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A reassessment of the Burrowing Asps, *Atractaspis* Smith, 1849 with the erection of a new Genus and two Tribes (Serpentes: Atractaspidae).

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ABSTRACT

The so-called Burrowing Asps or Mole Vipers, Atractaspididae are endemic to Africa and the Middle-east.

As of early 2012, all were placed within a single genus. The genus as defined consisted of 22 recognised species, including quite morphologically diverse forms.

As assessment of all known species has shown that the species-level taxa *Atractaspis microlepidota* Günther, 1866 and the closely related *A. andersonii* Boulenger, 1905 (long regarded as a subspecies of the former) are quite divergent from all others, both in form and habits, most obviously by their smaller dorsal scales and more extensively developed venom apparatus.

These significant differences have been confirmed via a recent study of the microchondrial DNA (Pyron et. al. 2010) indicating an ancient divergence.

As a result, this paper formalises this recognition by erecting a new genus *Hoseraspea* gen. nov. to accommodate two species-level taxa and goes further splits Atractaspididae into two tribes, namely Atractaspidini tribe nov. and Hoseraspini tribe nov..

Keywords: Taxonomic revision; new genus; new tribe; species; *Atractaspis; microlepidota; andersoni; Hoseraspea*; Hoseraspini*;* Atractaspidini; *bibroni; inornatus;* Hoser; Shireen Hoser; asp; small-scaled burrowing asp; burrowing asp; stiletto snake; mole viper; side-stabbing snake.

INTRODUCTION

Published studies relevant to the genus *Atractaspis* as widely recognised, include Corkill, and Kirk, (1954), Deufel and Cundall (2003), Kurnic, et. al. (1999), Minton (1968), Pyron et. al. (2010), Spawls and Branch (1995), Warrall, et. al. (1976) and others.

Between them, their evidence provided a compelling argument to remove the species-level taxa *Atractaspis microlepidota* Günther, 1866 and the closely related *A. andersonii* Boulenger, 1905 (long regarded as a subspecies of the former) from genus *Atractaspis* (type species being *A. inornatus* Smith 1849, a synonym of *A. bibroni*) and this is now done herein by the formal erection and diagnosis of a new genus in accordance with the Zoological Code (Ride, et. al. 1999).

SUMMARY OF THE GENUS *ATRACTASPIS SENSU LATO*

Atractaspis has to date been recognised as a genus of venomous snakes found in Africa and the middle-east.

Currently there are 22 recognised species although final resolution as to the exact number of species involved is likely

to take some time and will in part depend on access to the areas species occur, noting the political instability in some areas.

They are found mostly in sub-Saharan Africa, with the center of species distribution around the vicinity of Congo, with a limited distribution in the middle-east.

The are recognised under various common names including: Burrowing Vipers, Burrowing Asps, Mole Vipers, Stiletto Snakes, Side-stabbing Snakes, all of which relate to their appearance, venomous bites or burrowing habits.

They are smallish snakes, rarely exceeding 1 metre total length and usually mature at about 45 cm.

The venom apparatus and fangs in particular are well developed and the snakes can often bite from the side, which reflects in one of their common names. This unusual feature makes these snakes risky to handle by using the usual "hand gripping neck" methods, due to the heightened risk of "needle-stick" wound from one of the sideways oriented fangs..

There are a few teeth on the palatines, none on the pterygoids; mandibles edentulous anteriorly, with 2 or 3 very small teeth in the middle of the dentary bone. There's no postfrontal bone. The head is small and indistinct from the neck and covered with large symmetrical shields; nostril is set between 2 nasals; no loreal; eye is minute, with a round pupil and one or two labials entering the orbit. The body is cylindrical and of similar thickness along it's entire length; the dorsal scales smooth and shiny, without apical pits, in 17 to 37 rows (but see the new genus description below); ventrals are rounded. Tail short; subcaudals are either single or divided.

