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A RARE OBSERVATION OF A MALE LESSER ANTILLEAN BULLFINCH (*LOXIGILLA NOCTIS*) ON BARBADOS

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Abstract: We report the observation of a male Lesser Antillean Bullfinch (*Loxigilla noctis*) on the island of Barbados from 24 May to 12 June 2010, only the third record for this species on Barbados. We discuss the relevance of this observation to the taxonomic status of the Barbados Bullfinch (*L. barbadensis*) and the evolutionary loss of sexual dichromatism.

Key words: Barbados, *Loxigilla barbadensis*, *Loxigilla noctis*, sexual dichromatism

Resumen: OBSERVACIÓN RARA DE UN MACHO DE *LOXIGILLA NOCTIS* EN BARBADOS. Reportamos la observación de un macho de Loxigilla noctis en la isla de Barbados del 24 de mayo al 12 de junio de 2010, el tercer registro de esta especie en Barbados. Discutimos la relevancia de esta observación en el estado taxonómico de L. barbadensis y la pérdida evolutiva del dicromatismo sexual. Palabras clave: Barbados, Loxigilla barbadensis, Loxigilla noctis, dicromatismo sexual.

Palabras clave: Barbados, *Loxigilla barbadensis*, *Loxigilla noctis*, sexual dichromatism

Résumé : UNE OBSERVATION RARE D'UN SPOROPHILE ROUGE-GORGE (*LOXIGILLA NOCTIS*) À LA BARBADE. Un Sporophile rouge-gorge (*Loxigilla noctis*), mâle a été observé à la Barbade entre le 24 Mai et le 12 Juin 2010, ce qui porte à trois le nombre d'observations de l'espèce sur cette île. Nous discutons de l'intérêt de cette observation en lien avec le statut taxonomique du Sporophile de la Barbade (*L. barbadensis*) et la perte du dichromatisme sexuel au cours de l'évolution de l'espèce.

Mots clés : Barbade, *Loxigilla barbadensis*, *Loxigilla noctis*, dichromatisme sexuel

Currently there are four recognised species in the genus *Loxigilla*, which are confined to the West Indies (American Ornithologists' Union 1998, Banks *et al*. 2006). These consist of the Puerto Rican Bullfinch (*L. portoricensis*), the Greater Antillean Bullfinch (*L. violacea*), the Lesser Antillean Bullfinch (*L. noctis*), and the Barbados Bullfinch (*L. barbadensis*). A large endemic subspecies of Puerto Rican Bullfinch (*L. p. grandis*) also occurred on St Kitts, where it was last confirmed in 1929 (Olson 1984). Typically in *Loxigilla* species the males are dark black with a variable amount of red on the throat, chin, eyebrows, and undertail coverts, depending on species. Females show a dull black or brownish-olive and grey plumage, with the red feathering more muted and restricted. Variation in male coloration can also be observed between populations of the same species. Nine subspecies of the Lesser Antillean Bullfinch have been recognized on the basis of male plumage (Ridgway 1901, Buckley and Buckley 2004). Their taxonomic status based on genetics has only been partially studied (Lovette *et al*. 1999).

The Barbados Bullfinch differs markedly from the Lesser Antillean Bullfinch by the absence of sexual dichromatism (Buckley and Buckley 2004). On the basis of phenotypic and behavioural (but not genetic) evidence, the Barbados Bullfinch (*L. barbadensis*) was recently split from the Lesser Antillean Bullfinch, as originally suggested by Cory (1886), recently proposed by (Buckley and Buckley 2004), and subsequently accepted by the American Ornithologists' Union (Banks *et al*. 2006). However, sexually dichromatic males have been observed on two distinct occasions on the island of Barbados. The first was reported in 1926 in Bridgetown (Bond 1928), while a second in 1977 in Holetown appeared to be a first-year bird described as having "mottled brown and black plumage with some red throat feathers" (Bird 1983).

OBSERVATIONS

A reddish-throated and crissumed male *Loxigilla* sp. was repeatedly observed on the island of Barbados in May and June 2010. The bird had mainly blackish plumage with patches of red on the throat, and supraloral region, rufous undertail coverts, and a mixture of brown and black body feathering, all of which are consistent with a subadult male Lesser Antillean Bullfinch moulting into adult plumage

Fig. 1. A subadult male Lesser Antillean Bullfinch (*Loxigilla noctis*) observed at Sunset Crest on the west coast of Barbados during May–June 2010. Photo by Edward Massiah.

(Fig. 1). Its size appeared similar to the Barbados Bullfinch. The bird was first discovered by Cézilly on 24 May 2010 at Sunset Crest, on the west coast near Holetown in the parish of St James. It was regularly observed in the same area, along a portion of road approximately 200 m long, until 12 June. Sunset Crest is a residential area of approximately 0.6 km², consisting of about 300 homes with gardens and trees. During successive observations, the male bullfinch was observed interacting with individuals of the local Barbados Bullfinch population while perching on different species of plants and trees, such as Coconut Palm (*Cocos nucifera*), Fiddlewood (*Citharexylum spinosum*), White Wood, (*Tabebuia heterophylla*), and White Frangipani, (*Plumeria alba*). However, unlike the Barbados Bullfinches, which were very common in the area, the bird was never observed foraging on the ground.

