

# Journal of Caribbean Ornithology

Revista de Ornitología del Caribe

RESEARCH NOTE

Vol. 38:34–38. 2025

## First record of melanism in *Myiarchus antillarum* (Puerto Rican Flycatcher)

Scott T. Wieman

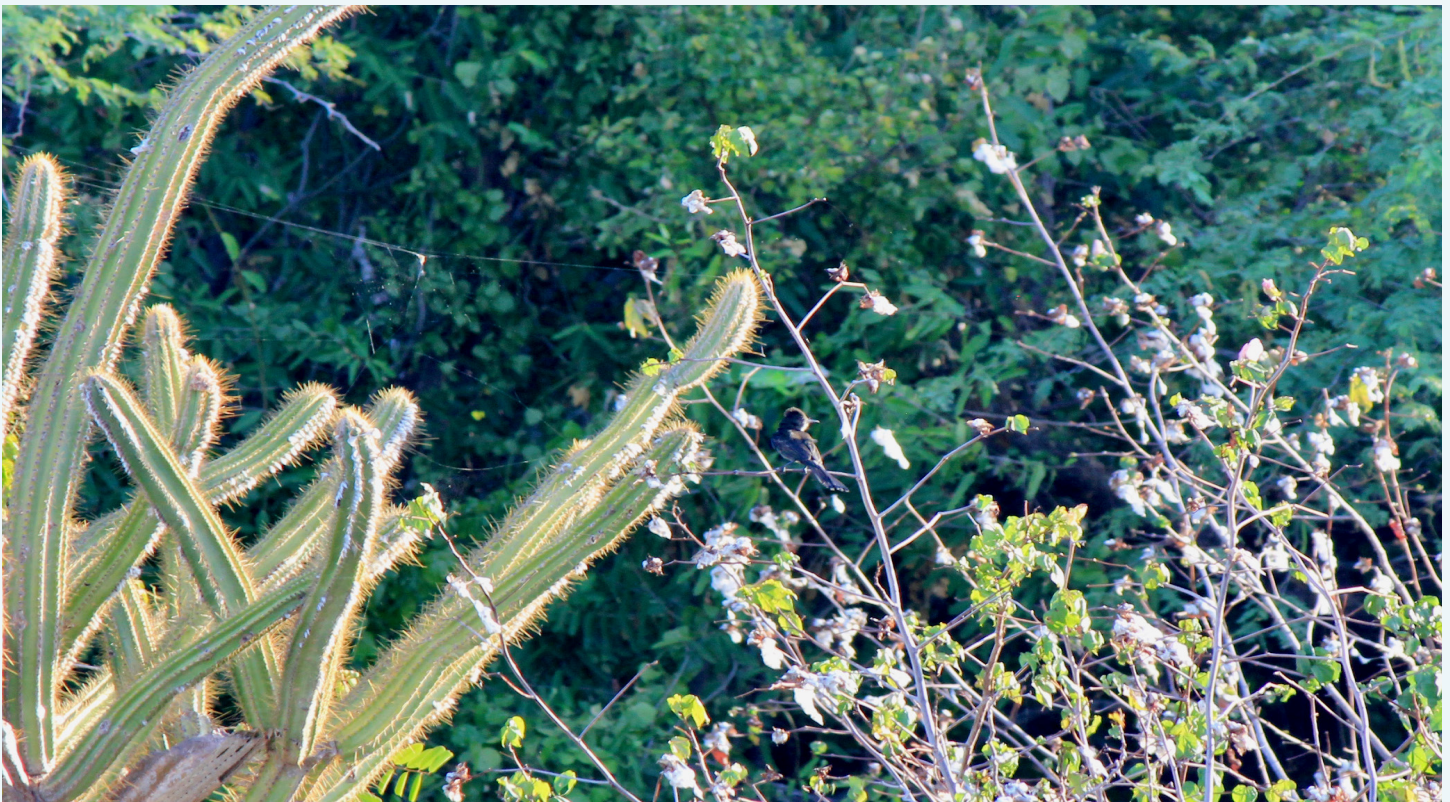


Photo: Scott T. Wieman

## First record of melanism in *Myiarchus antillarum* (Puerto Rican Flycatcher)

Scott T. Wieman<sup>1,2</sup>

Associate Editor: Floyd Hayes

Cover Page: Melanistic *Myiarchus antillarum* at Cabo Rojo National Wildlife Refuge, Puerto Rico, photographed on 24 May 2023 by Scott T. Wieman.