These snakes are designed for a burrowing existence and are usually drab in appearance, being typically a blackish colour.

GENUS *HOSERASPEA* GEN. NOV.
Type species: *Atractaspis microlepidota* Günther, 1866

Diagnosis: Genus *Hoseraspea* gen. nov. is separated from all species in the genus *Atractaspis* by having 29 to 37 mid body rows (of dorsal scales) (versus 25 or less in all *Atractaspis*) , a number higher than seen in any species of *Atractaspis:* there are 212-245 ventrals; single anal and 26-37 single subcaudals, there are six supralabials, numbers 3 and 4 entering the orbit.

They are smallish snakes, never exceeding 75 cm total length and usually mature at about 45 cm.

Hoseraspea gen. nov. develops long venom glands, whereas *Atractaspis* develops short venom glands.

The venom apparatus and fangs in particular are well developed and the snakes can often bite from the side, which reflects in one of their common names. This unusual feature makes these snakes risky to handle by using the usual "hand gripping neck" methods, due to the heightened risk of "needle-stick" wound from one of the sideways oriented fangs.

There are a few teeth on the palatines, none on the pterygoids; mandibles edentulous anteriorly, with 2 or 3 very small teeth in the middle of the dentary bone. There's no postfrontal bone. The head is small and indistinct from the neck and covered with large symmetrical shields; nostril is set between 2 nasals; no loreal; eye is minute, with a round pupil.

The body is cylindrical and of similar thickness along it's entire length; the dorsal scales smooth and shiny, without apical pits, ventrals are rounded. Tail is short.

These snakes are designed for a burrowing existence and are usually drab in appearance, being typically a blackish colour.

Distribution: *Hoseraspea microlepidota* is found in West Africa including Nigeria, Benin and Togo, extending east towards East Africa in Sudan.

H. andersoni is found in southwestern Saudi Arabia and Oman.

Common name: Small-scaled burrowing Asp.

Other common names (less used): Small-scaled Stiletto Snake, Small-scaled Side Stabbing Snake, Small-scaled Mole Viper, Small scaled-burrowing Adder

The common name Small-scaled Burrowing Asp, is particularly apt as the smaller scales (refelcting in a higher mid-body scale row count) differentiates this genus from *Atractaspis.*

Etymology: Named in honour of my long-suffering wife, Shireen Hoser, who happens to come from the same part of the world where the Burrowing Asps come from, namely Africa.

Instead of getting marrital bliss when she married me in 1999, she's had to cope with ongoing harassment and hardship in all forms of outside attacks, including heavily armed police raids, the unfortunate consequence of myself being one of Australia's best known whistleblowers on government corruption within this country.

If I had not married her, it's likely that I'd never have been to Africa to see these wonderful snakes.

SPECIES WITHIN THE GENUS *HOSERASPEA* GEN. NOV.

Hoseraspea microlepidota (Günther, 1866)

Hoseraspea andersoni (Boulenger, 1905)

Species remaining in the genus *Atractaspis*

Atractaspis aterrima Günther, 1863

Atractaspis battersbyi De Witte, 1959

Atractaspis bibronii Smith, 1849

Atractaspis boulengeri Mocquard, 1897

Atractaspis coalescens Perret, 1960

Atractaspis congica Peters, 1877

Atractaspis corpulenta (Hallowell, 1854)

Atractaspis dahomeyensis Bocage, 1887

Atractaspis duerdeni Gough, 1907

Atractaspis engaddensis Haas, 1950

Atractaspis engdahli Lönnberg and Andersson, 1913

Atractaspis fallax Peters, 1867

Atractaspis irregularis (Reinhardt, 1843)

Atractaspis leucomelas Boulenger, 1895

Atractaspis magrettii Scortecci, 1928

Atractaspis micropholis Günther, 1872

Atractaspis phillipsi Barbour, 1913

Atractaspis reticulata Sjöstedt, 1896

Atractaspis scorteccii Parker, 1949

Atractaspis watsoni Boulenger, 1908

HIGHER CLASSIFICATION

While it may be regarded as trite by some people for me to herein formalize the higher level of classification for a small group of snakes such as the Atractaspidae, I regard it as

