Australasian Journal of Herpetology **17:51-57.**
Published 29 April 2013.

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

An overdue new taxonomy for the Rhinophiidae (Uropeltidae).

RAYMOND T. HOSER

488 Park Road, Park Orchards, Victoria, 3134, Australia.
***Phone*: +61 3 9812 3322 *Fax*: 9812 3355 *E-mail*: snakeman@snakeman.com.au**
Received 16 January 2013, Accepted 21 March 2013, Published 29 April 2013.

ABSTRACT

This paper resolves issues of taxonomy and nomenclature for the small burrowing shield-tailed snakes of the family Uropeltidae as they are generally known in early 2013.

These snakes of primitive form from Southern India and Sri Lanka have been subject of detailed taxonomic analysis for over 20 years. While 8 genera are currently recognized, it has long been known that some of these are composite.

Revisiting existing data, the allied genera *Rhinophis* Hemprich, 1820 and *Uropeltis* Cuvier, 1829 as presently recognized are both merged.

In summary these two names are only now used for the Sri Lankan species and a small number of others, with the latter now being treated as a subgenus within the former. As a result the family name reverts back to *Rhinophiidae*, Fitzinger, 1843.

Crealia Gray, 1858 is resurrected as a subgenus for some Sri Lankan species of within *Rhinophis*, while *Pseudotyphlops* Schlegel, 1839 remains, but also as a subgenus within *Rhinophis.*

Indian species formerly within *Rhinophis* Hemprich, 1820 and *Uropeltis* Cuvier, 1829 are herein placed in two new genera, each with subgenera and formally named for the first time according to the Zoological Code.

Pseudoplectrrurus Boulenger, 1890 is resurrected to accommodate the species *Silybura canarica* Beddome, 1870, currently placed in the genus *Plectrurus* Duméril, 1851.

The other remaining genera, *Brachyophidium* Wall, 1921, *Melanophidium*, Günther, 1864, *Platyplectrurus* Günther, 1868, *Plectrurus*, Duméril, 1851 and *Teretrurus* Beddome, 1886 are retained unchanged save for the fact that *Pseudoplectrurus* Boulenger, 1890 is resurrected to accommodate the species *Silybura canarica* Beddome, 1870, currently placed in the genus *Plectrurus* Duméril, 1851.

The family *Rhinophiidae* is subdivided into five tribes, namely Rhinophiini, Oxyserpeniini, Brachyophidiini, Melanophidiumiini and Plectruriini.

Keywords: Taxonomy; Uropeltidae; new; family; Rhinophiidae; tribe; Rhinophiini; Oxyserpeniini; Brachyophidiini; Melanophidiumiini; Plectruriini; genus; *Rhinophis*; *Uropeltis; Pseudoplectrurus*; *Oxyserpens*; *Crottyserpens;* subgenus; *Jealousserpens*; *Ackyserpens.*

INTRODUCTION

The Shield-tailed snakes are a family of non-venomous burrowing snakes endemic to southern India and Sri Lanka.

These snakes have a large keratinous shield at the tip of the tail.

These smallish snakes attain from 20 and 75 cm in length. They are adapted to a fossorial existence as seen via their anatomy. The skull is primitive and inflexible, with a short vertical quadrate bone and rigid jaws; the coronoid bone is still present in the lower jaw. The orbital bones are absent, the supratemporal is vestigial and the eyes are small and degenerate, not covered by a brille, but by large polygonal shields. Notwithstanding this, the pelvis and hind limbs, the presence of which is also considered a primitive trait, have disappeared in this family.

The tail is characteristic, ending in one or other of either an enlarged rigid scale with two points, or more often an upper surface with a subcircular area covered with thickened spiny scales, or alternatively a much enlarged spiny plate.

The ventral scales are much reduced in size. The body is cylindrical and covered with smooth scales.

At beginning 2013, there were eight widely recognized genera, with a small number of names treated as synonyms (Uetz 2013, McDairmid *et al.* 1999).

There have been a number of studies done in attempts to resolve the phylogeny or taxonomy of the group, with perhaps the most important one being that of Cadle *et al.* (1990).

Other most relevant phylogenetic studies have included Gower (2003), Olori and Bell (2012), Pyron *et al.* (2013) and others cited by Olori and Bell (2012).

All have convincingly shown that the current taxonomy of the family is outdated and in urgent need of revision, as well as recent comprehensive publications on the group by McDairmid *et al.* (1999), Gower *et al.* (2008), Gans (1966), Rieppel and Zaher (2002) and Comeaux *et al.* (2010).

By way of example, Cadle *et al.* (1990) found a divergence of at least 10-15 million years of the species *Rhinophis travancoricus* Boulenger, 1893 from the Sri Lankan members of the same genus.

Olori and Bell (2012) and Pyron *et al.* (2013) found a similar result, with the Indian species within *Uropeltis* as presently defined, namely *U. liura* Günther, 1875 having an even greater time frame for divergence than that of *Rhinophis travancoricus* Boulenger, 1893.

Clearly it is not tenable on that data to retain either species within the same genera as the Sri Lankan species. In the case of both the genera, *Rhinophis* Hemprich, 1820 and *Uropeltis* Cuvier, 1829, the holotype species come from Sri Lanka and phylogenetically are in the same cluster of species as in the same well-defined clade.

