

New tribes and sub-tribes of Vipers and elapid snakes and two new species of snake (Squamata:Serpentes).

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Received 1 Sept. 2012, Accepted 4 Sept. 2012, Published 29 April 2013.

ABSTRACT

Some recently published papers in *Australasian Journal of Herpetology* issues 10-15 contained descriptions that in the publishing process contained errors that made the descriptions potentially invalid under the Zoological Code (Ride *et al.* 1999).

This included for descriptions at tribe, subtribe and species levels.

As a result descriptions of the same taxa are published herein that are fully compliant with the Zoological Code as new descriptions, in order to establish available names for the relevant taxon groups and including two relevant species taxa. This will stabilize the nomenclature for the taxa making the names available for other scientists.

Keywords: Taxonomy; Nomenclature; Zoological Code; new tribe; new subtribe; new species; Hoser; Viperini; Maxhoserviperina; Montiviperina; Viperina; Calloselasmaiini; Adelynhoserserpenini; Porthidiumina; Cerrophodionina; Adelynhoserserpenina; Crotalina; Piersonina; Jackyhoserini; Bothropina; Bothropoidina; Rhinocerophiina; Jackyhoserina; Bothrocophiina; Hulimkini; *Charlespiersonserpens*; *Macmillanus*; *jackyhoserae*; *Gerrhopilus*; *carolinehoserae*.

INTRODUCTION

Some recently published papers in *Australasian Journal of Herpetology* contained descriptions that in the publishing process contained errors that made the descriptions potentially invalid under the Zoological code, including in Hoser 2012a, 2012b and 2012c.

In the paper Hoser (2012a), a series of descriptions of Viperine tribes were published.

One of the tribes identified and named wasn't spelt correctly, so that the name of the tribe matched that of an existing genus.

This is not allowed under the ICZN rules of homonymity (see Ride *et al.* 1999), thereby making the description of the tribe invalid under the code.

To rectify this situation, a description of the tribe is published herein as new in order to correct the error.

In terms of other viper tribes and subtribes, there was potential for the names to be unavailable as the type genera may have been published later (by pagination criteria and the like). As those genera have been validly described for some time, (since 2012, see citations at the end of this paper for the details), it is now possible to formally describe and name the said tribes and subtribes in order to fully comply with the code and make the names available. This is done herein. See Hoser 2012e-i for relevant papers.

The same applies for an elapid tribe, herein described, see Hoser 2012j-k, for the relevant papers.

Two descriptions of snake species were published, one in Hoser (2012b) and the other Hoser (2012c) that were generally compliant with the code (Ride *et al.* 1999), but in the publishing

process the specimen numbers of the holotype specimens were inadvertently omitted from the final hard copy, errors not picked up by the peer or other reviewers or in the final pre-publication checks.

While the holotype numbers could be readily inferred from the publications via the named lodgement institutions and references to the holotypes by specimen number in the cited references, the failure to explicitly state and identify them (due to inadvertent omission) would also potentially render the descriptions invalid under the Zoological Code.

Rather than have such a situation arise or to have time wasted by arguments of validity, I have decided to publish descriptions of the same taxa as new and with the relevant specimen numbers identified under the holotype headings.

This will make the new names within this publication available for use under the code and stabilize the nomenclature of the said taxa.

There have been false claims by Wu'ster and others that papers published in *Australasian Journal of Herpetology* in 2009 were not validly published according to the Code (see for example Wu'ster and Bérnils 2011). These claims were shown to be false by Hoser (2012d), which also cites the various Wu'ster claims and gives proof as to why they were false and provides reference details for all relevant publications. As a result, taxa described that year are cited as being from that year (2009), although in order to stabilize the nomenclature and remove doubts as to correct names, all the same taxa were described as new in several papers by Hoser in 2012, within parts of *Australasian Journal of Herpetology*, Issues 10-14 for the

purpose of compliance with the objectives of the ICZN's code in terms of maintaining stability of nomenclature.

Should there be doubts as to the validity of publication of the 2009 issues by later authors, then the cited 2009 dates below should be treated as reading "2012" in order to render this publication as fully compliant with the ICZN rules.

Tribe Viperini Laurenti, 1768.

(Terminal Taxon: *Coluber aspis* Linnaeus, 1758)

Currently generally known as *Vipera aspis* (Linnaeus, 1758)

Diagnosis: Separated from other true vipers by the following suite of characters: pupil is elliptical, adults of the snakes are generally small (subtribes Viperina and Montiviperina) to medium or large (subtribe Maxhoserviperina, description below) and more or less stoutly built. The head is distinct from the neck, of triangular shape, and covered with small scales in many species, although some have a few small plates on top. The dorsal scales are strongly keeled, the anal plate is divided, as are the subcaudals. Importantly this group are defined by the characteristic zig-zag pattern running down their back, more-or-less along the dorsal midbody line, this pattern sometimes becoming a series of blotches or spots running longitudinally along the body (as in the genus *Daboia*).

