

NEW GENERIC NAME FOR JUMPING PITVIPERS (SERPENTES: VIPERIDAE)

UN NUEVO NOMBRE GENÉRICO PARA LA VÍBORAS SALTADORAS (SERPENTES: VIPERIDAE)

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Resumen.— Estudios recientes sobre la filogenia de las víboras de foseta han revelado que un clado que contiene las víboras saltadoras no tienen un nombre genérico (actualmente clasificadas como *Atropoides*). La especie tipo *A. picadoi* (Dunn, 1939) no es parte del grupo monofilético formado por las especies que actualmente contiene el género. Aquí proponemos un nombre y discutimos la historia nomenclatural asociada a estas serpientes.

Palabras clave.— Nomenclatura; *Atropoides*; *Cerrophidion*; nuevo género.

Abstract.— Recent studies on the phylogeny of New World pitvipers have revealed that the clade containing the Jumping Pitvipers (currently classified as *Atropoides*) lack a generic name. The type species *A. picadoi* (Dunn, 1939) is not part of the monophyletic group formed by the remaining species currently classified in that genus. We herein restrict *Atropoides* to *A. picadoi*, propose a new name *Metlapilcoatlus* **gen. nov.** for the remaining species, and discuss problems associated with the nomenclatural history of these snakes.

Keywords.— Nomenclature; *Atropoides*; *Cerrophidion*; new genus.

The genus *Atropoides* was erected by Werman (1992) with *A. picadoi* (Dunn, 1939) designated type-species. The genus currently contains five other species: *A. indomitus* Smith and Ferrari-Castro, 2008; *A. mexicanus* (Duméril, Bibron, & Duméril, 1854); *A. nummifer* (Rüppell, 1845), *A. occiduus* (Hoge, 1966); and *A. olmec* (Pérez-Higareda, Smith & Juliá-Zertuche, 1985). However, multiple recent studies (Castoe et al., 2003, 2006; Jadin et al., 2011; Pyron et al., 2011, 2013; Alencar et al., 2016) suggest that *Atropoides* is polyphyletic, and that *A. picadoi* does not form a clade with the remaining species of *Atropoides*. Rather, *A. picadoi* is likely the sister lineage of either *Porthidium* or *Cerrophidion*. Thus, *A. picadoi* should either be transferred to those genera (pending resolution of its exact placement), or *Atropoides* should be restricted to *A. picadoi*, rendering the genus monotypic. Either of these alternatives leave the other species currently placed in *Atropoides* without a valid generic name. Thus, we propose these snakes be placed in:

Metlapilcoatlus, new genus

Type-species.— *Metlapilcoatlus mexicanus* (Duméril, Bibron, and Duméril, 1854).

Diagnosis and Definition of Genus.— This genus differs from all other New World vipers by combination of extremely thick body;

head large with small eyes and broadly rounded snout; rostral wider than high; top of head covered by small, keeled scales; nasorostrals usually present, sometimes separating rostral from prenasal; 1–3 rows of subfoveals separating prelacunal from supralabial scales; tail short; dorsal scales strongly keeled, often tubercular; number of ventrals in males 103–136, in females 103–138. Occurring from northeastern Mexico to central Panama. Congeners sympatric from each other, but *M. mexicanus* sympatric with *A. picadoi*.

Content.— *Metlapilcoatlus occiduus* (Hoge, 1966); *M. indomitus* (Smith & Ferrari-Castro, 2008); *M. olmec* (Pérez-Higareda, Smith & Juliá-Zertuche, 1985); *M. mexicanus* (Duméril, Bibron, and Duméril, 1854); *M. nummifer* (Rüppell, 1845).

Etymology.— The generic name is derived from the náhuatl metlapil, referring to the thick mortar used with a grinding stone called metate, and coatl, meaning "serpent." Throughout much of their range, species in this genus have various names referring to this instrument.

