NOTES

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Natural History

Albinism in a raccoon (*Procyon lotor*) from Mexico

Rafael Flores-Peredo[1]*, Beatriz Bolívar-Cimé[1], Isac Mella-Méndez[2]

1 Laboratorio de Ecología, Instituto de Investigaciones Forestales, Universidad Veracruzana. Interior del parque Ecológico El Haya, s/n, Xalapa, Veracruz, México. 2 Doctorado en Neuroetología, Instituto de Investigaciones Forestales, Universidad Veracruzana. Av. Dr. Luis Castelazo, s/n, Xalapa, Veracruz, México.
* **Correspondencia:** peredofr@gmail.com

Resumen

El albinismo se define como la falta de pigmento en todo el cuerpo tanto de la piel como del cabello y los ojos. Esta anomalía genética que consiste en una deficiencia en la producción de melanocitos, generalmente se atribuye a factores ambientales como la baja calidad del hábitat y la dieta, así como la baja diversidad genética. En esta nota, registramos un caso de albinismo parcial en un mapache (*Procyon lotor*) capturado por cazadores furtivos en la zona conocida como Barranca de Matlacobatl, Municipio de Teocelo, Veracruz, México. El ejemplar fue recuperado por la asociación civil Pro-Vida Silvestre Teocelotl y resguardado durante una semana bajo atención médica. Este es el segundo registro en México de un mapache albino salvaje, registrado particularmente para una región neotropical del centro del estado de Veracruz, México.

Palabras clave: Aberración de color, hipopigmentación, Procyonidae, mamífero neotropical.

Abstract

Albinism is defined as the complete absence of pigment in skin, hair, and eyes directly caused by a hereditary disorder in the production of melanin. This genetic abnormality is usually attributed to environmental factors such as low quality of habitat and inbreeding. In this note, we recorded a case of partial albinism in a raccoon (*Procyon lotor*) captured by poachers in the area known as Barranca de Matlacobatl, Municipality of Teocelo, Veracruz, Mexico. The specimen was recovered by the civil association Pro-Vida Silvestre Teocelotl and sheltered for a week under medical care. This is the second record in Mexico of a wild albino raccoon. Specifically, it was recorded particularly for a neotropical region of the center of the state of Veracruz, Mexico.

Key words: Color aberration, hypopigmentation, Procyonidae, neotropical mammal.

Albinism is an abnormal coloration of skin, hair, feathers, scales, and eyes (Hofreiter & Schöneberg 2010) and has been divided into two categories: true or complete albinism represented by the total absence of integumentary and retinal pigmentation (Sandoval-Castillo et al. 2006) and partial albinism that occurs when the pigment is reduced or absent from the skin, feathers or eyes (Acevedo & Aguayo 2008). Partial albinism is defined as the absence or reduction of melanin in only some parts of the body (Logan & Hogan, 1988; Berdeen & Otis 2011). Leucism is a form of partial albinism where individuals exhibit a whitish coloration color but retain distinguished coloring in the eyes, nails, and skin (Forrest & Naveen 2000; Miller 2005). Albinism is caused by the action of different factors

mainly related to a low genetic diversity (Acevedo & Aguayo 2008; Acevedo et al. 2009; Summers 2009), besides the low quality of habitat and diet (Owen & Shimmings 1992; Peles et al., 1995). Even though leucism and albinism are considered infrequent, anomalies in coloration have been reported in many neotropical vertebrate species such as amphibians, birds, and reptiles (Abreu et al. 2013). Reports of albinism in mammals such as raccoons (*Procyon lotor*) are scarce for wild individuals, being generated by a recessive character at independent loci. When these alleles are homozygous, each is epistatic to the alleles for normal pigmentation (Long & Hogan 1988). Although, Castellanos and Brooks (2016) reported the sighting of an albino raccoon in League City, Texas, USA, and Peña-Mondragón et al. (2018) documented the first record of an albino raccoon in Mexico. *Procyon lotor* is a habitat generalist and could inhabit a great variety of vegetation types, even suburban and urban habitats (Ceballos & Oliva 2005). Its diet can vary throughout its distribution, however, plant material and invertebrates have been found as the most important items of its diet regardless of its location (Rulison et al. 2012). Normally, its fur color is grayish to blackish with yellowish or brown tones on the dorsal area. A very distinctive feature is a black mask that covers his eyes which is surrounded by white and grayish hair that covers the rest of the face and snout. The tail presents four to seven dark brown or black rings alternating with grayish rings.

In this note, we provide the second record of partial albinism in a wild raccoon for Mexico and the first record in the State of Veracruz. On February 2019, we were contacted by the Pro-Vida Silvestre Teocelotl civil association to evaluate the health and body condition of an albino female raccoon recovered from poachers (Figure 1), which was captured in the area known as Barranca de Matlacobatl, municipality of Teocelo, Veracruz, Mexico (19° 24' 9.72 "N, 96° 59' 15.88" W, 1160 m.a.s.l.) at 2.32 km northwest of the center of this city (Figure 2). The morphometric measurements of the individual were: total length, 709 mm; leg, 95 mm; ear, 59.2 mm; weight, 3700 gr.

Figure 1. Albino female raccoon *Procyon lotor* recovered from poachers in the Matlacobatl canyon, Municipality of Teocelo, Veracruz, Mexico.

