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SOME COLOUR ABERRATIONS IN PARAGUAYAN BIRDS RESULTING IN AREAS OF WHITE PLUMAGE

Algunas aberraciones de color en aves paraguayas que resultan en áreas de plumaje blanco

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Abstract

We provide photographic documentation of a series of plumage aberrations in eight species of seven families of birds observed in four departments of Paraguay. These include evidence of partial leucism and progressive greying in White-winged Coot *Fulica leucoptera*, Chaco Chachalaca *Ortalis canicollis*, Picazuro Pigeon *Patagioenas picazuro*, White-winged Nightjar *Eleothreptus candicans*, Smooth-billed Ani *Crotophaga ani*, Shiny Cowbird *Molothrus bonariensis*, Chestnut-vented Conebill *Conirostrum speciosum* and Saffron Finch *Sicalis flaveola*. This contributes significantly to the Paraguayan literature on plumage aberrations in birds.

Key words

Caprimulgidae, Columbidae, Cuculidae, Cracidae, leucism, progressive greying.

Resumen

Se documentan varias aberraciones de plumajes en ocho especies de aves paraguayas pertenecientes a siete familias, observadas en cuatro departamentos políticos de Paraguay. Se incluyen registros de leucismo parcial y encanecimiento progresivo en Gallareta Chica *Fulica leucoptera*, Charata *Ortalis canicollis*, Paloma Turca *Patagioenas picazuro*, Atajacaminos Ala Blanca *Eleothreptus candicans*, Anó Chico *Crotophaga ani*, Tordo Renegrido *Molothrus bonariensis*, Mielerito Azul *Conirostrum speciosum* y Canario Paraguay *Sicalis flaveola*. Este trabajo representa una contribución significante a la literatura paraguaya sobre aberraciones de plumaje en aves.

Palabras clave

Caprimulgidae, Columbidae, Cuculidae, Cracidae, encanecimiento progresivo, leucismo.

Introducción

Two types of melanin pigments are present in the plumage of birds, eumelanins and phaeomelanins. Eumelanins are responsible for black, dark brown and grey plumage. Phaeomelanins cause reddish-brown (rufous) colouration at high concentrations and yellow-brown (buff), or whitish (creamy) colouration at lower concentrations (van Grouw, 2006, 2021). Both melanin types may be present in a single feather, with eumelanins mainly located in the centre of feathers and phaeomelanins towards the edges (van Grouw, 2006, 2021). The absence or decrease of one or both of these melanins, where they are normally present, results in anomalous plumage colourations, often called plumage aberrations, many of which may produce in areas of anomalous white plumage (see key in Mahabal *et al*., 2016). White feathers can also be caused by injury (though the mechanisms are poorly understood) or by diet (van Grouw, 2018).

Several plumage aberrations have been described. Leucism may be partial or complete and refers to an absence of melanins (eumelanin and phaeomelanin) in the feathers, resulting in areas of white plumage (though carotenoid pigments may still be present). This pattern is often bilaterally symmetric and does not change with age (Van Grouw, 2006, 2021; Gonçalves Jr. *et al*., 2008). Leucistic birds have often been incorrectly referred to in the literature as ‘albino’ or ‘partially albino’ (an oxymoron); however, leucistic individuals always have a normally-pigmented iris (Van Grouw, 2006). Brown is an aberration resulting from reduced eumelanin that causes normally black feathers to be brown, whilst phaeomelanin is unaffected (Van Grouw, 2006). Furthermore, incompletely oxidized eumelanin bleaches in sunlight, rapidly changing their appearance to dirty white, and the brown colouration is retained only where feathers are shielded from sunlight. Highly-bleached brown individuals could be difficult to distinguish from birds with complete leucism (Mahabal *et al*., 2016). Progressive greying is the loss of pigment cells with age, affecting all melanins and resulting in an increasing number of white feathers with each successive moult. This phenomenon commonly causes a variegated appearance with a mixture of white and normal-coloured feathers, and the iris is normally-pigmented (Mahabal *et al*., 2016). In ino, females show incomplete synthesis of eumelanins and phaeomelanins. Such individuals may show white areas of plumage, but have a pinkish bill, legs and eyes (Mahabal *et al*., 2016).

Previous notes on colour aberrations have been published on Paraguayan birds (Insfrán, 1931; Urcola, 2011; Smith, 2016, 2021; Etchegaray *et al*., 2016; Smith & Ríos, 2017; Smith *et al*., 2017; Ortiz *et al*., 2023). However, consistent with many publications on this topic (Mahabal *et al*., 2016), these often contain errors. For example, the leucistic Limpkin *Aramus guarauna*, reported by Smith & Ríos (2017), is in fact a bleached brown aberration. The aberrant red

plumage of the Nanday Parakeet *Aratinga nanday*, called psittacofulvism by those authors, is known to parrot breeders as red suffusion and is usually attributed to health conditions especially those associated with the liver (van Grouw, H. *in litt*. 2020). Whilst the partially leucistic Turkey Vulture *Cathartes aura* of Smith (2021) may be progressive greying.

