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Stenostoma albifrons Wagler in Spix, 1824 as nomen dubium and recognition of the name *Leptotyphlops tenellus* Klauber, 1939 (Serpentes: Leptotyphlopidae)

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Abstract. We discuss the name *Stenostoma albifrons* Wagler *in* Spix, 1824 (= *Leptotyphlops albifrons*), attributed to widely distributed Neotropical worm snake populations and consider it a nomen dubium reviewing literature. The current junior synonym *Leptotyphlops tenellus* Klauber, 1939 is proposed as a replacement name.

Key words. Squamata, Scolecophidia, taxonomy, Neotropics.

Stenostoma albifrons was described in a very succinct description by Wagler *in* Spix, 1824 based on a single specimen from "Habitat rarum in adjacentibus urbis Para", in the proximity of Belém, Para, Brazil. The name *Stenostoma* was preoccupied by *Stenostoma* Latreille, 1810 for a coleopteran genus (which is also the case for *Stenostoma* Lamarck, 1817, a molluscan genus). After invalidation of *Stenostoma* as a genus name, Fitzinger (1843) attributed the name *Leptotyphlops,* to all described species under the genus name *Stenostoma*, actually attributed to *Leptotyphlops albifrons*. Additionally, other generic names were proposed to describe other species (i.e. *Glauconia*) coined after actually naming *Leptotyphlops*, for this discussion see McDiarmid et al. (1999).

The genus *Leptotyphlops* comprises 105 species widely distributed on all continents, except Australia and Antarctica (cf. McDiarmid et al. 1999, Dixon & Vaughan 2003, Passos et al. 2006, Broadley & Walach 2007, Hedges 2008). *Leptotyphlops albifrons* is actually known to range from Trinidad and Guyana south into Argentina (Orejas-Miranda 1967, McDiarmid et al. 1999).

According to the International Code of Zoological Nomenclature (ICZN 1999: 111), the status of a nomen dubium has to be assigned to a name of unknown or doubtful application. Many authors have agreed with the difficulty to relegate *Leptotyphlops albifrons* (Wagler *in* Spix, 1824) to any population of *Leptotyphlops* species (Smith & Inger 1951, Thomas 1965, Orejas-Miranda 1967, Vanzolini 1970, Wilson & Hahn 1973, Cunha & Nascimento 1978, 1993, Vanzolini et al. 1980, Hoogmoed & Gruber 1983, McDiarmid et al. 1999, Tipton 2005). The difficulty in applying the name *L. albifrons* and its resulting taxonomic problems involving all previously described species of the *albifrons* group, revealed that diagnostic characters for *L. albifrons* have been confusing and incorrectly used (Jan 1859, 1861, Klauber 1939, Smith & Laufe 1945, Roze 1952, Smith & List 1958, Peters & Orejas-Miranda 1970, Vanzolini 1996). The description of Wagler *in* Spix (1824), as well as the illustration of the holotype, are little informative and it is impossible to demonstrate any diagnostic character for this nominal species since no additional information on the holotype became available before its destruction during the World War II (Smith & List 1958, Hahn 1980). Jan (1859) examined type specimens described by Wagler, but provided no additional information concerning *S. albifrons*.

