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Two new reports of leucistic birds from Mexico

Dos nuevos registros de leucismo en aves para México

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Abstract

We present two new records of leucism in two bird species from two locations in Mexico. First, we report one leucistic Barn Swallow (*Hirundo rustica*); the individual was a nestling observed between 15 July and 6 August 2010, in a suburban area of central Jalisco, showing gray-whitish coloration and dark eyes. We also report of one leucistic Turkey Vulture (*Cathartes aura*) spotted during the afternoon of 4 November 2014, flying overhead while migrating in the city of José Cardel, Veracruz; the individual showed white primary feathers interspersed with dark secondaries, white primary coverts, white neck, and chest feathers. Our records represent the first Mexican report of leucism in the Barn Swallow, and the first published report of a leucistic vulture migrating across central Veracruz, respectively. Our observations also show that both leucistic individuals were accomplishing regular life-cycle activities, enriching the available knowledge of chromatic abnormalities in Mexican birds.

Keywords: Leucism, partial amelanism, Barn Swallow, Turkey Vulture, color aberration, suburban area, migratory bird, Veracruz River of Raptors.

Resumen

Presentamos dos nuevos registros de leucismo en dos especies de aves de dos localidades de México. Primero, reportamos un individuo polluelo de Golondrina Tijereta (*Hirundo rustica*), observado entre 15 de julio y 6 de agosto del 2010 en un área suburbana del centro de Jalisco, el cual presentó coloración gris blanquizca y ojos oscuros. También reportamos un Zopilote Aura (*Cathartes aura*) con leucismo observado el 4 de noviembre del 2014 en la ciudad de José Cardel, Veracruz. El individuo presentó plumas primarias blancas mezcladas con secundarias obscuras, coberteras primarias blancas, cuello y pecho blancos. Nuestros reportes representan el primer registro en México de leucismo de la Golondrina Tijereta, y el primer reporte publicado de un zopilote con leucismo migrando a través del centro de Veracruz, respectivamente. Nuestras observaciones también muestran que ambos individuos leucísticos realizaban actividades regulares de su ciclo de vida, enriqueciendo el conocimiento disponible sobre las anormalidades cromáticas en las aves mexicanas.

Palabras clave: Leucismo, amelanismo parcial, Golondrina Tijereta, Zopilote Aura, aberración de color, área suburbana, ave migratoria, Veracruz Río de Rapaces.

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INTRODUCTION

Leucism is the consequence of an embryonary disorder resulting in a lack of melanin in all or parts of the plumage and skin (van Grouw 2021). This anomaly can be partial (when only parts of the plumage or body lack melanins) or total (when all parts of the bird excepting the bottom of the eye lack melanin). Leucism is often confused with albinism, a color anomaly distinguished in the field by the entire white feathers and red or pinkish of the eyes and legs (Davis 2007). Apart from genetic and developmental factors, the occurrence of leucism may depend on age and sex (Izquierdo et al. 2018), environmental conditions (Moller and Mousseau 2001), diet deficiencies (Cherriere 2007), diseases and injuries (Phillips 1954, van Grouw 2006, 2021) and inbreeding related to small population sizes (Bensch et al 2000).

Although observations of birds with color aberrations are frequent, only a handful of them are reported and discussed in the scientific literature (Davis 2007). This implies a loss of information that may be of interest for both birders and specialists. In Mexico, color abnormalities have been reported in 26 bird families (Nextipac 2005, López-Ortega and Carbó-Ramírez 2010, Tinajero and Rodríguez-Estrella 2010, Tinajero and Rodríguez-Estrella 2014, Carbó-Ramírez et al. 2011, Contreras-Balderas and Ruiz-Campos 2011, Ayala-Pérez et al. 2013, Ayala-Pérez et al. 2014, Ayala-Pérez et al. 2015, Rodríguez-Ruiz et al. 2014, Cortinas-Salazar and Contreras-Balderas 2014, González-Arrieta and Zuria 2015, Rodríguez-Ruiz et al. 2015, Hernández Valdez et al. 2016, Reséndiz-Cruz and Caballero-Jiménez 2016, Palacios-Vázquez 2016, Rodríguez-Ruiz et al. 2017, Rodríguez-Casanova and Zuria 2018, Molina et al. 2018, Tinajero et al. 2018, Mora and Rodríguez-Ruiz 2019, Rodríguez-Casanova et al. 2019, Martínez-Adriano et al. 2022, Rodríguez-Ruiz 2022). To the best of our knowledge, there are no reports of leucistic birds from the family Hirundinidae in Mexico, while there are no published visual records of Turkey Vulture with this anomaly while migrating.

