is characterized by a muddy brownish coloration overlaying an indistinct pattern of circular to ovoid blotches running along either side of the midline. There are one or more broad and light colored cross-bands encircling the lower part of the leg. From the eye and through the ear and towards the back of the neck is a chocolate brown band with an irregular upper boundary, which then crosses the back of the nape anterior to the forelimbs. This and other areas of irregular dark pigment is interspersed with areas of lighter brown pigment in a pattern that is generally dull and indistinct, except on close inspection.

Ptychozoon sumatraensis sp. nov. a species from western Sumatra, is separated from all others in the species group by having a distinctive body pattern consisting of a mainly blackish body, in particular on the flanks and the presence of a largely unbroken thick light brown mid-dorsal stripe which thins and ends on the anterior part of the (original) tail. It is further characterized by distinctive light and dark cross bands on the front feet, being blackish and light brown in colour.

Ptychozoon malayaensis sp. nov. a species from the western side of the Malay Peninsula is a yellowish-brown lizard with a semi-distinct pattern on the dorsal surface. A narrow dark bar formed by an interface between dark yellow and light yellow pigment runs between the eyes. Anterior to the eye and posterior to the eye is a brown stripe (sometimes broken) with a distinct yellowish white lower boundary, which extends onto the back of the neck and when running across the body usually disappears or at best becomes a mere sliver of speckled dark pigment running across the body. The body does not have any red or grey sheen.

Ptychozoon johorensis sp. nov. a species with a centre of distribution around Johor on the eastern side of the southern Malay Peninsula is superficially similar to *P. malayaensis sp. nov.* but is instantly recognizable by the grayish as opposed to yellowish brown base colour on the dorsal surface. There is also an obvious reddish sheen running along the vicinity of the mid dorsal line and again on the lower flanks. The scales of the upper jaw (below the dark bar) of *P. johorensis sp. nov.* is whitish grey as opposed to yellowish white in *P. malayaensis sp. nov..* Anterior to the eye and posterior to the eye is a black to charcoal black stripe (sometimes broken), which besides eventually crossing the back behind the neck and anterior to the front legs, is bordered anteriorly by an area of purplish-red pigment. The iris of *P. johorensis sp. nov.* is a dark brown colour as opposed to light brown in *P. malayaensis sp. nov..*

The front elbow of *P. malayaensis sp. nov.* has a distinctive yellow or white patch bounded by brown. The same patch is purple, bounded by grey in *P. johorensis sp. nov..* The species *P. kuhli* has white under the eye with indistinct dark speckling.

The species *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island, situated off the west coast of Sumatra. It is readily separated from the other species in the complex by its generally greenish dorsal coloration and general absence of any

distinctive markings on the body at all. The intensity of the green is at its greatest along the upper flanks and tail which is unique in the species group in being a dark green colour. Exceptional to this is the upper labials beneath the eye, which as a group appear to be barred black and white (two black bars and white on each side). All others in the species group lack this character.

There is light only under the eye in *P. malayaensis sp. nov.*, *P. johorensis sp. nov.* and *P. borneoensis sp. nov.*. The species *P. sumatraensis sp. nov., P. sulawesiensis sp. nov.* and *P. wallaceaensis sp. nov.* have a single bar of black running from the jaw to the eye, bounded by white on either side.

Ptychozoon sulawesiensis sp. nov. known only from the island of Sulawesi is readily separated from the other species in the group by a dorsal coloration that is largely a reddish-purple and quite unlike any others in the group. Across the dorsal line of the body are about five alternating patches of yellow and dark reddish purple of similar width, the patches being of irregular size and shape. The flanks consist of an irregular pattern of red and black, which continues onto the legs and a heavily and distinctly banded tail. The extremities are notable in that the red patches or bars tend to lighten to become pinkish or even white.

The species *Ptychozoon borneoensis sp. nov.* known only from the island of Borneo is a yellowish-brown lizard with a generally drab and indistinct dorsal pattern that is separated from the other species in the group by this background being punctuated by small bright irregularly shaped yellow spots running irregularly on or near the mid-dorsal line of the neck, body and anterior tail.

Banding on the tail is barely discernible. Unique to this taxon are two dark tooth-shaped (vaguely triangular) markings on either side of the rear of the crown of the head, the pointed edge facing the posterior.

The species *Ptychozoon wallaceaensis sp. nov* .known only from the Island of Bacan, Maluku Islands, Indonesia is similar in most respects to *P. sulawesiensis sp. nov.* but differs from that species by having an orangeish red coloration and a tail that is not clearly banded as seen in *P. sulawesiensis sp. nov* .

Distribution: *P. sumatraensis sp. nov.* is known only from the island of Sumatra, mainly in the western side.

Etymology: Named in reflection of where the taxon occurs (Sumatra, Indonesia).

PTYCHOZOON MALAYENSIS SP. NOV.

Holotype: A preserved specimen at the Field Museum of Natural History, Chicago, Illinois, USA, specimen number: FMNH Amphibians and Reptiles 143901, collected from Ulu Gombak Forest, Selangor, Malaysia. The Field Museum of Natural History, Chicago, Illinois, USA allows access to its holdings.

Paratypes: Two preserved specimens at the Field Museum of Natural History, Chicago, Illinois, USA, specimen numbers: FMNH Amphibians and Reptiles 185456 and 185457, collected from Bukit Lanjan, Selangor, Malaysia.

Diagnosis: The species within the so-called *Ptychozoon kuhli* Stejneger, 1902 species complex are those species until now having been treated as variants of it. These are *P. kuhli* Stejneger, 1902, *P. sumatraensis sp. nov., P. malayaensis sp. nov., P. johorensis sp. nov., P. engannoensis sp. nov., P. sulawesiensis sp. nov., P. borneoensis sp. nov.* and *P. wallaceaensis sp. nov.*.

All are diagnosed in relevant texts to date as *P. kuhli.* All species in this group can be readily separated from all other members of the genera *Ptychozoon*, *Alexteescolotes gen. nov.* and *Cliveevattcolotes gen. nov.* by the presence of 2-6 straight rows of dorsal tubercles. All other species within the three genera have either no such rows, irregular rows, scattered rows or one medio-dorsal row only.

While there is variation in the 8 species in terms of number of rows of dorsal tubercles and their shape (some being spinulate, while others are convex) as well as the number of precloacal femorals, the simplest way to differentiate each of the taxa is by way of dorsal coloration and markings.

Ptychozoon kuhli Stejneger, 1902 a taxon herein restricted to Java is characterized by a muddy brownish coloration overlaying an indistinct pattern of circular to ovoid blotches running along either side of the midline. There are one or more broad and light colored cross-bands encircling the lower part of the leg. From the eye and through the ear and towards the back of the neck is a chocolate brown band with an irregular upper boundary, which then crosses the back of the nape anterior to the forelimbs. This and other areas of irregular dark pigment is interspersed with areas of lighter brown pigment in a pattern that is generally dull and indistinct, except on close inspection.

Ptychozoon sumatraensis sp. nov. a species from western Sumatra, is separated from all others in the species group by having a distinctive body pattern consisting of a mainly blackish body, in particular on the flanks and the presence of a largely unbroken thick light brown mid-dorsal stripe which thins and ends on the anterior part of the (original) tail. It is further characterized by distinctive light and dark cross bands on the front feet, being blackish and light brown in colour.