All are viviparous (live bearing).

They are distributed in Eurasia and adjacent parts of North Africa.

Content: *Daboia* Gray 1842; *Maxhoservipera* Hoser, 2012 (see Hoser 2012e); *Macrovipera* Reuss, 1927; *Montivipera* Nilson *et al.*, 1999; *Vipera* Laurenti 1768.

Subtribe Maxhoserviperina Subtribe nov.

(Terminal Taxon: *Vipera palaestinae* Werner, 1938)

Generally currently most widely known as *Maxhoservipera palaestinae* (Werner, 1938)

Diagnosis: Separated from other subtribes by the following suite of characters: Medium to large size as adults, a lack of horns, raised scales or similar projections above the eye or snout.

Separated from the other subtribes by the fact that the snout or nose is noticeably more blunt in appearance, hence their occasional common name, "blunt nosed vipers".

The head is broad, flat, and very distinct from the neck.

The subtribe Viperina are separated from other true vipers by the following suite of characters: as adults these snakes are small and more or less stoutly built. The head is distinct from the neck, of triangular shape, and covered with small scales in many species, although some have a few small plates on top. The dorsal scales are strongly keeled, the anal plate is divided, as are the subcaudals. Importantly this subtribe is defined by the characteristic zig-zag pattern running down their back, more-or-less along the dorsal midbody line, this pattern only being obscured in some melanistic specimens or other aberrant mutations.

Found in North Africa, the Middle-east and Southern Asia.

Content: *Daboia* Gray, 1842; *Maxhoservipera* Hoser, 2012 (see Hoser 2012e).

Subtribe Montiviperina Subtribe nov.

(Terminal Taxon: *Daboia xanthina* Gray, 1849)

Generally currently known as (*Montivipera xanthina* Gray, 1849)

Diagnosis: Separated from Viperina by the lack of medium to large scales above the eye. In this subtribe the relevant scales are small.

Separated from the subtribes Maxhoserviperina and Viperina by the fact that in this subtribe the majority of snakes invariably have small horns or raised scales above the eye or snout, not seen in the other subtribes.

Maxhoserviperina is separated from the other subtribes (including Montiviperina) by the fact that the snout or nose is noticeably more blunt in appearance, hence their occasional

common name, "blunt nosed vipers".

The subtribe Viperina are separated from other true vipers by the following suite of characters: as adults these snakes are small and more or less stoutly built. The head is distinct from the neck, of triangular shape, and covered with small scales in many species, although some have a few small plates on top. The dorsal scales are strongly keeled, the anal plate is divided, as are the subcaudals. Importantly this subtribe is defined by the characteristic zig-zag pattern running down their back, more-or-less along the dorsal midbody line, this pattern only being obscured in some melanistic specimens or other aberrant mutations.

Found in Eurasia and the Middle-East

Content: *Macrovipera* Reuss, 1927; *Montivipera* Nilson *et al.*, 1999.

Subtribe Viperina Laurenti, 1768.

(Terminal Taxon: *Coluber aspis* Linnaeus, 1758)

Generally currently known as (*Vipera aspis* Linnaeus, 1758)

Diagnosis: The subtribe Viperina are separated from other true vipers by the following suite of characters: as adults these snakes are small and more or less stoutly built. The head is distinct from the neck, of triangular shape, and covered with small scales in many species, although some have a few small plates on top. The dorsal scales are strongly keeled, the anal plate is divided, as are the subcaudals. Importantly this subtribe is defined by the characteristic zig-zag pattern running down their back, more-or-less along the dorsal midbody line, this pattern only being obscured in some melanistic specimens or other aberrant mutations.

The snout is not particularly blunt as seen in the subtribe Maxhoserviperina.

This tribe is separated from specimens within the subtribe Montiviperina by the lack of any horns or projections above the eye and the presence of medium sized scales above the eye.

They are distributed in Eurasia only.

Content: *Vipera* Laurenti, 1768.

Tribe Calloselasmaiini Tribe nov.

(Terminal taxon: *Trigonocephalus rhodostoma* Kuhl, 1824)

Generally currently known as *Calloselasma rhodostoma* (Kuhl, 1824)

Diagnosis: This tribe within the Viperidae, subfamily Crotalinae, consists of two distinct genera and they are defined herein separately as a composite diagnosis for the tribe and its contents.

The species taxon, *Calloselasma rhodostoma*, monotypic for the genus is the only Asian pit viper with large crown scales and smooth dorsal scales.

