

A new genus of Jumping Pitviper from Middle America (Serpentes: Viperidae).

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ABSTRACT

This paper reviews the taxonomy of the *Atropoides picadoi* species group and finds that the genus *Atropoides* Werman 1992 as currently defined is paraphyletic. As a result of obvious morphological divergence and large genetic differences between component species the genus *Atropoides* is now restricted to the type species, *A. picadoi*. All other species are herein placed in a new genus, namely *Adelynhoserserpenae* gen. nov. that is herein formally named and defined according to the Zoological code.

Keywords: Taxonomic revision; new genus; Viperidae; Crotalinae; *Atropoides*; *Adelynhoserserpenae*; Hoser; snake; genus; *picadoi*; *indomitus*; *mexicanus*; *nummifer*; *occiduus*; *olmec*; pitviper.

INTRODUCTION

The so-called Jumping Pitvipers are native to Middle America and have gained their name due to their alleged ability to jump at a potential attacker. While this aspect of their behaviour and ability may be exaggerated, they are known to strike at birds flying in the air at close range.

All of these snakes are extremely thick-bodied, with the species taxon *A. nummifer* being the most stout and the quite substantially more gracile *A. picadoi* the most slender. However, the greatest recorded length is for *A. picadoi*, with one specimen allegedly measuring 120.2 cm (47 inches) in total length.

The head of these snakes is large, with relatively small eyes and a broadly rounded snout. The tail is short, not prehensile, and accounts for only about 15% of the total body length.

The color pattern usually consists of a grey-brown or reddish brown ground color (sometimes yellow, cream, purplish brown or black) overlaid with a series of lateral and dorsal blotches. The shape of these blotches is subject to some variation.

Numerous aspects of these snakes have been studied by various authors including, Burger (1950), Castoe et. al. (2005), Castoe and Parkinson (2006), Dunn (1939), March (1929), McCranie (2011), Parkinson (1999), Porras and Solórzano (2006) and Werman (1984).

There have been a number of studies into the so-called Jumping Pitvipers with a view to resolving the taxonomy of the group within the genus *Atropoides* as currently defined at beginning 2012.

Werman (1992) found them to be sufficiently distinct from other pitvipers to be removed from the genus *Porthidium*. He erected a new genus *Atropoides*.

This placement has been supported by most authors since, including, Campbell and Lamar (2004), Castoe, et. al. (2003) and others.

In their study of the molecular systematics of the group Castoe et. al. (2003) found that *A. picadoi* was divergent from all the other then described taxa within the genus *Atropoides* as defined by Werman in 1992.

The other species tested were, *A. nummifer*, *A. mexicanus*, *A. occiduus* and *A. olmec*, all of which clustered as a group, while *A. picadoi* showed closer affinities to *Cerrophidion godmani*.

Refer to fig 2, (all four diagrams) for the exact result.

The authors deferred making any taxonomic changes pending further research into the group of snakes.

Pyron et. al. (2011), did a broad-ranging study into the phylogeny of the advanced snakes (Colubroidea) which included analysis of four of six known species in the genus *Atropoides*.

The excluded species were *indomitus* and *mexicanus*.

The species *mexicanus* is essentially similar to *nummifer* and showed up as extremely close to this taxa in the 2003 results of Castoe et. al.

The taxon *indomitus* was formally described by Smith and Ferrari-Castro in 2008. Using mitochondrial gene sequence data, the authors found the new species *indomitus* to represent the sister species of *A. occiduus*, with 5.7 % sequence divergence separating the two taxa.

Both *A. occiduus* and *A. nummifer* were well-placed in the cluster strongly divergent from *A. picadoi* in the results of Castoe et. al. 2003, so a similar position for *indomitus* is easily inferred.

Pyron et. al.'s results of 2011, while restricted to four nominal

taxa within the nominal genus *Atropoides*, effectively mirrored and confirmed the results of Castoe et. al. (2003), again showing that *picadoi* is sufficiently divergent from the other taxa as to be placed in a separate genus.

As it is the taxon *A. picadoi* that is the type species for the genus *Atropoides*, it is all the other recognised species that must therefore be placed in a new genus.

The diagnosis of this new genus is done herein.

GENUS ADELYNHOSERSERPENAE GEN. NOV.

Type species: *Atropos nummifer* Rüppell 1845

(Currently recognised in most contemporary texts as *Atropoides nummifer*)

Diagnosis: *Adelynhoserserpene* gen. nov. is easily separated from the genus *Atropoides* by scalation. In *Adelynhoserserpene* males have 104-136 ventrals, versus 138-155 in *Atropoides* (Campbell and Lamar 2004), females have 103-138 ventrals, versus 143-145 in *Atropoides* (Campbell and Lamar 2004).

This difference reflects the physical reality that *Atropoides* is a much longer and more slender animal than all species in *Adelynhoserserpene* gen. nov.

In *Adelynhoserserpene* nasorostrals are often present, (as opposed to always absent in *Atropoides*), there is a single row of subfoveals separating prelacunal from supralabials (versus 1-3 rows of subfoveals separating prelacunal from supralabials in *Atropoides*).

Atropoides is defined above in this diagnosis as only including the species taxon *A. picadoi*.

A. picadoi is a relatively thinly bodied species, versus the thick-set body form of *Adelynhoserserpene*.

Character states such as intersupraoculars, supralabials, infalabials, dorsal mid-body scale rows and lateral body blotches are highly variable both between and within species and are not helpful in separating the genera.

However *Atropoides picadoi* has considerably smaller shields at the back of the head than all species of *Adelynhoserserpene*.

In *Atropoides* these shields would be defined as small, whereas in *Adelynhoserserpene* they'd be defined as medium (refer also to fig. 91 in Campbell and Lamar 2004).

The genus *Adelynhoserserpene* is found from northeastern Mexico southward through Central America to central Panama. They are usually forest dwellers.

For a detailed description of the snakes in the genus *Atropoides* as defined until now (which would act to diagnose this new genus in conjunction with the information above), refer to pages 274-290 of Campbell and Lamar (2004).

The very thickset build of *Adelynhoserserpene* easily separates them from other pitvipers.

Campbell and Lamar (2004), page 275, detailed minor hemipenial differences between the species *mexicanus* and *picadoi*, which was further investigated by Jadin, et. al. (2010) who found little significant differences between the various species in both genera.

However investigation of venom composition and toxicity is required, as so far it has been shown that in *Adelynhoserserpene* it seems to be considerably less toxic to humans than for *Atropoides picadoi* (Campbell and Lamar 2004).

Etymology: Named in honour of my eldest daughter, Adelyn Hoser, who by age 13 has more expertise with snakes than most people many times her age.

She has been handling the world's deadliest snakes since she was a baby and with complete safety as they were all venomoid (Hoser 2004), giving her unrivalled knowledge of the inner workings of venomous snakes. Hence it's fitting that she should be recognised by having a genus of venomous snakes named in her honour.

SPECIES WITHIN ADELYNHOSERSERPENAE GEN. NOV.

Adelynhoserserpene indomitus Smith and Ferrari-Castro, 2008
Adelynhoserserpene mexicanus (Duméril, Bibron and Duméril, 1854)

Adelynhoserserpene nummifer (Rüppell 1845)

Adelynhoserserpene occiduus (Hoge, 1966)

Adelynhoserserpene olmec (Perez-Higareda, Smith and Julia-Zertuche, 1985)

Species remaining in the genus *Atropoides* Werman 1992

Atropoides picadoi (Dunn, 1939)

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