



SHORT COMMUNICATION

New distributional records of the Amazon River Frog *Lithobates palmipes* (Spix, 1824) in Peru

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The Amazon River Frog *Lithobates palmipes* (Spix, 1824) is an aquatic-breeding species that inhabits various types of rainforest throughout the lowlands of northern South America, including both the Amazon and Orinoco basins, part of the Guyana Shield, the Atlantic Forest, the Cerrado and neighboring areas in Brazil (Hillis and De Sá 1988; Acosta-Galvis 1999; Canedo and Bilate 2005; Oliveira et al. 2010; Ferreira and Faria 2011; Ramalho et al. 2011; Santos and Vaz-Silva 2012; Rodrigues et al. 2013; Frost 2015). According to Hillis and De Sá (1988), this species belongs to the complex *Rana palmipes*. Frost et al. (2006) placed this and other closely related species in the genus *Lithobates*, a name originally proposed by Fitzinger in 1843. Differences in the recommended species name vary according to different classification criteria (e.g., *Rana palmipes* vs. *Lithobates palmipes*), and were thoroughly discussed by Hillis (2007). However, this species may contain cryptic species (Hillis and Wilcox 2005). In this report, we use the binomen *Lithobates palmipes* because it is still widely accepted, though we recognize that an equally valid alternative would be to treat *Lithobates* as a subgenus of *Rana* in order to preserve a long-standing taxonomy (Hillis and Wilcox 2005; AmphibiaWeb 2015).

Previous studies documenting the distribution of *L. palmipes* in South America (e.g., Hillis and De Sá 1988; Canedo and Bilate 2005; Rodrigues et al. 2013)

provided records from Loreto Region, northern Peru (a Región in Peru is equivalent to a federal state; it was formerly known as Departamento), but its distribution along the Peruvian Amazon remains poorly known. It is notable that *L. palmipes* had not been detected in other well-studied lowland sites in Peru, such as Panguana Biological Station (Schlüter et al. 2004), Cuzco Amazónico (Duellman 2005), Los Amigos Biological Station (von May et al. 2009, 2010), and Cocha Cashu Biological Station in Manu National Park (Catenazzi et al. 2013), despite intensive surveys conducted at those sites. In this report, we provide new distributional data for *L. palmipes* in Peru and update the map of its known distribution in South America. We used the morphological diagnoses provided by Hillis and De Sá (1988) to identify specimens and took measurements to the nearest 0.1 mm with calipers under a stereomicroscope.

Our report is based on field observations and the collection of voucher specimens from two localities in southern Peru, and an additional observation (with a photographic voucher) from northern Peru (Fig. 1). On 09 April 2009, a juvenile individual of *L. palmipes* was collected at Lechemayo, Carabaya Province, Puno Region (13°15'7.39"S, 70°20'18.44"O, 390 m elevation). This specimen was deposited in the Herpetological Collection of the Museo de Historia Natural, Universidad Nacional de San Antonio Abad del Cusco, Peru, with voucher number

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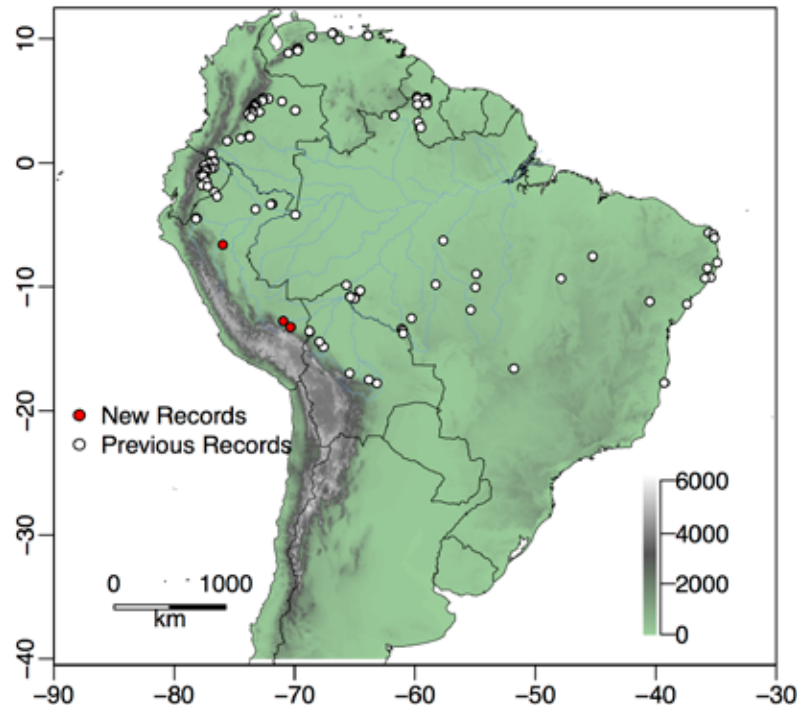


Fig. 1. Known distribution of *Lithobates palmipes* in South America and location of new records in Peru. White circles represent literature data and red circles indicate the new records in San Martín (<http://www.inaturalist.org/observations/2384262>), Madre de Dios (MUSA-3722, MUSA-3723) and Puno (MHNC-7864) regions.

