

Genoveva Rodríguez-Castañeda

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Beta Hatch
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SeaTac, WA 98148

Education

TULANE UNIVERSITY

Ph.D. in Ecology and Evolution,

New Orleans, LA
December 2009

TULANE UNIVERSITY

M.S. in Ecology and Evolution, cumulative GPA 3.933
[Fulbright - OAS scholar]

New Orleans, LA
June 2007

UNIVERSIDAD DEL VALLE DE GUATEMALA

B.S. in Biology, “Licenciatura” in Biology. GPA 3.7 [*cum laude*]
Thesis: Tropical bat community changes along a gradient of forest disturbance

Guatemala City,
Guatemala
November 2000

Honors & Awards

Honors

Outstanding Doctoral Scientific Contribution- Nominated by the Ecology and Evolutionary Biology Department at Tulane University, 2009.

Science Ambassador Nomination by the Tulane Graduate Student Association. Presented research findings at the International Conference of Entomology in South Africa 2007.

Fulbright and Organization of American States scholar in the Ecology Program scholar 2004-2007.

Grants

Principal Investigator: Swedish Council of Science, Umeå, Sweden, \$500,000 (2019-2021)-*pending decision*

Co-PI with Dr. Virginia Emery, SBIR- National Science Foundation, BetaHatch, SeaTac, Washington, \$ 777,000 (2018-2021)

Co-PI with Dr. Jessica Gurevitch, Long Island Invasive Species Management Act (LIISMA), \$25,067 (2012-2013)

Mosenthal-Xerces society, \$1,875(2008-2009).

Center for Latin American Studies (CLAS), Tulane University, \$1475 (2005).

Fulbright summer research award, \$2,000 (2005).

Co-PI with Enio Cano, Ph.D. CONCYT-Guatemala, \$5,000 (2004-2006).

Co-PI with Charles MacVean, Ph.D. CONCYT- Guatemala, \$40,000 (2000-2003).

In prep:

Principal investigator: Nematode predation on root herbivores feeding on Maize and Teosinte (wild corn) on herbivore resistance and climate driven crop domestication. In situ studies of Maize plant volatile production and its effects of predatory nematode attraction”. NSF-DEB grant.

Principal Investigator: “Evolution of thermal tolerance in the cosmopolitan pest *Liriomyza huidobrensis* and its competitive exclusion of *L. sativae* in both invasive and native niches ”. USDA grant to be submitted 2019.

Travel awards

Graduate student association, \$800

Scholarships

OTS Agroecology Award, \$5,000, tuition for a course in Costa Rica (2002).

Tulane Academic Award, \$29,900, tuition per year (2004-2006).

Fulbright Scholarship, \$19,000, a living stipend for two years (2004-2006).

Research Experience

BETA HATCH INSECT FARM

SeaTac, WA

Entomologist, grant writer, Statistical analyst

December 2018 – present

Consultant in grant writing for the small business innovation research program at the National Science Foundation. Entomology research on the pest risk at the insectarium and the thresholds for insect population growth, feeding efficiency and density dependence. Statistical analyst for the biological development of insects.

SAINT FRANCIS UNIVERSITY

Loreto, PA

Statistical Analyst

April 2016 – November 2017

Thresholds of temperature tolerance in leafminers were analyzed as well as how it affects their altitudinal distribution in Guatemalan vegetable plots. Diagnosed statistically and geographically the risk of establishment in the U.S. of an invasive species. Modeled the distribution of leafminer species based on physiological responses across temperature gradients. Published in the *Journal of Insect Science*, the article featured in *Entomology Today* and presented at the 2017 meeting of the Entomology Society of America.

UNIVERSITY OF TEXAS IN AUSTIN

October 2013 – October 2015

Austin, TX

Research Associate-statistician

Continued research in the spotted knapweed (*Centaurea stoebe*) population, NSF project. Derived a study to test for the prevalence and effectiveness of previously introduced bio-controls in plant populations. This research is ongoing; awaiting analyses and publication following more years of data collection.

