

Dr. Luis Carlos Beltrán

Tropical Restoration Ecologist

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EDUCATION

- **University of Illinois at Chicago** Chicago IL, USA
Doctorate of Philosophy - Biological Sciences August 2015 - May 2021
Dissertation: Planting Composition Effects on Tropical Forest Restoration
- **Lake Forest College** Lake Forest IL, USA
Bachelor of Arts - Biology & Environmental Studies August 2011 - May 2015
Thesis: Post-Dispersal Seed Fate of *Ocotea floribunda* (Lauraceae) in Monteverde, Costa Rica

CURRENT RESEARCH & PUBLICATIONS

- Beltran L. C., C. Martinez-Garza, and H. F. Howe. 2021. Planting Composition Effects on Development of Forest Structure. *Ecological Applications*. *In Review*.
- Beltrán, L. C., K. M. Aguilar-Dorantes, and H. F. Howe. 2020. Effects of a Recalcitrant Understory Fern Layer in an Enclosed Tropical Restoration Experiment. *NeoBiota* **59**:99-118.
- Beltran L. C., C. Whelan, C. Martinez-Garza, and H. F. Howe. Foraging by Cricetid Rodents in Tropical Restoration Plantings. *In Development*.
- Beltrán L. C., C. Martínez-Garza, J. Campo, M. González-Meler, E. D. de Oliveira, A. Rivero-Villar, E. Solís-Villalpando, N. Glass, and H. F. Howe. Planting Composition Effects on Soil Nutrients after 13 Years of Restoration. *In Development*.
- Beltrán, L. C., and H. F. Howe. 2019. The Frailty of Tropical Restoration Plantings. *Restoration Ecology* **28**:16-21.
- Beltrán, L. C., and M. Tepos-Ramirez. 2019. *Microlophus delanonis* (Hood Lava Lizard) Cannibalism. *Herpetological Review Natural History Notes* **50**:787-788.

SKILLS SUMMARY

- **Programming:** R, Python, HTML, CSS, Overleaf
- **Software:** Microsoft Office 2019, ArcGIS, Keynote, Endnote
- **Fluency:** Spanish, English
- **Soft Skills:** Leadership, Grant Writing, Statistical Analysis, Public Speaking, Event Planning, Time Management

TEACHING EXPERIENCE

- **University of Illinois at Chicago** Chicago IL, USA
Teaching Assistant Appointments at the Department of Biological Sciences August 2016 - May 2021
 - **BIOS 365 - Human Ecological Systems:** Remotely co-taught a course on human ecology, the social and cultural context of human technological societies, the environment, and how merging these areas of study are critical to solving real-world problems. January 2021 - May 2021.
 - **BIOS 331 - Ecology Laboratory:** Taught the laboratory section of a partially field course focused on ecology and ecological succession in temperate environments. August 2016 - December 2020.
 - **BIOS 101 - Populations and Communities:** Taught the laboratory section of a general biology course for entry-level undergraduate students. August 2015 - May 2016.
- **Lake Forest College** Lake Forest IL, USA
Peer Teacher at the Department of Biological Sciences August - December 2013 & 2014
 - **BIOS 220 - Ecology & Evolution:** Provided teaching assistance, feedback, and guidance. Field labs included tree demography, pollination biology, and squirrel foraging behavior.

PROFESSIONAL & RESEARCH EXPERIENCE

- **Los Tuxtlas Biological Station** Los Tuxtlas, Veracruz, Mexico
PhD Dissertation Fieldwork & Research May - August 2017, 2018, & 2019

Fieldwork was conducted in a tropical restoration plantings experiment established in 2006 by Drs. Henry F. Howe and Cristina Martínez-Garza to evaluate how dispersal mode of planted trees influences early-successional dynamics. Experimental design consists of 24 (30 x 30 m) fenced plantings of (i) animal-dispersed species, (ii) wind-dispersed species, and (iii) unplanted plots to simulate natural succession. Plots separated by 35 m of actively grazed pasture.