Thus revisiting existing data, of Cadle *et al.* (1990) as corroborated by Pyron *et al.* (2013) the allied genera *Rhinophis* Hemprich, 1820 and *Uropeltis* Cuvier, 1829 as presently recognized are both merged.

In summary these two names are only now mainly used for the Sri Lankan species, with the latter now being treated as a subgenus within the former, due to its date priority according to the Rules of Zoological Nomenclature (Ride *et al.* 1999). As a result the family name reverts back to Rhinophiidae, Fitzinger, 1843, although I note that the actual name Rhinophiidae (spelt Rhinophidae) was first used by Cope in 1900 (McDiarmid *et al.* 1999), whereas Fitzinger first proposed the family using the name “Rhinophes”.

Crealia Gray, 1858 is resurrected as a subgenus for some Sri Lankan species of within *Rhinophis*, while *Pseudotyphlops* Schlegel, 1839 remains, but also as a subgenus within *Rhinophis.*

Indian species formerly within *Rhinophis* Hemprich, 1820 and *Uropeltis* Cuvier, 1829 are herein placed in new genera formally named for the first time according to the Zoological Code. The three species taken from *Rhinophis* Hemprich, 1820, now placed in the genus *Crottyserpens gen. nov.* are further subdivided into subgenera.

The other remaining genera, *Brachyophidium* Wall, 1921, *Melanophidium*, Günther, 1864, *Platyplectrurus* Günther, 1868, *Plectrurus*, Duméril, 1851 and *Teretrurus* Beddome, 1886 are retained unchanged save for the fact that *Pseudoplectrrurus* Boulenger, 1890 is resurrected to accommodate the species *Silybura canarica* Beddome, 1870, currently placed in the genus *Plectrurus* Duméril, 1851.

In order to have the taxonomy of the family Rhinophiidae to reflect the phylogeny, the family is herein subdivided into five tribes, namely Rhinophiini, Oxyserpeniini, Brachyophidiini, Melanophidiumiini and Plectruriini.

The literature dealing with these snakes (usually treated as “Uropeltidae”) is extensive and includes the following key references: Baumeister (1908), Beddome (1867), Bossuyt *et al.* (2004), Boulenger (1893), Cadle *et al.* (1990), Comeaux *et al.* (2010), Gans (1973, 1976, 1986), Gans *et al.* (1978), Gower (2003), Gower *et al.* (2008), Greene and McDairmid (2005), Mahendra (1984), Olori (2010), Olori and Bell (2012), Parker and Grandison (1977), Peters (1861), Rajendran (1978, 1979, 1985), Rieppel (1988), Taylor (1953), Tinkle and Gibbons (1977), Underwood (1967), Wickramasinge *et al.* (2009), Williams (1959), as well as the sources cited therein.

FAMILY *RHINOPHIIDAE* FITZINGER, 1843

(Terminal taxon: *Anguis oxyrynchus* Schneider, 1801).

Currently known as *Rhinophis oxyrynchus* (Schneider, 1801).

Diagnosis: The family is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

The Shield-tailed snakes are a family of non-venomous burrowing snakes endemic to southern India and Sri Lanka.

These snakes have a large keratinous shield at the tip of the tail.

These smallish snakes attain from 20 and 75 cm in length. They are adapted to a fossorial existence as seen via their anatomy. The skull is primitive and inflexible, with a short vertical quadrate bone and rigid jaws; the coronoid bone is still present in the lower jaw. The orbital bones are absent, the supratemporal is vestigial and the eyes are small and degenerate, not covered by a brille, but by large polygonal shields. Notwithstanding this, the pelvis and hind limbs, the presence of which is also considered a primitive trait, have disappeared in this family.

The tail is characteristic, ending in one or other of either an enlarged rigid scale with two points, or more often an upper surface with a subcircular area covered with thickened spiny scales, or alternatively a much enlarged spiny plate.

The ventral scales are much reduced in size. The body is cylindrical and covered with smooth scales.

Comment: In effect the family has had a “name change” from Uropeltidae to Rhinophiidae. While the Zoological Code has stability as its aim, this stability is based on the three critical rules of, 1/ Homonymy (Principal 5, Article 52 and elsewhere), 2/ Priority (Principal 3, Article 23 and elsewhere) and 3/ Stability (Principal 4, Articles 23, 65 and elsewhere), derived from the earlier ones.

The relevant sections read:

“23.1. Statement of the Principle of Priority. The valid name of a taxon is the oldest available name applied to it”;

and at 23.2 it says:

“Principle of Priority is to be used to promote stability”.

Noting that both generic names *Rhinophis* and *Uropeltis* have been widely used and known and both the relevant family names have been used previously, I see no benefit in continuing the incorrect usage of the name *Uropeltidae* to describe this family of snakes.

Distribution: Sri Lanka and southern India.

Content: *Rhinophis* Hemprich, 1820; *Brachyophidium* Wall, 1921; *Crottyserpens gen. nov.* (this paper); *Melanophidium*, Günther, 1864; *Oxyserpens gen. nov.* (this paper); *Platyplectrurus* Günther, 1868; *Plectrurus*, Duméril, 1851; *Pseudoplectrurus* Boulenger, 1890; *Teretrurus* Beddome, 1886; *Uropeltis* Cuvier, 1829.