There are three species within the genus *Hypnale*. All are readily identified by their more-or-less upturned snouts that produce a sort of hump-nosed effect (hence the common name "Humprosed Vipers"). This separates them from all other vipers.

All taxon within this group are moderately stout snakes.

The Malayan Pitviper, *Calloselasma rhodostoma* is found in Southeast Asia from Thailand to northern Malaysia and on the island of Java. Attains an average total body length of 76 cm, with females being slightly larger than males. The largest recorded length is 91 cm. The species is oviparous (lays eggs).

The three species of *Hypnale* occur in South-west India and island Sri Lanka. Members of this genus grow to a maximum total length of 55 cm (for *H. hypnale*). The tail length accounts for 14-18% of the total body length in males, 11-16% in females.

The snout is more or less upturned, with two species having a wart-like protuberance at the tip that is covered with tiny scales.

The anterior head shields are strongly fragmented, but the frontal scale, supraoculars and parietals are complete and quite large. The nasal scale is single, but it may have a groove that extends towards its upper edge. There are two preoculars and 2-

4 postoculars.

The loreal scale is single, but extends across the canthus rostralis so that it can be seen from above.

The supralabials and sublabials both number 7-9. Bordering the supralabials are 3-4 enlarged temporal scales, above which are 3-5 irregular rows of temporal scales. There is one pair of chin shields, each of which is slightly longer than it is wide.

There are 17 dorsal mid-body scale rows, which are weakly keeled. Apical pits are present, but very difficult to see. The keels are lacking or may be entirely absent on the first two scale rows bordering the ventrals. There are 120-158 ventrals and 28-48 mainly divided subcaudals.

Content: *Calloselasma* Cope, 1860; *Hypnale* Fitzinger, 1843.

Tribe Adelynhoserserpenini Tribe nov.

(Terminal Taxon: *Atropos nummifer* Ruppell, 1845)

Currently generally known as *Adelynhoserserpenae nummifer* (Ruppell, 1845)

Diagnosis: Separated from all other pitvipers in the Western hemisphere by the following suite of characters: The tail does not terminate in a rattle or button, the tail is not strongly prehensile, the distal portion is not curving strongly down in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are single or paired, usually fewer than 200 ventrals and 31 dorsal mid-body rows, most or all subcaudals are undivided, the head is not covered with about nine large plates (and occasionally a few smaller scales as well).

Content: *Adelynhoserserpenae* Hoser, 2012 (see Hoser 2012a); *Atropoides* Werman, 1992; *Cerrophodion* Campbell and Lamar, 1992; *Porthidium* Cope, 1871.

Subtribe Porthidiumina Subtribe nov.

(Terminal Taxon: *Bothrops ophryomegas* Bocourt, 1868)

Generally currently known as *Porthidium ophryomegas* (Bocourt, 1868)

Diagnosis: Separated from all other pitvipers in the Western hemisphere by the following suite of characters: The tail does not terminate in a rattle or button, the tail is not strongly prehensile, the distal portion is not curving strongly down in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are single or paired, usually fewer than 200 ventrals and 31 dorsal mid-body rows, most or all subcaudals are undivided, the chinshields and prefrontals are separated by only 2-3 gulars (as opposed to four or more), the dorsal pattern of a pale mid dorsal line offset by alternate or opposite blotches on either side (rarely pattenless); rostral usually distinctly higher than wide; snout may or may not be elevated (Genus *Porthidium*).

Content: *Porthidium* Cope, 1871.

Subtribe Cerrophodionina Subtribe nov.

(Terminal Taxon: *Bothriechis godmani* Gunther, 1863)

Currently generally known as *Cerrophodion godmani* (Gunther, 1863)

Diagnosis: The diagnosis for the tribe is incorporated here as a diagnosis for both subtribes *Adelynhoserserpenina subtribe nov.* and *Cerrophodionina subtribe nov.* as it separates all of the component genera in the single diagnosis.

Separated from all other pitvipers in the Western hemisphere by the following suite of characters: The tail does not terminate in a rattle or button, the tail is not strongly prehensile, the distal portion is not curving strongly down in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are single or paired, usually fewer than 200 ventrals and 31 dorsal mid-body rows, most or all subcaudals are undivided.