- **Forest Structure:** Measured and identified 7,209 trees in the restoration plantings experiment and adjacent primary forest to compare return of biodiversity and development of forest structure after 13 years of restoration.
- **Fern Invasion:** Assessed the extent and effects of invasion by an understory fern species in the restoration experiment.
- **Foraging Ecology:** Conducted giving-up density experiments to determine rodent foraging preferences among restoration treatments and evaluate implications on seedling recruitment.
- **Soil Nutrient Analysis:** Collected and processed soil samples from the restoration experiment, intervening pasture, and adjacent forest, to compare physicochemical properties and stable isotope concentrations.

- **Monteverde Institute** Monteverde, Costa Rica
Bridge Program *January 2016 - July 2016*
 - **Lichen Monitoring Network:** Established a lichen and bryophyte monitoring network throughout Monteverde (1200m - 1500m) on the trunks of 119 Lauraceae trees.
 - **Reforestation Workshops:** Conducted reforestation workshops, activities, and tours, and assisted in the management of tree nurseries.
 - **Adopt-A-Stream Program:** Assisted with the Adopt-A-Stream program, which focuses on monitoring the health of local streams in Monteverde.
- **Galápagos National Park** Isla Española, Galápagos, Ecuador
Bridge Program *October 2015 - January 2016*
 - **Reproductive Biology Monitor:** Daily monitored over 700 Nazca Booby (*Sula granti*) nests to collect individual reproductive data and band chicks for research projects led by Dr. Dave Anderson from Wake Forest University.
- **Lake Forest College** Lake Forest IL, USA
Undergraduate Thesis Research *June 2014 - May 2015*
 - **Post-Dispersal Seed Fate of *Ocotea floribunda* in Monteverde, Costa Rica:** Designed, performed experiments, and wrote an undergraduate senior thesis on the post-dispersal seed fate of a biotically-dispersed tree species in Monteverde, Costa Rica, which presented preliminary evidence for secondary seed dispersal in this species as well as photographic evidence of agoutis consuming and attempting to bury the seeds.
- **Monteverde Institute** Monteverde, Costa Rica
Tropical Ecology Internship *June 2014 - August 2014*
 - **Lauraceae Spatial Distribution Project Assistant:** Marked and measured over 400 trees belonging to the Lauraceae family and used GPS to map and analyze how the spatial distribution and density of these species varies between primary and secondary forests.
- **Smithsonian Tropical Research Institute** Barro Colorado Island, Panama
Field Research Internship *January 2014 - May 2014*
 - **Mycorrhizae Project Assistant:** Assisted in the maintenance and harvest of a research project investigating the responses of mycorrhizae to nutrient additions.
 - **Seed Biology Project Assistant:** Helped design and conducted a preliminary research project on the adaptive value of mucilage produced by *Guazuma ulmifolia* seeds, thus establishing protocol for future experiments.
- **Monteverde Institute** Monteverde, Costa Rica
Tropical Reforestation Internship *June 2013 - August 2013*
 - **Reforestation Research Assistant:** Measured, retagged, and mapped over 1,000 trees planted by the Fundación Conservacionista Costarricense as part of the organization's reforestation research project.
 - **Phenology Research Project:** Conducted an independent research project on *Myrcianthes* "black fruit", concluding with the creation of a detailed description for this relatively new-to-science species, an illustration of its phenology, and the effects fertilizer and maintenance have on the survival rate of the species, as a contribution to the Bellbird Biological Corridor Project.
- **Lake Forest College** Lake Forest IL, USA
Job Appointments at the Department of Biological Sciences *August 2011 - May 2015*
 - **Guppy Breeder:** Cared for and fed guppies (*Poecilia reticulata*) from Dr. Anne Houde's behavioral research lab.
 - **Stockroom Worker:** Procured and prepared the necessary tools and materials (including compound and dissecting microscopes, agar plates, and sterile glassware) for various different classes and labs in the biology department.