Ptychozoon malayaensis sp. nov. a species from the western side of the Malay Peninsula is readily separated from other similar species on the basis of unique coloration as follows: It is a yellowish-brown lizard with a semi-distinct pattern on the dorsal surface. A narrow dark bar formed by an interface between dark yellow and light yellow pigment runs between the eyes. Anterior to the eye and posterior to the eye is a brown stripe (sometimes broken) with a distinct yellowish white lower boundary, which extends onto the back of the neck and when running across the body usually disappears or at best becomes a mere sliver of speckled dark pigment running across the body. The body does not have any red or grey sheen.

Ptychozoon johorensis sp. nov. a species with a centre of distribution around Johor on the eastern side of the southern Malay Peninsula is superficially similar to *P. malayaensis sp. nov.* but is instantly recognizable by the grayish as opposed to yellowish brown base colour on the dorsal surface. There is also an obvious reddish sheen running along the vicinity of the mid dorsal line and again on the lower flanks. The scales of the upper jaw (below the dark bar) of *P. johorensis sp. nov.* is whitish grey as opposed to yellowish white in *P. malayaensis sp. nov.*. Anterior to the eye and posterior to the eye is a black to charcoal black stripe (sometimes broken), which besides eventually crossing the back behind the neck and anterior to the front legs, is bordered anteriorly by an area of purplish-red pigment. The iris of *P. johorensis sp. nov.* is a dark brown colour as opposed to light brown in *P. malayaensis sp. nov.*.

The front elbow of *P. malayaensis sp. nov.* has a distinctive yellow or white patch bounded by brown. The same patch is purple, bounded by grey in *P. johorensis sp. nov.*. The species *P. kuhli* has white under the eye with indistinct dark speckling.

The species *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island, situated off the west coast of Sumatra. It is readily separated from the other species in the complex by its generally greenish dorsal coloration and general absence of any distinctive markings on the body at all. The intensity of the green is at its greatest along the upper flanks and tail which is unique in the species group in being a dark green colour. Exceptional to this is the upper labials beneath the eye, which as a group appear to be barred black and white (two black bars and white on each side). All others in the species group lack this character.

There is light only under the eye in *P. malayaensis sp. nov.*, *P. johorensis sp. nov.* and *P. borneoensis sp. nov.*. The species *P. sumatraensis sp. nov., P. sulawesiensis sp. nov.* and *P. wallaceaensis sp. nov.* have a single bar of black running from the jaw to the eye, bounded by white on either side.

Ptychozoon sulawesiensis sp. nov. known only from the island of Sulawesi is readily separated from the other species in the group by a dorsal coloration that is largely a reddish-purple and

quite unlike any others in the group. Across the dorsal line of the body are about five alternating patches of yellow and dark reddish purple of similar width, the patches being of irregular size and shape. The flanks consist of an irregular pattern of red and black, which continues onto the legs and a heavily and distinctly banded tail. The extremities are notable in that the red patches or bars tend to lighten to become pinkish or even white.

The species *Ptychozoon borneoensis sp. nov.* known only from the island of Borneo is a yellowish-brown lizard with a generally drab and indistinct dorsal pattern that is separated from the other species in the group by this background being punctuated by small bright irregularly shaped yellow spots running irregularly on or near the mid-dorsal line of the neck, body and anterior tail.

Banding on the tail is barely discernible. Unique to this taxon are two dark tooth-shaped (vaguely triangular) markings on either side of the rear of the crown of the head, the pointed edge facing the posterior.

The species *Ptychozoon wallaceaensis sp. nov* .known only from the Island of Bacan, Maluku Islands, Indonesia is similar in most respects to *P. sulawesiensis sp. nov.* but differs from that species by having an orangeish red coloration and a tail that is not clearly banded as seen in *P. sulawesiensis sp. nov* ..

Distribution: *Ptychozoon malayaensis sp. nov* is known only from the western side of lower Peninsula Malaysia.

Etymology: Named in reflection of where the taxon occurs (Malay Peninsula).

PTYCHOZOON JOHORENSIS SP. NOV.

Holotype: A preserved adult specimen at the Forest Research Institute Malaysia (FRIM), Kepong, Kuala Lumpur, Malaysia, specimen number: FRIM 0700, collected at: Pulau Besar, Johor, West Malaysia. The Forest Research Institute Malaysia (FRIM), Kepong, Kuala Lumpur, Malaysia allows access to its holdings.

Diagnosis: The species within the so-called *Ptychozoon kuhli* Stejneger, 1902 species complex are those species until now having been treated as variants of it. These are *P. kuhli* Stejneger, 1902, *P. sumatraensis sp. nov., P. malayaensis sp. nov., P. johorensis sp. nov., P. engannoensis sp. nov., P. sulawesiensis sp. nov., P. borneoensis sp. nov.* and *P. wallaceaensis sp. nov.*.

All are diagnosed in relevant texts to date as *P. kuhli.* All species in this group can be readily separated from all other members of the genera *Ptychozoon*, *Alexteescolotes gen. nov.* and *Cliveevattcolotes gen. nov*. by the presence of 2-6 straight rows of dorsal tubercles. All other species within the three genera have either no such rows, irregular rows, scattered rows or one medio-dorsal row only.

While there is variation in the 8 species in terms of number of rows of dorsal tubercles and their shape (some being spinulate, while others are convex) as well as the number of precloacal femorals, the simplest way to differentiate each of the taxa is by way of dorsal coloration and markings.

Ptychozoon kuhli Stejneger, 1902 a taxon herein restricted to Java is characterized by a muddy brownish coloration overlaying an indistinct pattern of circular to ovoid blotches running along either side of the midline. There are one or more broad and light colored cross-bands encircling the lower part of the leg. From the eye and through the ear and towards the back of the neck is a chocolate brown band with an irregular upper boundary, which then crosses the back of the nape anterior to the forelimbs. This and other areas of irregular dark pigment is interspersed with areas of lighter brown pigment in a pattern that is generally dull and indistinct, except on close inspection.

Ptychozoon sumatraensis sp. nov. a species from western Sumatra, is separated from all others in the species group by having a distinctive body pattern consisting of a mainly blackish body, in particular on the flanks and the presence of a largely unbroken thick light brown mid-dorsal stripe which thins and ends on the anterior part of the (original) tail. It is further characterized by distinctive light and dark cross bands on the front feet, being blackish and light brown in colour.

Ptychozoon malayaensis sp. nov. a species from the western side of the Malay Peninsula is a yellowish-brown lizard with a semi-distinct pattern on the dorsal surface. A narrow dark bar formed by an interface between dark yellow and light yellow pigment runs between the eyes. Anterior to the eye and posterior to the eye is a brown stripe (sometimes broken) with a distinct yellowish white lower boundary, which extends onto the back of the neck and when running across the body usually disappears or at best becomes a mere sliver of speckled dark pigment running across the body. The body does not have any red or grey sheen.