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important from the point of view of consistency at all levels of classification across all families of the Serpentes when reconciled with morphological and known genetic differences (refer for example to the results of Pryon et. al. 2010, Fig. 2). Therefore I herein formally erect and diagnose a new monotypic tribe to accommodate *Hoseraspea* namely Hoseraspini tribe nov. and separate the component species from the other genus in the family, which by default will, as presently recognised be placed in it's own monotypic tribe (Atractaspini tribe nov.) which is also herein described, defined and named below.

TRIBE HOSERASPINI TRIBE NOV.

(Terminal Taxon: Hoseraspea microlepidota)

Diagnosis: Tribe Hoseraspini tribe nov. is separated from all species in the tribe Atractaspini by having 29 to 37 mid body rows (of dorsal scales) (versus 25 or less in all Atractaspini) , a number higher than seen in any species of Atractaspini: there are 212-245 ventrals; single anal and 26-37 single subcaudals, there are six supralabials, numbers 3 and 4 entering the orbit.

They are smallish snakes, never exceeding 75 cm total length and usually mature at about 45 cm.

Hoseraspini tribe. nov. develops long venom glands, whereas Atractaspini develops short venom glands.

The venom apparatus and fangs in particular are well developed and the snakes can often bite from the side, which reflects in one of their common names. This unusual feature makes these snakes risky to handle by using the usual "hand gripping neck" methods, due to the heightened risk of "needle-stick" wound from one of the sideways oriented fangs.

There are a few teeth on the palatines, none on the pterygoids; mandibles edentulous anteriorly, with 2 or 3 very small teeth in the middle of the dentary bone. There's no postfrontal bone. The head is small and indistinct from the neck and covered with large symmetrical shields; nostril is set between 2 nasals; no loreal; eye is minute, with a round pupil.

The body is cylindrical and of similar thickness along it's entire length; the dorsal scales smooth and shiny, without apical pits, ventrals are rounded. Tail is short.

These snakes are designed for a burrowing existence and are usually drab in appearance, being typically a blackish colour.

Content: *Hoseraspea* gen. nov. (this paper) Hoser, 2012.

TRIBE ATRACTASPINI TRIBE NOV.

(Terminal Taxon: Atractaspis* bibroni*)

Diagnosis: Tribe Atractaspini tribe nov. is separated from all species in the tribe Hoseraspini tribe nov. by having 25 or less dorsal mid body rows of snakes, versus 29 to 37 mid body rows (of dorsal scales) in Hoseraspini,

Hoseraspini tribe. nov. develops long venom glands, whereas Atractaspini develops short venom glands.

These are smallish snakes, never exceeding 75 cm total length and usually mature at about 45 cm.

Atractaspini develops short venom glands whereas Hoseraspini tribe. nov. develops long venom glands.

The venom apparatus and fangs in particular are well developed and the snakes can often bite from the side, which reflects in one of their common names. This unusual feature makes these snakes risky to handle by using the usual "hand gripping neck" methods, due to the heightened risk of "needle-stick" wound from one of the sideways oriented fangs.

There are a few teeth on the palatines, none on the pterygoids; mandibles edentulous anteriorly, with 2 or 3 very small teeth in the middle of the dentary bone. There's no postfrontal bone. The head is small and indistinct from the neck and covered with large symmetrical shields; nostril is set between 2 nasals; no loreal; eye is minute, with a round pupil.

The body is cylindrical and of similar thickness along it's entire length; the dorsal scales smooth and shiny, without apical pits, ventrals are rounded. Tail is short.

These snakes are designed for a burrowing existence and are usually drab in appearance, being typically a blackish colour.

Content: *Atractaspis* Günther, 1858.

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