NEW TRIBE MELANOPHIDIINI *TRIBE NOV.*

(Terminal taxon:*Plectrurus wynaudensis* Beddome, 1863).

Currently known as *Melanophidium wynaudensis* (Beddome, 1863)

Diagnosis: Within the diagnosis of the family, given as part of this diagnosis below, this tribe, monotypic for the genus *Melanophidium*, Günther, 1864 is separated from other Rhinophiidae by the following suite of characters: Eye in the ocular shield; a median groove along the chin; no supraocular; no temporal; tail is cylindrical or slightly compressed; the terminal spine is pointed or with one or two terminal ridges; the snake has palatine teeth.

The family Rhinophiidae as a whole is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

Distribution: Southern India: Peermede (Kerala) and Anamali Hills (Tamil Nadu) (McDiarmid *et al.* 1999).

Content: *Melanophidium*, Günther, 1864.

NEW TRIBE BRACHYOPHIDIINI *TRIBE NOV.*

(Terminal taxon: *Brachyophidium rhodogaster* Wall, 1921).

Diagnosis: Within the diagnosis of the family, given as part of this diagnosis below, this tribe, monotypic for the genus *Brachyophidium* Wall, 1921 is separated from other Rhinophiidae by the following suite of characters: Body short, of considerably greater calibre posteriorly than anteriorly, cylindrical, smooth. Head small. Snout narrowly rounded. Eye in an ocular shield. Nostril in the anterior part of the nasal. Eye more than half the length of the ocular. No mental groove. The rostral is deeper than broad, portion visible above equal to the suture between the nasals. Nasals are large and in contact behind the rostral. Prefrontals are long, nearly as long as the frontal, in contact with the nasal, 2nd and 3rd supralabials, and ocular.

Neck not constricted. Tail short, strongly and increasingly more compressed from base to apex.

Nasals are meeting behind the rostral. Internasals are absent; prefrontals are in a pair. Supraoculars. are absent. Praeocular is absent. Ocular is present. Postocular is absent. Temporal is present. Supralabials are a four on each side as are the infralabials. Sublinguals absent.

The frontal is as long as the snout, much longer than broad, equal to the parietals; the ocular sutures about one third the parietal sutures. The temporal is shorter than the ocular, about half the parietals.

Four supralabials of which the fourth is longest. Infralahials, three, the first in contact behind the mental. At two head lengths behind the head there are 13 rows of dorsal scales, 15 at midbody and also 15 at two head-lengths before the vent. The 4th row of dorsal shields divides about four and a half head-lengths behind the head. There are about 143 ventrals and 7 pairs of divided subcaudals.

The maxilla has roughly 10 teeth.

The colouration is with a head that is blackish-brown above. Body dorsally uniform blackish-brown. An ill-defined and rather obscure pale spot on the neck is behind each parietal shield. Ventrally roseate from chin to vent, including the ultimate row of costals. There is usually a median pink subcaudal stripe.

There are 13 dorsal mid body rows rows anteriorly, in 15 rows at midbody to the vent. Scales are smooth. Last row enlarged at about three-fourths the breadth of the ventrals. Supracaudals are smooth. The terminal shield is small and compressed, ending as a single point.

The ventrals are moderately developed, anal is divided and about twice the breadth of the last ventral.

The family Rhinophiidae as a whole is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

Distribution: Southern India: Palni Hills (McDairmid *et al.* 1999).

Content: *Brachyophidium* Wall, 1921.

NEW TRIBE PLECTRURIINI *TRIBE NOV.*

(Terminal taxon: *Plectrurus perrotetii* Duméril, 1851).

Diagnosis: Within the diagnosis of the family, given as part of this diagnosis below, this tribe, is separated from other Rhinophiidae by defining each of the genera groups within the tribe.

The tribe is therefore diagnosed as being one or other of the three of:

Eye distinct from the neighbouring shields of moderate size. A supraocular and a temporal. Tail is cylindrical and slightly compressed. The terminal scute is pointed and with a transverse ridge (*Platyplectrurus* Günther, 1868 and *Teretrurus* Beddome, 1886) or:

Eye small in the ocular; no supraocular; tail compressed with a terminal scute compressed and with two superimposed simple or bifid points (*Pseudoplectrurus* Boulenger, 1890) or:

Eye in the ocular shield; no mental groove; a supraocular; no temporal; tail compressed; a terminal scute compressed and with two superimposed, simple, bifid or triffid points (*Plectrurus*, Duméril, 1851).

Teretrurus Beddome, 1886 is separated from *Platyplectrurus* Günther, 1868 by having an obtuse snout as opposed to one that is broadly rounded. *Teretrurus* Beddome, 1886 is further separated from *Platyplectrurus* Günther, 1868 by having supraoculars that are shorter than the praefrontals as opposed to as long or longer in the species of *Platyplectrurus* Günther, 1868.

Teretrurus Beddome, 1886 is also further separated by having 120-149 ventrals versus 150-174 in *Platyplectrurus* Günther, 1868

The family Rhinophiidae as a whole is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

Distribution: Southern India and Sri Lanka.

