

# New records and geographic distribution map of *Dendropsophus haddadi* (Bastos and Pombal, 1996) (Anura: Hylidae) with comments on color patterns

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**ABSTRACT:** Herein we report the first records of the treefrog *Dendropsophus haddadi* from the state of Alagoas, northeastern Brazil, and an updated distribution map for this species. All records are restricted to the Atlantic Forest biome. A brief comment on color pattern for the species is also presented.

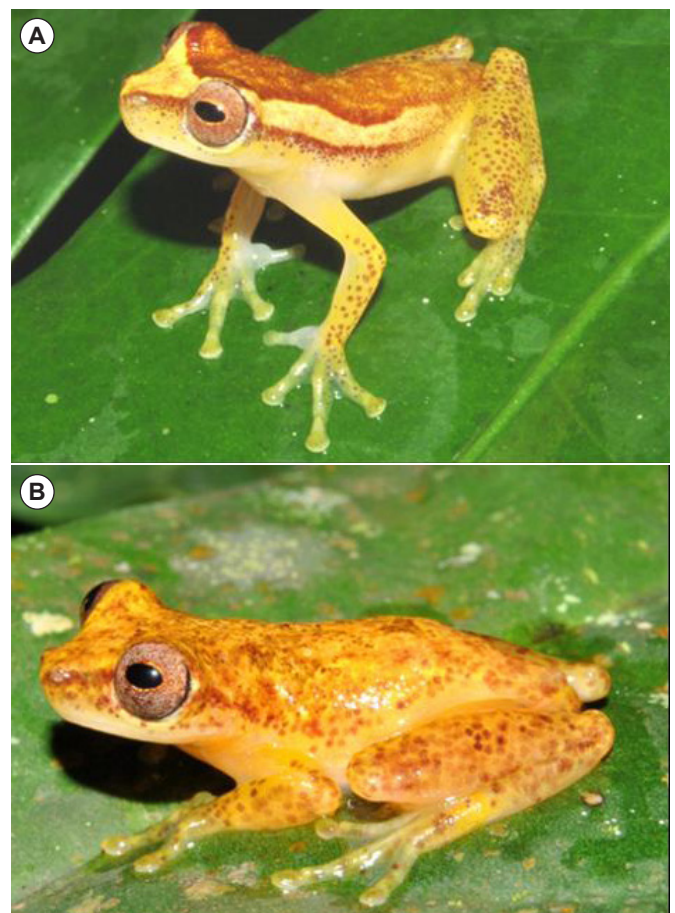
The treefrogs genus *Dendropsophus* Fitzinger, 1843 currently comprises 92 valid species distributed from South and Central America to southern Mexico (Frost 2011). *Dendropsophus haddadi* (Bastos and Pombal, 1996) (Figure 1) is a small hylid (SVL males 15.8–19.45 mm; females 21.9–24.0 mm) belonging to the *D. microcephalus* group (*sensu* Faivovich *et al.* 2005), which is closely related to *D. berthaltutzae* (Bokermann, 1962), *D. decipiens* (Lutz, 1925) and *D. oliveirai* (Bokermann, 1963). It inhabits areas of the Atlantic Forest biome in southeastern (state of Espírito Santo) and northeastern (states of Bahia and Pernambuco) Brazil (Bastos and Pombal 1996; Amorim *et al.* 2009; Camurugi *et al.* 2010), in regions of typical Atlantic Forest and scrubby restinga vegetation.

*Dendropsophus haddadi* was described from Mata do Queixada, municipality of Conceição da Barra, state of Espírito Santo. However, other municipalities also recorded the occurrence of this species (Aracruz, Linhares, and Santa Teresa, all from the state of Espírito Santo, and Ilhéus in the state of Bahia; Bastos and Pombal 1996). Since then, new records have been made for the species, all in the Atlantic Forest biome.

Camurugi *et al.* (2010) documented the species in the Michelin Ecological Reserve, municipality of Igrapiúna, in southern Bahia, approximately 110 km north of Ilhéus. Amorim *et al.* (2009) recorded *D. haddadi* in Mata da Usina São José, municipality of Igarassu, state of Pernambuco, about 1292 km north of the type locality.