Ptychozoon johorensis sp. nov. a species with a centre of distribution around Johor on the eastern side of the southern Malay Peninsula is superficially similar to *P. malayaensis sp. nov.* but is instantly recognizable and separated from it by the grayish as opposed to yellowish brown base colour on the dorsal surface. There is also an obvious reddish sheen running along the vicinity of the mid dorsal line and again on the lower flanks. The scales of the upper jaw (below the dark bar) of *P. johorensis sp. nov.* is whitish grey as opposed to yellowish white in *P. malayaensis sp. nov.*. Anterior to the eye and posterior to the eye is a black to charcoal black stripe (sometimes broken), which besides eventually crossing the back behind the neck and anterior to the front legs, is bordered anteriorly by an area of purplish-red pigment. The iris of *P. johorensis sp. nov.* is a dark brown colour as opposed to light brown in *P. malayaensis sp. nov.*.

The front elbow of *P. malayaensis sp. nov.* has a distinctive yellow or white patch bounded by brown. The same patch is purple, bounded by grey in *P. johorensis sp. nov.*. The species *P. kuhli* has white under the eye with indistinct dark speckling.

The species *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island, situated off the west coast of Sumatra. It is readily separated from the other species in the complex by its generally greenish dorsal coloration and general absence of any distinctive markings on the body at all. The intensity of the green is at its greatest along the upper flanks and tail which is unique in the species group in being a dark green colour. Exceptional to this is the upper labials beneath the eye, which as a group appear to be barred black and white (two black bars and white on each side). All others in the species group lack this character.

There is light only under the eye in *P. malayaensis sp. nov.*, *P. johorensis sp. nov.* and *P. borneoensis sp. nov.*. The species *P. sumatraensis sp. nov., P. sulawesiensis sp. nov.* and *P. wallaceaensis sp. nov.* have a single bar of black running from the jaw to the eye, bounded by white on either side.

Ptychozoon sulawesiensis sp. nov. known only from the island of Sulawesi is readily separated from the other species in the group by a dorsal coloration that is largely a reddish-purple and quite unlike any others in the group. Across the dorsal line of the body are about five alternating patches of yellow and dark reddish purple of similar width, the patches being of irregular size and shape. The flanks consist of an irregular pattern of red and black, which continues onto the legs and a heavily and distinctly banded tail. The extremities are notable in that the red patches or bars tend to lighten to become pinkish or even white.

The species *Ptychozoon borneoensis sp. nov.* known only from the island of Borneo is a yellowish-brown lizard with a generally drab and indistinct dorsal pattern that is separated from the other species in the group by this background being punctuated by small bright irregularly shaped yellow spots running irregularly on or near the mid-dorsal line of the neck, body and anterior tail.

Banding on the tail is barely discernible. Unique to this taxon are two dark tooth-shaped (vaguely triangular) markings on either side of the rear of the crown of the head, the pointed edge facing the posterior.

The species *Ptychozoon wallaceaensis sp. nov* .known only from the Island of Bacan, Maluku Islands, Indonesia is similar in most respects to *P. sulawesiensis sp. nov.* but differs from that

species by having an orangeish red coloration and a tail that is not clearly banded as seen in *P. sulawesiensis sp. nov* ..

Distribution: *Ptychozoon johorensis sp. nov.* is known only from the Johor area on the Malay Peninsula, Malaysia, including offshore islands to the east, including areas (and offshore islands) to the immediate north of Johor.

Etymology: Named in reflection of where the taxon evidently mainly occurs (Johor).

PTYCHOZOON ENGANNOENSIS SP. NOV.

Holotype: A preserved female specimen at the Museum of Vertebrate Zoology, UC, Berkeley. California, USA, MVZ Herp Collection, MVZ Amphibian and reptile specimens, specimen number: 239358 collected from the vicinity of the village of Malakoni, Pulau Enggano, Kecematan Enggano, Sumatra, Indonesia, Latitude -5.35 S., Longitude 102.27 E. The Museum of Vertebrate Zoology, UC, Berkeley. California, USA allows access to its holdings.

Paratype: A preserved male specimen at the Museum of Vertebrate Zoology, UC, Berkeley. California, USA, MVZ Amphibian and reptile specimens specimen number: 239596 collected from the vicinity of the village of Malakoni, Pulau Enggano, Kecematan Enggano, Sumatra, Indonesia, Latitude -5.35 S., Longitude 102.27 E.

Diagnosis: The species within the so-called *Ptychozoon kuhli* Stejneger, 1902 species complex are those species until now having been treated as variants of it. These are *P. kuhli* Stejneger, 1902, *P. sumatraensis sp. nov., P. malayaensis sp. nov., P. johorensis sp. nov., P. engannoensis sp. nov., P. sulawesiensis sp. nov., P. borneoensis sp. nov.* and *P. wallaceaensis sp. nov.*.

All are diagnosed in relevant texts to date as *P. kuhli.* All species in this group can be readily separated from all other members of the genera *Ptychozoon*, *Alexteescolotes gen. nov.* and *Cliveevattcolotes gen. nov*. (as defined in this paper) by the presence of 2-6 straight rows of dorsal tubercles. All other species within the three genera have either no such rows, irregular rows, scattered rows or one medio-dorsal row only.

While there is variation in the 8 species in terms of number of rows of dorsal tubercles and their shape (some being spinulate, while others are convex) as well as the number of precloacal femorals, the simplest way to differentiate each of the taxa is by way of dorsal coloration and markings.

Ptychozoon kuhli Stejneger, 1902 a taxon herein restricted to Java is characterized by a muddy brownish coloration overlaying an indistinct pattern of circular to ovoid blotches running along either side of the midline. There are one or more broad and light colored cross-bands encircling the lower part of the leg. From the eye and through the ear and towards the back of the neck is a chocolate brown band with an irregular upper boundary, which then crosses the back of the nape anterior to the forelimbs. This and other areas of irregular dark pigment is interspersed with areas of lighter brown pigment in a pattern that is generally dull and indistinct, except on close inspection.

Ptychozoon sumatraensis sp. nov. a species from western Sumatra, is separated from all others in the species group by having a distinctive body pattern consisting of a mainly blackish body, in particular on the flanks and the presence of a largely unbroken thick light brown mid-dorsal stripe which thins and ends on the anterior part of the (original) tail. It is further characterized by distinctive light and dark cross bands on the front feet, being blackish and light brown in colour.

Ptychozoon malayaensis sp. nov. a species from the western side of the Malay Peninsula is a yellowish-brown lizard with a semi-distinct pattern on the dorsal surface. A narrow dark bar formed by an interface between dark yellow and light yellow pigment runs between the eyes. Anterior to the eye and posterior to the eye is a brown stripe (sometimes broken) with a distinct yellowish white lower boundary, which extends onto the back of the neck and when running across the body usually disappears or at best becomes a mere sliver of speckled dark pigment running across the body. The body does not have any red or grey sheen.

Ptychozoon johorensis sp. nov. a species with a centre of distribution around Johor on the eastern side of the southern Malay Peninsula is superficially similar to *P. malayaensis sp. nov.* but is instantly recognizable by the grayish as opposed to yellowish brown base colour on the dorsal surface. There is also an obvious reddish sheen running along the vicinity of the mid dorsal line and again on the lower flanks. The scales of the upper jaw (below the dark bar) of *P. johorensis sp. nov.* is whitish grey as opposed to yellowish white in *P. malayaensis sp. nov.*. Anterior to the eye and posterior to the eye is a black to charcoal black stripe (sometimes broken), which besides eventually crossing the back behind the neck and anterior to the front legs, is bordered anteriorly by an area of purplish-red pigment. The iris of *P. johorensis sp. nov.* is a dark brown colour as opposed to light brown in *P. malayaensis sp. nov.*.