Content: *Platyplectrurus* Günther, 1868; *Plectrurus*, Duméril, 1851; *Pseudoplectrurus* Boulenger, 1890; and *Teretrurus* Beddome, 1886.

NEW TRIBE *OXYSERPENIINI TRIBE NOV.*

(Terminal taxon: *Silybura liura* Günther, 1875)

Currently widely known as *Uropeltis liura* (Günther, 1875).

Diagnosis: Within the diagnosis of the family, given as part of this diagnosis below, this tribe, is separated from other Rhinophiidae by defining the single genus within the tribe.

The diagnosis for the tribe is therefore the same as for the genus *Oxyserpens gen. nov.* (formally described below) because it is monotypic for the genus and is as follows:

This genus *Oxyserpens gen. nov.*, formerly placed within *Uropeltis* Cuvier, 1829, shares with that genus the following characters: Eye in the ocular shield, no supraocular or temporal; no mental groove; tail is conical or obliquely truncated terminating in a small scute which is square at the end or bicuspid, with the points side by side or alternatively ending in a large circular, oval or flat shield.

For specimens with 15 mid body rows they are diagnosed as being within *Oxyserpens gen. nov* by this fact alone and the additional characters of: 128-140 ventrals and a body diameter of 24-29 times in the length, or:

For specimens with 17 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional character suite of: Nasals in contact behind the rostral; eye not half the length of the ocular shield; the portion of the rostral seen from above is as long as its distance from the frontal, or shorter; snout obtuse. Tail round or slightly compressed. Upper caudal scales smooth or faintly keeled; terminal scute very small or bicuspid. Eye is less than half the length of the ocular, or:

Hoser 2013 - Australasian Journal of Herpetology 17:51-57.

For specimens with 19 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional characters of: the upper surface of the tail is convex, or with a flat disk of strongly keeled scales.

This genus would formerly have been diagnosed as being within *Uropeltis* Cuvier, 1829 or *Rhinophis* Hemprich, 1820 from which it is separated by the above suite of characters.

The family Rhinophiidae as a whole is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

Distribution: Southern India.

Etymology: Named in honour of the family's now deceased Great Dane Dog (Oxy), a name short for "Oxyuranus", as in a large elapid snake genus. The dog loyally guarded the Snakebusters research facility for about 8 years.

Content: *Oxyserpens gen. nov.* (this paper).

NEW GENUS *OXYSERPENS GEN. NOV.*

Type species: *Silybura liura* Günther, 1875

Currently widely known as *Uropeltis liura* (Günther, 1875).

Diagnosis: Within the diagnosis of the family, given as part of this diagnosis below, this genus is separated from other Rhinophiidae as follows:

This genus *Oxyserpens gen. nov.*, formerly placed within *Uropeltis* Cuvier, 1829, shares with that genus the following characters: Eye in the ocular shield, no supraocular or temporal; no mental groove; tail is conical or obliquely truncated terminating in a small scute which is square at the end or bicuspid, with the points side by side or alternatively ending in a large circular, oval or flat shield.

For specimens with 15 mid body rows they are diagnosed as being within *Oxyserpens gen. nov* by this fact alone and the additional characters of: 128-140 ventrals and a body diameter of 24-29 times in the length, or:

For specimens with 17 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional character suite of: Nasals in contact behind the rostral; eye not half the length of the ocular shield; the portion of the rostral seen from above is as long as its distance from the frontal, or shorter; snout obtuse. Tail round or slightly compressed. Upper caudal scales smooth or faintly keeled; terminal scute very small or bicuspid. Eye is less than half the length of the ocular, or:

For specimens with 19 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional characters of: the upper surface of the tail is convex, or with a flat disk of strongly keeled scales.

This genus (monotypic for its tribe) would formerly have been diagnosed as being within *Uropeltis* Cuvier, 1829 or *Rhinophis* Hemprich, 1820 from which it is separated by the above suite of characters.

The family Rhinophiidae as a whole is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

Distribution: Southern India.

Etymology: Named in honour of the family's now deceased Great Dane Dog (Oxy), a name short for "Oxyuranus", as in a large elapid snake genus. The dog guarded the Snakebusters research facility for about 8 years.

Content: *Oxyserpens liura* (Günther, 1875) (type species); *O. Arcticeps* (Günther, 1875); *O. beddomii* (Günther, 1862); *O. broughami* (Beddome, 1878); *O. dindigalensis* (Beddome, 1877); *O. ellioti* (Gray, 1858); *O. grandis* (Beddome, 1867), *O. macrohyncha* (Beddome, 1877); *O. maculata* (Beddome, 1878); *O. myhendrae* (Beddome, 1886); *O. Nitilda* (Beddome, 1878); *O. Occellata* (Beddome, 1863); *O. Petersi* (Beddome, 1878); *O. phipsonii* (Mason, 1888); O. *rubrolineata* (Günther, 1875); *O. rubromaculata* (Beddome, 1867); *O. smithi* (Gans, 1966); *O. woodmasoni* (Theobold, 1876).

