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Correspondence

First record of *Allobates nidicola* (Anura: Dendrobatoidea) from the state of Rondônia, southwestern Amazonia, Brazil

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The number of described species of *Allobates* (Aromobatidae) in the Amazon has significantly increased in recent years. However, several of the recognized species are only known from restricted areas, i.e., their type localities and adjacent sites (e.g., Morales 2002, Lima et al. 2007, Lima et al. 2010, Simões et al. 2010). Additions to the knowledge of species' distributions are of general importance in order to understand biogeographic patterns and assess their conservation status. Currently, many of the *Allobates* species are considered "Data Deficient" under the criteria of the IUCN Red List of Threatened Species (www.redlist.org).

One species to which the above is applicable is *Allobates nidicola* (Caldwell & Lima, 2003) (Fig. 1), a ground-dwelling frog whose eggs are deposited and develop entirely in a terrestrial nest. *Allobates nidicola* was described from a lowland 'terra firme' forest approximately 40 km south of Manaus, in the municipality of Careiro, state of Amazonas, Brazil (Caldwell & Lima 2003). Recently, Tsuji-Nishikido et al. (2012) recorded this species from adjacent localities in the state of Amazonas, between the road BR-319 and the municipality of Vila Gomes, on the left bank of the lower Madeira River (Fig. 2).

During a herpetological survey from 6 through 24 November 2010, we found aromobatid frogs *a priori* allocable to *A. nidicola* on the basis of their morphology and calls (compare Fig. 1 and 3 with Caldwell & Lima 2003 and Tsuji-Nishikido et al. 2012) at three sampling sites along the left bank of the upper Madeira River, upstream of Porto Velho, state of Rondônia, Brazil (Fig. 2). The entire area is primary rainforest. At all sites, individuals were located by their advertisement calls, during daytime. At Cachoeira de Teotônio (08°48'38" S, 64°05'43" W), two individuals were collected 2 km from the river and three individuals approximately 1 km from the river. We also found terrestrial nests with nidicolous tadpoles at this locality. At Ilha da Pedra (09°09'32" S, 64°38'02" W), three individuals were found and collected 1 km from the river. At the third site, Cachoeira do Jirau (09°17'12" S, 64°44'40" W), three individuals were found and collected approximately 4 km from the river. All voucher specimens were deposited in the herpetological collection of the Instituto Nacional de Pesquisas da Amazônia, Manaus (collection numbers INPA-H 28602–28612).

In order to confirm the specific identity of, and to provide data on call parameters for this population, we recorded advertisement calls of five males (three at Cachoeira de Teotônio and two at Ilha da Pedra, INPA-H 15774–15776 and INPA-H 16082–16083, respectively) with a Marantz PMD 660 digital recorder and a Sennheiser ME 66 directional microphone positioned approximately 1 m from each focal individual. Calls were analysed with Raven 1.2 (Charif et al. 2004). For each male recorded, ten calls evenly distrib-

Figure 1. Male *Allobates nidicola* (INPA-H 28607), photographed while calling at Ilha da Pedra, in November 2010.