The front elbow of *P. malayaensis sp. nov.* has a distinctive yellow or white patch bounded by brown. The same patch is purple, bounded by grey in *P. johorensis sp. nov.*. The species *P. kuhli* has white under the eye with indistinct dark speckling.

The species *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island, situated off the west coast of Sumatra. It is readily separated from the other species in the complex by its generally greenish dorsal coloration and general absence of any distinctive markings on the body at all. The intensity of the green is at its greatest along the upper flanks and tail which is unique in the species group in being a dark green colour. Exceptional to this is the upper labials beneath the eye, which as a group appear to be barred black and white (two black bars and white on each side). All others in the species group lack this character.

There is light only under the eye in *P. malayaensis sp. nov.*, *P. johorensis sp. nov.* and *P. borneoensis sp. nov.*. The species *P. sumatraensis sp. nov., P. sulawesiensis sp. nov.* and *P. wallaceaensis sp. nov.* have a single bar of black running from the jaw to the eye, bounded by white on either side.

Ptychozoon sulawesiensis sp. nov. known only from the island of Sulawesi is readily separated from the other species in the group by a dorsal coloration that is largely a reddish-purple and quite unlike any others in the group. Across the dorsal line of the body are about five alternating patches of yellow and dark reddish purple of similar width, the patches being of irregular size and shape. The flanks consist of an irregular pattern of red and black, which continues onto the legs and a heavily and distinctly banded tail. The extremities are notable in that the red patches or bars tend to lighten to become pinkish or even white.

The species *Ptychozoon borneoensis sp. nov.* known only from the island of Borneo is a yellowish-brown lizard with a generally drab and indistinct dorsal pattern that is separated from the other species in the group by this background being punctuated by small bright irregularly shaped yellow spots running irregularly on or near the mid-dorsal line of the neck, body and anterior tail.

Banding on the tail is barely discernible. Unique to this taxon are two dark tooth-shaped (vaguely triangular) markings on either side of the rear of the crown of the head, the pointed edge facing the posterior.

The species *Ptychozoon wallaceaensis sp. nov* .known only from the Island of Bacan, Maluku Islands, Indonesia is similar in most respects to *P. sulawesiensis sp. nov.* but differs from that species by having an orangeish red coloration and a tail that is not clearly banded as seen in *P. sulawesiensis sp. nov* ..

Distribution: *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island off the west coast of Sumatra, Indonesia, where it is abundant.

Etymology: Named in reflection of where the taxon occurs (Enganno Island).

PTYCHOZOON SULAWESIENSIS SP. NOV.

Holotype: A preserved female specimen at the Museum of Vertebrate Zoology, UC, Berkeley. California, USA, MVZ

Amphibian and reptile specimens, specimen number: 268574 collected from Desa Takandeang, Kecamatan Tapalang, Kabupaten Mamuju, Propinsi Sulawesi Barat, Sulawesi Island, Indonesia, Latitude -2.80 S., Longitude 118.86 E. The Museum of Vertebrate Zoology, UC, Berkeley. California, USA allows access to its holdings.

Paratype: A preserved male specimen at the Museum of Vertebrate Zoology, UC, Berkeley. California, USA, MVZ Amphibian and reptile specimens, specimen number: 268575 collected from Desa Takandeang, Kecamatan Tapalang, Kabupaten Mamuju, Propinsi Sulawesi Barat, Sulawesi Island, Indonesia, Latitude -2.80 S., Longitude 118.86 E.

Diagnosis: The species within the so-called *Ptychozoon kuhli* Stejneger, 1902 species complex are those species until now having been treated as variants of it. These are *P. kuhli* Stejneger, 1902, *P. sumatraensis sp. nov., P. malayaensis sp. nov., P. johorensis sp. nov., P. engannoensis sp. nov., P. sulawesiensis sp. nov., P. borneoensis sp. nov.* and *P. wallaceaensis sp. nov.*.

All are diagnosed in relevant texts to date as *P. kuhli.* All species in this group can be readily separated from all other members of the genera *Ptychozoon*, *Alexteescolotes gen. nov.* and *Cliveevattcolotes gen. nov*. (as defined in this paper) by the presence of 2-6 straight rows of dorsal tubercles. All other species within the three genera have either no such rows, irregular rows, scattered rows or one medio-dorsal row only.

While there is variation in the 8 species in terms of number of rows of dorsal tubercles and their shape (some being spinulate, while others are convex) as well as the number of precloacal femorals, the simplest way to differentiate each of the taxa is by way of dorsal coloration and markings.

Ptychozoon kuhli Stejneger, 1902 a taxon herein restricted to Java is characterized by a muddy brownish coloration overlaying an indistinct pattern of circular to ovoid blotches running along either side of the midline. There are one or more broad and light colored cross-bands encircling the lower part of the leg. From the eye and through the ear and towards the back of the neck is a chocolate brown band with an irregular upper boundary, which then crosses the back of the nape anterior to the forelimbs. This and other areas of irregular dark pigment is interspersed with areas of lighter brown pigment in a pattern that is generally dull and indistinct, except on close inspection.

Ptychozoon sumatraensis sp. nov. a species from western Sumatra, is separated from all others in the species group by having a distinctive body pattern consisting of a mainly blackish body, in particular on the flanks and the presence of a largely unbroken thick light brown mid-dorsal stripe which thins and ends on the anterior part of the (original) tail. It is further characterized by distinctive light and dark cross bands on the front feet, being blackish and light brown in colour.

Ptychozoon malayaensis sp. nov. a species from the western side of the Malay Peninsula is a yellowish-brown lizard with a semi-distinct pattern on the dorsal surface. A narrow dark bar formed by an interface between dark yellow and light yellow pigment runs between the eyes. Anterior to the eye and posterior to the eye is a brown stripe (sometimes broken) with a distinct yellowish white lower boundary, which extends onto the back of the neck and when running across the body usually disappears or at best becomes a mere sliver of speckled dark pigment running across the body. The body does not have any red or grey sheen.

Ptychozoon johorensis sp. nov. a species with a centre of distribution around Johor on the eastern side of the southern Malay Peninsula is superficially similar to *P. malayaensis sp. nov.* but is instantly recognizable by the grayish as opposed to yellowish brown base colour on the dorsal surface. There is also an obvious reddish sheen running along the vicinity of the mid dorsal line and again on the lower flanks. The scales of the upper jaw (below the dark bar) of *P. johorensis sp. nov.* is whitish grey as opposed to yellowish white in *P. malayaensis sp. nov.*.

Anterior to the eye and posterior to the eye is a black to charcoal black stripe (sometimes broken), which besides eventually crossing the back behind the neck and anterior to the front legs, is bordered anteriorly by an area of purplish-red pigment. The iris of *P. johorensis sp. nov.* is a dark brown colour as opposed to light brown in *P. malayaensis sp. nov.*.

The front elbow of *P. malayaensis sp. nov.* has a distinctive yellow or white patch bounded by brown. The same patch is purple, bounded by grey in *P. johorensis sp. nov.*. The species *P. kuhli* has white under the eye with indistinct dark speckling.

