

A NEW SPECIES OF *TANTILLA* (SERPENTES: COLUBRIDAE) FROM SOUTHEASTERN BRAZIL

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ABSTRACT: We describe a new species of *Tantilla* (Serpentes: Colubridae) from the highlands ("campos rupestres") of the Serra do Cipó, Minas Gerais, southeastern Brazil. The new species belongs in the *T. melanocephala* group and is characterized by its uniform reddish orange dorsum with no dark middorsal stripe, a broad pale nuchal band medially divided, and a dark head cap without posterior lateral extensions. Color photographs of adult individuals and illustration of hemipenes of both the new species and *T. melanocephala* from the Cerrado formation south of the Amazon are provided and comparisons with congeners are made.

Key words: Colubridae; Serpentes; Southeastern Brazil, Serra do Cipó, "Campos rupestres"; *Tantilla boipiranga* new species; *Tantilla melanocephala*

THE COMPOSITION of the diverse colubrid genus *Tantilla*, distributed from North to South America, has changed considerably in the last 30 yr. The changes include descriptions of several new species, change of one subspecies to species level, species reductions to synonymy, species resurrections, and one generic reallocation (e.g., Dixon et al., 2000; Smith et al., 1993; Wilson, 1982, 1987). Wilson (1999) has provided an updated checklist, a key to the species, and information on the distribution of *Tantilla*. In his study, Wilson (1999) recognized 53 forms as valid species, of which 37 are assigned to 5 species groups. The *Tantilla melanocephala* group (sensu Wilson, 1987, 1999; Wilson and Mena, 1980) includes seven species distributed in South America, except for *T. lempira* limited to Honduras and *T. melanocephala* widely distributed from Guatemala south to Peru, Bolivia, northern Argentina, Brazil, and Uruguay. In their extensive work on the *T. melanocephala* group, Wilson and Mena (1980) divided this species in six groups based on the color pattern, which they named "A" to "F." According to their *T. melanocephala* population system, only two patterns are sympatric ("C" and "D"), both of them occurring in Brazil. Thus, according to Wilson (1999) and Wilson and Mena (1980), *T. melanocephala* (with two

different color patterns) is the only species of the genus recorded from Brazil.

We recently found a distinctively colored species of *Tantilla*, belonging in the *T. melanocephala* group, in the highlands of the Serra do Cipó, Minas Gerais, southeastern Brazil, described herein as new.

MATERIALS AND METHODS

Description of the head color pattern follows the method of Wilson and Mena (1980). Terminology for hemipenial ornamentation follows the method of Wilson (1983). The ventral scale count system follows the wider than long system (Peters, 1964). Color names follow the system of Kornerup and Wanscher (1961). We compared preserved specimens of *T. melanocephala* from several localities in Brazil (Appendix I) with the four available specimens of the new species. Both hemipenes of the holotype and of one specimen of *T. melanocephala* were prepared according to the method described by Manzani and Abe (1988). Museum acronyms follow Leviton et al. (1985) except UFMG (Coleção Herpetológica do Departamento de Zoologia, Universidade Federal de Minas Gerais, Minas Gerais, Brasil).

SPECIES DESCRIPTION

Tantilla boipiranga sp. nov.

Holotype.—ZUEC 1840, adult male from the "Serrote" in montane fields

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(“campos rupestres”) of the Serra do Cipó (19° 17' S; 43° 36' W; approximate elevation 1200 m), Santana do Riacho, Minas Gerais, southeastern Brazil, collected by J. Meyer and R. J. Sawaya on 4 May 1995.

Paratypes.—IB 64088, adult female from the “Juquinha,” the same locality as the holotype (19° 15' S; 43° 33' W; approximate elevation 1300 m), Santana do Riacho, Minas Gerais, southeastern Brazil, collected by M. Miglioli and W. W. Benson on 8 May 1996. UFMG 1034, adult male from Parque Nacional da Serra do Cipó (19° 15' S; 43° 31' W; approximate elevation 1300 m), collected by F. A. Perini, E. O. Machado, and C. C. Eisemberg on 16 June 2001. UFMG 1048, juvenile male from the same locality (approximate elevation 1250 m), collected by C. C. Eisemberg on 12 July 2001.