MHNC-7864 (snout-vent length 57.07 mm). On 28 May 2011, two individuals of *L. palmipes* were collected at the Reserva Comunal Amaraakaeri, Manu Province, Madre de Dios Region (12°46'20.26"S, 70°56'44.56"O, 367 m elevation). Both specimens were found on the ground at a slow-moving stream dissecting a middle floodplain forest scattered with bamboo. These specimens were deposited in the Herpetological Collection of the Museo de Historia Natural (MUSA), Universidad Nacional de San Agustín de Arequipa, Peru, with voucher numbers MUSA-3722 and MUSA-3723 (snout-vent length 119.30 mm and 118.10 mm, respectively; see Table 1 for additional morphometric data). The third locality record is supported by a field observation made by Alessandro Catenazzi on 15 July 2002 at Callanayacu, at the border of the Cordillera Azul National Park, San Martín Region, 320 m (photographic voucher: <http://www.inaturalist.org/observations/2384262>). In addition to the new records reported here, we updated the known distribution of *L. palmipes* in Bolivia using georeferenced data published by Reichle (2007).

This report represents an extension of >175 km of the known geographic range *L. palmipes* in southwestern Amazonia. Furthermore, it is worth noting that two other species of *Lithobates* have been recorded in Peru: *L. bwana* and *L. catesbeianus* (Catenazzi and von May 2014). One of these, the American Bullfrog, *L. catesbeianus*, is an exotic species that has invaded various

South American ecosystems and its presence in northern Peru was confirmed recently (Cossios 2010). As such, this exotic species could pose a threat to many native aquatic-breeding frogs including *L. palmipes*. Given that both *L. palmipes* and *L. catesbeianus* may inhabit similar types of water bodies such as slow-moving streams, seasonal ponds, swamps, and flooded forests (Duellman 1978; La Marca et al. 2010), continuous field assessments in areas where these species have been sighted is a priority (Catenazzi and von May 2014).

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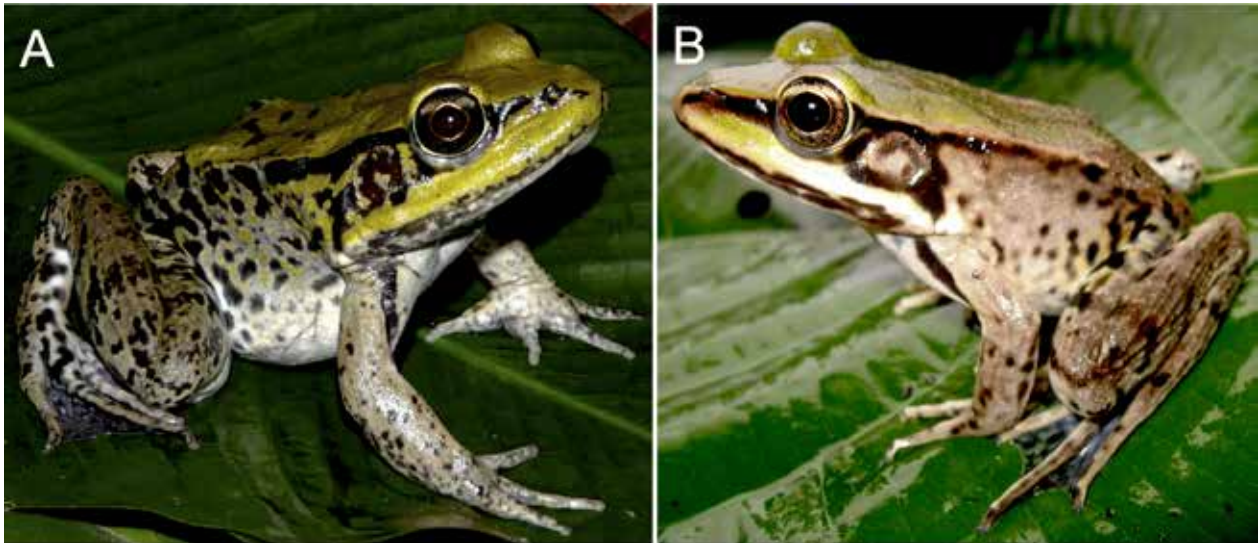


Fig. 2. Individuals of *Lithobates palmipes* recorded in this study. (A) Adult, female (MUSA-3722) from Reserva Comunal Amara-kaeri, Manu Province, Madre de Dios Region, Peru. (B) Juvenile MHNC-7864 from Lechemayo, Carabaya Province, Puno Region, Perú. Photographs by Roy Santa Cruz (A) and Amanda Delgado (B).

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Table 1. Measurements (in mm) of two adult female individuals of *Lithobates palmipes*. SVL = snout–vent length, TL = tibia length, FL = foot length, HL = head length, HW = head width, ED = eye diameter, TY = tympanum diameter, IOD = interorbital distance, EW = upper eyelid width, IND = internarial distance, E-N = eye-nostril distance.

| Character | MUSA-3722 | MUSA-3723 |
|-----------|-----------|-----------|
| SVL | 114.2 | 112.57 |
| TL | 57.97 | 57.72 |
| FL | 57.7 | 56.61 |
| HL | 47.13 | 46.53 |
| HW | 46.22 | 46.4 |
| ED | 13.27 | 12.67 |
| TY | 10.37 | 10.93 |
| IOD | 10.78 | 10.65 |
| EW | 9.77 | 8.8 |
| IND | 9.83 | 9.78 |
| E-N | 11.41 | 11.39 |

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Rudolf von May is a postdoctoral research fellow at the Department of Ecology and Evolutionary Biology at the University of Michigan. His current research seeks to understand how amphibian and reptile communities are structured across habitats and elevations, taking into account the phylogenetic relatedness among species present in those communities.