

RECORD OF CHROMATIC MUTATION IN *Rhea americana* (Linnaeus, 1758) AND *Ramphocelus bresilius* (Linnaeus, 1766) IN BRAZIL

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ABSTRACT

Birds cases of abnormal feathering are related in literature as chromatic mutations or aberrant feathering are not uncommonly recorded in wild birds. We present two new cases of mutations in Neotropical birds, in Brazil. An individual with a leucism mutation of Greater Rhea (*Rhea americana*) recorded in a rural area in Aceguá city, in Rio Grande do Sul, and the second, an individual of Brazilian Tanager (*Ramphocelus bresilius*) with progressive greying, recorded in São Paulo. These discover are important as new cases of chromatic mutations for Neotropical Birds in Brazil, thus adding new information to the literature.

Keywords: Greater Rhea; Brazilian Tanager; Color Aberrations; Aberrant Plumage

RESUMO

Registro de mutação cromática em *Rhea americana* (Linnaeus, 1758) e *Ramphocelus bresilius* (Linnaeus, 1766) no Brasil. Casos de plumagens anormais são descritos na literatura como plumagens aberrantes ou mutações cromáticas, não sendo incomum sua ocorrência entre as aves. Apresentamos aqui dois novos casos de mutações para aves neotropicais no território brasileiro. Um indivíduo de ema (*Rhea americana*) com mutação tipo leucismo, registrado numa área rural no Estado do Rio Grande do Sul e o segundo caso, um indivíduo de tiê-sangue (*Ramphocelus bresilius*) com mutação progressiva no Estado de São Paulo. A divulgação destes casos se torna importante em literatura, tendo em vista que acreditamos serem os primeiros casos para essas espécies no Brasil.

Palavras-chaves: Ema; Tiê-sangue; Coloração Anormal; Plumagem Aberrante

INTRODUCTION

Bird cases of abnormal feathering are related in literature as chromatic mutations or aberrant feathering are not uncommonly recorded in wild birds (van Grouw, 2006; van Grouw *et al.*, 2011; van Grouw, 2012). Occurrence of these variations in feathering color including bare parts are related to disharmonious expression of mutant alleles, changing significantly original pigmentation in affected species (Møller and

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Mosseau, 2001, van Grouw, 2006). As related in literature these mutations can be linked to many factors such as: endogamy, environmental contamination, nutrient deficiency or hybridation (Bensch *et al.*, 2000; Møller & Mousseau, 2001; van Grouw, 2006; Cestari and Vernaschi, 2007; van Grouw, 2013).

In some cases it is necessary careful for the researcher, once the aspect of feathering variation can differ strongly among species, gender, bird age, original pigmentation, and color can depigmentate more, considering the constant solar exposure of affected individual. Albinism, brown, ino, melanism, esquizo-chromism, progressive greying, leucism and dilution, are the most common chromatic mutation in birds, other patterns are known as well (van Grouw, 2006; 2012). Leucism is an anomaly caused by the absence of melanins (eumelanin and pheomelanin), depigmentation mainly in birds feathering (Bensch *et al.*, 2000; van Grouw, 2013). In the leucism partial form some feathers are affected, presenting a whitish color, while in the whole form occurs depigmentation in all feathers, causing whitish and colorless in the whole bird feathering. Individuals affected by this kind of mutation, however, keep the normal eyes color, instead of albinism, where there is melanin production; including the eyes don't keep the original color to present depigmentation (van Grouw, 2006; van Grouw *et al.*, 2011; van Grouw, 2012). Mutation such as Progressive Greying is defined as progressive loss of melanin cells in feathers, partially or totally. Feathering in the affected species presents white feathers blended with normal pigmentation. In the mutation peak and tarsus can keep normal pigmentation, however, in some cases can present a pink color. Eyes remain normal (van Grouw *et al.*, 2011; van Grouw, 2013; Hume and van Grouw, 2014).

The Greater Rhea *Rhea americana* (Linnaeus, 1758), owns to Rheiformes Order and is included in the Rheidae Family (Piacentini *et al.*, 2015). Color main characteristic is brown gray to whitish. As it presents sexual dimorphism, male stands out by its size and by black color (dark), in the dorsum, chest and in the whole neck (Belton, 1994; Sick, 1997; Narosk and Yzurieta, 2003). Females present this dark color only in side parts of neck (Belton, 1994). The Brazilian Tanager *Ramphocelus bresilius* (Linnaeus, 1766) owns to Passeriformes Order, include in the Traupidae Family (Piacentini *et al.*, 2015). Male contrasts by the bright red feathering and some parts of wings and tail exhibits a dark color. In the jaw basis presents a shine white color. The most part of female feathering is brownish (Sick, 1997; Narosk and Yzurieta 2003).

OCCURRENCE DESCRIPTION

In October 9, 2017 was observed in a rural area of Aceguá city, in Southern Rio Grande do Sul, Brazil, a mutant of *R. americana* along a group of normal pigmentation individuals (31°47'46.02"S, 54°11'47.34"W). The individual, a female, presented a depigmentation in most part of feathering, to a whitish to a cream yellow. In the neck the dark color depigmentate to a cream. The tarsus also presented evident depigmentation, nevertheless, in the observation eyes indicate normal pigmentation (Figure 1a). According to van Grouw description (2006, 2013), it is a case of leucism mutation. The second mutant was recorded in 02/10/2017, a female of *R. bresilius*, in an area (24° 15' 53" S, 48° 24' 46" W) associated among grasslands and forest in Ribeirão Grande city, São Paulo state, in Intervales National Park. The local where individual was registered is a farm environment. The mutant presented depigmentation in feathering and in the head and neck, exhibiting a whitish color, remaining normal the other parts of feathering (Figure 1b). This characterizes a case of Progressive Greying mutation, according to van Grouw (2013) and Hume and van Grouw (2014).



Figure 1. (a) Individual of *Rhea americana* presenting leucism mutation. (b) Individual of *Ramphocelus bresilius* presenting progressive greying mutation. (Photo: *R. americana*: Marcelo Benevenga Sarmiento. Photo: *R. bresilius*: Marcelo Luiz Quirino).

Many cases of chromatic mutation in birds in Brazil have been related in literature (e.g., Piacentini, 2001; Corrêa *et al.*, 2013; De-Carvalho *et al.*, 2015; Corrêa *et al.*, 2017a, b; Lopes *et al.*, 2017; Mohr *et al.*, 2017; Petry *et al.*, 2017), being leucism reported more frequently (Corrêa *et al.*, 2017b; Mohr *et al.*, 2017). We believe these records reported here in this study are the first mutation described for *R. americana* and *R. bresilius* in Brazil. Cases of chromatic mutations in birds, despite frequency it appears, must be published, once it is possible the occurrence of many reported cases in wild life still don't registered yet, considering some researchers and/or photographers don't publish in peer reviewed journals (Corrêa *et al.*, 2017a; Petry *et al.*, 2017), what can result in a underestimation of such events (De-Carvalho *et al.*, 2015; Sainz-Borgo *et al.*, 2016). These mutations can be associated to many natural or anthropic factors (e.g., Bensch *et al.*, 2000; van Grouw, 2006), documentation and description of such cases become crucial, evidencing feathering variation and affected species (Corrêa *et al.*, 2013; Mohr *et al.*, 2017).

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