Diagnosis.—A member of the *T. melanocephala* group (sensu Wilson, 1987; Wilson and Mena, 1980) characterized by high number of ventral scales (male 156, female 167), body dorsal color uniform reddish orange in life (pale orange in preservative), no middorsal stripe or pale lateral stripes (Fig. 1), dark head cap with no posterior lateral extensions, head cap separated from dark nape band by a broad pale nuchal band narrowly and medially divided, pale pigment on lateral part of snout separated from pale nuchal band by dark subocular blotch, dark nuchal band 4.5–5.5 dorsal scales in length dorsally (Fig. 2).

The *T. melanocephala* group is distinguished from other species groups of *Tantilla* by its head color pattern and scalation as follows: a dark head cap separated from a dark nape band by a pair of variously sized nuchal spots or a complete or medially divided nuchal band, a dark subocular blotch, seven supralabials, and two postoculars (Wilson and Mena, 1980).

Tantilla boipiranga is readily distinguished from the other species of the *T. melanocephala* group by its uniform reddish orange dorsal color with no middorsal or lateral stripes. Additionally, the new species is distinguished from *T. melanocephala* by the broad medially divided pale nuchal band, absence of a lateral extension



FIG. 1.—*Tantilla boipiranga* female (paratype, IB 64088), 313 mm total length in life (upper); *T. melanocephala* female (ZUEC 2491), 331 mm total length in life, from the Estação Ecológica de Itirapina, Brotas, São Paulo, southeastern Brazil (lower).

of dark head cap posteriorly that invades the temporal and supralabial scales, and absence of pale neck band. From Brazilian populations of *T. melanocephala*, patterns “C” and/or “D” (sensu Wilson and Mena, 1980), the new species is distinguished by the higher number of ventral and subcaudal scales: male 156–157 ventrals versus 136–154, 65–70 subcaudals versus 55–64 and female 167 versus 141–158, 58 subcaudals versus 45–56 in *T. melanocephala*, respectively (combined data of examined specimens in Table 1 and Wilson and Mena, 1980). Although variable, especially for *T. melanocephala* even when limited for southeastern Brazil, the characters summarized in the Table 1 (commonly used in other studies) are very useful when combined. The Brazilian populations of *T. melanocephala* from the “cerrado” formation south of the Amazon (lower portion of Fig. 1) are here tentatively assigned to *T. pallida* (Cope, 1887), a name synonymy