If the chinshields and prefrontals are separated by only 2-3 gulars (as opposed to four or more), the dorsal pattern is of a pale mid-dorsal line offset by alternate or opposite blotches on either side (rarely pattenless); rostral usually distinctly higher

than wide; snout may or may not be elevated the snake is in the genus *Porthidium* and subtribe Porthidiumina. To be within this tribe (*Cerrophodionina*) the chinshields and prefrontals are separated by 4 or more gulars, the dorsal pattern is of mid-dorsal blotches or crossbands (sometimes only extending to the mid-dorsum, but no pale mid-dorsal line present), rostral variable, usually broader than high or only slightly higher than wide, snout unelevated, the head is not covered with about nine large plates (sometimes with a few smaller scales as well), if there are more than 138 ventrals the snake is in this subtribe (*Cerrophodionina*). If there are less than 138 ventrals the snake is in the subtribe *Adelynhoserserpenina Subtribe nov.*

Content: *Cerrophodion* Campbell and Lamar, 1992; *Atropoides* Werman, 1992.

Subtribe Adelynhoserserpenina Subtribe nov.

(Terminal Taxon: *Atropos nummifer* Ruppell, 1845)

Currently generally known as *Adelynhoserserpenae nummifer* (Ruppell, 1845)

Diagnosis: The diagnosis for this tribe is incorporated here as a diagnosis for all both subtribes *Adelynhoserserpenina subtribe nov.* and *Cerrophodionina subtribe nov.* as it separates all of the component genera in the single diagnosis.

Separated from all other pitvipers in the Western hemisphere by the following suite of characters: The tail does not terminate in a rattle or button, the tail is not strongly prehensile, the distal portion is not curving strongly down in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are single or paired, usually fewer than 200 ventrals and 31 dorsal mid-body rows, most or all subcaudals are undivided.

If the chinshields and prefrontals are separated by only 2-3 gulars (as opposed to four or more), the dorsal pattern is of a pale mid dorsal line offset by alternate or opposite blotches on either side (rarely pattenless); rostral usually distinctly higher than wide; snout may or may not be elevated the snake is in the genus *Porthidium* and subtribe Porthidiumina.

To be within this tribe the chinshields and prefrontals are separated by 4 or more gulars, dorsal pattern of mid-dorsal blotches or crossbands (sometimes only extending to the mid-dorsum, but no pale mid-dorsal line present), rostral variable, usually broader than high or only slightly higher than wide, snout unelevated, the head is not covered with about nine large plates (sometimes with a few smaller scales as well), if there are more than 138 ventrals the snake is in the subtribe *Cerrophodionina*. If there are less than 138 ventrals the snake is in the subtribe *Adelynhoserserpenina subtribe nov.*

Content: *Adelynhoserserpenae* Hoser, 2012 (See Hoser 2012a).

Tribe Crotalini Gray, 1825

(Terminal Taxon *Crotalus horridus* Linnaeus, 1758)

Diagnosis: Separated from all other snakes on the planet, including other vipers, by the possession of a rattle on an unbroken tail, or in the case of one species and neonates an obvious pre-button.

They are generally medium to large species with strongly keeled scales, stout build and a large head distinct from the neck.

This tribe is herein restricted to include only the true Rattlesnakes and no other pit vipers.

Content: *Aechmophrys* Coues, 1875; *Caudisona* Laurenti, 1768; *Crotalus* Linnaeus, 1758; *Cummingea*, Hoser 2009; *Hoserea* Hoser, 2009; *Mattea* Hoser, 2009; *Piersonus* Hoser, 2009; *Sistrurus* Garman, 1883; *Uropsophus* Wagler, 1830.

Note: There are now also 8 additional named and defined subgenera within this group (see Hoser 2012b). These are: *Cottonus* Hoser, 2009; *Crutchfieldus* Hoser, 2009; *Edwardsus* Hoser, 2009; *Mullinsus* Hoser, 2009; *Pillotus* Hoser, 2009; *Rattlewellsus* Hoser, 2012; *Sayersus* Hoser, 2009; *Smythus* Hoser, 2009.