DISCUSSION

This is the third record of a Lesser Antillean Bullfinch on the island of Barbados, and the first supported by photographs. Buckley *et al*. (2009) interpreted those two cases as post-fledging *L. noctis sclateri* dispersers, probably originating from the nearby island of St Lucia. Because Barbados is a young island compared to other islands in the Caribbean, its colonization by the genus *Loxigilla* is believed to be a single and recent event, most likely originating from St Lucia based on evidence from mitochondrial DNA (Lovette *et al*. 1999).

The origin and subspecies of the Lesser Antillean Bullfinch we observed is uncertain, but due to the sedentary nature of this species, a 'near' island origin is favoured. Evidence suggests that sedentary and territorial species of tropical passerines have very limited dispersal abilities (Moore *et al*. 2009). The closest birds to Barbados are *L. n. sclateri* in St Lucia (160 km) and *L. n. crissalis* in St Vincent (170 km). Although we believe that crossings of this magnitude are infrequent, they are not unprecedented. Raffaelle and Roby (1977) documented the recent range expansion of *L. n. ridgwayi* from the northern Lesser Antilles into St John, US Virgin Islands, in 1971, which involved crossing the Anegada passage, a distance of at least 124 km.

The main difference between males of *L. n. crissalis* and *L. n. sclateri* is supposed to be the presence of rufous undertail coverts in the former (visible but shaded in Fig 1), and black undertail-coverts in the latter (Raffaelle *et al*. 1998). However, male bullfinches with rufous undertail coverts are present in St Lucia (Lyndon John pers. com.). Although no detailed information regarding this phenomenon is available, FC examined study skins of *L. noctis* at the Natural History Museum in Tring, UK, in July 2011 and found that five of 14 adult male specimens from St Lucia had rufous undertail coverts. Therefore the bird we observed could have originated from St Lucia.

Although the arrival of the bird via a cruise ship is feasible, Raffaele and Roby (1977) doubted that this species would be a likely candidate for ship assistance, since it is a territorial species that perches in trees and is generally not observed near docks or flying offshore. However, in several islands the species is very tame and present in the urban environment, including near ship ports. In addition, many cruise ships these days have gardens on the decks that include trees and shrubs much like those seen in landscaped gardens; thus, the possibility of transportation by boat cannot be excluded. Dispersal as a consequence of a hurricane or tropical storm is unlikely in the present case, because the bird was observed before the beginning of the 2010 Atlantic hurricane season, and because no severe tropical storm or hurricane affected St Lucia in the two previous years (Wunderle 2005).

Although we consider this a rare occurrence, the frequency of Lesser Antillean Bullfinches arriving in Barbados from St Lucia (or possibly other islands) is difficult to assess given the limited number of active birders who would notice and report such sightings. Additionally, while the black male is largely unmistakeable and unlikely to be missed if present in the field, the female Lesser Antillean Bullfinch fully resembles both sexes of the Barbados Bullfinch. An intensive long-term capture and ringing programme initiated in 2010 in Barbados and neighbouring islands in connection with the development of specific molecular markers should provide results, facilitating the assessment of the frequency of immigration of Lesser Antillean Bullfinches to the island.

The evolutionary factors that may have led to the loss of sexual dichromatism in *L. barbadensis* remain a puzzle (Wiens 2001). According to Buckley and Buckley (2004; see also Bird 1983), bullfinches colonising Barbados may have rapidly moved to a vacant niche under the effect of the dry climate and in the absence of seed-eating competitors. However, in the absence of reliable information about the order according to which avian species colonized Barbados, the absence of competition with other seed-eating species at the time bullfinches invaded Barbados remains speculative. In addition, sexual dichromatism is conserved in populations of other *Loxigilla* species living in very arid environments, such as *L. portoricensis* on Mona Island, Puerto Rico (Terborgh and Faaborg 1973). Buckley and Buckley (2004) have further suggested that pale and cryptic coloration might be an adaptation to foraging for seeds on the ground. There is no firm evidence for resource partitioning between males and females in other species of the genus *Loxigilla*, which would be expected if plumage colour is an adaptation to foraging technique (Greenlaw 1990, Pérez-Rivera 1994). Furthermore, there is no information either on the importance of sexual selection in the origin and maintenance of sexual dichromatism in the genus *Loxigilla* or on the degree of prezygotic isolation between *L. barbadensis* and *L. noctis* (Danchin and Cézilly 2008). Finally, the genetic (Williams and Carroll 2009) and physiological mechanisms underlying sexual dichromatism in the genus *Loxigilla* remain unknown. Long-term monitoring of the Barbados population and documenting the frequency of immigration from adjacent islands, coupled with genetic, physiological, and behavioural studies, will thus be of help in understanding the evolutionary dynamics of the loss of sexual dichromatism in *L. barbadensis*.

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