

Squamata, Polychrotidae, *Anolis chrysolepis* Duméril and Bibron, 1837: Distribution extension

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ABSTRACT: The genus *Anolis* is the most diverse reptile genus with about 370 species widespread in Central and South America and the Caribbean. The distribution of *Anolis chrysolepis* Duméril and Bibron, 1837 extends from the northern portions of South America until southeastern Brazil. Herein, I provide two geographic coordinates that extend the known distribution of *A. chrysolepis* in southeastern Brazil.

The systematics of lizards of the genus *Anolis* has been traditionally confused, and a stable classification for the genus remains a continuing work in progress. Considering that the taxonomic arrangement proposed by Guyer and Savage (1986) has not been widely accepted (Uetz 2010), I have used the traditional nomenclature for this species (Poe 2004; Myers 2008). According to Vanzolini and Williams (1970), *A. chrysolepis* is found from the mouth of the Amazon River in eastern Brazil to the base of the Andes in Ecuador and Peru, and occurs on a north-south transect from Venezuela to the state of São Paulo. The southernmost subspecies, *A. chrysolepis brasiliensis* Vanzolini and Williams, 1970, is found associated with the Cerrado Region, along a central strip that extends from the Amazon to the state of São Paulo (Vanzolini and Williams 1970). The easternmost limit of the geographical distribution of this lizard is at the Chapada do Araripe, state of Ceará, Brazil (M.T. Rodrigues, pers. comm.).

During field work from September 2007 to March 2008 at the Estação Ecológica de Assis (22°33'30" to 37°40" S, 50°21'30" to 24°0" W; 500-590 m a.s.l.), municipality of Assis, central western region of the state of São Paulo, southeastern Brazil (Figure 1), I collected three males of *A. chrysolepis* using pitfall traps (60 liters) and drift fences (Table 1; Corn 1994; Cechin and Martins 2000). This ecological station (1,761 ha) is a protected area of Cerrado (Brazilian savanna; Ratter *et al.* 1997) in the state of São Paulo (Durigan *et al.* 2003; Durigan and Ratter 2006). It is dominated by woodland and dense savanna (94%) and a patch (0.85%) of cerrado strict sense (Durigan 2008). During the same expedition, I collected one male (Figure 2) and one female (Figure 3) of *A. chrysolepis* using pitfall traps (60 liters) and drift fences, and one female by incidental encounter (Table 1) at the Estação Ecológica de Bauru (22°13'38" to 14°06" S, 49°04'12" to 06°01" W; 500-560 m a.s.l.), municipality of Bauru, central region of the state of São Paulo, southeastern Brazil (Figure 1). This locality (284 ha) is a seasonal semideciduous forest fragment (Oliveira-

Filho and Fontes 2000; Oliveira-Filho *et al.* 2006) mainly covered by montane seasonal semideciduous forest (90%) and aluvial seasonal semideciduous forest (5.5%; M.T.Z. Toniato, unpublished data).

I considered the museum records to analyze the geographical distribution of *A. chrysolepis* in the state of São Paulo. These records were obtained at the Coleção Herpetológica do Museu de Zoologia, Universidade de São Paulo (MZUSP) and Museu de História Natural, Universidade Estadual de Campinas (ZUEC). I found records