The Barn Swallow (*Hirundo rustica*) is a cosmopolitan species, living all around the world excepting extreme latitudes (Brown and Brown 2020). The subspecies that breeds in Mexico (*Hirundo rustica erythrogaster*) has dark blue upperparts and collar, forehead and throat red, and cinnamon underparts (Alderfer et al. 2014), which is the result of the deposition of both melanins and carotenoids. The Turkey Vulture (*Cathartes aura*) is a species distributed across the Americas and inhabits a wide variety of environments (Kirk and Mossman 2020). In flight, this vulture is characterized by the overall brown-black plumage and silvery flight feathers and rectrices (Howell and Webb 1995). This species has both all-year resident and migratory populations; the latter make long distance migrations from western North America to Central and South America (Alderfer et al. 2014). In this short communication we report two cases of leucism for two Mexican bird species, and briefly discuss the possible implications of leucism for individual bird survival.

DESCRIPTION OF OBSERVATIONS

A) Barn Swallow

On 15 July 2010, within the facilities of the Centro Universitario de Ciencias Biológicas y Agropecuarias, of the University of Guadalajara in Zapopan, Jalisco, OFRB spotted one Barn Swallow nestling with an atypic gray-whitish col-

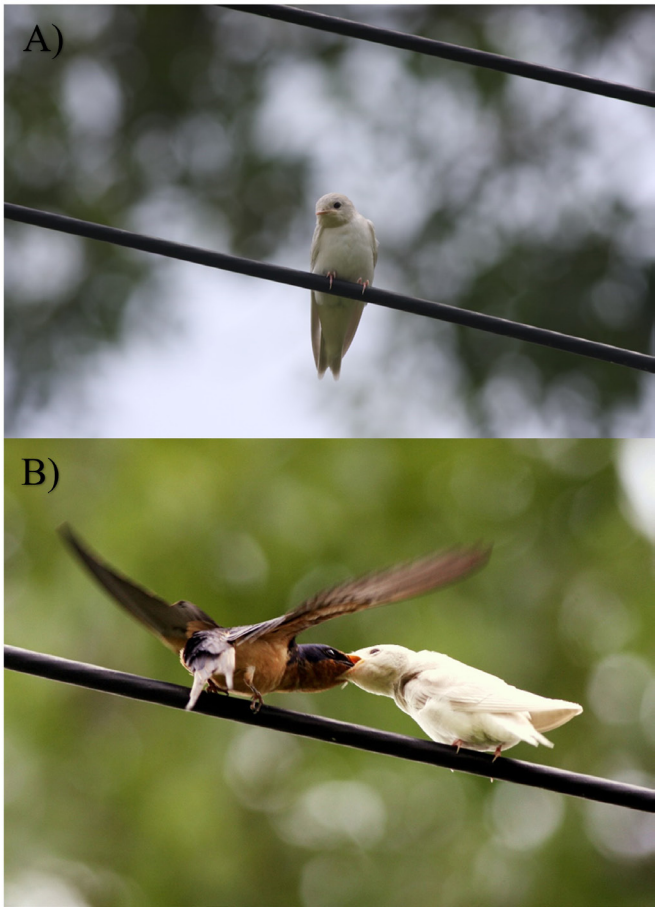

Figure 1. Photographic records of the leucistic Barn Swallow. A) Leucistic individual perched alone on a wire, note light legs and beak, dark eyes; B) Juvenile Barn Swallow being fed by parent. Photograph credits: Oscar Francisco Reyna-Bustos 2010.

oration. The nest was built below the cornice of one of the university buildings surrounded by rainfed agriculture fields. The dark coloration of the eyes of this individual allowed us to conclude that it was a case of leucism and not albinism. The nestling was accompanied by four other nest mates, which presented the normal coloration of the species.

OFRB took photographs of the nestlings during almost all their developing period. After three weeks, the plumage color of the leucistic nestling turned white (Fig. 1A), possibly as consequence of the preformative molt. The nestling successfully left the nest. The leucistic fledgling was so striking that when perched on a wire it could be spotted as far as 100 m. The leucistic individual was regularly fed by its parents (Fig. 1B). OFRB observed no negative interactions between this bird and its parents, nest mates or conspecifics.