Recognition of *Metlapilcoatlus* requires distinction of this genus from *Atropoides picadoi*. Although molecular distinction between the two lineages can be achieved with a high degree

of confidence (Castoe et al., 2003, 2005; Alençar et al., 2016), exact placement of *A. picadoi* has been less certain. Molecular studies have found *A. picadoi* to form the sister lineage of either *Porthidium* or *Cerrophidion*, although as successive studies have added increasingly better sampling of both specimens and characters, *A. picadoi* has been more frequently resolved as the sister lineage to *Cerrophidion* (e.g., Castoe & Parkinson, 2006; Jadin et al., 2011; Alençar et al., 2016). Based also on morphology, *A. picadoi* appears more closely related to *Cerrophidion* (Campbell & Lamar, 2004), although it is highly distinctive from members of this genus. Should future studies confirm this relationship, either the diagnosis for *Atropoides* may be amplified to accommodate species currently placed in *Cerrophidion*, or *A. picadoi* be maintained in a monophyletic genus. Both *Cerrophidion* Campbell and Lamar, 1992 and *Atropoides* Werman, 1992 were published the same year, with *Atropoides* having priority (15 June versus 14 August, respectively).

CITED LITERATURE

- Alençar, L.R.V., T.B. Quental, F.G. Grazziotin, M.L. Alfaro, M. Martins, M. Venzon, & H. Zaher. 2016. Diversification in vipers: Phylogenetic relationships, time of divergence and shifts in speciation rates. *Molecular Phylogenetics and Evolution* 105:50-62.
- Campbell, J.A., & W.W. Lamar. 2004. *The Venomous Reptiles of the Western Hemisphere*. Comstock Publishing Associates, Cornell University Press, Ithaca, New York, United States. 870 + 28 pp.
- Castoe, T.A., P.T. Chippindale, J.A. Campbell, L.A. Ammerman & C.L. Parkinson. 2003. The evolution and phylogeography of the Middle American jumping pitvipers, genus *Atropoides*, based on mtDNA sequences. *Herpetologica* 59:421-432.
- Castoe, T.A., M. Sasa & C.L. Parkinson. 2005. Modeling nucleotide evolution at the mesoscale: The phylogeny of the Neotropical pitvipers of the *Porthidium* Group (Viperidae: Crotalinae). *Molecular Phylogenetics and Evolution* 37:881-898.
- Duméril, A.M., G. Bibron & A. Duméril. 1854. *Erpétologie Générale ou histoire naturelle complete des reptiles*. Volume 7, pp. 781-1536. Librairie Encyclopédique de Roret Paris.
- Hoge, A.R. 1966 [dated 1965]. Preliminary account on Neotropical Crotalinae (Serpentes, Viperidae). *Memórias do Instituto Butantan* 32:109-184.
- Jadin, R.C., E.N. Smith & J.A. Campbell. 2011. Unraveling a tangle of Mexican serpents: a systematic revision of highland pitvipers. *Zoological Journal of the Linnean Society* 163:943-958.
- Pérez-Higareda, G., H.M. Smith & J. Juliá-Zertuche. 1985. A new jumping viper, *Porthidium olmec*, from southern Veracruz, Mexico (Serpentes: Viperidae). *Bulletin of the Maryland Herpetological Society* 21:97-106.
- Pyron, R.A., F.T. Burbrink, G.R. Colli, A. Nieto-Montes de Oca, L.J. Vitt, C.A. Kuczynski & J.J. Wiens. 2011. The phylogeny of advanced snakes (Colubroidea), with discovery of a new subfamily and comparison of support methods for likelihood trees. *Molecular Phylogenetics and Evolution* 58:329-342.
- Pyron, R.A., F.T. Burbrink & J.J. Wiens. 2013. A phylogeny and revised classification of Squamata, including 4161 species of lizards and snakes. *BMC Evolutionary Biology* 13:93.
- Smith, E.N. & J.A. Ferrari-Castro. 2008. A new species of jumping pitviper of the genus *Atropoides* (Serpentes: Viperidae: Crotalinae) from the Sierra de Botaderos and the Sierra La Muralla, Honduras. *Zootaxa* 1948:57-68.
- Rüppell, E. 1845. Verzeichniss der in dem Museum der Senckenbergischen Gessellschaft aufgestellten Sammlung. *Verhhand. Museum Senckenbergianum* 3:293-316.
- Werman, S.D. 1992. Phylogenetic relationships of Central and South American pitvipers of the genus *Bothrops* (*sensu lato*): cladistic analyses of biochemical and anatomical characters. Pp. 21-40 in J. A. Campbell and E. D. Brodie, Jr. (eds), *Biology of the Pitvipers*. Selva, Tyler, Texas.