In the interest of contributing to the regional and global inventory of plumage aberrations, in this note we document an additional eight avian species from seven families that show colour aberrations from Paraguay. All records of birds showing plumage aberrations were opportunistically photographed by the authors during casual observations, with one individual captured by hand and one existing specimen photographed in a museum collection.

Results

White-winged Coot *Fulica leucoptera* (Rallidae)

Laguna Capitán, Presidente Hayes department (-22.548849 -59.7222951), 26 August 2023. An adult showing progressive greying on the dorsum (Fig. 1). Aberrations have previously been reported in this species from Argentina (Pereyra, 1937; Urcola, 2011). There is at least one previous undocumented record from Paraguay of two adults with colour aberrations, at Laguna Sanidad, Presidente Hayes department (-24.1333, -59.0000) on 9 October 2005: one bird with white breast, upper belly and breast sides, and the second with white on the crown, back of the neck and mantle.

Figura 1: White-winged Coot *Fulica leucoptera* with progressive greying, Presidente Hayes department (Hubert Stelmach).

Chaco Chachalaca *Ortalis canicollis* (Cracidae)

Fortín Toledo, Boquerón department (-22.357633 -60.341633), 2 March 2023. An individual with a patch of white feathers on the right side of the upper neck (Fig. 2). We were unable to observe the other side of the neck to see if this was present on both sides, so this may be due to progressive greying or partial leucism. Aberrations have previously been reported in this genus from Brazil (Düpont *et al*., 2014; Mohr *et al*., 2017), but this is the first report we are aware of from this species.

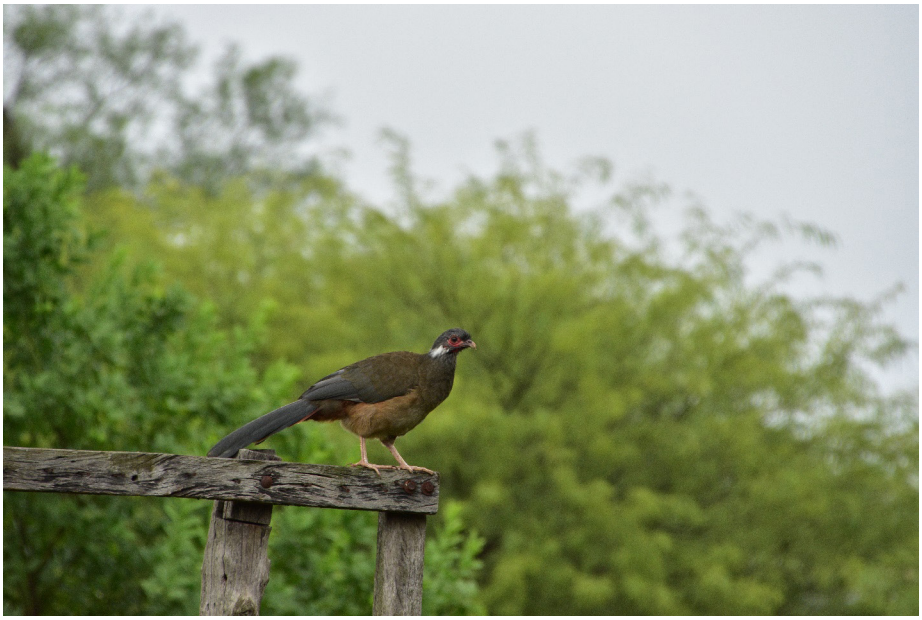

Figura 2: Chaco Chachalaca *Ortalis canicollis* with progressive greying or partial leucism, Boquerón department (Jonny Plessas).

Picazuro Pigeon *Patagioenas picazuro* (Columbidae)

A female specimen on display in the Jakob Unger Museum, Filadelfia, Boquerón department collected by Jakob Unger on 15 August 2013 at Fernheim (-22.3373, -60.0247), is stated on the label to be albinistic (Fig. 3). However, the specimen shows the typically variegated appearance of progressive greying (Mahabal *et al*., 2016). Colour aberrations have been reported for this species in Brazil (Klay Santos *et al*., 2011), but we are unaware of any previous reports of progressive greying in this species.

Figura 3: Picazuro Pigeon *Patagioenas picazuro* with progressive greying in Jakob Unger Museum (Paul Smith).