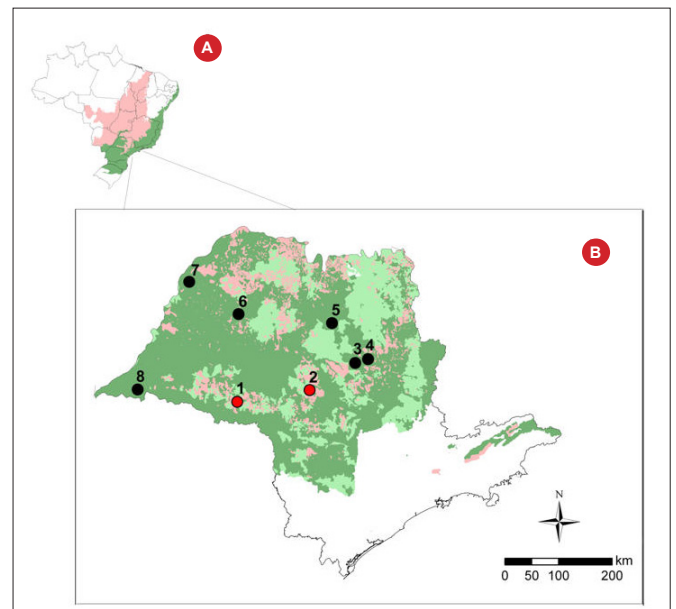


FIGURE 1. (A) Cerrado and Atlantic forest regions, Brazil (source: IBGE). (B) Original cover of the Cerrado (pink), Atlantic forest (seasonal semideciduous forest phytophysiology) (green) and ecotone cerrado/seasonal semideciduous forest (light green) in the state of São Paulo (source: Biota/FAPESP). The red dots represent new records of *Anolis chrysolepis* in the state of São Paulo (1 - municipality of Assis; 2 - municipality of Bauru). The black dots represent the previous known geographical distribution of this lizard in the state (3 - municipality of Araraquara; 4 - municipality of Américo Brasiliense; 5 - municipality of Vista Alegre do Alto; 6 - municipality of Araçatuba; 7 - municipality of Itapura; 8 - municipality of Teodoro Sampaio).

for the municipalities of Américo Brasiliense (ZUEC 1358), Araçatuba (MZUSP 04365), Araraquara (MZUSP 04384), Itapura (MZUSP 00551) and Vista Alegre do Alto (MZUSP 04383). The record at the Estação Ecológica de Assis provide a southward range extension (approximately 150 km) from the nearest known occurrence (municipality of Araçatuba, northwest of the state of São Paulo) and an eastward range extension (approximately 200 km) from the municipality of Teodoro Sampaio (Dixo *et al.* 2006) in the extreme west of the state of São Paulo (Figure 1). The record at the Estação Ecológica de Bauru extends the

previous known geographical distribution of *A. chrysolepis* to the central region of the state of São Paulo, approximately 100 km southwestern from the nearest occurrence at the municipality of Araraquara, north of the state of São Paulo (Figure 1).

Specimens collected at the Estação Ecológica de Assis, municipality of Assis, and Estação Ecológica de Bauru, municipality of Bauru (collection permit SISBIO-IBAMA nº 10423-1) are deposited in the Coleção Herpetológica “Alphonse Richard Hoge”, Instituto Butantan (IBSP), state of São Paulo, Brazil (Table 1).



FIGURE 2. Adult male (CRIB 0699) of *Anolis chrysolepis* captured at the Estação Ecológica de Bauru, municipality of Bauru, state of São Paulo, Brazil. Photograph by COA.



FIGURE 3. Adult female (CRIB 0700) of *Anolis chrysolepis* captured at the Estação Ecológica de Bauru, municipality of Bauru, state of São Paulo, Brazil. Photograph by COA.

TABLE 1. Localities, geographical coordinates, physiognomic vegetation types, morphological data, and voucher numbers of *Anolis chrysolepis* individuals collected from September 2007 to March 2008. Locality (Assis and Bauru ecological stations, state of São Paulo); geographical coordinates (SAD 69); physiognomic vegetation type (woodland savanna, transition between woodland savanna and seasonal semideciduous forest - woodland savanna/FES and montane seasonal semideciduous forest - FESM); morphological data (snout-vent length - SVL, tail length - TL, mass and sex); voucher number (Coleção Herpetológica do Instituto Butantan).