Published: 29 August 2025

<sup>1</sup>Department of Geology and Geophysics, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543, USA; e-mail: [scott.wieman@whoi.edu](mailto:scott.wieman@whoi.edu)

<sup>2</sup>Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, USA

### Abstract

Studying genetic variation in organisms, especially outwardly visible traits such as melanism, can provide crucial insights into environmental adaptation. Melanism is particularly prevalent in island populations, providing ideal case studies. I provide details for the first documented case of melanism in *Myiarchus antillarum*, the Puerto Rican Flycatcher, at Cabo Rojo National Wildlife Refuge, Puerto Rico.

### Keywords

island melanism, melanism, *Myiarchus antillarum*, Puerto Rican Flycatcher, Puerto Rico, Tyrannidae

### Resumen

**Primer registro de melanismo en *Myiarchus antillarum* (Jui puertorriqueño)**

• El estudio de la variación genética en organismos, especialmente en rasgos visibles externamente como el melanismo, puede aportar información clave sobre adaptación ambiental. El melanismo es particularmente frecuente en poblaciones insulares, lo que las convierte en casos de estudio ideales. Aquí presento el primer registro documentado de melanismo en *Myiarchus antillarum* (Jui puertorriqueño) en el Refugio Nacional de Vida Silvestre de Cabo Rojo, Puerto Rico.

### Palabras clave

Jui puertorriqueño, melanismo, melanismo en islas, *Myiarchus antillarum*, Puerto Rico, Tyrannidae

### Résumé

**Première mention de mélanisme chez *Myiarchus antillarum* (Tyran de Porto Rico)**

• L'étude de la variation génétique des organismes, en particulier des caractéristiques visibles de l'extérieur telles que le mélanisme, peut fournir des informations cruciales sur l'adaptation à l'environnement. Le mélanisme est particulièrement répandu dans les populations insulaires, ce qui permet de mener des études de cas idéales. Je présente ici le premier cas documenté de mélanisme chez *Myiarchus antillarum* (Tyran de Porto Rico), observé dans le refuge national de faune sauvage de Cabo Rojo, à Porto Rico.

### Mots clés

mélanisme, mélanisme insulaire, *Myiarchus antillarum*, Porto Rico, Tyran de Porto Rico, Tyrannidae

### Cite this article as:

Wieman S.T. 2025. First record of melanism in *Myiarchus antillarum* (Puerto Rican Flycatcher). *Journal of Caribbean Ornithology* 38:34–38. <https://doi.org/10.55431/jco.2025.38.34-38>

Melanin, a family of pigmentation compounds found throughout the natural world, plays an important role in the color patterns of living organisms. Two forms of melanin play a particular role in animal coloration: eumelanin, which produces black and brown pigmentation, and pheomelanin, which produces red and reddish-brown coloration (Cao *et al.* 2021). When birds exhibit well-above-normal deposition levels of these melanins in their feathers, they are said to exhibit melanism (van Grouw 2021). Melanism appears to be rarer than other color aberrations in birds, particularly leucism (Gross 1965, Tinajero *et al.* 2018). Melanism is a genetic trait, regulated by either the melanocortin-1-receptor (MC1R) gene in most birds (Theron *et al.* 2001, Cibois *et al.* 2012, Schmitt 2015) or a predicted binding





**Fig. 1.** Two original (top) and two edited (bottom) photographs of the melanistic *Myiarchus antillarum* flycatcher at the Cabo Rojo National Wildlife Refuge in Puerto Rico. In the bottom photos, exposure has been increased and contrast slightly decreased using the Apple Photos app. Photos were taken at 1815 on 24 May 2023 by S. Wieman.

site of agouti signaling protein (Uy *et al.* 2009). In the well-studied *Tyto alba* (Western Barn Owl), melanism has been linked to breeding rates, sexual maturity, and calcium physiology (Roulin *et al.* 2006, Roulin and Altwegg 2007). Melanistic and non-melanistic populations of birds may also experience differing abilities to adapt to natural selective pressures. This has been observed with *Pyrocephalus rubinus*, the Vermilion Flycatcher (Schmitt 2015) and with *Ficedula hypoleuca* (European Pied Flycatcher; Sirkiä *et al.* 2010), where increased solar heat gain and resistance to feather-degrading bacteria can provide significant reproductive and survival benefits to melanistic individuals.