B) Turkey Vulture

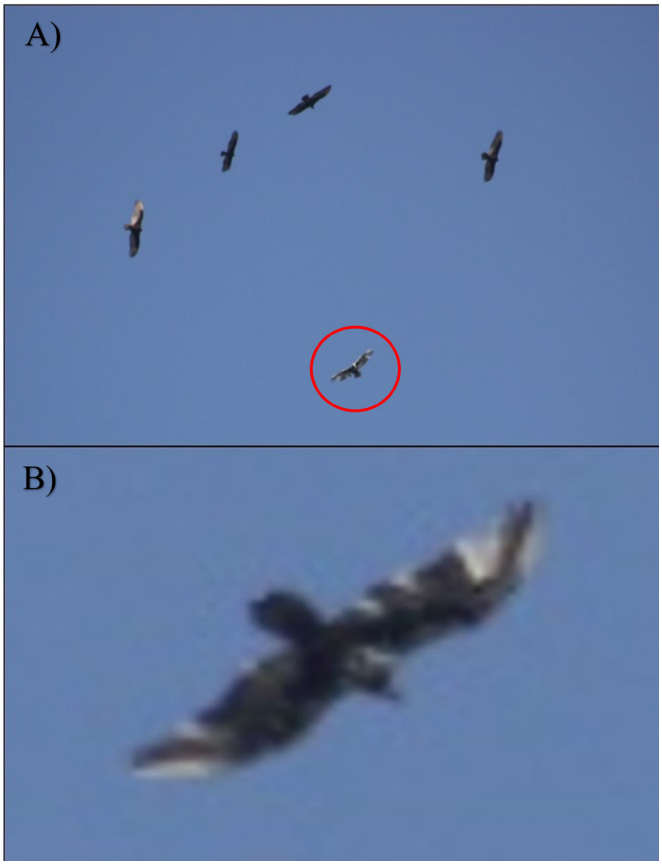

Figure 2. Photographic records of the leucistic Turkey Vulture. A) Leucistic individual (enclosed in red circle) soaring in group with conspecifics. Note the striking color differences with normal Turkey vultures; B) Close-up of the observed leucistic bird while gliding. Note the whitish neck and chest, primary and secondary flight feathers. Photograph credits: Omar Suárez-García 2014.

During the afternoon of 14 November 2014, while counting migratory raptors in the Pronatura Veracruz station in the city of José Cardel, Central Veracruz, OSG spotted one leucistic Turkey Vulture approaching at a distance and flocking with conspe-cifics (Fig. 2A). The individual slowly approached until it was almost overhead, took a thermal to gain some height, and followed its way to the south. The bird had some white primary feathers interspersed with dark secondaries, white primary coverts, white neck and chest feathers, and dark tail feathers (Fig. 2B).

DISCUSSION

The leucistic Barn Swallow reported in this paper represents the first published record for a member of the family Hirundinidae in Mexico. There is an earlier report of progressive graying in one individ-ual of Barn Swallow in Nayarit, Mexico (Molina et al. 2018). By contrast, in Canada and the USA, cases of albinism and leucism in the Barn Swallow have often been documented (Fingerhood 2016). Notably, Fingerhood (2016) reported agonistic in-teractions with conspecifics, whereby normal-colored individuals chased leucistic ones, which we did not see in Jalisco. Several leucistic Barn Swallows (termed 'partial albinos'; Moller and Mosseau 2001) were studied in Chernobyl, Ukraine, after the nuclear accident of 1986 (Moller and Mosseau 2001). These birds presented normal coloration of the dark flight and body feathers and a lack of the normal red coloration on the forehead and throat, possibly because of mutations affecting the metabolism of carotenoids responsible for body feather coloration (Moller and Mosseau 2001). The leucistic Barn Swallow reported in the present study lacked any coloration on the body, so we hypothesized that the most plausible explanation of the leucism in this specimen was an anomaly in the deposition of both melanin and carotenoids.

We report one case of leucism in a Turkey Vulture migrating across Mexico´s Gulf coast. Color anomalies in Turkey Vultures have been docu-mented previously in Mexico, in Baja California Sur, Nayarit, and Tamaulipas (Tinajero and Rodríguez-Estrella 2010, Molina et al. 2018, Mora and Rodríguez-Ruiz 2019). However, to our knowledge, there are no published reports of leucistic Turkey Vultures migrating across central Veracruz, which encompasses the world´s

biggest hawkwatch point, with an average of 2 million Turkey Vultures pass-ing overhead every year (Ruelas-Inzunza et al. 2010). Observers from the Veracruz River of Raptors Project have made few sightings of raptors with color aberrations during the more than 30 years that counting has been performed (VRR staff pers. comm).

Our observations show that both leucistic individuals reported here were accomplishing regular life-cycle activities of fledging and migration. This is of interest as color abnormalities may present disadvantages for individual survival (van Grouw 2006) because they can make individuals prone to predation (van Grouw 2021). The lack of pigments may also weaken the feathers' physical condition, causing structural damage and reducing bird survival (Davis 2007). This may be a problem for migrating birds, as during long distance flights feathers can suffer excessive wearing, compromising the success of the migration. Also, birds with color anomalies may have reproductive disadvantages with respect to conspecifics with normal coloration (Moller and Mosseau 2001).

Leucism in the observed Barn Swallow may be due to the expression of a recessive gene rather than environmental factors or undernourishment. However, the presence of pollutants in the environment could play a role in the occurrence of color aberrations in birds, as seen in other cases (Davies 2007). Of the 70 bird species recorded in the university precinct (MacGregor-Fors 2005), none (apart from our observation) have been reported with color abnormalities, even for the most abundant species, like the Barn Swallow. It is important to document observations of color aberrations to improve and update our knowledge of this phenomena, and to study the relationships between color aberrations and environmental factors.

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