Subtribe *Crotalina* *Subtribe* nov.**(Terminal Taxon *Crotalus horridus* Linnaeus, 1758)****Diagnosis:** Includes all rattlesnake taxa excluding *Piersonus ravus*, which is placed in the monotypic subtribe *Piersonina*.*Piersonus* (subtribe *Piersonina subtribe* nov.) is separated from all other rattlesnakes (this tribe) by the following suite of characteristics. In common with the two species in the genus *Sistrurus*, it has nine (usually) large head plates. The other rattlesnakes all have smaller and irregular head shields.*Piersonina* is separated from the the genus *Sistrurus* by the fact that the upper preocular is not in contact with the postnasal, the rostral is curved over the snout; canthus rostralis is rounded, dorsal body blotches are longer than wide unless the snake is melanistic (black) and often in distinct diamond shapes; body pattern commences from the neck; by contrast in *Sistrurus*, the upper preocular is in contact with the postnasal; rostral is not curved over the snout; the canthus rostralis is sharply angled and the dorsal body blotches are square or wider than long, body pattern commences from the head proper.In all rattlesnakes of the genus *Sistrurus* (the two species being *S. catenatus* and *S. milliaris*), the hemipenis has a gradual transition from spines to calyces. However in all other rattlesnakes including in the subtribe *Piersonina* the hemipenis has an abrupt transition from spines to fringes at the point of bifurcation of the lobes.**Content:** *Aechmophrys* Coues, 1875; *Caudisona* Laurenti, 1768; *Crotalus* Linnaeus, 1758; *Cummingea*, Hoser 2009; *Hoserea* Hoser, 2009; *Mattea* Hoser, 2009; *Sistrurus* Garman, 1883; *Uropsophus* Wagler, 1830.**Note:** There are now also 8 additional named and defined subgenera within this group (see Hoser 2012b). These are: *Cottonus* Hoser, 2009; *Crutchfieldus* Hoser, 2009; *Edwardsus* Hoser, 2009; *Mullinsus* Hoser, 2009; *Pillotus* Hoser, 2009; *Rattlewellsus* Hoser, 2012; *Sayersus* Hoser, 2009; *Smythus* Hoser, 2009.**Subtribe *Piersonina* *Subtribe* nov.****(Terminal Taxon *Crotalus ravus* Cope, 1865)**Currently generally known as *Piersonus ravus* (Cope, 1865)**Diagnosis:** This subtribe is monotypic for the genus and species *Piersonus ravus*.This species within is separated from all other rattlesnakes by the following suite of characteristics. In common with the two species in the genus *Sistrurus*, it has (usually) nine large head plates. The other rattlesnakes all have smaller and irregular head shields.*Piersonina* is separated from the genus *Sistrurus* by the fact that the upper preocular is not in contact with the postnasal, the rostral is curved over the snout; canthus rostralis is rounded, dorsal body blotches are longer than wide unless the snake is melanistic (black) and often in distinct diamond shapes; body pattern commences from the neck; by contrast in *Sistrurus*, the upper preocular is in contact with the postnasal; rostral is not curved over the snout; the canthus rostralis is sharply angled and the dorsal body blotches are square or wider than long, body pattern commences from the head proper.In all rattlesnakes of the genus *Sistrurus* (the two species being *S. catenatus* and *S. milliaris*), the hemipenis has a gradual transition from spines to calyces. However in all other rattlesnakes including in the subtribe *Piersonina* the hemipenis has an abrupt transition from spines to fringes at the point of bifurcation of the lobes.*Piersonus ravus* is only found in the mountains of central and southern Mexico, including the highlands of Morelos, Puebla and Oaxaca. Vertical distribution is estimated between 1500 – 3000m above sea level. Rarely does it exceed 70 cm in total body length.*P. ravus* inhabits primarily forests of the temperate zones, especially pine-oak forests. They can also be found in temperate grasslands, cloud forest, high altitude thorn scrub and tropical

deciduous forest.

Its common name is the Mexican Pygmy Rattlesnake.

Content: *Piersonus* Hoser, 2009.**Tribe *Jackyhoserini* *Tribe* nov.****(Terminal Taxon: *Lachesis picta* Tschudi, 1845)**Currently generally known as *Jackyhoserea pictus* (Tschudi, 1845)**Diagnosis:** A large tribe of live-bearing pitvipers found in the New World whose centre of distribution is South America.

Separated from all other pitvipers by the following suite of characteristics: Live bearing. No rattle or similar unbroken pre-button on the end of the unbroken tail. The tail is not prehensile, the rostral is wider than high, the supracephalic scales are either small and keeled although in some species there may be some smallish plate-like scales, no supraocular spines, the supracephalic scales may be either mostly flat, with small keels or sometimes strongly keeled, the rostral is wider than high to slightly higher than wide, 21-29 dorsal mid-body rows, 124-254 ventrals, 30-91 usually divided subcaudals, tail may or may not be prehensile, the tail spine is relatively long, the body may be slender to moderately stout, the distal portion of the heimpenes have proximal calyces, papillate or spinulate, usually smooth distally.