The species *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island, situated off the west coast of Sumatra. It is readily separated from the other species in the complex by its generally greenish dorsal coloration and general absence of any distinctive markings on the body at all. The intensity of the green is at its greatest along the upper flanks and tail which is unique in the species group in being a dark green colour. Exceptional to this is the upper labials beneath the eye, which as a group appear to be barred black and white (two black bars and white on each side). All others in the species group lack this character.

There is light only under the eye in *P. malayaensis sp. nov.*, *P. johorensis sp. nov.* and *P. borneoensis sp. nov.*. The species *P. sumatraensis sp. nov., P. sulawesiensis sp. nov.* and *P. wallaceaensis sp. nov.* have a single bar of black running from the jaw to the eye, bounded by white on either side.

Ptychozoon sulawesiensis sp. nov. known only from the island of Sulawesi is readily separated from the other species in the group by a dorsal coloration that is largely a reddish-purple and quite unlike any others in the group. Across the dorsal line of the body are about five alternating patches of yellow and dark reddish purple of similar width, the patches being of irregular size and shape. The flanks consist of an irregular pattern of red and black, which continues onto the legs and a heavily and distinctly banded tail. The extremities are notable in that the red patches or bars tend to lighten to become pinkish or even white.

The species *Ptychozoon borneoensis sp. nov.* known only from the island of Borneo is a yellowish-brown lizard with a generally drab and indistinct dorsal pattern that is separated from the other species in the group by this background being punctuated by small bright irregularly shaped yellow spots running irregularly on or near the mid-dorsal line of the neck, body and anterior tail.

Banding on the tail is barely discernible. Unique to this taxon are two dark tooth-shaped (vaguely triangular) markings on either side of the rear of the crown of the head, the pointed edge facing the posterior.

The species *Ptychozoon wallaceaensis sp. nov* .known only from the Island of Bacan, Maluku Islands, Indonesia is similar in most respects to *P. sulawesiensis sp. nov.* but differs from that species by having an orangeish red coloration and a tail that is not clearly banded as seen in *P. sulawesiensis sp. nov* ..

Distribution: *Ptychozoon P. sulawesiensis sp. nov.* is known only from the island of Sulawesi, Indonesia..

Etymology: Named in reflection of where the taxon occurs (Sulawesi).

PTYCHOZOON BORNEOENSIS SP. NOV.

Holotype: A preserved specimen at the Field Museum of Natural History, Chicago, Illinois, USA, specimen number: FMNH Amphibians and Reptiles 223206, collected from Bako National Park, Sarawak, Borneo, Malaysia. The Field Museum of Natural History, Chicago, Illinois, USA allows access to its holdings.

Paratype: A preserved specimen at the Field Museum of Natural History, Chicago, Illinois, USA, specimen number: FMNH Amphibians and Reptiles 149864, collected from the Bintulu District, Sarawak, Borneo, Malaysia.

Diagnosis: The species within the so-called *Ptychozoon kuhli* Stejneger, 1902 species complex are those species until now having been treated as variants of it. These are *P. kuhli*

Stejneger, 1902, *P. sumatraensis sp. nov., P. malayaensis sp. nov., P. johorensis sp. nov., P. engannoensis sp. nov., P. sulawesiensis sp. nov., P. borneoensis sp. nov.* and *P. wallaceaensis sp. nov.*.

All are diagnosed in relevant texts to date as *P. kuhli.* All species in this group can be readily separated from all other members of the genera *Ptychozoon*, *Alexteescolotes gen. nov.* and *Cliveevattcolotes gen. nov*. (as defined in this paper) by the presence of 2-6 straight rows of dorsal tubercles. All other species within the three genera have either no such rows, irregular rows, scattered rows or one medio-dorsal row only.

While there is variation in the 8 species in terms of number of rows of dorsal tubercles and their shape (some being spinulate, while others are convex) as well as the number of precloacal femorals, the simplest way to differentiate each of the taxa is by way of dorsal coloration and markings.

Ptychozoon kuhli Stejneger, 1902 a taxon herein restricted to Java is characterized by a muddy brownish coloration overlaying an indistinct pattern of circular to ovoid blotches running along either side of the midline. There are one or more broad and light colored cross-bands encircling the lower part of the leg. From the eye and through the ear and towards the back of the neck is a chocolate brown band with an irregular upper boundary, which then crosses the back of the nape anterior to the forelimbs. This and other areas of irregular dark pigment is interspersed with areas of lighter brown pigment in a pattern that is generally dull and indistinct, except on close inspection.

Ptychozoon sumatraensis sp. nov. a species from western Sumatra, is separated from all others in the species group by having a distinctive body pattern consisting of a mainly blackish body, in particular on the flanks and the presence of a largely unbroken thick light brown mid-dorsal stripe which thins and ends on the anterior part of the (original) tail. It is further characterized by distinctive light and dark cross bands on the front feet, being blackish and light brown in colour.

Ptychozoon malayaensis sp. nov. a species from the western side of the Malay Peninsula is a yellowish-brown lizard with a semi-distinct pattern on the dorsal surface. A narrow dark bar formed by an interface between dark yellow and light yellow pigment runs between the eyes. Anterior to the eye and posterior to the eye is a brown stripe (sometimes broken) with a distinct yellowish white lower boundary, which extends onto the back of the neck and when running across the body usually disappears or at best becomes a mere sliver of speckled dark pigment running across the body. The body does not have any red or grey sheen.

Ptychozoon johorensis sp. nov. a species with a centre of distribution around Johor on the eastern side of the southern Malay Peninsula is superficially similar to *P. malayaensis sp. nov.* but is instantly recognizable by the grayish as opposed to yellowish brown base colour on the dorsal surface. There is also an obvious reddish sheen running along the vicinity of the mid dorsal line and again on the lower flanks. The scales of the upper jaw (below the dark bar) of *P. johorensis sp. nov.* is whitish grey as opposed to yellowish white in *P. malayaensis sp. nov.*. Anterior to the eye and posterior to the eye is a black to charcoal black stripe (sometimes broken), which besides eventually crossing the back behind the neck and anterior to the front legs, is bordered anteriorly by an area of purplish-red pigment. The iris of *P. johorensis sp. nov.* is a dark brown colour as opposed to light brown in *P. malayaensis sp. nov.*.

The front elbow of *P. malayaensis sp. nov.* has a distinctive yellow or white patch bounded by brown. The same patch is purple, bounded by grey in *P. johorensis sp. nov.*. The species *P. kuhli* has white under the eye with indistinct dark speckling.

The species *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island, situated off the west coast of Sumatra. It is readily separated from the other species in the complex by its generally greenish dorsal coloration and general absence of any distinctive markings on the body at all. The intensity of the green is at its greatest along the upper flanks and tail which is unique in the species group in being a dark green colour. Exceptional to this is the upper labials beneath the eye, which as a group appear to be barred black and white (two black bars and white on each side). All others in the species group lack this character.

There is light only under the eye in *P. malayaensis sp. nov.*, *P. johorensis sp. nov.* and *P. borneoensis sp. nov.*. The species *P. sumatraensis sp. nov., P. sulawesiensis sp. nov.* and *P. wallaceaensis sp. nov.* have a single bar of black running from the jaw to the eye, bounded by white on either side.