Herein we provide the first records of the species from the state of Alagoas. The treefrog was registered in the municipality of Maceió, in two coastal Atlantic forest fragments, 20 km apart. In September 2004 two specimens of *D. haddadi* were collected in Serra da Saudinha (09°22'00" S, 35°45'00" W, DATUM WGS84, 150 m elev.), located in the extreme north of the municipality of Maceió. These individuals were found in the marginal vegetation (height from 0.15 to 1 m) of a small permanent stream located in forest, some in calling activity. In May, June

and August 2011 several individuals of *D. haddadi* were also found in the Mata do Catolé (09°35'00" S, 35°49'00" W, DATUM WGS84, 140 m elev.) in vegetation near the water in two temporary ponds inside the forest, at a height between 0.25 and 3 m, also exhibiting reproductive activity. Both localities are about 1090 km north of the type



**FIGURE 1.** Two adults of *Dendropsophus haddadi* from Mata do Catolé, municipality of Maceió, Alagoas state, Brazil. Common (A) and atypical (B) color patterns in life. Photos by Bruno Vilela.

locality and 185 km south of the northernmost occurrence (municipality of Igarassu, state of Pernambuco) (Table 1, Figure 2).

Voucher specimens were euthanized in 2% lidocaine solution, fixed in 10% formaldehyde solution, transferred to and kept in 70% ethanol and deposited in the herpetological collection of the Museu de História Natural,

Universidade Federal de Alagoas (UFAL), Brazil (MUFAL 3424, 3433, 8758, 8799, 9072-79; collection permits # 184-05 and 29044-1, Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, IBAMA).

Bastos and Pombal (1996) reported a triangular area on the head and lateral stripe extending to the inguinal or mid-dorsal region. Individuals examined here showed a

**TABLE 1.** Localities with records of *Dendropsophus haddadi* and their respective literature references. See Figure 2 for distribution map. PE = state of Pernambuco, AL = state of Alagoas, BA = state of Bahia, ES = state of Espírito Santo.

POINT	MUNICIPALITY	STATE	LONGITUDE	LATITUDE	SOURCE
1	Igarassu	PE	35°00'15" W	07°50'19" S	Amorim <i>et al.</i> 2009
2	Maceió	AL	35°43'00" W	09°22'59" S	New record, this study
3	Maceió	AL	35°48'12" W	09°33'27" S	New record, this study
4	Igrapiúna	BA	39°10'00" W	13°49'59" S	Camurugi <i>et al.</i> 2010
5	Ilhéus	BA	39°01'48" W	14°49'12" S	Bastos and Pombal 1996
6	Conceição da Barra	ES	39°45'00" W	18°34'48" S	Bastos and Pombal 1996
7	Linhares	ES	40°04'12" W	19°25'12" S	Bastos and Pombal 1996
8	Aracruz	ES	40°16'12" W	19°49'12" S	Bastos and Pombal 1996
9	Santa Teresa	ES	40°36'01" W	19°56'08" S	Bastos and Pombal 1996

greater variety of color patterns, ranging from the typical lateral stripe to its complete absence, with a reddish-brown dorsal region. A few individuals with no lateral stripe exhibited a slightly lighter color pattern. All individuals had dark brown spots scattered around the dorsum, and in some specimens this also form larger patches (Figure 3).

The current work fills gaps in our knowledge of the distribution of *D. haddadi*, mainly in the biogeographical sub region (BSR) of Pernambuco (that comprises the coastal Atlantic Forest Biome of the states of Alagoas, Pernambuco, Paraíba and Rio Grande do Norte; *sensu* Silva and Casteleti 2003), where it was known from only a single location (Amorim *et al.* 2009). The type locality of the species is located in the BSR of Bahia (that comprises the Atlantic Forest Biome of the states of Sergipe and

portions of Bahia and Espírito Santo) and shows that as surveys in the northeast of the country are intensified, species previously restricted to the region below the São Francisco River may have a much wider distribution.



**FIGURE 2.** Geographic distribution map of *Dendropsophus haddadi*. New records (red triangles) – state of Alagoas (AL): Serra da Saudinha, Maceió (2) and Mata do Catolé, Maceió (3). Literature records (red square and red dots). See Table 1 for localities names, numbers and references.



**FIGURE 3.** Dorsal color pattern variation found in individuals of *Dendropsophus haddadi* from Serra da Saudinha and Mata do Catolé, Maceió, Alagoas state, Brazil (from left to right MUFAL 5514, 3313, 5513, 9076, 3424 and 9778). Photos by Bruno Vilela.

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