NEW SUBGENUS *JEALOUSSERPENS SUBGEN. NOV.*

Type species: *Silybura broughami* Beddome, 1878.

Currently widely known as *Uropeltis broughami* (Beddome, 1878)

Diagnosis: The species within this subgenus are separated from other *Oxyserpens gen. nov.* by the following suite of characters: 19 mid-body scale rows, the upper surface of the tail is either convex or with a flat disk of strongly keeled scales; 198-230 ventrals and the diameter of the body is 30-40 times in the total length.

This genus *Oxyserpens gen. nov.*, formerly placed within *Uropeltis* Cuvier, 1829, shares with that genus the following characters: Eye in the ocular shield, no supraocular or temporal; no mental groove; tail is conical or obliquely truncated terminating in a small scute which is square at the end or bicuspid, with the points side by side or alternatively ending in a large circular, oval or flat shield.

For specimens with 15 mid body rows they are diagnosed as being within *Oxyserpens gen. nov* by this fact alone and the additional characters of: 128-140 ventrals and a body diameter of 24-29 times in the length, or:

For specimens with 17 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional character suite of: Nasals in contact behind the rostral; eye not half the length of the ocular shield; the portion of the rostral seen from above is as long as its distance from the frontal, or shorter; snout obtuse. Tail round or slightly compressed. Upper caudal scales smooth or faintly keeled; terminal scute very small or bicuspid. Eye is less than half the length of the ocular, or:

For specimens with 19 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional characters of: the upper surface of the tail is convex, or with a flat disk of strongly keeled scales.

This genus would formerly have been diagnosed as being within *Uropeltis* Cuvier, 1829 or *Rhinophis* Hemprich, 1820 from which it is separated by the above suite of characters.

The family Rhinophiidae as a whole is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

Distribution: Southern India.

Etymology: Named in honour of Rob Jealous a herpetologist of Bendigo Victoria, Australia in recognition of a lifetime's work with reptiles.

Content: *Oxyserpens* (*Jealousserpens*) *broughami* (Beddome, 1878) (type species); *O.* (*Jealousserpens*) *grandis* (Beddome, 1867).

NEW SUBGENUS *OXYSERPENS SUBGEN. NOV.*

Type species: *Silybura liura* Günther, 1875

Currently widely known as *Uropeltis liura* (Günther, 1875).

Diagnosis: The species within the subgenus *Jealousserpens gen. nov.* are separated from other *Oxyserpens* sub*gen. nov.* (the nominate subgenus) by the following suite of characters: 19

Hoser 2013 - Australasian Journal of Herpetology 17:51-57.

mid-body scale rows, the upper surface of the tail is either convex or with a flat disk of strongly keeled scales; 198-230 ventrals and the diameter of the body is 30-40 times in the total length.

This genus *Oxyserpens gen. nov.*, formerly placed within *Uropeltis* Cuvier, 1829, shares with that genus the following characters: Eye in the ocular shield, no supraocular or temporal; no mental groove; tail is conical or obliquely truncated terminating in a small scute which is square at the end or bicuspid, with the points side by side or alternatively ending in a large circular, oval or flat shield.

For specimens with 15 mid body rows they are diagnosed as being within *Oxyserpens gen. nov* by this fact alone and the additional characters of: 128-140 ventrals and a body diameter of 24-29 times in the length, or:

For specimens with 17 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional character suite of: Nasals in contact behind the rostral; eye not half the length of the ocular shield; the portion of the rostral seen from above is as long as its distance from the frontal, or shorter; snout obtuse. Tail round or slightly compressed. Upper caudal scales smooth or faintly keeled; terminal scute very small or bicuspid. Eye is less than half the length of the ocular, or:

For specimens with 19 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional characters of: the upper surface of the tail is convex, or with a flat disk of strongly keeled scales.

This genus would formerly have been diagnosed as being within *Uropeltis* Cuvier, 1829 or *Rhinophis* Hemprich, 1820 from which it is separated by the above suite of characters.

The family Rhinophiidae as a whole is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

Distribution: Southern India.

Etymology: As for genus.

Content: *Oxyserpens liura* (Günther, 1875) (type species); *O.* (*Oxyserpens*) *arcticeps* (Günther, 1875); *O.* (*Oxyserpens*) *beddomii* (Günther, 1862); *O.* (*Oxyserpens*) *dindigalensis* (Beddome, 1877); *O.* (*Oxyserpens*) *ellioti* (Gray, 1858); *O.* (*Oxyserpens*) *macrohyncha* (Beddome, 1877); *O.* (*Oxyserpens*) *maculata* (Beddome, 1878); *O.* (*Oxyserpens*) *myhendrae* (Beddome, 1886); *O.* (*Oxyserpens*) *nitilda* (Beddome, 1878); *O.* (*Oxyserpens*) *occellata* (Beddome, 1863); *O.* (*Oxyserpens*) *petersi* (Beddome, 1878); *O.* (*Oxyserpens*) *phipsonii* (Mason, 1888); O. (*Oxyserpens*) *rubrolineata* (Günther, 1875); *O.* (*Oxyserpens*) *rubromaculata* (Beddome, 1867); *O.* (*Oxyserpens*) *smithi* (Gans, 1966); *O.* (*Oxyserpens*) *woodmasoni* (Theobold, 1876).