Many traits evolve deterministically on islands, with striking differences between insular species and their mainland counterparts (Whittaker *et al.* 2017). This is caused by isolation of island founder populations away from other populations and subsequent restriction of genetic exchange (Chua *et al.* 2015). On some islands, rates of melanism can be very high or even complete among specific bird populations (Appendix A), with the size of the island inversely corresponding to the rate of melanistic individuals (Uy *et al.* 2015). This note adds to the observations of island-based avian melanism by contributing a single

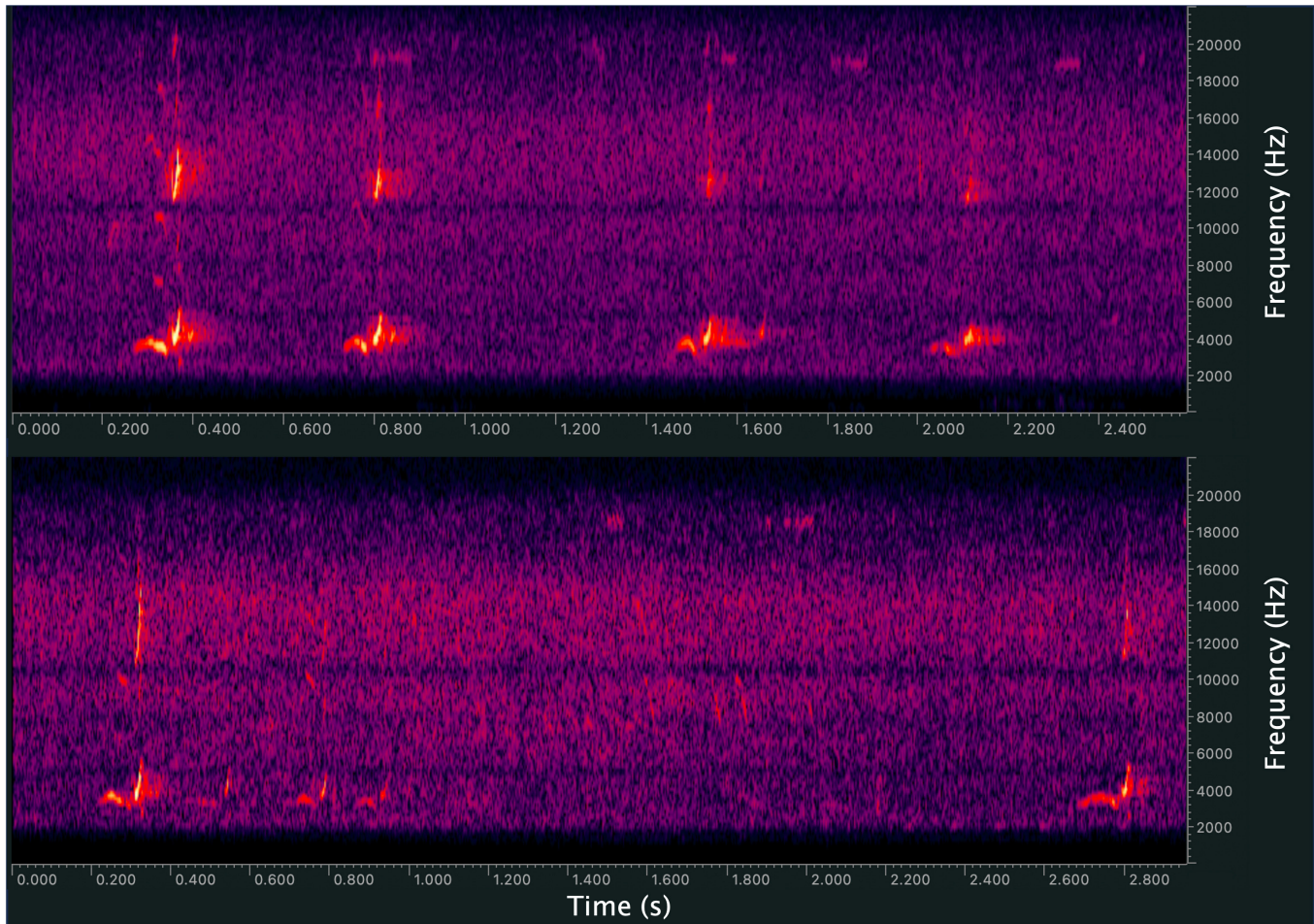
observation of a melanistic *Myiarchus antillarum* (Puerto Rican Flycatcher) that appears to be the first documented record of melanism in this species and possibly a first for any bird on Puerto Rico.

