Traditionally, the clade Anilioidea Fitzinger, 1826 covers fossorial snakes that share singular cranial characteristics, with the palatine meeting palatal plate of the vomer to form a complete bony floor to the choanal passage, encompassing the monotypic genus Anilius Oken, 1816 (Aniliidae) besides Cylindrophis Wagler, 1828 and Anomochilus Berg, 1901, in addition to Uropeltidae (McDowell, 1975; Hsiang et al., 2015). However, recent phylogenetic analyses have found similarities between Anilius and Tropidophiidae Brongersma, 1951, who share a morphological apomorphism in the reproductive system, thus rejecting the monophyletic Anilioidea (Siegel and Aldridge, 2011; Pyron et al., 2013; Hsiang et al., 2015).

Anilius scytale (Linnaeus, 1758) is widely distributed along the Amazonian forest, also occurring in the Brazilian Cerrado and in the humid enclaves of the Caatinga (Beebe, 1946; Duellman, 1978; Cunha and Nascimento, 1993; Pérez-Santos and Moreno, 1988; Starace, 1998, Silva-Jr. and Puorto, 2001; Catenazzi et al., 2013). It is a morphologically conspicuous species (a mimic of venomous coral snakes, sensu Savage and Slowinski, 1992), presenting a reddish orange colour dorsally, with several irregular black bands that, most of the time, extend to the belly, whose colour is yellowish cream, except in the gular region and tail, which are also reddish orange (Figure 1). Roze (1958) recognizes two subspecies: Anilius scytale scytale (Linnaeus, 1758) and Anilius scytale phelpsorum Roze, 1958, distinguishing them based on the width and number of black body bands (wider and larger in average in the nominal subspecies).

In this study, we recorded a morphologically distinct specimen from the two taxa currently recognizable under the name A. scytale, without black dorsal bands, and discuss some possibilities about whether it is a new species or specimen presenting an anomalous colour and morphology.

The specimen (Figure 1A-B), was collected on 07/26/2017, at 10:00 pm, in the municipality of Palmas (-10.2166, -48.3500, DATUM WGS84, 230 m ASL), in the state of Tocantins, Brazil, by Raiany Cristine Cruz da Silva and Marco Antonio de Freitas (Collecting permit SISBIO 52416-2). The meristic and morphometric data were taken with a dial calliper to the nearest 1 mm. Our terminology for Anilius cephalic shields follows Roze (1958) and ventral and subcaudal counts follow Dowling (1951). The collection acronym according to Sabaj-Perez (2016).

During the capture, the specimen (IBSP 89520) presented the defensive behavior of hiding the head under its own body, as previously reported for A. scytale (Saway, 2010). In life, the dorsal background colour is reddish orange, with black spots near the paraventral region, arranged longitudinally up to the cloaca; the belly is yellowish cream, with nearby transverse black bands, often connected to each other. The gular and caudal region is reddish orange. The meristic and morphometric data (taken with a dial caliper to the nearest 1 mm) are the following: total length (TTL) 570 mm; tail length 23 mm (4% TL); head length 16 mm (2.8% HL); 235 ventral scales; 12 subcaudal; a single anal plate; dorsal plates as 21/21/21 rows; a small rostral plate, visible from above; large prefrontals, being the largest cephalic scales; absent internals; small frontal, almost half the size of the prefrontals; preocular, post-ocular and loreal absent; supraocular in contact with the prefrontals,
separating the frontal from the oculars; a parietal region with a single large scale, whose shape resembles a “heart” (Figure 1A); supralabials 6/6; infralabials 6/6; symphysal separated from the anterior chin shields by the second pair of supralabials.

In general, the meristic characters of the IBSP 89520 specimen are inserted within the known variation for *A. scytale* (Table 1), except for the presence of a single large scale in the parietal region (vs. usually three small scales in typical *A. scytale* specimens). No records are available demonstrating variations in the number of scales from the parietal region in *A. scytale* (Cunha and Nascimento, 1978). However, the examination of the few remaining *A. scytale* specimens (*n* = 8) from the Butantan Institute Herpetological Collection, revealed a specimen (IBSP 82228, from Palmas, state of Tocantins, Brazil) with only two scales in the parietal region, with the central and left fused, indicating that the fusion of these scales seems to occur eventually.