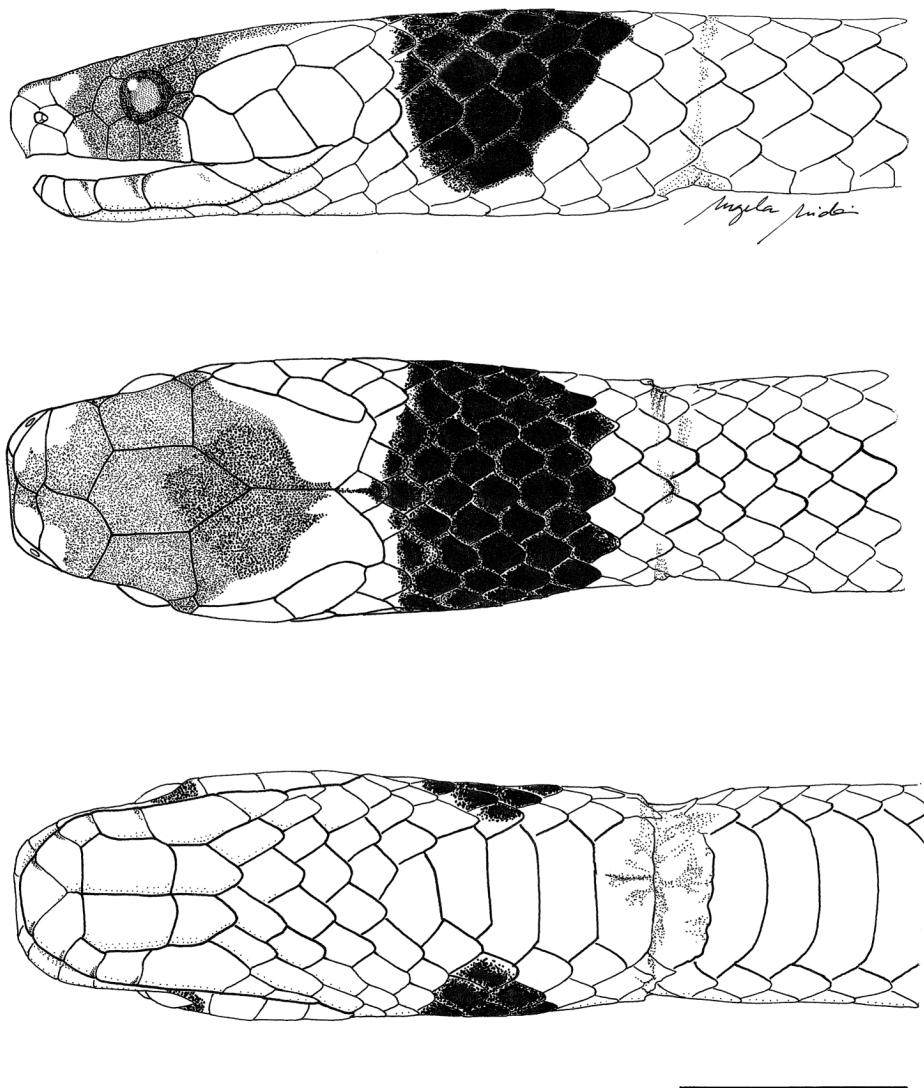


FIG. 2.—*Tantilla boipiranga* (holotype, ZUEC 1840). Lateral, dorsal, and ventral views of the head. Constriction on neck due to formerly misplaced label string. Horizontal line equals 5 mm.

mized with *T. melanocephala* by Wilson and Mena (1980). The new species is additionally distinguished from these populations by the hemipenial morphology (Fig. 3). In *T. boipiranga*, the larger spines on the asulcate side are longer, stouter, and have proportionally narrower bases than these spines in *T. melanocephala*. Moreover, in the latter species, some spines form transverse rows and the larger spines decrease gradually in size to the distal portion of the hemipenis, whereas, in

T. boipiranga, there are no transverse rows and the large spines decrease abruptly in size toward the distal portion of the hemipenis (Fig. 3).

Description of the holotype.—Adult male, hemipenes everted (the right one removed for illustration). Total length (TL) 375 mm. Tail length 89 mm. Tail/total length ratio 0.24. Head barely distinct from neck; head length 9.6 mm; greatest head width 6.0 mm; head width/head length ratio 0.63; snout truncate in dorsal

TABLE 1.—Selected characteristics of species in the *Tantilla melanocephala* group (based on Wilson, 1982, 1987, 1990, and present study; *T. melanocephala* from southeastern Brazil).

	<i>andinista</i>	<i>boipiranga</i>	<i>capistrata</i>	<i>equatoriana</i>
Sample size male/female	—/1	3/1	5/3	2/—
Ventrals male (\bar{x})	—	156–157 (156.3)	130–150 (142)	142–147 (144.5)
Ventrals female (\bar{x})	157	167	135–156 (147.5)	—
Subcaudals male (\bar{x})	—	65–70 (67.7)	53–61 (57)	77–79 (78)
Subcaudals female (\bar{x})	50	58	46–71 (56.3)	—
Postnasal in contact with preocular	No	Yes or no	No	No
First pair of infralabials separated	No	No	Yes or no	No
Lateral extension of dark head cap	Present	Absent	Present	Present
Pale marking on snout	Extensive	Limited	Extensive	Limited
Subocular blotch reaching the lip	Yes	Yes	No	Yes
Pale nuchal band	Wide, divided middorsally	Wide, divided middorsally	Wide, complete or divided middorsally	Absent
Dark nape band	Present	Present	Present	Present
Pale neck band	Present	Absent	Present	Absent