Content: *Bothriopsis* Peters, 1861; *Bothrocophias* Cutberlet and Cambell, 2001; *Bothropoides* Fenwick, et al., 2009; *Bothrops* Wagler, 1824; *Jackyhoserea* Hoser, 2012 (See Hoser 2012c); *Rhinocerophis* Garman, 1881.**Subtribe *Bothropina* *Subtribe* nov.****(Terminal Taxon: *Coluber lanceolatus* Bonnatere, 1790)**Currently generally known as *Bothrops lanceolatus* (Bonnaterre, 1790)**Diagnosis:** Separated from all other pitvipers in the tribe *Jackyhoserini* *tribe* nov. and all other pitvipers in the Western Hemisphere by the following suite of characters: Tail does not terminate in a button or rattle; if the tail is strongly prehensile, the distal portion curves strongly downward in life or preservative, with a relatively long tail spine and usually divided subcaudals (Genus *Bothriopsis*): if the tail is not prehensile, the distal portion does not curve strongly downward in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are either single or paired, there are usually fewer than 200 ventrals and 31 dorsal mid-body scale rows; most or all subcaudals are divided, there's no distinct series of pale spots or bars on the infralabials; dorsals are often strongly keeled but not tubercular; intersupraoculars are usually keeled, skull narrow, distance across frontal bones are less than the width of the skull at the anterior end of the supratemporals; Dorsal pattern consisting of dark vertebral rhomboids bordered by paler lines (genus *Bothrops*); *Jackyhoserina* *Subtribe* nov. (see below) are separated from all species within the genus *Bothrops* (defined above and forming a part of this description), by the following suite of characters: The canthus does not curve upwards, there is a dorsal pattern of small blotches, many of which are located mid-dorsally or fused to form a zig-zag stripe, occasionally trapezoidal or triangular that alternate or meet mid-dorsally; 3-10 intersupraoculars; 8-11 supralabials with the second, third or none fused with the prelacanul; 10-12 infralabials; 21-25 (usually 23) dorsal mid body rows, 157-186 ventrals in males, 165-186 ventrals in females, 37-63 all divided subcaudals in males and 33-58 all or mostly divided subcaudals in females.**Content:** *Bothriopsis* Peters, 1861; *Bothrops* Wagler, 1824.**Subtribe *Bothropoidina* *Subtribe* nov.****(Terminal Taxon: *Bothrops neuwiedi* Wagler, 1824)**Currently generally known as *Bothropoides neuwiedi* (Wagler, 1824)**Diagnosis:** Separated from all other pitvipers in the tribe *Jackyhoserini* *tribe* nov. and all other pitvipers in the Western

Hemisphere by the following suite of characters: Tail does not terminate in a button or rattle; if the tail is strongly prehensile, the distal portion curves strongly downward in life or preservative, with a relatively long tail spine and usually divided subcaudals (Genus *Bothriopsis*) (see above subtribe Bothropina); if the tail is not prehensile, the distal portion does not curve strongly downward in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are either single or paired, there are usually fewer than 200 ventrals and 31 dorsal mid-body scale rows; most or all subcaudals are divided, there's no distinct series of pale spots or bars on the infralabials; dorsals are often strongly keeled but not tubercular; intersupraoculars are usually keeled, skull narrow, distance across frontal bones are less than the width of the skull at the anterior end of the supratemporals; Dorsal pattern not consisting of dark kidney-shapes, Dorsal head lacking a well-defined pattern (*Bothropoides*).

Content: *Bothropoides* Fenwick, et al. 2009.

Subtribe Rhinocerophiina Subtribe nov.

(Terminal Taxon: *Bothrops ammodytoides* Leybold, 1873)

Currently generally known as *Rhinocerophis ammodytoides* (Leybold, 1873)

Diagnosis: Separated from all other pitvipers in the tribe Jackyhoserini *tribe nov.* and all other pitvipers in the Western Hemisphere by the following suite of characters: Tail does not terminate in a button or rattle; if the tail is strongly prehensile, the distal portion curves strongly downward in life or preservative, with a relatively long tail spine and usually divided subcaudals (Genus *Bothriopsis*) (see above subtribe Bothropina); if the tail is not prehensile, the distal portion does not curve strongly downward in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are either single or paired, there are usually fewer than 200 ventrals and 31 dorsal mid-body scale rows; most or all subcaudals are divided, there's no distinct series of pale spots or bars on the infralabials; dorsals are often strongly keeled but not tubercular; intersupraoculars are usually keeled, skull narrow, distance across frontal bones are less than the width of the skull at the anterior end of the supratemporals; Dorsal pattern consisting of large brown kidney-shapes; Dorsal head with well-defined pattern. Mostly dark with four or five large brown patches separated by very thin pale lines (Genus: *Rhinocerophis*).

Content: *Rhinocerophis* Garman, 1881.

Subtribe Jackyhoserina Subtribe nov.