STONY BROOK UNIVERSITY

April 2012 – September 2013

Stony Brook, NY

Postdoctoral Research Associate

Evaluated the historical timing of plant invasiveness. Researched 30 individual plant populations of spotted knapweed (*Centaurea stoebe*) of varying densities in New York State. Designed and conducted experimental and regular monitoring methods. Got a grant from the Long Island Invasive Species Management Area. Submitted NSF progress reports. Published a meta-analysis on the effects of global climate on the strength of ecological interactions. Presented at the International Biogeography meeting, Florida 2013.

UMEÅ UNIVERSITY

Umeå, Vasterbotten, Sweden

November 2009 – November 2011

Postdoctoral Research Associate

Developed statistical and phylogenetic inference techniques to study the effects of phylogenetic geographical location on diversification of clades. Specifically, implemented new approaches to study the natural and geographical history of phylogenies and evaluate hypotheses behind the increased diversity towards the equator. In addition to the generation of distribution models and methods to study the effects of climatological history on the diversification of birds in the Americas. Presented research at international meetings in Sweden, the United Kingdom, Austria, Greece, Dominican Republic, and the U.S. Published and collaborated as a co-investigator on four manuscripts.

**FOUNDATION FOR THE ECO-DEVELOPMENT
AND CONSERVATION**

October 2002-May 2004

Guatemala City, Guatemala

Biology Research Team Manager

Surveyed and monitored birds and bats - using mist nets and ringing methods across a tropical elevation gradient. Summarized science progress reports for numerous grants. Tracked salaries, field work schedules, and training of local researchers working on plants, insects, and the coral reef. Analyzed data and presented findings at conservation counsel formed to make conservation management decisions. Co-authored international grant proposals with the French and Guatemalan governments. Presented research findings of bat communities at the Mexican Mammologist Society meeting.

UNIVERSIDAD DEL VALLE DE GUATEMALA

September 2001-September 2003

Guatemala City, Guatemala

Research Laboratory Manager- Applied Entomology Laboratory

Researched tropical insect ecology applied to pest management. Diagnosed taxonomy of pest populations including microhymenoptera, leafminer flies, and scale insects. Served as lead investigator on a research grant proposal on the distribution of *Phyllophaga* and *Anomala* larvae across the Maize plots in Guatemala. Co-authored a grant proposal to study the effects of temperature regimes on *Liriomyza huidobrensis* and examine the risk of it invading the U.S. via Florida (the main port through which fresh snowpeas, which can contain mines from *L.huidobrensis*, are imported).

Publications

2019

Godschalx, A. **Rodríguez-Castañeda, G.**, Rasmann, S. Trophic control of herbivores along steep ecological clines. *Current Opinion in Insect Science- Invited/submitted.*

2017

Rodríguez-Castañeda, G., Hof, A.R. and Jansson, R. 2017. Geographic controls of bird diversification in the New World. *Ecology Letters* 20:1129-1139.

Rodríguez-Castañeda, G., C. MacVean, C. Cardona, and A. Hof. 2017. What limits the distribution of *Liromyza huidobrensis* and its congener *Lirio-myza sativae* in their native niche: When temperature and competition affect species' distribution range in Guatemala. *Journal of Insect Science*, 17 (4) 88: 1-13.

Hof, A., **G. Rodríguez-Castañeda**, Allen Andrew, R. Jansson and C. Nilsson. 2017. Vulnerability of Subarctic and Arctic breeding birds. *Ecological Applications*. 27(1): 219-234.

2016

G. Rodríguez-Castañeda, G. Brehm, K. Fiedler and L.A. Dyer. 2016. Ant predation on herbivores through a multitrophic lens: how effects of ants on plant-herbivore defense and parasitoid populations vary along elevational gradients. *Current Opinion in Insect Science* 14: 73-80.

2014

G. Rodríguez-Castañeda 2014. A much-needed compilation of studies of a Neotropical elevation gradient. Book review. *Frontiers of Biogeography* 6(3) 156.

Tepe, R., **G. Rodríguez-Castañeda**, A. E. Glassmire, L.A. Dyer. 2014. *Piper kelleyi* a hotspot of ecological interactions and a new species from Ecuador and Peru. *Phytokeys* 34:19-32.

2013

Jansson, R., **G. Rodríguez-Castañeda**, and L. E. Harding. 2013. What can multiple phylogenies say about the latitudinal diversity gradient? A new look into the tropical conservatism, out-of-the-tropics and diversification rate hypotheses. *Evolution* 67: 1741-1755.