view and rounded in lateral view; pupil almost round, slightly higher than wide (Fig. 2). Dorsal scales smooth, lacking apical pits; dorsal scales 15-15-15; ventrals 156; cloacal scute divided; subcaudals 65, paired. Nasal scale completely divided; nostril in posterior portion of anterior nasal; posterior nasal separated from the single preocular by broad contact between prefrontal and second supralabial; two postoculars, lower one smaller than upper; temporals 1+1, anterior temporal in contact with postoculars anteriorly and ventrally with fifth, sixth, and seventh supralabials, posterior temporal separating enlarged seventh supralabial from parietal; supralabials 7-7, first in contact with nasals, second in contact with prefrontal and preocular, third and fourth entering orbit, fifth and sixth in contact with anterior temporal; rostral wider than high; internasals wider than long; prefrontals slightly wider than long, posteriorly in contact with frontal and supraocular; frontal longer than wide; parietals longer than wide; mental triangular, separated from chinshields by first pair of infralabials, which contact each other medially; infralabials 6-6, first to fourth in contact with larger anterior chinshield, fourth enlarged infralabial in contact with smaller posterior chinshield,

fourth, fifth, and sixth in contact with gular scales (Fig. 2).

Coloration.—In life, dorsal body color reddish orange (Fig. 1); first rows of dorsal scales pale orange, but not forming a distinct dorsolateral stripe; top of head brown; snout pale orange around the nostrils; nuchal band pale orange laterally to reddish orange dorsally, medially divided by a thin dark line; neck band brownish gray; first dorsal scales in contact with neck band pale orange, with no defined pale neck band; venter color unrecorded in life.

In alcohol, dorsal body color faded to pale orange; head with olive-brown cap covering anterior and medial portion of parietal, frontal, preocular, postoculars, third and posterior portion of second supralabials, and major portion of fourth supralabial until border of lip, major portion of prefrontal, medial half portion of internasal, and rostral scale; pale orange spots on snout are bilateral, located on the anterior lateral portion of prefrontal, half lateral portion of internasals, nasals, and first and anterior portion of second supralabials, being completely separated from pale nuchal band by a dark subocular blotch; pale orange nuchal band medially divided by thin dark dorsal line connecting head cap to dark nape band; nape band dark

TABLE 1.—Extended

<i>insulamontana</i>	<i>lempira</i>	<i>melanocephala</i>	<i>miyatai</i>
1/3	1/2	7/6	2/1
144	153	137–146 (142.4)	165–172 (168.5)
152–157 (154.3)	148–150 (149)	141–158 (150.3)	169
65	36	55–64 (60)	85–92 (88.5)
59–61 (60)	36–44 (40)	45–56 (51.5)	73
No	Yes	Yes or no	No
Yes	No	Yes or no	No
Present	Present	Present	Present
Extensive	Limited	Limited	Limited
No	No	Yes or no	No
Absent	Absent	Narrow, divided middorsally or mid-dorsally and laterally	Present, divided mid-dorsally
Absent	Present	Present	Present
Absent	Present	Present or absent	Absent

gray extending from posterior half of first dorsal scales along length of nape band (4.5–5.5 dorsal scales dorsally), then gradually decreasing in length along its lateral extent, reaching the first row of dorsals; pale neck band absent; posterior tip of mental and posterior edges of first, second, and third infralabials dark pigmented; venter immaculate cream.

Hemipenis.—Single and columnar; base

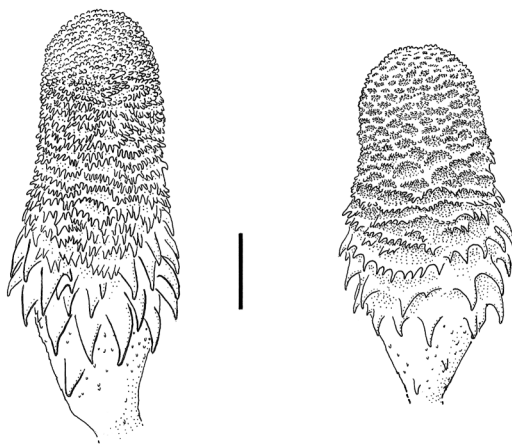


FIG. 3.—Right hemipenes of the *Tantilla boipiranga* holotype (left) and *T. melanocephala* (right) from Campinas, São Paulo, southeastern Brazil (ZUEC 1597), both from asulcate side. Vertical line equals 1 mm.

mostly naked with small, scattered spinules; two enlarged basal spines on each side of the sulcus spermaticus, right one larger than the left, and another of same size as the left one on asulcate side; larger spines on the asulcate side abruptly decrease in size from base to medial portion, and also to the sulcate side; these spines arranged irregularly rather than in transverse rows (Fig. 3).