NEW TRIBE *RHINOPHIINI TRIBE NOV.*

(Terminal taxon: *Anguis oxyrynchus* Schneider, 1801).

Currently known as *Rhinophis oxyrynchus* (Schneider, 1801).

Diagnosis: This tribe Rhinophiini *tribe nov.* is diagnosed and separated from others within the family Rhinophiidae by the following suite of characters: Eye in the ocular shield, no supraocular or temporal; no mental groove; tail is one or other of the following 1/ conical or obliquely truncated terminating in a small scute which is square at the end or bicuspid, with the points side by side or 2/ ending in a large circular, oval or flat shield, or 3/ ending in a large convex, rugose shield which is neither truncated or spinose at the end. The nasals may or may not be separated by the rostral.

The family is defined by having the cranial bones solidly united, transpalatine present; pterygoid not extending to quadrate or mandible; no supratemporal; quadrate very small; praefrontals in contact with nasals. Mandible with coronoid bone. Both jaws toothed. Teeth are small and few. Palate is usually toothless; although in *Melanophidium*, Günther, 1864 and *Platyplectrurus* Günther, 1868 a few palatine teeth are sometimes present.

The specimens within the genus *Oxyserpens gen. nov* and herein placed in a separate tribe, are separated from this tribe by the following suite of characters:

One or other of the following three:

For specimens with 15 mid body rows they are diagnosed as being within *Oxyserpens gen. nov.* by this fact alone and the additional characters of: 128-140 ventrals and a body diameter of 24-29 times in the length, or:

For specimens with 17 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional character suite of: Nasals in contact behind the rostral; eye not half the length of the ocular shield; the portion of the rostral seen from above is as long as its distance from the frontal, or shorter; snout obtuse. Tail round or slightly compressed. Upper caudal scales smooth or faintly keeled; terminal scute very small or bicuspid. Eye is less than half the length of the ocular, or:

For specimens with 19 mid body rows, they are diagnosed as being within *Oxyserpens gen. nov* by the additional characters of: the upper surface of the tail is convex, or with a flat disk of strongly keeled scales.

This genus *Oxyserpens gen. nov.* would formerly have been diagnosed as being within *Uropeltis* Cuvier, 1829 or *Rhinophis* Hemprich, 1820 from which it is separated by the above suite of characters.

The new genus within this tribe, *Crottyserpens gen. nov.* described below, includes three Indian species formerly placed within the genus *Rhinophis* Hemprich, 1820.

Species within the genus *Crottyserpens gen. nov.* are separated from species within the genera *Rhinophis* Hemprich, 1820 and *Uropeltis* Cuvier, 1829, (the others in this tribe) by the following suite of characters:

Eye in the ocular shield, no supraocular or temporal; no mental groove; tail ends in a large convex, rugose shield which is neither truncated or spinose at the end. The nasals are always separated by the rostral. The caudal shield is as long as or a little shorter than the shielded part of the head, the rostral is one third the length of the shielded part of the head; 15 or 17 mid-body rows.

Distribution: Southern India and Sri Lanka.

Content: *Rhinophis* Hemprich, 1820; *Crottyserpens gen. nov.* (this paper); *Uropeltis* Cuvier, 1829.

NEW GENUS *CROTTYSERPENS GEN. NOV.*

Type species: *Rhinophis travancoricus* Boulenger, 1893.

Diagnosis: Species within the genus *Crottyserpens gen. nov.* are separated from species within the genera *Rhinophis* Hemprich, 1820 and *Uropeltis* Cuvier, 1829, by the following suite of characters:

Eye in the ocular shield, no supraocular or temporal; no mental groove; tail ends in a large convex, rugose shield which is neither truncated or spinose at the end. The nasals are always separated by the rostral. The caudal shield is as long as or a little shorter than the shielded part of the head, the rostral is one third the length of the shielded part of the head; 15 or 17 mid-body rows.

The species in the subgenus *Ackyserpens subgen. nov.* are separated from the nominate subgenus by ventral and mid-body scale row counts and these are included as part of the genus diagnosis for *Crottyserpens gen. nov.*.

The species from the nominate subgenus *Crottyserpens*, namely *travancoricus* has 136-146 ventrals and 17 mid-body rows. The two described and recognized species within the

subgenus *Ackyserpens subgen. nov.* (formally described below) have 180-218 ventrals and 15 mid-body rows. The species from within the subgenus *Ackyserpens subgen. nov.* have yellow markings on the body and tail, whereas the species from the subgenus *Crottyserpens* only has yellow markings on the tail.

Distribution: Southern India.

Etymology: Named in honour of the family's now deceased Great Dane cross Rottweiler Dog (Crotty), a name short for "Crotalus", as in a large pitviper snake genus. The dog guarded the Snakebusters research facility for almost 13 years.

Content: *Crottyserpens travancoricus* (Boulenger, 1893) (type species); *C. fergusonianus* (Boulenger, 1896); *C. sanguineus* (Beddome, 1863).

NEW SUBGENUS *ACKYSERPENS SUBGEN. NOV.*

Type species: *Rhinophis sanguineus* Beddome, 1863.