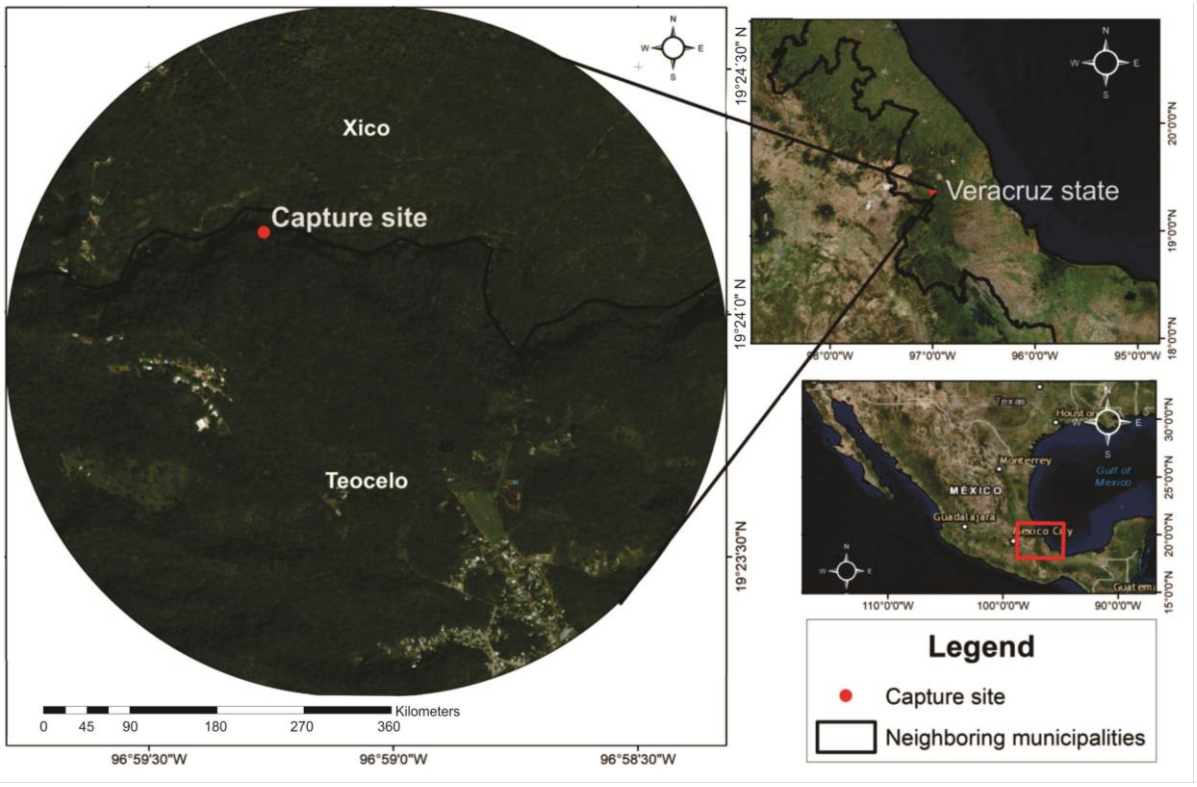

Figure 2. Location of the capture site of the albino female raccoon in the Matlacobatl canyon, Municipality of Teocelo, Veracruz, Mexico. The vegetation corresponds to relics of mountain cloud forests and abandoned coffee plantations.

The photographic record shows partial albinism, where the tail and back are reddish brown and the face, chest, and legs are lacking in pigmentation keeping the reddish color in the eyes (Logan & Hogan 1988). The individual was sheltered by the members of the civil association in the cellar of a mechanical workshop for seven days, however, as there were no security mechanisms, the raccoon escaped, leaving only the photographic evidence.

Despite the wide distribution of raccoons, there is limited information about color aberrations and there is only one verified and documented record in Mexico (Peña-Mondragón et al. 2018). In the ecological context, the abnormal coloration of the skin or hair can generate disadvantages (Ferreira de Oliveira 2019). Coloration is related to variables such as inter and intra-specific communication, camouflage or crypsis, mimicry, warning, sexual selection, and even thermoregulation (Vignieri et al. 2010). Albino animals are visually conspicuous and could lack species-specific camouflaging patterns (Ribeiro & de Siqueira-Silva 2020). In addition, albinism may increase the likelihood of being hunted, generating a survival disadvantage, it also affects the process of attracting mates and visual acuity (Uieda 2000; Gronskov et al. 2007). In addition to this, an abnormal or atypical coloration makes these animals more vulnerable to activities such as poaching and illegal trafficking because of their conspicuousness, but also because their rarity increases their appeal to collectors.

Considering the previous record of an albino raccoon reported in Mexico, there are some differences in the environment type with the current report. Regarding the vegetation type, in our case is a mountain cloud forest, while the first record came from a transition from

oak to pine forest (Peña-Mondragón et al. 2018). However, something in common in both cases is the strong anthropogenic pressure due to timber extraction or poaching, in our case. Therefore, studies on the effect of anthropogenic disturbance on low genetic diversity should be cored out.

Currently, there is limited information that assesses the cost for those individuals living in free life with chromatic aberrations (Silva-Caballero et al. 2014), which can decrease their survival or increase their search for trade and illegal trafficking as happened with the individual recovered. Genetic connectivity studies for mammals are scarce in Mexico. The development of these studies could explain intrinsic or extrinsic factors that may be associated with albinism in this species.

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