PRESENTATIONS

- **Seminarios Institucionales del CIByC de la Universidad Autónoma del Estado de Morelos:** "La composición de plantaciones afecta el desarrollo de la estructura forestal" [Remote PowerPoint Presentation, March 17, 2021]
- **Guest Talk for Biol 133 Tropical Forest Biology at Lake Forest College:** "Restoring Tropical Forests: Insights from Los Tuxtlas, Veracruz, Mexico" [Remote PowerPoint Presentation, October 5 2020]
- **Biological Department Retreat, University of Illinois at Chicago:** "Forest Structure and Composition of a 13-Year Old Tropical Restoration Experiment" [PowerPoint Presentation, August 23 2019]
- **Ecological Society of America Conference 2019:** "Restoration Suppression by the Invasive Asian Swordtail Fern in Los Tuxtlas, Veracruz, Mexico" [Poster Presentation, August 15 2019]
- **Guest Talk for Ripon College Undergraduate Students at the Monteverde Biological Station:** "Tropical Restoration in Los Tuxtlas, Mexico" [PowerPoint Presentation, January 18 2018]
- **Monteverde Institute Seminars:** "Estableciendo una red de monitoreo de líquenes en Monteverde, Costa Rica" [PowerPoint Presentation, July 16 2016]
- **Argonne National Laboratory, Student Seminars:** "Seed Fate of *Ocotea floribunda* in Monteverde, Costa Rica" [PowerPoint Presentation, November 14 2014]
- **Monteverde Institute Seminars:** "Spatial Distribution and Density of Lauraceae Trees" [PowerPoint Presentation, August 20 2014]
- **International Undergraduate Summit on Global Climate Change:** "Climate Change and Trends in Monteverde, Costa Rica" [Remote Group PowerPoint Presentation, August 12 2014]
- **Monteverde Institute Seminars:** "Resolviendo los misterios de la fruta de la oscuridad" [PowerPoint Presentation, July 28 2013]

HONORS AND AWARDS

- Graduate Research Award (\$100), Department of Biological Sciences, UIC [May 2021]
- Graduate Research Award (\$100), Department of Biological Sciences, UIC [May 2020]
- Rufford Small Grant (£5,000), Rufford Foundation [June 2019]
- Elmer Hadley Research Grant (\$2,800), Department of Biological Sciences, UIC [April 2019]
- Elmer Hadley Research Grant (\$3,000), Department of Biological Sciences, UIC [April 2019]
- Bodmer International Travel Award (\$1,659), College of Liberal Arts and Sciences, UIC [April 2018]
- Provost/Deiss Award for Graduate Research, (\$2,225), Graduate College, UIC [April 2018]
- Photography Research Contest, UIC (\$1,200), Department of Biological Sciences, UIC [March 2018]
- Dean's List, Lake Forest College [August 2014 - May 2015]
- Bridge Program Grant, Grace E. Groner Foundation [October 2015 - July 2016]
- David W. Towle Award for Excellence in Biological Research, Dept of Biological Sciences, Lake Forest College [May 2015]
- Grace E. Groner Award for International Service, Grace E. Groner Foundation [May 2015]
- Internship Grant, Grace E. Groner Foundation [June - August 2014]
- Internship Grant, Grace E. Groner Foundation [January - May 2014]
- Internship Grant, Grace E. Groner Foundation [June - August 2013]
- Dean's List, Lake Forest College [August 2012 - May 2013]

VOLUNTEER EXPERIENCE

- **Board Member of the Alliance for the Monteverde Institute (AMVI)** Remote
Manage communications and newsletter for the AMVI. *August 2021 - Present*
- **Vice-President of the Biology Graduate Student Association (BGSA)** Chicago IL, USA
Organized events and workshops for Biology graduate students of UIC. *September 2020 - May 2021*