Diagnosis: The species in the subgenus *Ackyserpens subgen. nov.* are separated from the nominate subgenus by ventral and mid-body scale row counts. The species from the nominate subgenus *Crottyserpens*, namely *travancoricus* has 136-146 ventrals and 17 mid-body rows. The two species within the subgenus *Ackyserpens subgen. nov.* have 180-218 ventrals and 15 mid-body rows. The species from within the subgenus *Ackyserpens subgen. nov.* have yellow markings on the body and tail, whereas the species from the subgenus *Crottyserpens* only has yellow markings on the tail.

Distribution: Southern India.

Etymology: Named in honour of the family's now deceased Akita Dog (Acky), a name short for "Acanthophis", as in a drop-dead gorgeous elapid snake genus from Australasia. The dog guarded the Snakebusters research facility for just two years before his life was cut short after injuries sustained by an attack by burglars. It turned out the thieves were employees of the local Manningham Council, seeking revenge after one of their officers named Mike Clark was adversely named in the book *Victoria Police Corruption - 2* (Hoser, 1999). Clark was caught out red-handed committing perjury in legal proceedings (lying under oath) after police made sworn statements contrary to that of Clark, noting that the police had been forced to change their earlier written evidence in legal proceedings after the phone company Optus, provided evidence against them.

Content: *Crottyserpens* (*Ackyserpens*) *sanguineus* (Beddome, 1863) (type species); *C.* (*Ackyserpens*) *fergusonianus* (Boulenger, 1896).

NEW SUBGENUS *CROTTYSERPENS SUBGEN. NOV.*

Type species: *Rhinophis travancoricus* Boulenger, 1893.

Diagnosis: The species in the subgenus *Ackyserpens subgen. nov.* are separated from the nominate subgenus *Crottyserpens subgen. nov.* by ventral and mid-body scale row counts. The species from the nominate subgenus *Crottyserpens*, namely *travancoricus* has 136-146 ventrals and 17 mid-body rows. The two species within the subgenus *Ackyserpens subgen. nov.* have 180-218 ventrals and 15 mid-body rows. The species from within the subgenus *Ackyserpens subgen. nov.* have yellow markings on the body and tail, whereas the species from the subgenus *Crottyserpens* only has yellow markings on the tail.

Distribution: Southern India.

Etymology: As for genus.

Content: *Crottyserpens* (*Crottyserpens*) *travancoricus* (Boulenger, 1893) (type species).

FIRST REVISOR NOTES

In the event that a later author finds a conflict in names for taxa involving names proposed herein, then the order of preference of use should be as follows:

For tribes: Rhinophiini; Oxyserpeniini; Melanophidiumiini; Brachyophidiini; Plectruriini; for new genera: *Oxyserpens*; *Crottyserpens;* then subgenus; *Ackyserpens.*

REFERENCES CITED

Baumeister, K. L. 1908. Beitra¨ge zur anatomie und physiologie der Rhinophiden. Integument, Dru¨sen der Mundho¨hle, Augen und Skeletsystem. *Zool. Jahrbuch* (Abt. Anat.) 26:423-526.

Beddome, R. H. 1867. Descriptions and figures of five new snakes from the Madras Presidency. Madras. *Q J Med Sci* 11:14-16, Plates 1-2.

Hoser 2013 - Australasian Journal of Herpetology 17:51-57.

Boulenger, G. A. 1893. Catalogue of the snakes in the British Museum (Nat. Hist.) I. London (Taylor and Francis):448 pp.

Bossuyt, F., Meegaskumbura, M., Beenaerts, N., Gower, D.J., Pethiyagoda, R. *et al.* 2004. Local endemism within the western Ghats-Sri Lanka biodiversity hotspot. *Science* 306:479-481.

Cadle, J. E., Dessauer, H. C., Gans, C., Gartside, D. F. 1990. Phylogenetic relationships and molecular evolution in uropeltid snakes (Serpentes: Uropeltidae): allozymes and albumin immunology. *Biol. J. Linn. Soc.* 40:293-320.

Comeaux, R. S., Olori, J.C. and Bell, C. J. 2010. Cranial osteology and preliminary phylogenetic assessment of *Plectrurus aureus* Beddome, 1880 (Squamata: Serpentes: Uropeltidae). *Zool. J. Linn. Soc.* 160:118-138.

Gans, C. 1966. Liste der rezenten Amphibien und Reptilien. Uropeltidae. Mertens R, Hennig W, eds. *Das Tierreich*. Lieferung 84:1-29.

Gans, C. 1973. Uropeltid snakes:survivors in a changing world. *Endeavour* 32:60-65.

Gans, C. 1976. Aspects of the biology of uropeltid snakes. In: Bellairs A. d'A. and Cox, C. B. (eds.) *Morphology and biology of reptiles*. Linn. Soc. Symp. Ser. No. 3. London: Academic Press:191-204.

Gans, C. 1986. Automimicry and batesian mimicry in uropeltid snakes: pigment pattern, proportions and behavior. *J Bombay Nat Hist Soc* 83:152-158.

Gans, C., Dessauer, H. C. and Baic, D. 1978. Axial differences in the musculature of uropeltid snakes: the freight-train approach to burrowing. *Science* 199:189-192.