### Observations

Near sunset (1815) on 24 May 2023, at the end of an afternoon of birding at Laguna Candelaria in Cabo Rojo National Wildlife Refuge (NWR), I observed a single very dark bird in the scrub behind the Las Salinas Interpretive Center (17°57'22.4"N, 67°11'59.6"W). This bird immediately appeared as a *Myiarchus* flycatcher with its large head and bushy crest, but the bird was almost entirely black (Fig. 1). The bird's only non-black coloration was a slightly paler throat and touches of rufous in the primaries and secondaries best seen in flight. I spent about 15 min observing this individual moving about in the scrub, and it spent nearly the entire time perched in two different trees except for a few short "flycatching" flights.

While the endemic *Myiarchus antillarum* is the only *Myiarchus* species to occur regularly on Puerto Rico, the range of *Myiarchus stolidus*, the Stolid Flycatcher, extends to the east coast of





**Fig. 2.** Spectrograms of two different call patterns of the melanistic *Myiarchus* flycatcher recorded at 1817 on 24 May 2023. The upper panel shows individual “tsee-ick” calls while the lower panel shows a series of “tsee-ick” calls given in a trill-like fashion. These calls help confirm this individual as *Myiarchus antillarum*. Images were produced using Ocenaudio software.

Hispaniola, less than 145 km from Cabo Rojo NWR, and that of *Myiarchus oberi*, the Lesser Antillean Flycatcher, extends to St. Kitts and Nevis, about 440 km away. However, the observed bird repeatedly vocalized, and while it did not make the classic plaintive “wheee” call, it made several series of high-pitched “wick-up” chattering notes (Fig. 2) that distinguish it from *Myiarchus stolidus*. It should be noted that while *Myiarchus oberi* makes very similar wick-up calls, the spectrogram of the observed individual’s calls visually matches those of *Myiarchus antillarum*. Additionally, this bird exhibits a more extensive rufous patch on the wing than is usual for a *Myiarchus antillarum*, but such rufous pigmentation in the outer webs of the primaries has been previously observed in melanistic *Myiarchus* individuals (House 2018, Hayes 2020). If this bird was a *Myiarchus oberi*, the tail should be strikingly rufous as has previously been seen in a melanistic *Myiarchus tyrannulus*, the Brown-crested Flycatcher (House 2018). The location, vocalization, and plumage evidence all point to this being a melanistic *Myiarchus antillarum*.

### Discussion

Melanism has been observed in *Myiarchus* flycatchers before, with a single published record of a *Myiarchus tyrannulus* in Inyo County, California, USA, in May 2008 (House 2018) and a

*Myiarchus cinerascens* (Ash-throated Flycatcher) in Stanislaus County, California, USA, in May 2020 (Hayes 2020). Additional Tyrannidae species observed to exhibit melanism are *Contopus cinereus* (Tropical Pewee; Smith 2016), *Pyrocephalus rubinus* (van Grouw and Nolasco 2012, Schmitt 2015), and *Tyrannus verticalis* (Western Kingbird; Bantol 1984).

Along with a review of literature, a review of eBird photos (1,436 photos) and iNaturalist photos (274 observations) of *Myiarchus antillarum* turned up no other melanistic individuals as of 19 December 2024. A review of iNaturalist groups dedicated to aberrant color morphs of animals failed to turn up any melanistic individuals of Tyrannidae beyond *Pyrocephalus rubinus* and no records of any melanistic birds in all of Puerto Rico. While melanistic insects (Echevarría Ramos and Hulshof 2019), reptiles (Breuil *et al.* 2020), and fish (Colin 1982) have been observed in Puerto Rico, there do not appear to be any prior observations of avian melanism on the island.

Understanding the distribution of melanism in birds is an important window into the different selective mechanisms that exert evolutionary pressure on these species. While a single observation cannot resolve such mechanisms alone, publishing and publicizing such observations is crucial to building an understanding of the occurrence of melanism in different birds.

Population-wide studies are built from many observations, and this first record of melanism in *Myiarchus antillarum* fits within that broader context.

### Acknowledgments

The author would like to acknowledge edits and comments from Z.L. de Beurs, and helpful reviews from P. Smith and an anonymous reviewer that contributed to this manuscript's final version.