Rodríguez-Castañeda, G. 2013. The world and its shades of green: A meta-analysis on trophic cascades across temperature and precipitation gradients. *Global Ecology and Biogeography*. 22(1): 118-130.

2012

Rodríguez-Castañeda, G., A. Hof, R. Jansson, and L.E. Harding. 2012. Predicting the fate of biodiversity using species distribution models: Enhancing model comparability and repeatability. *PLoS One* 7 (9): e44402.

Wilson, J.S., M.L., Forister, L.A. Dyer, J.M., O'Connor, K. Burls, C.R. Feldman, M.A. Jaramillo, J.S. Miller, **G. Rodríguez-Castañeda**, E.J. Tepe, J.B. Whitfield, B. Young. 2012. Host conservatism, host shifts and diversification across three trophic levels in two Neotropical forests. *Journal of Evolutionary Biology* 25: 532-546.

2011

Rodríguez-Castañeda, G., R.A. Forkner, L.A. Dyer, E. Tepe, G.L. Gentry. 2011. Weighing defensive and nutritive roles of ant mutualists across a tropical altitudinal gradient. *Biotropica* 43: 343-350.

Connahs H, S. VanBael, A. Aiello and **G. Rodríguez-Castañeda**. 2011. Caterpillar abundance and parasitism in a seasonally dry versus wet tropical forest of Panama. *Journal of Tropical Ecology* 27: 51-58.

2010

Rodríguez-Castañeda, G., L. A. Dyer, G. Brehm, H. Connahs, R.A. Forkner and T. Walla. 2010. Tropical forests are not flat: Herbivore diet breadth and diversity in tropical mountains. *Ecology Letters* 13: 1348-1357.

2009

Connahs H, **G. Rodríguez-Castañeda**, T. Walters, T.Walla, and L. A. Dyer.2009. Geographical variation in host specificity and parasitism rates of an herbivore (Geometridae) associated with the tropical genus *Piper*. Special feature, *Journal of Insect Science* 9: 28.

Tepe, E., W. Kelley, **G. Rodríguez-Castañeda**, and L. A. Dyer. 2009. Characterizing the cauline domatia of two newly discovered Ecuadorian ant-plants in *Piper* (Piperaceae): an example of convergent evolution. Special feature, *Journal of Insect Science* 9: 27.

Journal Edited

Coeditor of a Current Opinion in Insect Science 2017-2018. On variation of multitrophic effects and communication within and among different trophic levels.

Journal reviews

Ecography, Biogeography, Global Ecology and Biogeography, Journal of Insect Ecology, Ecosphere, Journal of Insect Science and Ecology, New Plant Phytologist, Nature-Climate Change, and The American Naturalist.

Invited Talks

- Austria** Tropical Ecology Laboratory, University of Vienna, 2010.
- Costa Rica** Organization of Tropical Studies, Agroecología research project presentation, 2002.
- Ecuador** Oregon State University students, Mindo, 2008.
Mesa State College, Yanayacu Biological Station, 2006 and 2007.
Earthwatch Volunteers, Yanayacu Biological Station, 2005, 2006 and 2007.
- Guatemala** Universidad del Valle de Guatemala, 2005.
Universidad Landívar de Guatemala, 2009.
- Sweden** University of Umeå, Vasterbotten:
ICE mathematics laboratory, 2011.
Landscape Ecology Laboratory, 2009-2011.
Ecology and Conservation Department Ecology, 2010-2011.
- U.S.A.** Stony Brook University 2012.
Tulane University, 2009, 2007 and 2006.

Presentations at Organized Meetings

Asociación Mexicana de Mastozoología

2002

International Biogeography Society	2011 and 2013
International Conference of Entomology	2007
Ecology Society of America	2008-2011
Entomology Society of America	2017
NSF's Pan-American Advanced Studies Institute (PASI)	2010

Symposium organizer

Led a proposal to the International Biogeography Society "The biogeographical origin of our perspective", proposed for the Symposium in Malaga, Spain to be held on January - 2019