Ptychozoon sulawesiensis sp. nov. known only from the island of Sulawesi is readily separated from the other species in the group by a dorsal coloration that is largely a reddish-purple and quite unlike any others in the group. Across the dorsal line of the body are about five alternating patches of yellow and dark reddish purple of similar width, the patches being of irregular size and shape. The flanks consist of an irregular pattern of red and black, which continues onto the legs and a heavily and distinctly banded tail. The extremities are notable in that the red patches or bars tend to lighten to become pinkish or even white.

The species *Ptychozoon borneoensis sp. nov.* known only from the island of Borneo is separated from all other lizards in the species group by coloration, which is best described as follows: it is a yellowish-brown lizard with a generally drab and indistinct dorsal pattern that is separated from the other species in the group by this background being punctuated by small bright irregularly shaped yellow spots running irregularly on or near the mid-dorsal line of the neck, body and anterior tail.

Banding on the tail is barely discernible. Unique to this taxon are two dark tooth-shaped (vaguely triangular) markings on either side of the rear of the crown of the head, the pointed edge facing the posterior.

The species *Ptychozoon wallaceaensis sp. nov* .known only from the Island of Bacan, Maluku Islands, Indonesia is similar in most respects to *P. sulawesiensis sp. nov.* but differs from that species by having an orangeish red coloration and a tail that is not clearly banded as seen in *P. sulawesiensis sp. nov* ..

Distribution: *Ptychozoon borneoensis sp. nov.* is known only from the island of Borneo.

Etymology: Named in reflection of where the taxon occurs (Borneo).

PTYCHOZOON WALLACEAENSIS SP. NOV.

Holotype: A preserved male specimen at the Institut Royal des Sciences naturelles de Belgique, Brussels, Belgium (IRSNB), specimen number: 781 (Specimen Record: 347810) collected from the Island of Bacan, Maluku Islands, Indonesia. The Institut Royal des Sciences naturelles de Belgique, Brussels, Belgium allows access to its holdings.

Paratypes: Two preserved female specimens at the Institut Royal des Sciences naturelles de Belgique, Brussels, Belgium (IRSNB), specimen number: 781 (same as for the holotype) collected from the Island of Bacan, Maluku Islands, Indonesia.

Diagnosis: The species within the so-called *Ptychozoon kuhli* Stejneger, 1902 species complex are those species until now having been treated as variants of it. These are *P. kuhli* Stejneger, 1902, *P. sumatraensis sp. nov., P. malayaensis sp. nov., P. johorensis sp. nov., P. engannoensis sp. nov., P. sulawesiensis sp. nov., P. borneoensis sp. nov.* and *P. wallaceaensis sp. nov.*.

All are diagnosed in relevant texts to date as *P. kuhli.* All species in this group can be readily separated from all other members of the genera *Ptychozoon*, *Alexteescolotes gen. nov.* and *Cliveevattcolotes gen. nov*. (as defined in this paper) by the presence of 2-6 straight rows of dorsal tubercles. All other species within the three genera have either no such rows, irregular rows, scattered rows or one medio-dorsal row only.

While there is variation in the 8 species in terms of number of rows of dorsal tubercles and their shape (some being spinulate,

while others are convex) as well as the number of precloacal femorals, the simplest way to differentiate each of the taxa is by way of dorsal coloration and markings.

Ptychozoon kuhli Stejneger, 1902 a taxon herein restricted to Java is characterized by a muddy brownish coloration overlaying an indistinct pattern of circular to ovoid blotches running along either side of the midline. There are one or more broad and light colored cross-bands encircling the lower part of the leg. From the eye and through the ear and towards the back of the neck is a chocolate brown band with an irregular upper boundary, which then crosses the back of the nape anterior to the forelimbs. This and other areas of irregular dark pigment is interspersed with areas of lighter brown pigment in a pattern that is generally dull and indistinct, except on close inspection.

Ptychozoon sumatraensis sp. nov. a species from western Sumatra, is separated from all others in the species group by having a distinctive body pattern consisting of a mainly blackish body, in particular on the flanks and the presence of a largely unbroken thick light brown mid-dorsal stripe which thins and ends on the anterior part of the (original) tail. It is further characterized by distinctive light and dark cross bands on the front feet, being blackish and light brown in colour.

Ptychozoon malayaensis sp. nov. a species from the western side of the Malay Peninsula is a yellowish-brown lizard with a semi-distinct pattern on the dorsal surface. A narrow dark bar formed by an interface between dark yellow and light yellow pigment runs between the eyes. Anterior to the eye and posterior to the eye is a brown stripe (sometimes broken) with a distinct yellowish white lower boundary, which extends onto the back of the neck and when running across the body usually disappears or at best becomes a mere sliver of speckled dark pigment running across the body. The body does not have any red or grey sheen.

Ptychozoon johorensis sp. nov. a species with a centre of distribution around Johor on the eastern side of the southern Malay Peninsula is superficially similar to *P. malayaensis sp. nov.* but is instantly recognizable by the grayish as opposed to yellowish brown base colour on the dorsal surface. There is also an obvious reddish sheen running along the vicinity of the mid dorsal line and again on the lower flanks. The scales of the upper jaw (below the dark bar) of *P. johorensis sp. nov.* is whitish grey as opposed to yellowish white in *P. malayaensis sp. nov..* Anterior to the eye and posterior to the eye is a black to charcoal black stripe (sometimes broken), which besides eventually crossing the back behind the neck and anterior to the front legs, is bordered anteriorly by an area of purplish-red pigment. The iris of *P. johorensis sp. nov.* is a dark brown colour as opposed to light brown in *P. malayaensis sp. nov..*

The front elbow of *P. malayaensis sp. nov.* has a distinctive yellow or white patch bounded by brown. The same patch is purple, bounded by grey in *P. johorensis sp. nov..* The species *P. kuhli* has white under the eye with indistinct dark speckling.

The species *Ptychozoon engannoensis sp. nov.* is known only from Enganno Island, situated off the west coast of Sumatra. It is readily separated from the other species in the complex by its generally greenish dorsal coloration and general absence of any distinctive markings on the body at all. The intensity of the green is at its greatest along the upper flanks and tail which is unique in the species group in being a dark green colour. Exceptional to this is the upper labials beneath the eye, which as a group appear to be barred black and white (two black bars and white on each side). All others in the species group lack this character.

There is light only under the eye in *P. malayaensis sp. nov.*, *P. johorensis sp. nov.* and *P. borneoensis sp. nov..* The species *P. sumatraensis sp. nov., P. sulawesiensis sp. nov.* and *P. wallaceaensis sp. nov.* have a single bar of black running from the jaw to the eye, bounded by white on either side.

Ptychozoon sulawesiensis sp. nov. known only from the island of Sulawesi is readily separated from the other species in the group by a dorsal coloration that is largely a reddish-purple and quite unlike any others in the group. Across the dorsal line of the body are about five alternating patches of yellow and dark reddish purple of similar width, the patches being of irregular size and shape. The flanks consist of an irregular pattern of red and black, which continues onto the legs and a heavily and distinctly banded tail. The extremities are notable in that the red patches or bars tend to lighten to become pinkish or even white.

