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

FRANK CÉZILLY1,2, CARLA DANIEL3, AND EDWARD B. MASSIAH4

1Université de Bourgogne, UMR CNRS 5561 Biogéosciences, 6 blvd. Gabriel, 21000 Dijon, France; e-mail: frank.cezilly@u-bourgogne.fr; 2Institut Universitaire de France; 3University of the West Indies, Cave Hill Campus, Barbados; 4Johnson Road, Fitts Village, St. James, Barbados

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

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 crisimased 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 molting into adult plumage.

Journal of Caribbean Ornithology 26, 2013 59
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. Raffaele 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 (Raffaele 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).

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. Raffaele 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 (Raffaele 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 unmistakable 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.

ACKNOWLEDGEMENTS

We thank Adam Brown for useful comments on an earlier version.

LITERATURE CITED


CORY, C. B. 1886. The birds of the West Indies, including the Bahama Islands, the Greater and the Lesser Antilles, excepting the islands of Tobago and Trinidad. Part I. Auk 3:1–59.


WUNDERLE, J. 2005. Hurricanes and the fate of Caribbean birds—what do we know, what do we need to know, who is vulnerable, how can we prepare, what can we do, and what are the management options? Journal of Caribbean Ornithology 18:94–96.