### Literature Cited

- Atkinson, K., and J.V. Briskie. 2007. Frequency distribution and environmental correlates of plumage polymorphism in the grey fantail *Rhipidura fuliginosa*. *New Zealand Journal of Zoology* 34:273–281.
- Bantol, B. 1984. A melanistic Western Kingbird. *Journal of the Colorado Field Ornithologists* 18:82–83.
- Breuil, M., D. Schikorski, B. Vuillaume, U. Krauss, M.N. Morton, E. Corry, N. Bech, M. Jelić, and F. Grandjean. 2020. Painted black: *Iguana melanoderma* (Reptilia, Squamata, Iguanidae) a new melanistic endemic species from Saba and Montserrat islands (Lesser Antilles). *Zookeys* 926:95–131.
- Campagna, L., Z. Mo, A. Siepel, and J.A.C. Uy. 2022. Selective sweeps on different pigmentation genes mediate convergent evolution of island melanism in two incipient bird species. *PLoS Genetics* 18:e1010474.
- Cao, W., X. Zhou, N.C. McCallum, Z. Hu, Q.Z. Ni, U. Kapoor, C.M. Heil, K.S. Cay, T. Zand, A.J. Mantanona, A. Jayaraman, A. Dhinjwala, D.D. Deheyn, M.D. Shawkey, M.D. Burkart, J.D. Rinehart, and N.C. Gianneschi. 2021. Unraveling the structure and function of melanin through synthesis. *Journal of the American Chemical Society* 143:2622–2637.
- Chua, V.L., Q. Phillipps, H. Chuan Lim, S.S. Taylor, D.F. Gawin, M.A. Rahman, R.G. Moyle, and F.H. Sheldon. 2015. Phylogeography of three endemic birds of Maratua Island, a potential archive of Bornean biogeography. *Raffles Bulletin of Zoology* 63:259–269.
- Cibois, A., J.-C. Thibault, and E. Pasquet. 2012. The molecular basis of the plumage colour polymorphism in the Tahiti Reed-warbler *Acrocephalus caffer*. *Journal of Avian Biology* 43:3–8.
- Colin, P.L. 1982. Melanism in the rock beauty, *Holocanthus tricolor*, (Pisces: Pomacanthidae) in Puerto Rico. *Bulletin of Marine Science* 32:800–802.
- Doucet, S.M., M.D. Shawkey, M.K. Rathburn, H.L. Mays, Jr., and R. Montgomerie. 2004. Concordant evolution of plumage colour, feather microstructure and a melanocortin receptor gene between mainland and island populations of a fairy-wren. *Proceedings of the Royal Society B: Biological Sciences* 271:1663–1670.
- Driskell, A.C., S. Pruett-Jones, K.A. Tarvin, and S. Hagevik. 2002. Evolutionary relationships among blue- and black-plumaged populations of the White-winged Fairy-wren (*Malurus leucopaterus*). *Australian Journal of Zoology* 50:581–595.
- Drucker, J.R., R.E. Bennett, L.K. Fried, M.L. Kazour, and D.J. McNeil, Jr. 2018. New sightings of melanistic Green Herons (*Butorides virescens*) in the Caribbean suggest overlooked polymorphism. *Journal of Caribbean Ornithology* 31:38–47.
- eBird. 2024. eBird: an Online Database of Bird Distribution and Abundance. eBird, Ithaca, New York, USA. ebird.org.
- Echevarría Ramos, M., and C.M. Hulshof. 2019. Using digitized museum collections to understand the effects of habitat on wing coloration in the Puerto Rican monarch. *Biotropica* 51:477–483.
- Gross, A.O. 1965. Melanism in North American birds. *Bird Banding* 36:240–242.
- Hayes, G. 2020. An oddity at Old Basso Bridge: a possible melanistic Ash-throated Flycatcher. [www.geotripperbirds.blogspot.com/2020/05/an-oddity-at-old-basso-bridge-possible.html](http://www.geotripperbirds.blogspot.com/2020/05/an-oddity-at-old-basso-bridge-possible.html).
- House, D.J. 2018. First record of melanism in a *Myiarchus* flycatcher. *Western Birds* 49:168–170.
- iNaturalist 2024. inaturalist.org.
- Kushlan, J.A. 2009. Foraging and plumage coloration of the Galapagos Lava Heron (*Butorides striata sundevalli*). *Waterbirds* 32:415–422.
- McLachlan, A. 2011. Melanistic Green Herons (*Butorides virescens*) in Cuba. *Journal of Heron Biology and Conservation* 1:1–4.
- Mendales, E.Z. 2023. Ultraconserved elements resolve the phylogeny of a globally distributed genus, *Butorides* (Aves: Ardeidae). M.S. Thesis. San Francisco State University, San Francisco, California, USA.
- Roulin, A., T. Dauwe, R. Blust, M. Eens, and M. Beaud. 2006. A link between eumelanism and calcium physiology in the Barn Owl. *Naturwissenschaften* 93:426–430.
- Roulin, A., and R. Altwegg. 2007. Breeding rate is associated with pheomelanism in male and with eumelanism in female Barn Owls. *Behavioral Ecology* 18:563–570.
- Schmitt, C.J. 2015. Pre-industrial melanism: the origin, maintenance, and genetic basis of an urban melanic morph of the Vermilion Flycatcher. M.S. Thesis. University of New Mexico, Albuquerque, New Mexico, USA.
- Sirkkiä, P.M., M. Virolainen, and T. Laaksonen. 2010. Melanin coloration has temperature-dependent effects on breeding performance that may maintain phenotypic variation in a passerine bird. *Journal of Evolutionary Biology* 23:2385–2396.
- Smith, P. 2016. Striking plumage anomalies in two Tyrannidae (Passeriformes): Vermilion Flycatcher *Pyrocephalus rubinus* and Tropical Pewee *Contopus cinereus* from Paraguay. *Ornithologica* 9:27–29.
- Theron, E., K. Hawkins, E. Bermingham, R.E. Ricklefs, and N.I. Mundy. 2001. The molecular basis of an avian plumage polymorphism in the wild: a melanocortin-1-receptor point mutation is perfectly associated with the melanic plumage morph of the Bananaquit, *Coereba flaveola*. *Current Biology* 11:550–557.
- Tinajero, R., L. Chapa-Vargas, and J.E. Ramírez-Albores. 2018. Aberraciones cromáticas en aves de México: una revisión y registros recientes en el estado de San Luis Potosí. *Ornitología Neotropical* 29:179–185.
- Uy, J.A.C., R.G. Moyle, C.E. Filardi, and Z.A. Cheviron. 2009. Difference in plumage color used in species recognition between incipient species is linked to a single amino acid substitution in the melanocortin-1 receptor. *American Naturalist* 174:224–254.