The species *Ptychozoon borneoensis sp. nov.* known only from the island of Borneo is a yellowish-brown lizard with a generally drab and indistinct dorsal pattern that is separated from the other species in the group by this background being punctuated by small bright irregularly shaped yellow spots running irregularly on or near the mid-dorsal line of the neck, body and anterior tail.

Banding on the tail is barely discernible. Unique to this taxon are two dark tooth-shaped (vaguely triangular) markings on either side of the rear of the crown of the head, the pointed edge facing the posterior.

The species *Ptychozoon wallaceaensis sp. nov* .known only from the Island of Bacan, Maluku Islands, Indonesia is similar in most respects to *P. sulawesiensis sp. nov.* as described above, but is separated from that species by having an orangeish red coloration and a tail that is not clearly banded as seen in *P. sulawesiensis sp. nov* ..

Distribution: *Ptychozoon wallaceaensis sp. nov* .is known only from the type locality island of Bacan, Maluku Islands, Indonesia.

Etymology: Named in reflection of where the taxon occurs (Wallacea).

REFERENCES CITED

Annandale, N. 1905a. Notes on some Oriental geckos in the Indian Museum, Calcutta, with descriptions of new types. *Ann. Mag. nat. Hist.* (7)15:26-32.

Annandale, N. 1905b. Additions to the Collection of Oriental Snakes in the Indian Museum, Part 3. *J. Proc. Asiat. Soc. Bengal*, new Ser., 1(8):208-214 [1906].

Auliya, M. 2006. *Taxonomy, Life History, and conservation of giant reptiles in west Kalimantan*. Natur und Tier Verlag, Münster:432 pp.

Boistel, R., Herrel, A., Lebrun, R., Daghfous, G., Tafforeau, P., Losos, J. B. and Vanhooydonck, B. 2011. Shake Rattle and Roll: The Bony Labyrinth and Aerial Descent in Squamates. *Integrative and Comparative Biology*, doi:10.1093/icb/icr034 -

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

Boulenger, G. A. 1890. *The Fauna of British India, Including Ceylon and Burma. Reptilia and Batrachia*. Taylor and Francis, London, UK:xviii+ 541 pp.

Boulenger, G. A. 1899. Description of three new reptiles and a new batrachian from Mt. Kina Balu, North Borneo. *Ann. Mag. Nat. Hist.* (7)4:451-453.

Brown, R. M. 1999. New species of parachute gecko (Squamata: Gekkonidae: genus *Ptychozoon*) from northeastern Thailand and central Vietnam. *Copeia* 1999(4):990-1001.

Brown, R. M., Ferner, J. W. and Diesmos, A. C. 1997. Definition of the Philippine Parachute Gecko, *Ptychozoon intermedium* Taylor 1915 (Reptilia: Squamata: gekkonidae): Redescription, designation of a neotype, and comparisons with related species. *Herpetologica* 53(3):357-373.

Brown, R. M., Siler, C. D., Das, I. and Min, Y. 2012. Testing the phylogenetic affinities of Southeast Asia's rarest geckos: Flap-legged geckos (*Luperosaurus*), Flying geckos (*Ptychozoon*) and their relationship to the pan-Asian genus *Gekko*. *Molecular Phylogenetics and Evolution* 63:915-921

Brown, R. M., Siler, C. D., Grismer, L. L., Das, I and McGuire, J. A. 2013. Phylogeny and cryptic diversification in Southeast Asian flying geckos. *Molecular Phylogenetics and Evolution*

66(2):351-361.

Chan-ard, T., Grossmann, W., Gumprecht, A. and Schulz, K. D. 1999. *Amphibians and reptiles of peninsular Malaysia and Thailand - an illustrated checklist*. Bushmaster Publications, Würselen, Gemany, 240 pp.

Chan-ard, T., Parr, J. W. K. and Nabhitabhata, J. 2015. *A field guide to the reptiles of Thailand*. Oxford University Press, NY, USA:352 pp.

Cox, M. J., Van Dijk, P. P., Nabhitabhata, J. and Thirakhupt, K. 1998. *A Photographic Guide to Snakes and Other Reptiles of Peninsular Malaysia, Singapore and Thailand*. Ralph Curtis Publishing, 144 pp.

Creveldt, D. 1809. Beschreibung einer neuen Eidechse aus der Gattung der Geckonen. *Gesellschaft Naturforschender Freunde zu Berlin, Magazin für die Neuesten Entdeckungen in der Gesammten Naturkunde*, Berlin 3:266-274.

Cuvier, G. 1831. The Animal Kingdom arranged in conformity with its organization, by the Baron Cuvier, ... with additional descriptions of all the species hitherto named, and of many not before noticed, by Edward Griffith... and others. Vol. 9. Whittaker, Treacher and Co., London, UK:481 pp.

Das, I. 2004. *Lizards of Borneo*. Natural History Publications, Kota Kinabalu, Borneo.

Das, I. and Vijayakumar, S. P. 2009. New species of *Ptychozoon* (Sauria: Gekkonidae) from the Nicobar Archipelago, Indian Ocean. *Zootaxa* (online) 2095:8-20.

De Lisle, H. F. Nazarov, R. A., Raw, L. R. G. and Grathwohl, J. 2013. Gekkota: a catalogue of recent species. Privately published:387 pp.

de Rooij, N. 1915. *The Reptiles of the Indo-Australian Archipelago. I. Lacertilia, Chelonia, Emydosauria*. Leiden (E. J. Brill):xiv+384 pp.

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

Fitzsimons, J. A. 2017. Ecological Notes on the Three-Banded Parachute Gecko *Ptychozoon trinotaterra* in Southern Vietnam. *Russian Journal of Herpetology*. 24(4):327-328.

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

Goldberg, S. R. and Grismer, L. L. 2016. *Ptychozoon kuhli* (Kuhl's Parachute Gecko) reproduction. *Herpetological Review* 47(3):468-469.

Gray, J. E. 1827. A Synopsis of the Genera of Saurian Reptiles in which some new Genera are indicated, and the others reviewed by actual Examination. *Philos. Mag*., London, 2(2):54-58.

Gray, J. E. 1845. *Catalogue of the specimens of lizards in the collection of the British Museum*. Trustees of die British Museum/Edward Newman, London: xxvii+289 pp.

Grismer, L. L. 2011a. Amphibians and reptiles of the Seribuat Archipelago. Edition Chimaira, Frankfurt, 239 pp.

Grismer, L. L. 2011b. *Lizards of Peninsular Malaysia, Singapore and their adjacent archipelagos*. Edition Chimaira, Frankfurt, 728 pp.

Grismer, L. L., McGuire, J. A., Sosa, R. and Kaiser, H. 2002. Revised checklist and comments on the terrestrial herpetofauna of Pulau Tioman, Peninsular Malaysia. *Herpetological Review* 33(1):26-29.

Grossmann, W. 2009. Faltengeckos *Ptychozoon kuhli* und *Ptychozoon lionotum*. Natur und Tier Verlag, Münster:64 pp.

Günther, A. 1864. *The Reptiles of British India*. London (Taylor and Francis), xxvii+452 pp.

Hartmann, T., Betts, A. B., De Greef, S. and Ihlow, F. 2014. First record of the rare parachute gecko *Ptychozoon trinotaterra* Brown, 1999 from Cambodia. *Cambodian Journal of Natural History*, 2014, 12-13.

