

SHORT COMMUNICATION

# Xanthism in the Leaf-frog *Phyllomedusa vaillantii* (Anura: Hylidae)

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Different colors and patterns play an important role in the life history of anurans. Cryptic colors may help camouflage prey, whereas aposematic colors may alert potential predators to avoid individuals (Pedroso-Santos *et al.* 2022). Color anomalies are characterized by pigmentation abnormalities that are restricted to all or part of an animal's body. These anomalies are rare in most cases, especially in natural populations (Hoffman and Blouin 2000). Color anomalies have been observed in fishes (Lara-Mendoza and Guerra-Jiménez 2020), anurans (Pereira and Santos 2012, Tavares-Pinheiro *et al.*

2020), lizards (Sanches *et al.* 2019), snakes (Mendonça *et al.* 2020), birds (Camacho *et al.* 2022), and mammals (Talamoni *et al.* 2017). Among the most commonly recognized types of color anomalies are albinism, flavism, leucism, melanism, piebaldism, axanthism, and xanthism (Henle *et al.* 2017). Xanthism is a chromatic abnormality characterized by the predominant production of the purine base xanthine, an organic compound that gives the organism a yellowish coloration (Henle *et al.* 2017). In this study, xanthism is reported for the subfamily Phyllomedusinae for the first time.

Phyllomedusinae is a subfamily whose representatives are commonly known as monkey, leaf, or green frogs. *Phyllomedusa* Wagler, 1830 is widely distributed in the Neotropics and is the

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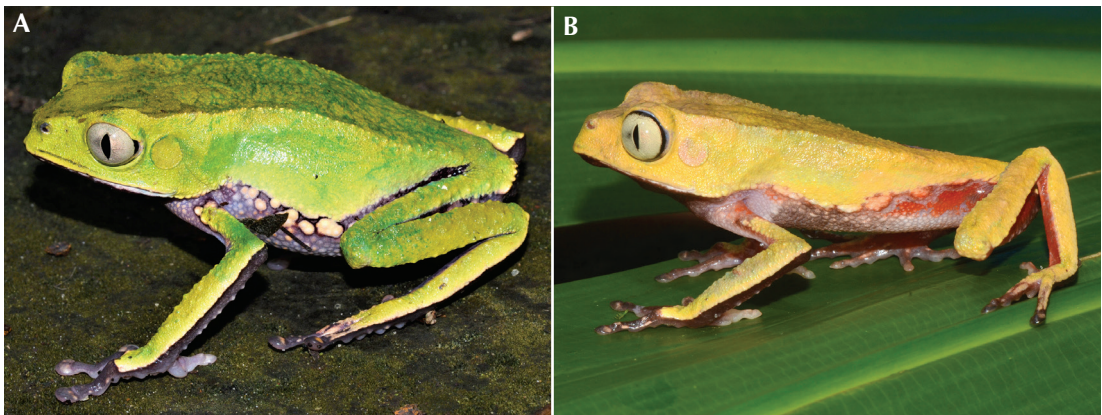
most speciose genus in the subfamily. (Frost 2022). *Phyllomedusa vaillantii* Boulenger, 1882, popularly known as White-lined Leaf Frog or the White-lined Monkey Frog, is a medium-sized nocturnal tree frog found in all Amazonian countries: French Guiana, Suriname, Guyana, Venezuela, Colombia, Ecuador, Peru, Bolivia, and Brazil (Frost 2022). In the Amazon region of Brazil, it is found around temporary ponds in forested areas (Lima *et al.* 2012). Little variation in coloration has been observed within and between populations throughout Amazonia (e.g., Duellman 2005, Lima *et al.* 2012, Ouboter and Jairam 2012). In life, adults of *P. vaillantii* have a dorsal pattern that is uniform dark green with a sawtooth dorsolateral line of tubercles extending from behind the eye to the midbody, and a ventral surface that is pale grayish-orange with a white or cream spot on the chest (Duellman 1974, Lima *et al.* 2012, Smith *et al.* 2019).

We found an adult male *P. vaillantii* during a nocturnal search for amphibians and reptiles in primary forest near the right margin of the stream Água Fria in Reserva Extrativista Municipal Beija-Flor Brilho de Fogo, municipality of Pedra Branca do Amapari, state of Amapá, in eastern Amazonia. The individual (snout–vent length 54.4 mm) was collected by APF at the beginning


of the rainy season on 24 March 2022, at 08:27 h, calling 1.45 m above ground on leaves in riparian vegetation (00°47'43.8" S, 52°15'36.4" W; 190 m a.s.l.). Sympatric amphibians included the hylids *Phyllomedusa bicolor* (Boddaert, 1772), *Callimedusa tomopterna* (Cope, 1868), *Boana geographica* (Spix, 1824), and *Dendropsophus gr. microcephalus*.

The individual collected was almost entirely yellow, including the head and limbs. The flanks and anterior parts of the hindlimbs were orange to red, and only the eyes, venter, anterior parts of the forelimbs, fingers, and adhesive discs were normal in coloration (see Figure 1 for a comparison between a normal-colored and a xanthic individual of *P. vaillantii*). The specimen was killed with lidocaine, fixed in 10% formalin, and preserved in 70% ethanol. It was deposited in the Herpetological Collection of Universidade Federal do Amapá, Macapá, Brazil. Its catalogue number is CECC 3819.

To our knowledge, our record of xanthism in *P. vaillantii* is the first reported case in anurans from the Neotropics, as well as for the genus *Phyllomedusa*. We hope our study will inspire future investigations on the frequency and possible causes of these unusual pigmentations, including whether these anomalies may affect survivorship and reproduction.



**Figure 1.** Comparative dorsolateral views of *Phyllomedusa vaillantii*. (A) Normal individual and (B) xanthic individual from Eastern Amazonia (CECC 3819).

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