LOCALITY	GEOGRAPHIC COORDINATE	PHYSIOGNOMIC VEGETATION TYPE	SVL (mm)	TL (mm)	MASS (g)	SEX	VOUCHER CRIB
Assis	22°34'43" S 50°22'09" W	woodland savanna/FES	62.90	145.60	5.30	male	0696
Assis	22°34'20" S 50°22'41" W	woodland savanna/FES	60.83	147.72	6.05	male	0697
Assis	22°36'04" S 50°23'30" W	woodland savanna	68.49	104.03	7.00	male	0698
Bauru	22°13'46" S 49°04'54" W	FESM	63.78	150.81	6.20	male	0699
Bauru	22°13'58" S 49°05'03" W	FESM	67.07	150.44	7.60	female	0700
Bauru	22°13'46" S 49°04'54" W	FESM	67.50	145.01	7.50	female	0701

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LITERATURE CITED

Cechin, S.Z. and M. Martins. 2000. Eficiência de armadilhas de queda (pitfall traps) em amostragens de anfíbios e répteis no Brasil. *Revista Brasileira de Zoologia* 17: 729-740.

Corn, P.S. 1994. Straight-line drift-fences and pitfall traps; p. 109-117. In W.R. Heyer, M.A. Donnely, R.W. McDiarmid, L.C. Hayek and M.S. Foster (ed.). *Measuring and monitoring biological diversity: Standard methods for amphibians*. Washington: Smithsonian Institution.

Dixo, M., R.A.G. Fuentes and G. Brisolla. 2006. Anfíbios e répteis; p. 138-146. In H.H. Faria and A.S. Pires (ed.). *Parque Estadual do Morro do Diabo: plano de manejo*. Santa Cruz do Rio Pardo: Editora Viena.

Durigan, G. 2008. *Plano de Manejo da Estação Ecológica de Assis*. Electronic Database Accessible at <http://www.iflorestal.sp.gov.br/>

Plano_de_manejo/index.asp. Captured on 29 December 2010.

Durigan, G. and J.A. Ratter. 2006. Successional changes in Cerrado and Cerrado/forest ecotonal vegetation in western São Paulo State, Brazil, 1962-2000. *Edinburgh Journal of Botany* 63(1): 119-130.

Durigan, G., M.F. Siqueira, G.A.D.C. Franco, S. Bridgewater and J.A. Ratter. 2003. The vegetation of priority areas for Cerrado conservation in São Paulo State, Brazil. *Edinburgh Journal of Botany* 60(2): 217-241.

Guyer, C. and J.M. Savage. 1986. Cladistic relationships among anoles (Sauria: Iguanidae). *Systematic Zoology* 35(4): 509-531.

Myers, C.W. 2008. Case 3446: *Anolis chrysolepis* Duméril and Bibron, 1837 (Reptilia, Squamata): proposed precedence over *Draconura nitens* Wagler, 1830. *Bulletin of Zoological Nomenclature* 65(23): 205-213.

Oliveira-Filho, A.T. and M.A.L. Fontes. 2000. Patterns of floristic differentiation among atlantic forests in Southeastern Brazil and the influence of climate. *Biotropica* 32(4b): 793-810.

Oliveira-Filho, A.T., J.A. Jarenkow and M.J.N. Rodal. 2006. Floristic relationships of seasonally dry forests of Eastern South America based on tree species distribution patterns; p. 159-192. In R.T. Pennington, G.P. Lewis and J.A. Ratter (ed.). *Neotropical savannas and dry forests: diversity, biogeography and conservation*. Boca Raton: Taylor & Francis Group LLC.

- Poe, S. 2004. Phylogeny of *Anolis*. *Herpetological Monographs* 18: 37-89.
- Ratter, J.A., J.F. Ribeiro and S. Bridgewater. 1997. The Brazilian cerrado vegetation and threats to its biodiversity. *Annals of Botany* 80: 223-230.
- Uetz, P. 2010. *The Reptile Database*. Eletronic Database accessible at <http://www.reptile-database.org/>. Captured on 30 December 2010.
- Vanzolini, P.E. and E.E. Williams. 1970. South American anoles: the geographic differentiation and evolution of the *Anolis chrysolepis* species group (Sauria, Iguanidae). *Arquivos de Zoologia* (São Paulo) 19: 1-298.

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