Herrmann, H. -J. 1986. Schweben und Gleiten bei Amphibien und Reptilien. *Sauria* 8(1):13-17.

Klaver, Ch. 2007. On the status and date of publication of the generic name *Ptychozoon* (Reptilia, Gekkonidae). *Bibliotheca Herpetologica* 7(1):7-11.

Koch, A. 2012. *Discovery, Diversity, and Distribution of the Amphibians and Reptiles of Sulawesi and its offshore islands*. Edition Chimaira:374 pp.

Kopstein, F. 1938. Ein Beitrag zur Eierkunde und zur Fortpflanzung der Malaiischen Reptilien. *Bull. Raffles Mus*. 14:81-167.

Law, I. S. and Law, I. T. 2016. Kuhl's Gliding Gecko *Ptychozoon kuhli* on Pulau Bintan, Riau Islands, Indonesia Seavr 2016: 97-98 -

Lönnberg, E. 1899. On a small collection of Javanese reptiles containing a new species of snake. *Zool. Anz*. 22:108-111.

Manthey, U. 1982a. Die Gattung *Ptychozoon*, Teil 1 - Mit einem Bestimmungsschlüssel für die fünf Arten. *Sauria* 4(2):11-17.

Manthey, U. 1982b. Die Gattung *Ptychozoon*, Teil 2 - Mit einem Bestimmungsschlüssel für die fünf Arten. *Sauria* 4(3):5-12.

Manthey, U. and Grossmann, W. 1997. *Amphibien und Reptilien Südostasiens*. Natur und Tier Verlag (Münster): 512 pp.

Mertens, R. and Senfft, W. 1929. Aus dem Leben des Faltengeckos (*Ptychozoon kuhli* Stejneger). *Natur und Museum* 59(4):218-224.

Min, P.Y. and Das, I. 2012. A significant range extension for the Kinabalu parachute gecko, *Ptychozoon rhacophorus* (Boulenger, 1899) (Squamata: Gekkonidae) and a new state record from Sarawak, northwestern Borneo. *Herpetology Notes*, 5:177-179.

Murthy, T. S. N. 2010. *The reptile fauna of India*. B.R. Publishing, New Delhi, India:332 pp.

Onn, C. K., van Rooijen, J., Grismer, L. L., Belabut, D., Mohd. A. M. M., Akil, H. J., Gregory, R. and Ahmad, N. 2010. First report on the herpetofauna of the Pulau Pangkor, Perak, Malaysia. *Russian Journal of Herpetology* 17(2):139-146.

Pawar, S. S. and Biswas, S. 2001. First record of the smooth-backed parachute *gecko Ptychozoon lionotum* Annandale 1905 from the Indian Mainland. *Asiatic Herpetological Research* 9:101-106.

Pyron, R. A., Burbrink, F. T. and Weins, J. J. 2013. A phylogeny and revised classification of Squamata, including 4161 species of lizards and snakes. Published online at: http://www.biomedcentral.com/1471-2148/13/93.

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

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

Sang, N. V., Cuc, H. T. and Truong, N. Q. 2009. *Herpetofauna of Vietnam*. Chimaira, Frankfurt:768 pp.

Smith, M. A. 1935. *The fauna of British India, including Ceylon and Burma. Reptiles and Amphibia, Vol. II. Sauria*. Taylor and Francis, London, UK:440 pp.

Stejneger, L. 1902. *Ptychozoon kuhli*, a new name for *P. homalocephalum. Proc. Biol. Soc, Washington* 15:37-38.

Sumontha, E. H. 1963. *The lizards of Thailand*. University of Kansas Science Bulletin 44:687-1077.

Sumontha, M., Pauwels, O. G., Kunya, K., Limlikhitaksorn, C., Ruksue, S., Taokratok, A., Ansermet, M. and Chanhome, L. 2012. A new species of Parachute Gecko (Squamata: Gekkonidae: genus *Ptychozoon*) from Kaeng Krachan National Park, western Thailand. *Zootaxa* 3513:68-78.

Sy, E. Y., Foley, C. and Cruz, R. M. 2014. *Ptychozoon intermedium* (Philippine flying gecko) avian predation. *Herpetological Review* 45(4):698-699.

Taylor, E. H. 1915. New species of Philippine lizards. *Philip. J.*

Sci. 10:89-109.

Taylor, E. H. 1922. *The lizards of the Philippine Islands*. Department of Agriculture and Natural Resources, Bureau of Science, Government of the Philippine Islands, Manila, Publication no. 17:269 pp.

Taylor, E. H. 1963. The lizards of Thailand. *Univ. Kansas Sci. Bull.* 44:687-1077.

Teynié, A., David, P. and Ohler, A. 2010. Note on a collection of Amphibians and Reptiles from Western Sumatra (Indonesia), with the description of a new species of the genus *Bufo*. *Zootaxa* 2416:1-43.

Tweedie, M. W. F. 1954. Notes on Malayan reptiles, No.3. *Bull. Raffles Mus.* 25:107-117.

Venugopal, P. D. 2010. An updated and annotated list of Indian lizards (Reptilia: Sauria) based on a review of distribution records and checklists of Indian reptiles. *Journal of Threatened Taxa* 2(3):725-738.

Wang, Y., Wang, J. and Liu, Z. 2016. Description of a new species of the genus *Ptychozoon* (Squamata: Gekkonidae), representing a new national record of this genus from southern Yunnan Province, China. *Zootaxa* (online) 4084(3):406-420.

Wood, P. L., Kaiser, H., Looper, S., Youmans, T. M., Grismer, J. L. and Grismer, L. L. 2004. A first report on the herpetofauna of Pulau Besar, Johor, West Malaysia. *Hamadryad* 28(1-2):106-109.

CONFLICT OF INTEREST

There are no conflicts of interest in terms of this paper.

PTYCHOZOON SENSU LATO GENUS AND SPECIES LIST

***PTYCHOZOON* KUHL AND VAN HASSELT 1822.**
***Ptychozoon kuhli* (Stejneger, 1902) (type species)**
***Ptychozoon bannaense* Wang, Wang and Liu, 2016**
Ptychozoon borneoensis sp. nov.
Ptychozoon cliveevatti sp. nov.
Ptychozoon engannoensis sp. nov.
***Ptychozoon horsfieldii* (Gray, 1827)**
***Ptychozoon intermedium* Taylor, 1915**
Ptychozoon johorensis sp. nov.
***Ptychozoon kaengkrachanense* Sumontha *et al.* 2012**
Ptychozoon malayaensis sp. nov.
***Ptychozoon nicobarensis* Das and Vijayakumar, 2009**
Ptychozoon sulawesiensis sp. nov.
Ptychozoon sumatraensis sp. nov.
***Ptychozoon trinotaterra* Brown, 1999**
Ptychozoon wallaceaensis sp. nov.
CLIVEEVVATTCOLOTES GEN. NOV.
***Cliveevattcolotes steveteesi sp. nov.* (type species)**
***Cliveevattcolotes lionotum* (Annandale, 1905)**
ALEXTEESCOLOTES GEN. NOV.
***Alexteescolotes rhacophorus* (Boulenger, 1899) (type species)**
Alexteescolotes teesi sp. nov.

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