Striking plumage anomalies in two Tyrannidae (Passeriformes): Vermilion Flycatcher *Pyrocephalus rubinus* and Tropical Pewee *Contopus cinereus* from Paraguay

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RESUMO. A primeira documentação de anomalias da plumagem em Tyrannidae do Paraguai é apresentada; melanismo em *Contopus cinereus* e xantocromia em *Pyrocephalus rubinus*.
Palavras-chave: melanismo; xantocromiaere

Plumage anomalies may be caused by differing amounts and distributions of pigments usually present in feathers, chemical changes to pigments resulting in abnormal colors or changes in feather structure (Harrison 1985) or genetic, environmental or dietary factors (Dorst 1971, Gonçalves Junior *et al.* 2008). The most extreme variations of abnormal pigmentation occur in individuals that show marked reductions or increases in the normal pigments present (Harrison 1985).

Though probably not uncommon in nature (Hosner & Lebbin 2006, Van Grouw 2013), individuals exhibiting plumage aberrations frequently find themselves at a selective disadvantage and thus may be short-lived, meaning that they are rarely observed. Some aberrant individuals are more conspicuous to predators, and reduced pigmentation may weaken feather structure causing accelerated wear and affecting mobility (Harrison 1985). Additionally such individuals may suffer harassment from conspecifics (Nero 1954, Harris 1983, Withgott & Mcmahon 1993).

The only previous published report of plumage anomalies in Paraguayan birds that I have been able to trace is that of "albinism" (actually leucism) in a Smooth-billed Ani *Crotophaga ani* (Cuculidae) (Insfran 1931). Here documentation of striking plumage aberrations in two species of Tyrant Flycatchers (Tyrannidae) from Paraguay is provided.

Tropical Peewee *Contopus cinereus* **(melanism)**

Melanism is caused by the production of an excess of eumelanin pigments resulting in an excessively dark or blackish plumage, and is genetically determined (Van Grouw 2006). A melanistic Tropical Peewee *Contopus cinereus* (Fig 1) was photographed at Estancia Nueva Gambach (Pro Cosara), Departamento Itapúa on 26 November 2010 after being attracted by playback at the edge of Atlantic Forest. The photographed individual was entirely dark lead grey, showing none of the plumage markings associated with normal-plumaged birds. I am unaware of any previously documented plumage abnormalities in this species.

Vermilion Flycatcher *Pyrocephalus rubinus* **(xanthochroism or flavism)**

A xanthochroistic (flavistic) male Vermilion Flycatcher *Pyrocephalus rubinus* (Fig 2) was photographed in Dry Chaco scrub at Fortín Toledo, Departamento Boquerón on 12 October 2013. The red areas of the typical plumage had been completely replaced by pale orange-yellow. Xanthochroism is a genetic or dietary induced condition affecting the carotenoid pigments for red coloration, replacing them with yellow (Gómez *et al.* 2013).

An individual of this species showing virtually identical "carotenistic" (xanthochroistic) plumage was reported from Reserva Natural Otamendi, Buenos Aires, Argentina in September 2012 (Gómez *et al.* 2013) and those authors provide a comprehensive discussion of relevant literature and potential factors in the expression of this abnormality, which include: 1) changes in carotenoid distribution; 2) increase or decrease in carotenoid pigments affecting color intensity; 3) changes in the type of carotenoid pigment; 4) complete absence of one or more carotenoids (Hill 1992, Davis 2007). Gómez *et al.* (2013) concluded that the plumage exhibited was likely to be due to one of three latter explanations.

Additional plumage abnormalities in South American individuals of this species have been documented by Takano Goshima & Castro Izaguirre (2007: melanism), Torres & Franke (2008: partial melanism) and Marín (2011: partial xanthochroism).

Plumage aberrations are not particularly rare, but the number of published records greatly underestimates the frequency of occurrence (Gonçalves Junior *et al.* 2008). Though taxonomically widespread, more remains to be learned about the abundance and frequency of these color anomalies, including expanding the taxonomic and geographic inventory

Figure 1. Tropical Peewee *Contopus cinereus*
Figura 1. papa-mosca-cinzento *Contopus cinereus*

Figure 2. Vermilion Flycatcher *Pyrocephalus rubinus*
Figura 2. príncipe *Pyrocephalus rubinus*

of their occurrence (Sage 1963). The records reported here contribute towards that end by providing the first modern documentation of anomalous plumage patterns in birds from Paraguay.

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