Uy, J.A.C., and L.E. Vargas-Castro. 2015. Island size predicts the frequency of melanic birds in the color-polymorphic flycatcher *Monarcha castaneiventris* of the Solomon Islands. *Auk* 132:787–794.

van Grouw, H. 2021. What's in a name? Nomenclature for colour aberrations in birds reviewed. *Bulletin of the British Ornithologists' Club* 141:276–299.

van Grouw, H., and S. Nolasco. 2012. The nature of melanism and some other colour aberrations in the Vermilion Flycatcher (*Pyrocephalus rubinus obscurus*). *Boletín de la Unión de Ornítólogos del Perú* 7:26–37.

Walsh, J., L. Campagna, W.E. Feeney, J. King, and M.S. Webster. 2021. Patterns of genetic divergence and demographic history shed light on island-mainland population dynamics and melanic plumage evolution in the White-winged Fairywren. *Evolution* 75:1348–1360.

Whittaker, R.J., J.M. Fernández-Palacios, T.J. Matthews, M.K. Borregaard, and K.A. Triantis. 2017. Island biogeography: taking the long view of nature's laboratories. *Science* 357:eaam8326.

**Appendix A.** Bird species with high rates of melanism in island populations as reported in the literature.

Scientific Name	Family	Common Name	References
<i>Butorides striata</i>	Ardeidae	Striated Heron	Kushlan 2009 Mendales 2023
<i>Butorides virescens</i>	Ardeidae	Green Heron	McLachlan 2011 Drucker <i>et al.</i> 2018
<i>Malurus leucopterus</i>	Maluridae	White-winged Fairywren	Driskell <i>et al.</i> 2002 Doucet <i>et al.</i> 2004 Walsh <i>et al.</i> 2021
<i>Rhipidura fuliginosa</i>	Rhipiduridae	New Zealand Fantail	Atkinson and Briskie 2007
<i>Monarcha castaneiventris</i>	Monarchidae	Chestnut-bellied Monarch	Uy <i>et al.</i> 2009 Campagna <i>et al.</i> 2022
<i>Acrocephalus caffer</i>	Acrocephalidae	Tahiti Reed Warbler	Cibois <i>et al.</i> 2012
<i>Microtarsus melanocephalos</i>	Pycnonotidae	Black-headed Bulbul	Chua <i>et al.</i> 2015
<i>Coereba flaveola</i>	Thraupidae	Bananaquit	Theron <i>et al.</i> 2001