In contrast, from a taxonomically more splitter point of view, the presence of a single character (one big scale in the parietal region), coupled with the very different marking pattern than that often observed for *A. scytale*, could be interpreted as sufficient characteristics for the recognition of another taxon. Although this is plausible, we opted for a more conservative posture, considering specimen IBSP 89520 as anomalous, according to the following arguments: (1) absence of other individuals with similar characteristics: according to Oliveira et al. (2016) knowledge about the richness, composition and endemism of species of the Brazilian fauna is strongly influenced by sampling bias, in a context in which the similarity of species composition decreases with increasing distance to access routes. Although exceptions to this panorama may exist, the municipality of Palmas, the capital of the state of Tocantins, with several terrestrial and fluvial access routes, is certainly not among the poorly sampled Brazilian areas regarding

![Figure 1. Anomalous *A. scytale* specimen (IBSP 89520), in dorsal (A) and ventral (B) views; *A. scytale* specimens showing normal coloration in dorsal (C) (unvouched) and ventral (D) (IBSP 89518) views. Arrows (in A and C) indicate the parietal region.](image-url)
A remarkable specimen of the genus *Anilius*

Table 1. Comparison of meristic data between the anomalous *A. scytale* specimen and normal individuals (based on Roze, 1958 and Cunha and Nascimento, 1978).

<table>
<thead>
<tr>
<th>Meristic data</th>
<th>IBSP 89520</th>
<th><em>A. scytale</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dorsal scale rows</td>
<td>21/21/21</td>
<td>Usually 21/21/21</td>
</tr>
<tr>
<td>Ventrals</td>
<td>235</td>
<td>215 to 254</td>
</tr>
<tr>
<td>Subcaudals</td>
<td>12</td>
<td>11 to 14</td>
</tr>
<tr>
<td>Anal plate</td>
<td>Single</td>
<td>Single</td>
</tr>
<tr>
<td>Supralabials</td>
<td>6/6</td>
<td>6/6</td>
</tr>
<tr>
<td>Infracaudals</td>
<td>6/6</td>
<td>6/6</td>
</tr>
<tr>
<td>Parietal region</td>
<td>With one big scale</td>
<td>Usually with three small scales</td>
</tr>
<tr>
<td>Sinfisal</td>
<td>Separated from the anterior chin shields by the second pair of supralabials</td>
<td>Usually separated from the anterior chin shields by the second pair of supralabials</td>
</tr>
<tr>
<td>Preoculars</td>
<td>Absent</td>
<td>Absent</td>
</tr>
<tr>
<td>Prefrontals</td>
<td>Present, separating the frontal from the ocular</td>
<td>Present, separating the frontal from the ocular</td>
</tr>
<tr>
<td>Loreal</td>
<td>Absent</td>
<td>Absent</td>
</tr>
<tr>
<td>Internasals</td>
<td>Absent</td>
<td>Absent</td>
</tr>
</tbody>
</table>

Figure 2. A) *Apostolepis assimilis* specimen (IBSP 83840) with normal cephalic staining and scutellation; B) Anomalous *A. assimilis* specimen (IBSP 62362). Both come from the municipality of Osasco, state of São Paulo, Brazil.
scale on the back of the head, a characteristic that is not observable in any neotropical snake (Peters and Orejas-Miranda, 1970). In our opinion, both cases reported herein (A. scytale and A. assimilis) resemble each other and the specimens should be considered anomalous.

We chose to adopt a conservative stance and report it as an anomalous specimen, rather than describing it as a new taxon. Although A. scytale is under taxonomic revision (Francisco Luís Franco pers. comm.) and the possibility of new taxa being revealed is pertinent, we believe that it is appropriate to await the appearance of other specimens with similar characteristics to the specimen described herein, that could better support a potential description in order to avoid future taxonomic problems.

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References


Savage, J.M. and Slowinski, J.B. (1992): The colouration of the venomous coral snakes (family Elapidae) and their mimics


**Appendix.** Specimens examined.

*Anilius scytale*: IBSP ISBP 82228, 82229, 86142, ISBP 86143, 86144, 89518, 89519, 89520.

*Apostolepis assimilis*: IBSP 62362, 83840.