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LITHOBATES CATESBEIANUS (American Bullfrog). AXANTHISM. Phenotypic variation in ranid frogs includes a variety of reported conditions including albinism, hypomelanism, axanthism, and other phenotypic forms (Bragg 1969. Proc. Oklahoma Acad. Sci. 1968:14–15; Niccoli 2013. Herpetol. Rev. 44:117; Jansen and Alvarez 2022. Herpetol. Rev. 53:108). These color variations have been reported by numerous researchers (Berns and Narayan 1970. J. Morphol. 132:169–172; Nevo 1973. Evolution 27:353–367; Bechtel 1995. Krieger Publishing Company, Mala-bar, Florida; Grether et al. 2004. Biol. Rev. 79:583–610). However, color variations like albinism and axanthism are considered very rare, occurring in approximately 1:20,000 (albinism; Maloy and Huges 2013. Brenner's Encyclopedia of Genetics, Academic Press, New York, New York. 4368 pp.) and 1:30,000 (axanthism; Berns and Uhler 1966. Herpetologica 22:181–183).

While conducting afternoon nesting bird surveys along the San Joaquin River in Madera County, California, USA, an incidental observation of an axanthic *Lithobates catesbeianus* was noted (Fig. 1). The individual was captured, photographed, removed from the environment, and determined to be a post-metamorphic (young-of-the-year) female. The individual had a blue colored head, purple and pink patterned dorsum with drab brown/green limbs. The drab brown/green limbs also

indicate that axanthism is not obligatory to the entire body and can be partially expressed in an individual. While the specimen was maintained in captivity, the individual displayed normal temperature dependent color darkening/lightening.

Axanthism in *L. catesbeianus* has been reported in Nova Scotia, Canada, and in the states of Maine and Kentucky, USA (Berns and Uhler 1966, *op. cit.*; Gulhen and Russell 2015. Can. Field Nat. 129:395–398; Lindeman et al. 2019. Can. Field Nat. 133:196–198). However, this color variation has not yet been reported in the western United States. Lindeman et al. (2019, *op. cit.*) suggested that this color variation may be neutral or disadvantageous and sought additional reported specimens of this color variation to determine if there were geographic patterns. Of the five specimens reported in this color morph, four were in Nova Scotia or Maine (geographically similar area), making it difficult to determine if they are more rare in their introduced range. With an increase in the eradication and control of *L. catesbeianus* in California, it is helpful to know that color variations exist in this region. Among the hundreds of thousands of *L. catesbeianus* observed by these authors, this specimen represents the first axanthic individual observed in California.

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LITHOBATES PALUSTRIS (Pickerel Frog). INTERSPECIFIC NECROPHILIC AMPLEXUS. Necrophilic amplexus, whereby a male frog attempts to mate with a dead female, has been documented in several frog species, both as an intraspecific and interspecific interaction. The behavior typically occurs in explosive breeding species, for which selection favors rapid intersexual mate choice. It can result either from incorrect mate recognition or female drowning during amplexus (Pintanel et al. 2021. Neotrop. Biodivers. 7:53–56). Necrophilic amplexus has rarely been documented in prolonged breeding frogs.

At 1350 h on 10 March 2020, I found a male *Lithobates palustris* in axillary amplexus with a dead female *L. sphenocephalus* (Southern Leopard Frog) in a swamp at James River Park: The Wetlands in the City of Richmond, Virginia (37.5452°N, 77.5099°W; WGS 84). The female was partially decomposed and missing a portion of her hind limb. Thus, amplexus likely began post-mortem. I collected both individuals under Virginia Department of Wildlife Resources permit no. 059179 and deposited voucher specimens in the North Carolina Museum of Natural Science (*L. sphenocephalus*: NCSM Herp 105529; *L. palustris*: NCSM Herp 105530).

Among *Lithobates* species, necrophilic amplexus has only been documented in the explosive breeder *L. sylvaticus* (Wood Frog) and only with conspecifics (Trauth et al. 2000. J. Ark. Acad. Sci. 54:154–156). This is the first documentation of necrophilic amplexus in the prolonged breeder *L. palustris* and the first documentation of interspecific necrophilic amplexus in *Lithobates*.

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LITHOBATES PUSTULOSUS (Mexican Cascades Frog). SIZE AT MATURITY. *Lithobates pustulosus* is known from southeastern



FIG. 1. Axanthic *Lithobates catesbeianus* found in Madera County, California, USA, May 2022.