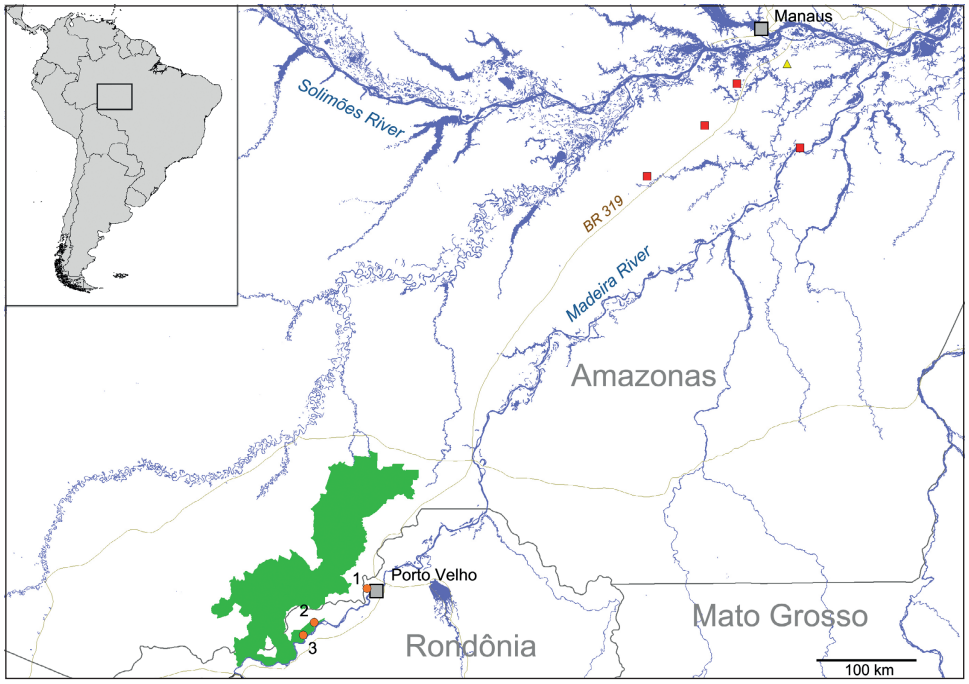

Figure 2. Geographic distribution of *Allobates nidicola*. Yellow triangle: type locality of *A. nidicola* in Careiro da Várzea, Amazonas, Brazil. Red squares: previous records of *A. nidicola* from the state of Amazonas, Brazil. Orange circles: geographic location of three new *A. nidicola* records on the left bank of the upper Madeira River, near Porto Velho, Rondônia, Brazil (1 – Cachoeira de Teotônio; 2 – Ilha da Pedra; 3 – Cachoeira do Jirau). The main roads are depicted in brown. The green area corresponds to the conservation unit Parque Nacional Mapinguari.

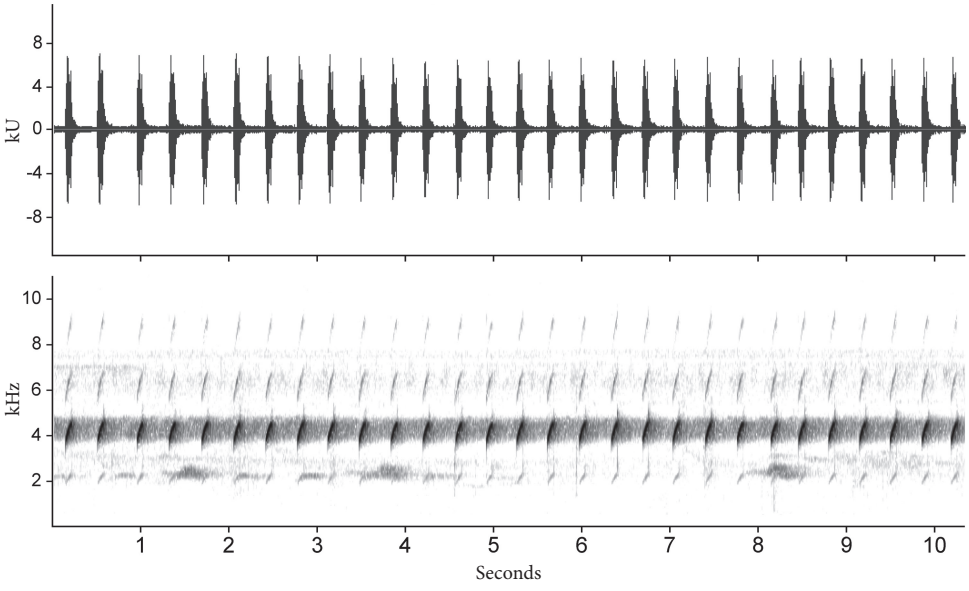

Figure 3. Oscillogram and sound spectrogram of the advertisement call of *Allobates nidicola* from Ilha da Pedra (INPA-H 28608; 20.92 mm snout-vent length; air temperature at the time of recording 26.2°C).

uted along the call series were selected and used to calculate the average duration of calls and silent intervals, as well as spectral characteristics. For the latter, we applied a frequency resolution of 82 Hz and 2048 points. Air temperature at the time of recording was 25.2°C at Teotônio and 26.2°C at Ilha da Pedra. Advertisement calls consisted of a continuous repetition of a single note 0.08 ± 0.01 s (range 0.07–0.10 s) long. Notes were spaced by a longer (0.33 ±

0.08 s, range 0.23–0.43 s) silent internote interval. Average peak frequency of notes was 4316.11 ± 144.11 Hz (range 4087.00–4487.51 Hz). Notes were ascendant in frequency and the lowest and highest frequencies of notes averaged 3846.126 ± 61.29 Hz (range 3748.93–3900.08 Hz) and 4763.806 ± 164.48 Hz (range 4483.58–4899.59 Hz), respectively (Fig. 3). These acoustic parameters are close to those reported for *Allobates nidicola* from its type and adjacent localities in Amazonas. However, compared to these previously studied populations, note duration was slightly longer in individuals recorded along the upper Madeira River (Caldwell & Lima 2003, Tsuji-Nishikido et al. 2012).

Allobates nidicola has been suggested to occur on the right bank of the lower Madeira River (Simões 2007). However, current phenotypic (Tsuji-Nishikido et al. 2012) and genetic analyses (authors' unpubl. data) suggest that those populations are more closely related to *A. masniger*, a sister species described from the left bank of the Tapajós River and similar to *A. nidicola* in adult morphology and calls (Tsuji-Nishikido et al. 2012). Thus, the known geographic distribution of *A. nidicola* is restricted to the Madeira-Purus interfluve. The three new records extend the known distribution of *A. nidicola* by ca. 740 km to the southwest, and represent the first record of this species from the state of Rondônia. Considering this updated geographic distribution of *A. nidicola*, the species occurs in at least one protected area, i.e., the Parque Nacional Mapinguari, established between 2008 and 2010, along the left bank of the upper Madeira River (Fig. 2). Nevertheless, the remarkable distribution extension provided by this record supports the prediction that this species might occur more widely, including in other conservation units.

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