This problem is especially evident when we evaluate the status of *Leptotyphlops tenellus* Klauber, 1939. The species was described based on a holotype and one paratype from Kartabo, Mazaruni-Potaro, British Guiana, and six paratypes from Trinidad and Tobago Island (Mount Saint Benedict and El Dorado, Saint George County) (Klauber 1939). Some authors have proposed that *L. tenellus* differs from *L. albifrons* by the presence of contact between supraocular and first supralabial scales instead of absence of contact in *L. albifrons* (Klauber 1939, Peters & Orejas-Miranda 1970, Orejas-Miranda & Zug 1974). This character was considered variable by Jan & Sordelli (1861) in a description and illustration of *Stenostoma albifrons* var. *albipuncta* (see below) and subsequently by Boulenger (1893), Thomas (1965) and Hoogmoed & Gruber (1983). Based on this variation, *L. tenellus* has been considered as a subspecies of *L. albifrons* (i.e. *L. albifrons tenella*; Roze 1952) or a junior synonym of *L. albifrons* (Thomas 1965, Hoogmoed & Gruber 1983). According to Thomas (1965) and Hoogmoed & Gruber (1983), disregarding the contact of supraocular and first supralabial scales, *L. tenellus* would be the only *Leptotyphlops* species occurring in the eastern Amazon basin that shares morphological characters with *L. albifrons* (basically the pattern with dorsal lines and the pale rostral and terminal areas). Even after the synonymy (Hoogmoed & Gruber 1983), many authors have considered *L. tenellus* a valid species (Chippaux 1986, Lancini 1986, Pérez-Santos & Moreno 1988, 1991, Zimmerman & Rodrigues 1990, Schwartz & Henderson 1991, Kornacker 1999, Tipton 2005).

Duméril & Bibron (1844) were the first authors to cite absence of contact between scales in *L. albifrons*, which was not mentioned in the original description. D'Orbigny (1847) illustrated a species identified as *Stenostoma albifrons* in which the supraocular and first supralabial contact were absent from Santa Cruz de la Sierra, Samaipata and San José de Chiquitos, all in Bolívia. These localities are at least 2.400 km distant from the type locality of *L. albifrons*. However, the locality pointed out by D'Orbigny (1847) is about 435 km distant from the type locality of *Leptotyphlops striatulus* Smith & Laufe, 1945 ("Yamachi, in the Southern Yungas, Bolivia" = Yanacachi, Sur de Yungas, La Paz, Bolivia), which ranges from Bolivia to northern Argentina (McDiarmid et al. 1999). *Leptotyphlops striatulus* shares several diagnostic characters with *L. albifrons* (e.g. absence of supraocular and first supralabial scales contact, body dorsally dark and striped, rostral and caudal spine yellowish; (e.g. Smith & Laufe 1945). Duméril & Bibron (1844) attributed to D'Orbigny (1847) the citation of *L. albifrons* from Buenos Aires province, which according to Kretzschmar (2006) referds to *Leptotyphlops albipunctus* (Jan, 1861). Without evidence that Duméril & Bibron (1844) had examined the holotype of *Stenostoma albifrons* or any specimen close to the type locality, it is plausible that their description was based on specimens collected by D'Orbigny. Additionally, the text of D'Orbigny was published in 1847 but the plates were published on earlier dates between 1835 and 1844 (Vanzolini 1977).

Jan & Sordelli (1861, livr. 2, pl. VI, fig. 1) and Jan (1864) illustrated and described *Stenostoma albifrons* without contact of the supraocular and first supralabial scales, respectively, from Lima, Peru, and Tucumán, Argentina. Jan & Sordelli (1861, livr. 2, pl. V, fig. 1) also illustrated a specimen of *Stenostoma albifrons* var. *albipuncta* (= *L. albipunctus*; Peters & Orejas-Miranda 1970) presenting such scales in contact, probably the same specimen figured from Tucumán, Argentina. Such variation encouraged disregarding this character by subsequent authors in diagnosing new species. Boulenger (1893) considered as synonyms of *L. albifrons* many species that are presently considered full species: *Leptotyphlops undescimstriatus* (Schlegel, 1839), *Leptotyphlops melanotermus* (Cope, 1862), or ones synonymous with other species. We conclude that absence of supraocu-

lar and first supralabial contact scales cannot be considered as a diagnostic character of Wagler's population.

