

Leilton Willians Luna

Pennsylvania State University, Department of Ecosystem Science and Management

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EDUCATION

Postdoctoral Scholar 2022 - Present

Pennsylvania State University

Research theme: "Characterization of ruffed grouse (*Bonasa umbellus*) population genomic structure and diversity in Pennsylvania: Management and conservation implications."

Supervisor: Julian Avery

Co-supervisor: David Toews

Ph.D. in Zoology 2017 – 2021

Federal University of Pará / Emilio Goeldi Museum, PA, Brazil

Thesis title: "The multidimensional evolution of the Amazon floodplain avifauna: a genomic, biogeographic and ecological approach."

Advisor: Dr. Alexandre Aleixo

Co-advisor: Dr. Camila Cherem Ribas

M.Sc. in Environmental Biology 2015 – 2017

Federal University of Pará

Thesis title: "Interplay between genetic and climatic niche variation in birds of the genus *Antilophia* (Pipridae)."

Advisor: Dr. Péricles Sena do Rêgo

Licentiate in Biological Science 2011 – 2015

Federal University of Pará

Thesis title: "Historical change in the population genetic diversity of the endangered Araripe Manakin (*Antilophia bokermanni*)."

Advisor: Dr. Péricles Sena do Rêgo

TEACHING & ADVISING

Teaching Assistant

- Lecturer for Phylogeography for graduate students.

Department of Natural Science, Federal University of Pará

2016 – 2018

- Lecturer for Biogeography, Molecular Biology, and Ornithology, for undergraduate students.
- Mentorship in bird population genetics research for undergraduate students.
- Instructor in a summer course on ornithological field techniques, for undergraduate and graduate students.

RESEARCH EXPERIENCE

Member of research project

2016 – 2021

U.S. Agency for International Development

History and diversification of floodplain forest bird communities in Amazonia: towards an integrated conservation plan.

Coordinators: Dr. Camila C. Ribas and Dr. Joel Cracraft

- Analyzed genomic diversity and spatial population structure for several birds from Amazonian floodplains.

Scholar visitor

2019 – 2020

Department of Ecology and Evolutionary Biology, University of Michigan

- One year as a scholar visitor in Dr. Lacey Knowles' lab, where I received training in high-throughput sequence libraries preparation and population genomics analysis.

Member of research project

2015 – 2018

National Council for Scientific and Technological Development (CNPq, Brazilian Agency)

Population viability aspects of the Araripe Manakin (*Antilophia bokermanni*): a critically endangered Brazilian bird.

Coordinators: Dr. Leilton W. Luna and Dr. Péricles S. Rêgo.

- Conducted monitoring of breeding, demographic census, and genetic aspects of the Araripe Manakin.
- The Brazilian biodiversity conservation agency (Instituto Chico Mendes de Biodiversidade) used results from this research to inform the National Action Plan for the Conservation of the Araripe Manakin.

Research Assistant

2012 – 2014

Department of Fisheries Technology, Federal University of Pará

- Analyzed carotenoid components associated with crustacean shells, at the Laboratory of Fish Chemistry under the supervision of Dr. Evaldo M. Silva.

Department of Natural Science, Federal University of Pará

- Investigated the spatial genetic structure of the giant pirarucu (*Arapaima gigas*) an endangered Amazonian fish, at the laboratory of Genetics and Conservation under the supervision of Dr. Juliana Araripe.
- Collaborator in multiple projects on phylogeography of Amazonian birds, at the Laboratory of Genetics and Conservation under the supervision of Dr. Péricles S. Rêgo.

PUBLICATIONS

Published Papers

- Luna LW**, Silva SM, Silva WAG, Gaiotti MG, Macedo RH, Araripe J & Rêgo PS (2022) Genetic monitoring of the Critically Endangered Araripe Manakin reveals low diversity and effective population size decline. *Ornithological Applications*.
<https://doi.org/10.1093/ornithapp/duac009>
- Luna LW**, Dias C, Pichorim M, Leandro-Silva V, Biancalana RN, Silva WAG, Araripe J & Rêgo PS (2022) Historical climate change has driven population range expansion and differentiation in a rare and partially migratory Neotropical bird. *Journal of Ornithology*.
<https://doi.org/10.1007/s10336-021-01948-z>
- Barbosa WES, Ferreira M, Schultz ED, **Luna LW**, Laranjeiras TO, Aleixo A & Ribas CC (2021) Habitat association constrains population history in two sympatric ovenbirds along Amazonian floodplains. *Journal of Biogeography*, Early View. <https://doi.org/10.1111/jbi.14266>
- Luna LW**, Ribas CC & Aleixo A (2021) Genomic differentiation with gene flow in a widespread Amazonian floodplain-specialist bird species. *Journal of Biogeography*, Early View.
<https://doi.org/10.1111/jbi.14257>
- Souza TO, **Luna LW**, Araripe J, Melo MAD, Silva WAG, Schneider H, Sampaio I & Rêgo PS (2019) Characterization of the genetic diversity and population structure of the manakin genus *Antilophia* through the development and analysis of microsatellite markers. *Journal of Ornithology*, 160: 825-830. <https://doi.org/10.1007/s10336-019-01655-w>
- Amaral FR, Maldonado-Coelho M, Aleixo A, **Luna LW**, Rêgo PS, Araripe J, Souza TO, Silva WAG & Thom G (2018) Recent chapters of Neotropical history overlooked in phylogeography: Shallow divergence explains phenotype and genotype uncoupling in *Antilophia* manakins. *Molecular Ecology*, 27:4108-4120. <https://doi.org/10.1111/mec.14843>
- Luna LW**, Silva WAG, Araripe J, Pereira ITF, D'Horta FM, Sampaio I, Schneider H & Rêgo, PS (2018) Mutations in the melanocortin-1 receptor (MC1R) gene have no influence on the distinct patterns of melanic plumage found in the manakins of the genus *Antilophia* (Aves: Pipridae). *Annals of the Brazilian Academy of Sciences*, 90: 2873-2879. <http://dx.doi.org/10.1590/0001-3765201820171003>