(Terminal Taxon: *Lachesis picta* Tschudi, 1845)

Currently generally known as *Jackyhoserea pictus* (Tschudi, 1845)

Diagnosis: Separated from all other pitvipers in the tribe Jackyhoserini *tribe nov.* and all other pitvipers in the Western Hemisphere by the following suite of characters: Tail does not terminate in a button or rattle; if the tail is strongly prehensile, the distal portion curves strongly downward in life or preservative, with a relatively long tail spine and usually divided subcaudals (Genus *Bothriopsis*) (see above subtribe Bothropina); if the tail is not prehensile, the distal portion does not curve strongly downward in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are either single or paired, there are usually fewer than 200 ventrals and 31 dorsal mid-body scale rows; most or all subcaudals are divided, there's no distinct series of pale spots or bars on the infralabials; dorsals are often strongly keeled but not tubercular; intersupraoculars are usually keeled, skull narrow, distance across frontal bones are less than the width of the skull at the anterior end of the supratemporals; Dorsal pattern consisting of dark vertebral rhomboids bordered by paler lines (genus *Bothrops*); Jackyhoserina *Subtribe nov.* are separated from all species within the genus *Bothrops* (defined above and forming a part of this description), by the following suite of characters: The canthus does not curve upwards, there is a dorsal pattern of small blotches, many of which are located

mid-dorsally or fused to form a zig-zag stripe, occasionally trapezoidal or triangular that alternate or meet mid-dorsally; 3-10 intersupraoculars; 8-11 supralabials with the second, third or none fused with the prelacanul; 10-12 infralabials; 21-25 (usually 23) dorsal mid body rows, 157-186 ventrals in males, 165-186 ventrals in females, 37-63 all divided subcaudals in males and 33-58 all or mostly divided subcaudals in females.

Content: *Jackyhoserea* Hoser, 2012 (See Hoser 2012c).

Genus content: *J. pictus* (type species), *J. andianus*, *J. barnetti*, *J. lojanus*, *J. roedingeri*.

Note: Subgenus *Daraninus* Hoser 2012 is monotypic for the species taxon, *J. andianus*.

Subtribe Bothrocophiina Subtribe nov.

(Terminal Taxon: *Bothrops hyopora* Amaral, 1935)

Currently generally known as *Bothrocophias hyopora* (Amaral, 1935)

Diagnosis: Separated from all other pitvipers in the tribe Jackyhoserini *tribe nov.* and all other pitvipers in the Western Hemisphere by the following suite of characters: Tail does not terminate in a button or rattle; if the tail is strongly prehensile, the distal portion curves strongly downward in life or preservative, with a relatively long tail spine and usually divided subcaudals (Genus *Bothriopsis*) (see above subtribe Bothropina); if the tail is not prehensile, the distal portion does not curve strongly downward in life or preservative, there is no conspicuous supraocular spine or horn, the distal subcaudals are either single or paired, there are usually fewer than 200 ventrals and 31 dorsal mid-body scale rows; most or all subcaudals are divided, there is a distinct series of pale spots or bars on the infralabials; dorsal keels are tubercular; intersupraoculars are smooth or keeled, skull is broad, distance across the frontal bones equals the width of the skull at the anterior end of the supratemporals (Genus: *Bothrocophias*).

Content: *Bothrocophias* Cutberlet and Cambell, 2001.

Tribe Hulimkini Tribe nov.

(Terminal taxon: *Hulimkai fasciata*)

Diagnosis: Separated from all other Australasian and Melanesian land dwelling (non-sea snake) elapids by the following suite of characters: No suboculars or curved tail spine at the end of the tail; the scalation is smooth and shiny with 17 (rarely 19) mid body rows; 140-185 ventrals that are not in any way keeled or notched; no suboculars; frontal longer than broad and more than one and half times as broad as the supraocular; no barring of the labials; internasals present; 20-40 all single subcaudals, single anal; 3-7 small solid maxillary teeth follow the fang; eye is of a medium size, the latter trait separating this snake from all other species of the genera (*Cryptophis* Worrell 1961, *Parasuta* Worrell 1961, *Rhinoplocephalus* Müller 1885, *Suta* Worrell 1961, *Unechis* Worrell 1961) (known herein as Tribe Sutini Hoser, 2012) (refer to elsewhere in Hoser 2012k); further separated from snakes within Tribe Sutini Hoser, 2012 by the fact that snakes (one species only) within this tribe have a well-defined dorsal pattern consisting of dark (near black) and lighter (usually brown) blotches on the dorsal surface forming a general patterned appearance not seen in the species within Tribe Sutini Hoser, 2012 (Hoser, 2012k).

A western Australian endemic, it is further separated from Tribe Sutini Hoser, 2012 (Hoser, 2012k) snakes by its proportionately longer body.

Note the relevant taxon identified here is seen in most texts under the name *Suta fasciata* (e.g. Cogger 2000) or *Denisonia fasciata* (e.g. Shine 1985), but was placed in a new genus *Hulimkai* Hoser 2012 in a paper published by Hoser (2012j).