Smith & List (1958) suggested a topotype neotype designation to provide the stabilization of the name *Leptotyphlops albifrons*. Wagler *in* Spix (1824) reported as the type locality "Habitat rarum in adjacentibus urbis Para", in the proximity of Belém, Para, Brazil. Cunha & Nascimento (1978, 1993) and Ávila-Pires (2005) recorded *Leptotyphlops macrolepis* (Peters, 1857) and *Leptotyphlops septemstriatus* (Schneider, 1801) in the East of Pará municipality, but no specimen corresponding to *L. albifrons* or *L. tenellus* was reported. Because of this, Cunha & Nascimento (1993) suggested that the type locality of *L. albifrons* could be wrong. Orejas-Miranda (1967) reported topotypes of *L. albifrons* that were identified as *L. tenellus*, but this author only analyzed specimens examined by Bailey & Carvalho (1946) from states of Mato Grosso, Amazonas and Pará, although specimens from Pará were almost 1.050 km distant from the *L. albifrons* type locality (Cuminá River, Serra do Tumucumaque). Hoogmoed & Gruber (1983) assigned the absence of *L. albifrons* (or *L. tenellus*) in eastern of Pará to deficiency of sampling, and pointed out that Hoogmoed (1977) analyzed many specimens of *L. tenellus* from Brazilian Amazonia. However, the specimens examined were from Mato Grosso, Rondônia, Amazonas, Pará and Amapá, in which the Pará specimen was the same recorded by Bailey & Carvalho (1946) and Orejas-Miranda (1967). We conclude that it is impossible at this time to designate a neotype for *L. albifrons,* not only by the absence of any specimen from the type locality that could be related to *L. albifrons*, but by the difficulty in diagnosing the species, due to deficient information in the original description and subsequent destruction of the holotype.

The absence of any diagnostic characters in *L. albifrons* has led to the misidentification of specimens, causing an overestimation of the geographic range of this species. A taxonomic revision of striped *Leptotyphlops* is urgently needed to clarify the taxonomic status of the many related forms related to *L. albifrons* and to judge on the names currently synonymized with *L. albifrons*: *L. albipunctus*, *Leptotyphlops australis* Freiberg & Orejas-Miranda, 1968, *Leptotyphlops bilineatus* (Schlegel, 1839), *Leptotyphlops collaris* Hoogmoed, 1977, *Leptotyphlops columbi* Klauber, 1939, *Leptotyphlops diaplocius* Orejas-Miranda, 1969, *Leptotyphlops goudotii* (Duméril & Bibron, 1844), *L. melanotermus*, *Leptotyphlops melanurus* Schmidt & Walker, 1943, *Leptotyphlops munoai* Orejas-Miranda, 1961, *Leptotyphlops peruvianus* Orejas-Miranda, 1969, *Leptotyphlops pyrites* Thomas, 1965, *L. striatulus*, *Leptotyphlops subcrotilus* Klauber, 1939, *L. tenellus*, *Leptotyphlops tesselatus* (Tschudi, 1845), *Leptotyphlops vellardi* Laurent, 1984 and *Leptotyphlops weyrauchi* Orejas-Miranda, 1964 (Boulenger 1893, Orejas-Miranda 1967, Peters & Orejas-Miranda 1970, Hoogmoed 1977, Rodrigues & Puorto 1994, McDiarmid et al. 1999).

We conclude it is impossible to assign the name *S. albifrons* to any *Leptotyphlops* species due to the lack of morphological information and destruction of the holotype. The name *albifrons* includes many problems and conceals identification errors. In such a case, keeping the name *albifrons* (for nomenclatural stability) does not contribute to herpetological knowledge but rather perpetuates taxonomic problems because it was attributed to so many different populations that it may have no significance at all. Therefore, we propose the designation of *Stenostoma albifrons* Wagler *in* Spix, 1824 (= *Leptotyphlops albifrons*) as a nomen dubium and the revalidation of *Leptotyphlops tenellus* Klauber, 1939, currently a junior synonym, as defined in the original description of Klauber (1939) and later by Hoogmoed (1977).

Additionally, an operational fact is that by suppressing the name *albifrons* from further usage, curators will be motivated to verify the identification of their specimens previ-

ously identified as *L. albifrons* in collections. Doing so would encourage the much needed taxonomic revision of the *Leptotyphlops albifrons* group.

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