
***Tupinambis longilineus* Ávila-Pires,
1995 (Squamata, Teiidae):
revised distribution of a rare
Amazonian species**

The genus *Tupinambis* Daudin 1802 comprises some of the largest Neotropical lizards, widely distributed in the northern South America (Ávila-Pires 1995, Harvey et al. 2012). Recent phylogenetic revisions of Teiidae family based on morphological (Harvey et al. 2012) and molecular (Pyron et al. 2013, Murphy et al. 2016) data restricted the genus *Tupinambis* to four species of the “northern

or Amazonian clade” sensu Fitzgerald et al. (1999): *Tupinambis longilineus* Ávila-Pires 1995, *Tupinambis palustris* Manzani & Abe 2002, *Tupinambis quadrilineatus* Manzani & Abe 1997 and *Tupinambis teguixin* (Linnaeus 1758). Recently, three new cryptic species related to *T. teguixin* were described: *Tupinambis cuzcoensis* Murphy et al., 2016, *Tupinambis cryptus* Murphy et al., 2016 and *Tupinambis zuliensis* Murphy et al., 2016. The phylogenetic studies suggest a non-monophyly of this genus, generated by the uncertain phylogenetic position of genera *Crocodilurus* Spix, 1825 and *Dracaena* Daudin, 1802. However, awaiting further broader integrative revisions, we follow the taxonomical arrangements of Harvey et al. 2012.

Tupinambis longilineus is a rare species from this genus (Ávila-Pires 1995, Pianka & Vitt 2003, Murphy et al. 2016, Ribeiro-Júnior & Amaral, 2016b). Its description was based on only one specimen from the Brazilian Amazon (Alvorada d’Oeste, Rondônia; Ávila-Pires 1995). External morphology of *T. longilineus* is similar to *T. teguixin* (Ávila-Pires 1995) and their recently described relatives *T. cuzcoensis*, *T. cryptus* and *T. zuliensis* (Murphy et al. 2016), differing by the slender body and limbs, with a rectangular body in cross section (cylindrical in other species), second supraocular longest (first in *T. teguixin* and *T. cryptus*), anterior corner of the orbit is over upper labial four (three in *T. cuzcoensis* and *T. teguixin*), lower number of subdigital lamellae under the fourth finger (10–13 in *T. longilineus*; more than 13 in other species), two supratemporals (three in *T. teguixin*), 90–98 scales around midbody (100–108 in *T. zuliensis*), 22 femoral pores (7–14 in *T. cryptus*) and color pattern (no transverse bands on dorsum and presence of a wide black band along flanks in *T. longilineus*).

After Ávila-Pires (1995), *Tupinambis longilineus* was reported from only three localities, all in Brazil: Rio Ituxi, Lábrea, Amazonas (Pianka & Vitt 2003) and two localities in Juruti, Pará (one reported in Lima & Pimenta 2008). Although Lima & Pimenta (2008) refer to only one locality in their study, the field data available with voucher specimens revealed that they were collected in different localities (Beneficiamento and km 26 da Ferrovia). Later, Prudente et al. (2013) cited the same specimens collected by Lima & Pimenta (2008) (MPEG 25382–83) in Juruti, but recognize the different localities. In addition, Costa et al. (2008) presented one record of *T. longilineus* from Aripuanã, Mato Grosso, but the photograph in the

study refers to a specimen of *T. teguixin*, evidencing a misidentification. Therefore, since the description of *T. longilineus*, the species was only known from four localities in Brazil and restricted to the area of endemism Rondônia (see Silva et al. 2005).

Analyzing the specimens of *Tupinambis* housed in the main herpetological collections in Brazil and USA, and in a recent field survey in the middle Tapajós River region, we find new records of occurrence for *Tupinambis longilineus*. Herein, we present these new records and the updated geographical distribution map for this species (Fig. 1).

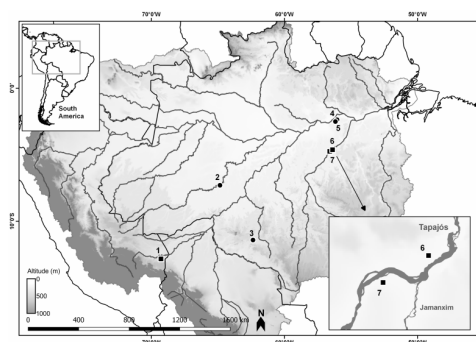


Figure 1. Geographical distribution of *Tupinambis longilineus* over an altitudinal background of Amazon Basin. Squares represent new records. (1) Puerto Maldonado, Peru; (2) Rio Ituxi, Lábrea, Amazonas, Brazil; (3) Type-locality, Alvorada d’Oeste, Rondônia, Brazil; (4) Km 26 da Ferrovia, Juruti, Pará, Brazil; (5) Beneficiamento, Juruti, Pará, Brazil; (6) Parque Nacional da Amazônia, Pará, Brazil; (7) Itaituba, right bank of the Tapajós River, Pará, Brazil.