Gower, D. J. 2003. Scale Microornamentation of Uropeltid Snakes. *Journal of Morphology* 258:249-268.

Gower, D. J., Captain, A. and Thakur, S. S. 2008. On the taxonomic status of *Uropeltis bicatenata* (Gunther) (Reptilia: Serpentes: Uropeltidae). *Hamadryad* 33:64-82.

Greene, H. W. and McDiarmid, R. W. 2005. Wallace and Savage: heroes, theories, and venomous snake mimicry. pp 190-208. In Donnelly, M. A., Crother, B. I., Guyer, C., Wake, M. H. and White, M. E. (eds.). *Ecology and Evolution in the Tropics, a Herpetological Perspective*. Chicago University of Chicago Press.

Hoser, R. T. 1999. *Victoria Police Corruption-2:Including what the media didn't tell you!* Kotabi Publishing, Doncaster, Victoria, Australia:800 pp.

Mahendra, B. C. 1938. Some remarks on the phylogeny of the Ophidia. *Anat Anz* 186:347-356.

Mahendra, B. C. 1984 Handbook of the snakes of India, Ceylon, Burma, Bangladesh, and Pakistan. *Ann Zool* 22:i-xvi, 1-412.

McDiarmid, R.W., Campbell, J. A. and Touré, T. 1999. *Snake Species of the World: A Taxonomic and Geographic Reference, vol. 1*. Herpetologists' League:511 pp.

Olori, J. C. 2010. Digital endocasts of the cranial cavity and osseous labyrinth of the burrowing snake *Uropeltis woodmasoni* (Alethinophidia: Uropeltidae). *Copeia* 2010:14-26.

Olori, J. C. and Bell, C. J. 2012. Comparative Skull Morphology of Uropeltid Snakes (Alethinophidia: Uropeltidae) with Special Reference to Disarticulated Elements and Variation. PLoS ONE 7(3): e32450. doi:10.1371/journal.pone.0032450

Parker, H. W. and Grandison, A. G. C. 1977. *Snakes: A natural history. Second Edition*. British Museum (Natural History) and Cornell University Press:108 pp. 16 plates.

Peters, W. C. H. 1861. *De serpentum familia Uropeltaceorum*. G. Reimer, Berolini:22 p. 2 plates.

Pyron, R. A., *et al.* 2011. The phylogeny of advanced snakes (Colubroidea), with discovery of a new subfamily and comparison of support methods for likelihood trees**.** *Mol. Phylogenet. Evol.* 58:329-342.

Pyron, R. A., *et al.* 2013. Genus-level phylogeny of snakes reveals the origins of species richness in Sri Lanka**.** *Mol. Phylogenet. Evol.* 66:969-978.

Rajendran, M. V. 1978. *Uropeltis woodmasoni* Theobald. *Reptile Research* 1:17-21.

Rajendran, M. V. 1979. *Uropeltis ocellatus* Beddome: Morphology, ecology and distribution. Recording two subspecies *V.* {sic} *ocellatus gansi* and *V.* {sic} *ocellatus krishnasami. J. Madurai Kamaraj Univ.* 8:97-99.

Rajendran, M. V. 1985. *Studies in uropeltid snakes.* Madurai Kamaraj University Publication 80. Madurai, India: Madurai Kamaraj University:132 p.

Rieppel, O. 1988. A review of the origin of snakes. *Evol Bio* 22:37-130.

Rieppel , O. and Zaher, H. 2002. The skull of the Uropeltinae (Reptilia, Serpentes), with special reference to the otico-occipital region. *Bull. Nat. Hist. Mus. Lond. (Zool.)* 68:123-130.

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").

Taylor, E. H. 1953. Report on a collection of Ceylonese serpents. *Univ. Kans. Sci. Bull.* 35:1615-1624.

Tinkle, D. W. and Gibbons, J. W. 1977. The Distribution and Evolution of Viviparity in Reptiles. *University of Michigan Museum of Zoology, Miscellaneous Publications* 154.

Uetz, P. 2013. The reptile database search result page at: http://reptile-database.reptarium.cz/advanced_search?taxon=Uropeltidae&submit=Search downloaded 3 January 2013.

Underwood, G. 1967. *A contribution to the classification of snakes*. British Museum (Natural History) Publication No. 653. London: Trustees of the British Museum (Natural History):179 p.

Wickramasinge, L. J. M., Vidanapathirana, D. R., Wickramasinge, N. and Ranwella, P. N. 2009. A new species of *Rhinophis* Hemprich, 1820 (Reptilia: Serpentes:Uropeltidae) from Rakwana Massif, Sri Lanka. *Zootaxa* 2044:1-22.

Williams, E. E. 1959. The occipito-vertebral joint in the burrowing snakes of the family Uropeltidae. *Breviora* 106:1-10.

CONFLICT OF INTEREST

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

Australasian Journal of Herpetology

Publishes original research in printed form in relation to reptiles, other fauna and related matters in a peer reviewed journal for permenant public scientific record, and has a global audience.

Full details at: http://www.herp.net

Online journals (this issue) appear a month after hard copy publication.

Minimum print run of first printings is always at least fifty hard copies.

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