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SHORT ARTICLES

FIRST CASE OF ALBINISM REGISTERED FOR *ATELES CHAMEK* (HUMBOLDT, 1812)

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Abstract

Albinism is rarely documented amongst Neotropical mammals, especially in primates, for which only a few cases have been reported. In this paper, we report the first case of albinism in a wild black-faced black spider monkey (*Ateles chamek*) found on the Las Piedras River in south-eastern Peru. The individual, a juvenile female, was sighted in a group in primary forest between 2017 and 2020.

Keywords: Albinism, spider monkey, genetics, Neotropics, mammal

Resumen

El albinismo raras veces se documenta en los mamíferos neotropicales, especialmente en los primates, de los cuales, solo se han reportado algunos casos. En este artículo, reportamos el primer caso de albinismo en un mono araña negro (*Ateles chamek*) silvestre encontrado a lo largo del río Las Piedras en el sur-este de Perú, Madre de Dios. El individuo, una hembra juvenil, fue avistado en su grupo en bosque primario entre los años 2017 y 2020.

Palabras claves: Albinismo, mono araña, genética, mamíferos, neotrópicos

Albinism is a rare genetic condition found in vertebrates, invertebrates and plants (Uieda 2000). The term albinism refers to the absence of pigmentation within an individual (Uieda 2000), causing it to have pale, pinkish skin and white fur or hair. Anomalous pigmentation is a recessive and rare phenomenon (Uieda 2000; Hofreiter and Schöneberg 2010; Espinal et al. 2016) and can take on different forms: albinism, leucism and piebaldism (Brito and Valdivieso-Bermeo 2016). Albinism is more recognizable for the complete lack of pigmentation throughout the body including the iris causing a red colouration (Uieda 2000), whereas in leucism and piebaldism there is still some pigmentation found in patches of fur, irises, and nails (Uieda 2000; Abreu et al. 2013).

In captivity, albinism is often selectively bred, for instance, rodents that are used in labs (Romero et al. 2018). There have also been many records of albino animals in

zoos, where small gene pools and limited breeding opportunities have been shown to increase the frequency of albinism (Abreu et al. 2013; Prado-Martinez et al. 2013; Marçon and Maia 2019). This suggests that albinism may be more common in captive populations than in the wild.

Anomalous pigmentation has been recorded for a large variety of mammal species, including whales, tapirs, peccaries and primates (Gross 1965; Bicca-Marques 1988; Watkins-Colwell 2002; Mahabal et al. 2012; Abreu et al. 2013; Prado-Martinez et al. 2013; Duquette et al. 2015; National Geographic 2015; Espinal et al. 2016; Landis et al. 2020; Aximoff et al. 2021; López-Platas et al. 2021; Montilla and Link 2022; Ramos-Luna et al. 2022), and new cases in the wild are being reported more frequently. Wild albino individuals are more vulnerable to predation, as their natural camouflage is lost and the individual can be physically impaired, e.g. reduction in visual acuity, an impairment that is frequently recorded amongst albino vertebrates (Oetting et al. 1994; Abreu et al. 2013). Furthermore, in some vertebrate communities, albino individuals have been found to be ostracised due to their difference in appearance, causing an even higher predation risk (Slavík et al. 2015; Espinal et al. 2016). These consequences of albinism could explain the small number of reports of wild individuals because due to the lowered survival rate, levels of prevalence are minimised.

In a literature review of anomalous pigmentation within Neotropical mammals by Abreu et al. (2013), 198 cases of anomalous pigmentation were found, 23 of which were cited as albinism. Within this survey, no albino primates were reported. However, Ramos-Luna et al. (2022), have since reported 13 records of anomalous pigmentation in Neotropical primates in a total of 44 individuals, including specimens of the genera *Alouatta*, *Ateles*, *Callithrix*, *Cebus*, and *Saimiri*.

Here, we report the first record of albinism for *Ateles chamek* (Figure 1).

The black-faced black spider monkey (*Ateles chamek*) is recognised as Endangered throughout its range in Peru, Brazil and Bolivia (Alves et al. 2020). They are large primates with long limbs and a prehensile tail (Campbell 2008). Normally, their fur is completely black with no distinguishing colours on any of their limbs except for slightly light pink genitals and lighter spots in the face (Campbell 2008).

The albino individual was first sighted in March 2017 by a staff member of the ecotourism lodge Las Piedras Amazon Tours (12°2'41.067"S, 69°40'12.493"W). The sighting occurred within an ecotourism concession of 1,016 ha situated along the Las Piedras River in the Madre de Dios department of south-eastern Peru. The individual was sighted on the banks of an oxbow lake situated in floodplain forest. At the time, the individual was an infant and

travelled on the mother's back. This sighting was then confirmed by photographic evidence by resident scientist Suze Lewis-Amable on the 14th of August 2017 (Figure 2). From these photos, the individual was identified as a female. Over a 3-year period, from March 2017 to February 2020, there have been multiple sightings of the same albino individual by staff members of the lodge, the first author and community members. Initial observations of the individual (by the first author) indicate that her group has not ostracised her, as she was seen foraging and travelling in a subgroup of four individuals, the mother and two other females that all stayed in close proximity of the albino.

There have only been a few confirmed cases of non-human primates with albinism reaching adulthood. The captive-held albino Western Gorilla 'Snowflake', that reached adulthood, presented poor visual acuity and was also diagnosed with squamous cell carcinoma, a type of skin cancer, likely developed due to the reduced protection from UV light (Prado-Martinez et al. 2013). Observations of two spider monkeys (*Ateles hybridus*) with leucism in Colombia suggest that these large primates can survive in the wild and reach adulthood with no obvious physical impairments (National Geographic 2015). In another case, a wild albino infant male chimpanzee was killed by group members in a case of infanticide (Leroux

et al. 2011). Initially the group members reacted with fear upon seeing the albino infant, a reaction not usually seen with other infants. The group members then took the infant from the mother's arms and killed it. Whether this infanticide was triggered by its albinism or other reasons remains uncertain, however, due to the chimps' initial fear response it is suggested by the authors that this reaction could have been due to the albinism (Leroux et al. 2011).

Genetic research has shown that albinism can be caused by inbreeding (Prado-Martinez et al. 2013). Inbreeding often occurs due to decreasing populations caused by habitat loss, habitat fragmentation and hunting. Inbreeding is known to reduce a population's fitness and can even lead to population extinction (Reed et al. 2002). The albino individual recorded along the Las Piedras River is, however, found in continuous protected primary rainforest and there is no direct evidence of habitat loss, habitat fragmentation, or hunting (personal observations 2020).

The causes and effects of anomalous pigmentation on wild vertebrates remain largely unknown. Further studies are recommended on wild individuals with anomalous pigmentation to gain a better understanding on consequences on population level (genetics) as well as on individual level (social and physical).



Figure 1. Albino *Ateles chamek* as a subadult in early 2019. Photograph by Liselot Lange.



Figure 2. The albino individual when first sighted, still an infant at the time, clinging to her mother's back. Photograph by Suze Lewis de Amable.

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