Content: *Hulimkai* Hoser, 2012

CHARLESPIERSONSERPENS (MACMILLANUS) JACKYHOSERAEE SP. NOV.

Holotype: A male specimen lodged at the National Museum of Natural History, Smithsonian Institution, USNM, specimen number: 119505 from Gusiko, Huon Peninsula, New Guinea.

The relevant Museum is a government owned public facility that allows researchers access to their collections and the holotype specimen is already lodged with and belongs to this facility.

Diagnosis: Separated from the species *Charlespiersonserpens lorentzi* by the following suite of characters:

Charlespiersonserpens jackyhoserae sp. nov. has 181 ventrals versus a range of 156-173 in *Charlespiersonserpens lorentzi*; *Charlespiersonserpens lorentzi* has 8 supralabials (rarely nine on one side), versus 9 supralabials on both sides in *Charlespiersonserpens jackyhoserae* sp. nov.

Furthermore *Charlespiersonserpens jackyhoserae* sp. nov. is the only species within any *Charlespiersonserpens* or *Dendrelaphis* with the entire supraoccipital covered by the axial musculature.

Charlespiersonserpens jackyhoserae sp. nov. also differs from *Charlespiersonserpens lorentzi* in hemipenial morphology.

In this species the hemipenis extends to subcaudal 13, with longitudinal rows of small spines (each about one sixth of a subcaudal long), the rows of spines nearly to the tip and well distal to the rightward angulation of the sulcus at subcaudal 9; an apical awn, about three subcaudals long and with numerous tiny spinules; no crossfold on the organ, but lips of sulcus raised as a pair of prominent folds. The structure of the hemipenis in *Charlespiersonserpens jackyhoserae* sp. nov. shares traits with *Charlespiersonserpens lorentzi* including the black spotting on top of the head that looks like calligraphic penciling, but differs in that the apical awn is longer, being only 1-2 subcaudals in *lorentzi*.

Charlespiersonserpens jackyhoserae sp. nov. is known only from the holotype. It is therefore currently only known from the Huon Peninsula, New Guinea, but presumably also occurs in nearby parts of New Guinea north of the Central Cordillera.

Until proven otherwise, the taxon, *Charlespiersonserpens lorentzi* should be regarded as confined to the region south of the Central Cordillera of island New Guinea in the general vicinity of the type locality in southern Irian Jaya in the general vicinity of the Lorentz and Mimika Rivers.

Etymology: Named in honor of my daughter Jacky Hoser who has spent the first 11 years of her life educating others about reptiles in Australia in the face of incredible adversity, including attacks from inexperienced business competitors motivated solely by a desire to extract money from people on false pretexts aided and abetted by corrupt wildlife officers who happen to be their friends. These wildlife officers and agents acting on their behalf have unlawfully assaulted and attacked Jacky both at school (on 10 August 2011) and even in her bedroom at home on 17 August 2011.

Her courage in dealing with these attacks and in continuing to educate others about reptiles with correct factual information deserves more than one great honor and recognition.

GERRHOPILUS CAROLINEHOSERAE SP. NOV.

Holotype: A specimen collected from the Talaud Archipelago, Indonesia, lodged at the Museum Zoologicum Bogoriense (MZB), Java, Indonesia, specimen number: MZB 3227.

This Museum is a government owned facility that allows researchers access to their collection.

Diagnosis: This species would normally be identified as *G. hedraeus* (Savage, 1950) from which it is easily separated by the following suite of characters: 255 ventrals, 13 or 14 subcaudals; the eye is restricted to the ocular scale not reaching the suture to the preocular; a subocular is absent (in contrast to *G. ater* from Sulawesi, the Moluccas and New Guinea). *G. carolinehoserae* sp. nov. has two preoculars (versus one in *G. hedraeus*) and the latter is not smaller than the ocular. The upper jaw is not visible laterally. This species (*G.*

carolinehoserae sp. nov.) appears to be most closely *G. hedraeus* which is found on several Philippine Islands including Mindanao, Luzon and Negros, the type locality.

Distribution: *G. carolinehoserae* sp. nov. is known only from the type locality, the Talaud Archipelago, Indonesia, which lies between the biogeographic realms of Sulawesi, the Philippines, and the Moluccas.

Etymology: Named in honor of Caroline Hoser of London in the UK, who spent considerable time with myself doing herpetological fieldwork on Death Adders (*Acanthophis antarcticus*) from West Head, NSW, Australia and who also spent considerable time working with me on python taxonomy in the early 1980's.

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- CONFLICT OF INTEREST**
- The author has no conflicts of interest in terms of this paper or conclusions within.

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ISSN 1836-5698 (Print)
ISSN 1836-5779 (Online)