Variation.—All paratypes. The adult female measures 313 mm TL and 65 mm tail length. Tail/total length ratio 0.21. Ventrals 167; subcaudals 58. The adult male measures 378 mm TL and 98 mm tail length. Tail/total length ratio 0.26. Ventrals 156; subcaudals 68. The juvenile male measures 200 mm TL and 47 mm tail length. Tail/total length ratio 0.24. Ventrals 157; subcaudals 70.

Posterior nasal scale not separated from the preocular scale (Table 1). Lower postocular scale larger than upper. Dark head cap may cover only the lower portion of rostral scale, all prefrontal scale, only the posterior third of second supralabial scale, all fourth supralabial scale, and only half or third anterior portion of lower postocular scale; internasal pale orange with olive brown spot on posterior tip, rostral pale orange; dark nape band with 4–5 dor-

sal scales in length dorsally, maintaining its length until first dorsal row where it covers two scales; anterior lateral tip of mental dark pigmented, infralabials immaculate.

Etymology.—A noun in apposition, from “mboi” or “boi” (= snake) and “piranga” (= red), meaning red snake in the Tupi native Brazilian language, used in allusion to the distinct reddish orange color of the new species.

Distribution.—Known only from the type locality.

Habitat.—The Serra do Cipó is on the southern tip of the Espinhaço mountain range in Minas Gerais, southeastern Brazil. The terrain is geologically complex, dates from the Precambrian, and is predominantly quartzitic (Vanzolini, 1982). The mean annual temperature is approximately 18 C, with mean of warmest months approximately 21 C, mean of the coldest months approximately 12 C, and mean minimum approximately 6 C (Nimer, 1972). Annual rainfall is approximately 1600 mm, with a distinct dry season lasting from May–August. The vegetation is characterized by the savanna-like “cerrado” on the lower slopes, riparian forests, and the typical rocky montane fields called “campos rupestres” on the higher portions and plateaus. The campos rupestres occur on surfaces with exposed rocks and little soil. The vegetation consists of herbs, shrubs, grasses and treelets, with predominance of the plant families Velloziaceae, Eriocaulaceae, Xyridaceae, Melastomataceae, and Asteraceae (Giulietti et al., 1987; Joly, 1970). *Tantilla boipiranga* was found in the campos rupestres with rocky outcrops and sparse vegetation (Fig. 4). The campos rupestres of the Espinhaço range are known to harbor a number of herpetological endemics, including lizards such as *Gymnodactylus guttulatus*, *Heterodactylus lundii*, and *Tropidurus nanuzae* (Vanzolini, 1982), as well as several species of frogs (Eterovick and Sazima, 2000; Feio et al., 2002). It is likely that the new snake described herein is another such endemic, as we examined the large collection of *Tantilla* cf. *melanocephala* from all of Brazil (248 specimens, including those cited in Appendix I) housed in the Instituto Bu-



FIG. 4.—Type locality of *Tantilla boipiranga* in the Serra do Cipó, Minas Gerais, southeastern Brazil, showing the hilly terrain, rocky outcrops, and characteristic vegetation with a *Vellozia* treelet in center foreground.

tantan, and we found no specimens of *T. boipiranga*.

Natural history.—The holotype was found active on the ground in the shadow of a rocky outcrop at about 1200 h. This agrees with diurnal, terrestrial, and cryptozoic habits recorded for *T. melanocephala* in the Amazon region (Martins and Oliveira, 1998), although in southeastern Brazil the habits of *T. melanocephala* apparently vary, as it is considered mostly nocturnal (Marques and Puerto, 1998; O. A. V. Marques, personal communication), but diurnal activity has also been recorded (Sazima and Manzani, 1995). The adult paratype UFMG 1034 was found within a termite ground nest, and the juvenile paratype UFMG 1048 was found under a bucket of a pitfall trap near a stream.