Luna LW, Souza TO, Carneiro LS, Silva WAG, Schneider H, Sampaio I, Araripe J & Rêgo PS (2017) Molecular data and distribution dynamics indicate a recent and incomplete separation of manakins species of the genus *Antilophia* (Aves: Pipridae) in response to Holocene climate change. *Journal of Avian Biology*, 48:1177-1188. <https://doi.org/10.1111/jav.01378>

Luna LW, Souza TO, Silva WAG, Schneider H, Sampaio I, Araripe J & Rêgo PS (2017) Genetic variation of the endangered Araripe Manakin (*Antilophia bokermanni*) indicates a history of demographic decline. *Ornithology Research*, 25:60-66. <https://doi.org/10.1007/BF03544378>

Accepted Papers

Souza TO, **Luna LW**, Araripe J, Silva WAG & Rêgo PS (2021) Peripheral isolation and demographic stability are reflected in the genetic diversity of the populations of the Helmeted Manakin, a bird endemic to the gallery forests. *Annals of the Brazilian Academy of Sciences*, *in press*.

CONFERENCE PRESENTATIONS

“Amazon Biogeography and Biodiversity”. 4th Conference on Zoology of the Institute of Biological Sciences of the University of Pernambuco, Recife, PE, Brazil. 2020.

“Ornithological Navigations in the 21st century in Amazonia: (re) discovering the floodplains.” 25th Brazilian Ornithological Congress, João Pessoa, PB. Brazil. 2018.

“Genetic diversity of the critically endangered Araripe Manakin suggests historical population reduction”. 10th Neotropical Ornithological Congress, Manaus, AM, Brazil. 2015.

“Genetic characterization of natural stocks of pirarucus (*Arapaima gigas*) of the Amazon Basin and the Araguaia / Tocantins system using microsatellite markers.” 59th Brazilian Congress of Genetics, São Paulo, SP, Brazil. 2013.

ACADEMIC SERVICE

Reviewer in Academic Journals

- Ecology and Evolution 2020
- PeerJ 2020 - 2022
- Frontiers in Genetics (Evolutionary and Population Genetics) 2020
- Journal of Biogeography 2021
- Journal of Ornithology 2022
- Global Ecology & Conservation 2022

SCHOLARSHIPS & AWARDS

Doctoral Fellowship, Emilio Goeldi Museum, Belém PA, Brazil 2017 – 2021
R\$ 26,000 / year

Scholarship Exchange Program, CAPES Foundation, Brazil	2019 – 2020
	USD\$ 22,500
Research Grant, CNPq Foundation, Brazil	2015 – 2018
	R\$ 50,000
Master's Fellowship, Federal University of Pará, Bragança PA, Brazil	2015 – 2017
	R\$ 18,000 / year
Undergraduate Research Fellowship, CNPq and CAPES Foundation, Brazil	2012, 2013 & 2015
	R\$ 4,800 / year

SKILLS & INTERESTS

Computational analyses tools

- Software for estimating genetic structure and diversity, gene flow, effective population size, and demographic modeling (e.g., Structure, IMA2, FastSimCoal, PipeMaster, etc.).
- Spatial and landscape genetic structure (e.g., EEMS, conStruct, adegenet, SpaceMix).
- Development of pipelines for genomics analysis in R and Python.

Laboratory and field research techniques

- Experience with DNA extraction and genomic libraries preparation.
- Capability with analysis of several genetic markers families such as microsatellites, SNPs, and ultra-conserved elements (UCEs).
- Demographic census and biological sampling using mist-net capture and recapture method.

Other interests

- Ecological niche modeling using climatic and geographic variables.
 - Adaptive genomics, focusing on adaptations to climate change.
 - Evolution of plumage color in birds.
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