White-winged Nightjar *Eleothreptus candicans* (Caprimulgidae)

Aguara Ñu, Canindeyú department (-24.178629, -55.284371), 24 November 1997. An adult male was captured by hand with an entirely white second primary (P2) on the left wing (Fig. 4), representing partial leucism or perhaps the result of an external factor, such as an injury or trauma (van Grouw, 2021). This is the first documentation of a plumage aberration in this globally threatened species (Birdlife International 2019).

Figura 4: White-winged Nightjar *Eleothreptus candicans* with possible partial leucism, Canindeyú department (Rob Clay).

Smooth-billed Ani *Crotophaga ani* (Cuculidae)

Pirity, General Artigas, Itapúa department (-26.9355701, -56.3332648), 8 June 2020. Adult bird with partial leucism affecting the inner flight feathers on both sides photographed by Jose Paredes (Fig. 5). Insfrán (1931) documented two previous cases of colour aberrations in this species from Paraguay, one from the Bahía de Asunción, Central department, which was "painted with black-and-white" (*pintado de blanco y negro*); this might have been a partially leucistic or showing progressive greying. The second record (locality not stated) had pink bill and legs, white head and purplish-white (*blanco púrpuro*) neck, dorsum, wings, breast abdomen and tail which, speculatively, may perhaps refer to an ino.

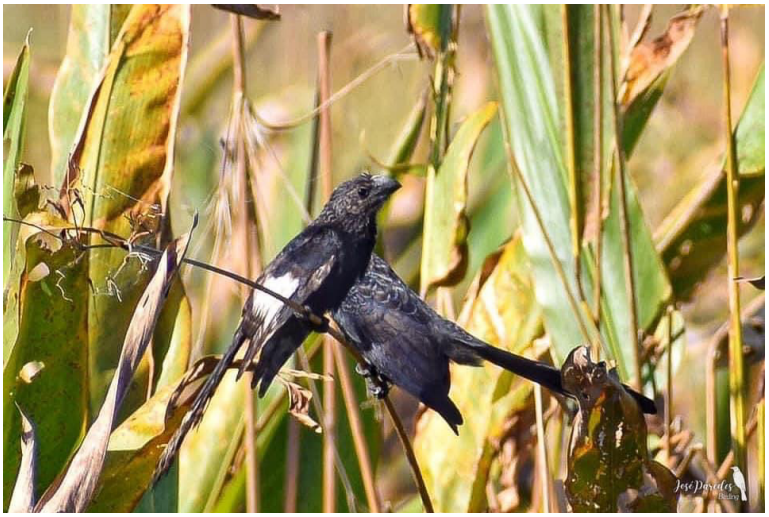

Figura 5: Smooth-billed Ani *Crotophaga ani* with partial leucism, Itapúa department (José Paredes).

Shiny Cowbird *Molothrus bonariensis* (Icteridae)

Pirity, General Artigas, Itapúa department (-26.9323105, -56.2235326), 29 August 2021. An adult male with partial leucism (or perhaps the result of an external factor), showing a single white flight feather in the right wing (Fig. 6). Partial leucism has been previously reported in this species from Colombia (Cárdenas & Franco, 2021) and Ecuador (Cadena-Ortiz *et al*., 2015), and a plumage reported as "albinism" from Argentina (Urcola, 2011).

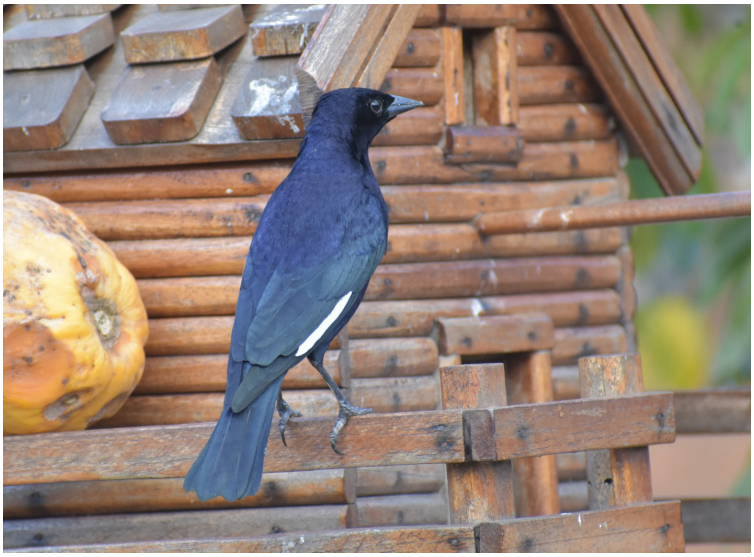

Figura 6: Shiny Cowbird *Molothrus bonariensis* with possible partial leucism, Itapúa department (José Paredes).