During the revision of *Tupinambis* specimens housed in the herpetological collection of the Museu Paraense Emílio Goeldi (MPEG), Museu de Zoologia da Universidade de São Paulo (MZUSP), Museu Nacional do Rio de Janeiro (MNRJ), Universidade de Brasília (CHUNB), Instituto Nacional de Pesquisas da Amazônia (INPA), Faculdades Integradas Tapajós (LPHA), Instituto de Pesquisas Científicas e Tecnológicas do Estado do Amapá (IEPA), American Museum of Natural History (AMNH), Museum of Comparative Zoology (MCZ) and National Museum of Natural History (USNM), M.A. Ribeiro-Júnior recognized eight individuals of *T. longilineus* among 886 *Tupinambis*. Six of these individuals were previously reported in literature (MPEG 19579, 20501–02, Boca do

Acre, Madeira Scheffer, Rio Ituxi, Amazonas; MPEG 25382, Juruti, Beneficiamento, Pará; MPEG 25383, Juruti, km 26 da Ferrovia, Pará; MPEG 14560 (Holotype), Alvorada d'Oeste, BR-429, Rondônia; Ávila-Pires 1995, Pianka & Vitt 2003, Lima & Pimenta 2008, Prudente et al. 2013). Two others were catalogued and housed as *T. teguixin*, but the analysis of the specimens revealed to be *T. longilineus* (MPEG 21965, Itaituba, Parque Nacional da Amazônia, Trilha da Capelinha; USNM 247687, Puerto Maldonado, ca. 30 km airline SSW of, Tambopata Reserve, Peru). The specimen USNM 247687 is the first and unique record of *T. longilineus* from Peru and occurs sympatrically with *T. cuzcoensis*, recently described species from the western Amazon, but they can be morphologically differentiated by the characters mentioned above.

On 29 October 2013, during a long-term herpetological field survey in the middle Tapajós River region, two young individuals of *Tupinambis longilineus* were registered (Itaituba, Pará, right bank of the Tapajós River; 04°45' S, 56°36' W, 167 m above sea level). They were resting on leaf litter, at 08:28 p.m., and only one was collected (INPA-H 36908). The captured specimen is a young male with a black regular band in the flanks and absence of transversal bands on dorsum (Fig. 2), 22 femoral pores, and 11 subdigital lamellae in the fourth finger. This area is covered by primary upland forest, never flooded by rivers (Floresta de Terra Firme), and it is inside a Federal Conservation Unit, the Itaituba II National Forest. The specimens of *T. longilineus* were registered in this region after a great sampling effort, with more than 340 days of diurnal and nocturnal active searches and 12,000 pitfall traps revised (600 trap nights) on both banks of the Tapajós River and its tributary Jamanxim River.

Historically, the large Amazonian rivers have been recognized as barriers to dispersal of several vertebrate groups (Wallace 1852, Cracraft 1985). For birds and primates, the delimitation of the areas of endemism was based on these main rivers (see Silva et al. 2005 and Ribas et al. 2012). However, southern large tributaries of the Amazon River do not appear to influence the distribution of lizards (Souza et al. 2013, Ribeiro-Júnior 2015a,b, Ribeiro-Júnior & Amaral, 2016a,b). Most of species are distributed in two or more areas of endemism, and the distribution patterns are not so clear as for birds and primates (Geurgas & Rodrigues 2010, Ribeiro-Júnior 2015a,b, Ribeiro-Júnior & Amaral,



Figure 2. Young male specimen of *Tupinambis longilineus* collected during field survey in right bank of the Tapajós River: (A) dorsal view; (B) head in lateral view. Some diagnostic characters: slender and compressed body, presence of a black band in the flanks and absence of transversal bands on dorsum. Photos by L.F. Storti.

2016a,b). The new record in the Tapajós-Xingu Interfluvium agrees with these studies and suggests that the Tapajós River is not a barrier for *Tupinambis longilineus*.

Ávila-Pires (1995) suggested that lack of geographical distribution and natural history data for *Tupinambis longilineus* may be related with low population densities and their morphological similarity with the sympatric *T. teguixin*. We believe that lack of data is most likely due to the rareness of the species. Marco A. Ribeiro-Júnior revised the identity of more than 200,000 Amazonian specimens, and found only eight specimens of *T. longilineus* (part of this study in Ribeiro-Júnior 2015a,b and Ribeiro-Júnior & Amaral, 2016a,b). If the morphological similarity among the species of *Tupinambis* was related to the lack of data in *T. longilineus*, it would be expected that much more misidentification in the herpetological collections than the recognized. The long-term survey in a potential occurrence area of the species resulting in only two records also support our findings of rarity associated with low population densities. Such characteristics may represent a threat to the spe-

cies viability, as the Amazonian forest environments where this species occur are under severe anthropic changes, suffering continually with the effects of deforestation and fragmentation (Laurance et al. 2002, Fearnside 2005). This revised geographical distribution can support new efforts for conservation and management of the rare *T. longilineus*.

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Appendix. Voucher specimens: *Tupinambis longilineus* Ávila-Pires, 1995. Brazil: Amazonas: MPEG 19579, 20501-02, Boca do Acre, Madeira Scheffer, Rio Ituxi (08°20'47" S, 65°42'58" W). Pará: MPEG 21965, Itaituba, Parque Nacional da Amazônia, Trilha da Capelinha (04°37'30" S, 56°23'20" W); INPA-H 36908, Itaituba, Pará, right bank of the Tapajós River (04°45' S, 56°36' W); MPEG 25382, Juruti, Beneficiamento (02°30'24" S 56°10'21" W); MPEG 25383, Juruti, km 26 da Ferrovia (02°22'15" S, 56°02'59" W). Rondônia: MPEG 14560 (**Holotype**), Alvorada d'Oeste, BR-429, km 87 linha 64 (11°25'30" S, 62°21'59" W). Peru: USNM 247687, Puerto Maldonado, ca. 30 km airline SSW of, Tambopata Reserve (12°50" S, 67°17" W).

Key words: geographical range, riverine barrier, Amazon, Peru, Brazil.

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