

# First Record of Leucism on California Red-legged Frog (*Rana draytonii*)

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Leucism is a rare condition caused by the lack of melanin in the organism, it differs from albinism by the presence of pigmented eyes. Leucism has been recorded in several anuran species like *Anaxyrus americanus* (Thomas and Follum 2016), *Scaphiopus hurterii* (McKnight and Ligon 2013), *Litora raniformis* (Keely and Maldonado 2013) and others (Brito-Zapata 2021). Within the genus *Rana*, there is a single record of albinism in a congener, *Rana boylei* (Foothill Yellow-legged Frog; Norman and Mollier 2002) and a report of leucism in *Rana sylvatica* (Wood Frog; Thompson 2013). Jansen and Alvarez (2022) reported an atypically colored *R. draytonii* (California Red-legged Frog) juvenile that appeared to be amelanistic. Here we present the first record of leucism in *R. draytonii*.

At 1850 h on 3 August 2022, we captured a leucistic sub-adult female *R. draytonii* in the area of San Antonio Murillos, Sierra San Pedro Mártir, Baja California, México (30.82°N, -115.62°W, 558 m elevation). The frog was floating in the middle of a shallow clear-water stream (2 m wide) surrounded by riparian vegetation dominated by willows (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii*), and sycamore (*Platanus racemosa*). The individual frog (63 mm SUL, 28.3 gr) was very pallid compared with the common color morpho of the *R. draytonii* (Fig. 1a and 1b). The frog appeared to be yellowish overall with few brown spots, a yellow white in the ventral surface, bright yellow blotches on the sides of legs, and with the characteristic reddish coloration on the ventral side of the legs and hind limbs (Fig. 1c). After recording the data and photos, the frog was released at the site of capture.

Amphibian leucism has not been well studied and there are only scattered notes for this phenomenon (Brito-Zapata 2021). This condition, can change the individual fitness, such as mating preferences, stress resistance or predation potential (Hoffman and Blouin 2000). Typically, leucistic records are noted in early life stages or juvenile frogs because of low survival rates (Brown et al. 2020), but for nocturnal organism there can be a higher incidence of leucism due to temporal predator avoidance (Keely and Maldonado 2013).

This individual frog was a sub-adult based on previous studies, we estimate that its age is 2-3 years old (Peralta-García et al. 2016). In addition, this leucistic frog was captured during the daylight hours (1850 h), but was within dense understory where the sun's rays do not enter directly, and which may suggest that the lack of pigments did not influenced its survival, relatively despite easy detection by our group.

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## Literature Cited

- Brito-Zapata, D. 2021. First report of partial leucism in the poison frog *Epipedobates anthonyi* (Anura: Dendrobatidae) in El Oro, Ecuador. *Neotropical Diversity* 7:1-4.
- Brown, T.W., F. Papini, and S.M. Clayson. 2020. Leucism in a Sabinal Frog, *Leptodactylus melanonotus* (Anura; Leptodactylidae), from Utila Island, Honduras. *Reptiles and Amphibians* 27:432-433.
- Hoffman, E.A., and M.S. Blouin. 2000. A review of color and pattern polymorphisms in anurans. *Biological Journal of the Linnean Society* 70:633-665.
- Jensen, D.S., and J.A. Alvarez. 2022. *Rana draytonii* (California Red-legged Frog). *Coloration*. *Herpetological Review* 53:108.
- Keely, C.C., and S.P. Maldonado. 2013. *Litora raniformis* (Growling Grass Frog). *Leucism*. *Herpetological Review* 44:297.
- McKnight, D.T., and D.B. Ligon. 2013. *Scaphiopus hurterii* (Hurter's Spadefoot). *Leucism*. *Herpetological Review* 44:131-132.
- Norman, B.R., and M. Mollier. 2002. Concerning an albino Foothill Yellow-legged Frog, *Rana boylei* (Amphibia, Anura, Ranidae) from Red Cap Creek

Jansen and Alvarez (2022) reported an atypically colored *R. draytonii* (California Red-legged Frog) juvenile that appeared to be amelanistic. Here we present the first record of leucism in *R. draytonii*.

Drainage, Humboldt County, California. Bulletin Chicago Herpetological Society 37:2-3.

Peralta-García, A., B.D. Hollingsworth, J.Q. Richmond, J.H. Valdez-Villavicencio, G. Ruiz-Campos, R.N. Fisher, P. Cruz-Hernández, and P. Galina-Tessaro. 2016. Status of the California Red-legged Frog (*Rana draytonii*) in the State of Baja

California, México. Herpetological Conservation and Biology.11:168-180.

Thomas, M.A., and S.C. Follum. 2016. *Anaxyrus americanus* (American Toad). Partial Leucism. Herpetological Review 47:102-103.

Thompson, M. 2013. *Rana sylvatica* (Wood Frog). Leucism. Herpetological Review 44:128-129.



**Fig. 1a.** Typically coloration of California Red-legged Frog (*Rana draytonii*). **b.** Leucistic California Red-legged Frog. **c.** Ventral view of the leucistic California Red-legged Frog from San Antonio Murillos, Baja California, México, 2022.

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