Chestnut-vented Conebill *Conirostrum speciosum* (Thraupidae)

Estancia Nueva Gambach, Itapúa department (-26.633333 -55.65), 6 November 2022. An adult individual appeared to be entirely white ventrally (Fig. 7), although the dorsal side was not observable. The individual had normally-coloured bill, iris and legs and is presumed (but not confirmed) to be at least partially leucistic, though advanced progressive greying cannot be completely ruled out. There are no previous reports of colour aberrations in this genus.

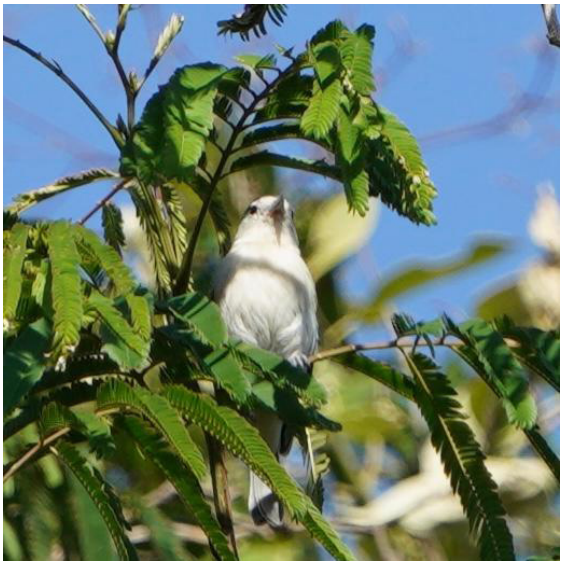

Figura 7: Chestnut-vented Conebill *Conirostrum speciosum* with leucism, Itapúa department (Chris Daniels).

Saffron Finch *Sicalis flaveola* (Thraupidae)

Encarnación, Itapúa department (-27.3297710, -55.8733612), 16 September 2022. An adult female showing progressive greying affecting the head, ventral side and mantle (Fig. 8). Colour aberrations have been reported for this species in Brazil (Bejarano Vieira *et al*., 2018), but we are unaware of any previous reports of progressive greying in this species.

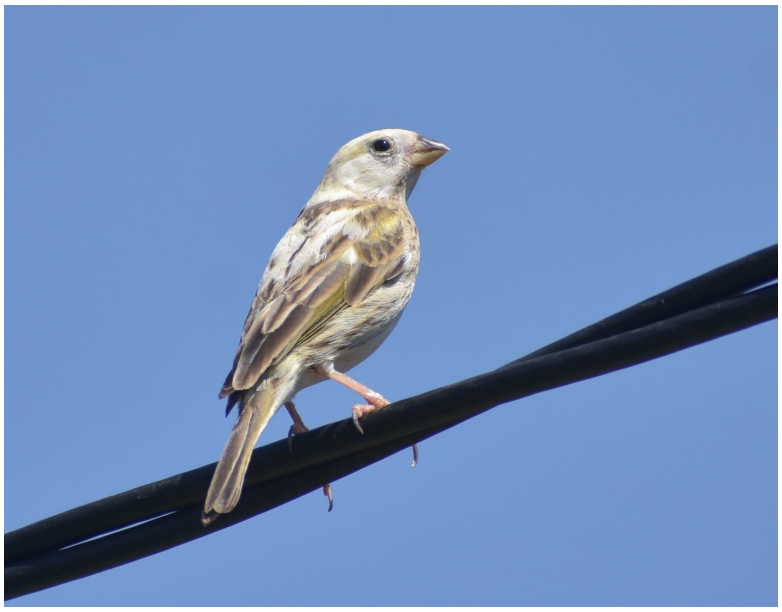

Figura 8: Saffron Finch *Sicalis flaveola* with progressive greying, Itapúa department (José Paredes).

Discussion

Eight Paraguayan species are documented as showing plumages anomalies in this paper, representing seven additional species for the national inventory. Only *C. ani* had been previously reported (Insfrán 1931). A total of 19 species have now been documented with plumage anomalies in Paraguay, representing 13 distinct families, 9 of which are non-passerine families (10 species in Tinamidae, Rallidae, Cracidae, Columbidae, Aramidae, Psittacidae, Cathartidae, Cuculidae, Caprimulgidae, Picidae) and 3 passerine families (8 species in Tyrannidae, Icteridae, Thraupidae) (Insfrán, 1931; Urcola, 2011; Smith, 2016, 2021; Etchegaray *et al*., 2016; Smith & Ríos, 2017; Smith *et al*., 2017; Ortiz *et al*., 2023). The majority of the previously reported cases involve birds showing anomalous areas of white on the plumage which includes aberrations such as leucism and progressive greying. The documentation of plumage anomalies continues to be of relevance as we strive towards a better understanding of the underlying causes of these phenomena.

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