In the species rich genus *Tantilla*, the

striking reddish pattern of *T. boipiranga* is shared with *T. rubra*, the red black headed snake (Wilson et al., 2000). This latter snake is regarded by Savage and Slowinsky (1992) as a possible coral snake mimic due to its uniform red dorsum with nuchal black collar. We suggest that *T. boipiranga* mimics the similarly reddish orange and mildly venomous colubrids of the genus *Phalotris*. These putative models are found in cerrado areas, and some species of this group are reported as venomous to humans (Lema, 1978; Wüster et al., 1998). We found a red *Phalotris* on the Serra do Cipó but were unable to secure the specimen and verify its identity (most probably it was *P. concolor*, a species described from another locality of the Serra do Espinhaço range; see Ferrarezzi, 1993). Even if the presumed models were not strictly sympatric with *T. boipiranga*, an avian, widely wandering predator such as a hawk only has to ascend about 500–700 m from the adjacent cerrados (realm of *Phalotris*) to hunt on the campos rupestres (realm of *T. boipiranga*). We recorded several birds of prey at the Serra do Cipó, including the laughing falcon *Herpetotheres cachinnans* and the savanna hawk *Buteogallus meridionalis*, both of them reportedly preying on snakes, including venomous ones (Sazima and Abe, 1991; Sick, 1997). As with *T. rubra*, the highly venomous coral snake *Micrurus frontalis*, also found in the campos rupestres of the Serra do Cipó (Sazima and Abe, 1991), may serve as an additional model to *T. boipiranga*.

The freshly killed male holotype of *T. boipiranga* measured 384 mm TL and had a mass of 9.0 g; the female paratype (IB 64088) measured 322 mm TL and had a mass of 6.0 g.

Remarks.—The name *Tantilla pallida* (Cope, 1887) may perhaps be assigned to some populations of *T. melanocephala* (sensu Wilson and Mena, 1980) from the cerrado formation south of the Amazon, as we found several differences in color pattern between the Amazonian forms (see color figure in Martins and Oliveira, 1998) and the other open-formation forms (present paper; personal observation). It would be of interest to reexamine critically these

populations, using morphological characters (including those of hemipenis) and, perhaps, molecular analyses as well.

RESUMO

Descrevemos aqui uma espécie nova de *Tantilla* (Serpentes: Colubridae) dos campos rupestres da Serra do Cipó, Minas Gerais, sudeste do Brasil. A nova espécie, do grupo *T. melanocephala*, caracteriza-se pela coloração dorsal do corpo laranja-avermelhado uniforme e sem faixa dorsal, banda nuchal larga, clara e dividida medialmente e parte dorsal da cabeça escura, sem extensões laterais posteriores. São apresentadas fotografias em cores de indivíduos, ilustração dos hemipênis da nova espécie e de *T. melanocephala* de formações de cerrado ao sul da Amazônia, bem como comparações com espécies congênicas.

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APPENDIX I

Specimens Examined

***Tantilla melanocephala*—Southeastern Brazil:** IB 58521, Araçariçama, São Paulo (SP); IB 59617, 25599, Barueri, SP; IB 58903, Caçapava, SP; ZUEC 0011, 0579, 0866, 0940, 1311, 1597, 1941, 2058, 2122–24, Campinas, SP; IB 42539, Campo Limpo Paulista, SP; ZUEC 1830, Hortolândia, SP; IB 46207, 53429, Itapeví, SP; ZUEC 1805, Itatiba, SP; IB 34291, 43889, 44230, Itu, SP; ZUEC 2477–82, 2491, Estação Ecológica de Itirapina, Brotas, SP; IB 51993, Jandira, SP; IB 21237, 41189, Jundiá, SP; IB 24061, Mairinque, SP; IB 41274, Mairiporã, SP; IB 3323, 7365, 27813, São Paulo, SP; ZUEC 0179, Paulínia, SP; IB 60295, Suzano, SP; IB 1155, Taubaté, SP; ZUEC 0532, Valinhos, SP; IB 53920, Arcos, Minas Gerais (MG); IB 37502, São Gotardo, MG; IB 44661, Várzea da Palma, MG.

Western Brazil: ZUEC 1956, Parque Nacional da Emas, Goiás (GO); IB 56725, Serra da Mesa, GO; IB 55201, Tauru, 70 km from Pontes e Lacerda, Mato Grosso.

Northern Brazil: IB 40799–801, Humaitá, Amazonas; IB 14914, Ilha de Marajó, Pará (PA); IB 21966, Serra do Cachimbo, PA; IB 24021–24, São Marcos, Roraima.