Teaching Experience

2013-2015	Instructed students from Norma Fowler's laboratory at the University of Texas at Austin on entering numerical and categorical data to ensure accuracy.
2012-2013	Mentored students from Professor J. Gurevitch's laboratory at Stony Brook University during her sabbatical leave. Coordinated weekly meetings. Coordinated a research team of two undergraduate and five graduate students that involved training in laboratory and field techniques and safety protocols. Lead a team of seven students on plant population monitoring. Advised students on their Undergraduate Summer Research project and Co-supervised a Master's Thesis.
2010-2011	Led discussions of biogeography with a group of five graduate students from Umeå University. Coordinated and spearheaded a research workshop team to improve understanding of the reviewing/editing of manuscripts for publication.
Jan-May 2009 & Jan-May 2008	Served as a teaching assistant for lecture series (Diversity of Life) at Tulane University. Evaluated and supervised the examination of 200 freshman undergraduate students. Assisted Professor Bruce E. Fleury in lectures.
Mar-2009	Invited lecturer for the Entomology class by Clark Pearson. The topic was diet breadth of herbivores.
Aug-Dec 2008	Invited lecturer for the Global Change class by Jeff Chambers. The topic was effects of climate change in the North East Andes.
Aug-Dec 2008	Teaching Assistant for the Senior and Graduate Student Tropical Ecology class at Tulane University. Facilitated topic discussions, evaluated all student exams and lectured twice as a substitute for Professor L. A. Dyer
Jun 2007, Jun 2006 & Jun 2005	Teaching Assistant and lecturer for the 14 volunteers at the Earthwatch Expedition in Yanayacu Biological Station, Ecuador, led by Lee A. Dyer. Coordinated and trained teams of about fifteen volunteers on collecting, and rearing methods for and documenting plant-insect interactions. Lectured on the relevance of specialist interactions in the tropics.
Jul 2007 & 2008	Invited Lecturer and Teaching Assistant for the ten students of Tropical Ecology and Conservation Summer Course by Peter Wetherwax at the

University of Oregon in Cosanga and Mindo, Ecuador. Coordinated and trained teams on collecting, and rearing methods for the documentation of plant-insect interactions. Lectured on tri-trophic interactions along tropical elevation gradients.

Jan-May 2007 & Aug-Dec 2006 Teaching Assistant, Diversity of life laboratory at Tulane University. Directed laboratory instruction for two groups of thirty Freshman students. Guided by weekly meetings, prepared lectures and laboratory hands-on stations. Advised students on the laboratory material, evaluated and graded two sections of laboratories of Biology.

Jun 2006 & Jun 2005 Invited Teaching Assistant for eleven students from the Tropical Ecology Summer Course by Thomas Walla at Mesa State University, Grand Junction, Colorado; held in Cosanga and Shiripuno, Ecuador. Coordinated and trained teams on collecting, and rearing methods for the documentation of plant-insect interactions

Jan-May 2002 Teaching Assistant, Biometry II at Universidad del Valle de Guatemala. Explained and aided sixteen students with the statistical calculations and the use of the SPSS program at the computer laboratory. Evaluated students' ability to program and solve the biological problems using statistical inference.

Aug-Dec 2001 Teaching Assistant, Biometry I at Universidad del Valle de Guatemala. Explained and aided nineteen students with the statistical calculations and the use of the SPSS program at the computer laboratory. Evaluated students' ability to program and solve the biological problems using statistical inference.

Jan- May 1999 Lecturer and Laboratory Instructor, Introduction to Evolution at Universidad del Valle de Guatemala. The course consisted of six credit hours of lecture and three credit hours laboratory for an enrollment of thirty students. Adapted and designed the class syllabus, lectures, and laboratory activities. Designed and graded exams. Assigned and graded students' final research project.

Aug-Dec 1998 Teaching Assistant, Introductory Botany at Universidad del Valle de Guatemala. Assisted in the preparation of the laboratory material for twenty-five students. Complimented the lectures with fresh plant material. Designed and graded laboratory exams.

Jan-May 1998 Teaching Assistant, Tracheophyte Plant Taxonomy at Universidad del Valle de Guatemala. Assisted in the preparation of the laboratory material for six students. Complimented the lectures with herbarium specimens and fresh plant material. Facilitated all the field trips which entailed collecting, and aiding in the identification of tracheophytes from different forests in Guatemala.

Jan-May 1998 Teaching Assistant, Ecology laboratory at Universidad del Valle de Guatemala. Coached twenty students during laboratory hours. Prepared laboratory material. Designed and graded laboratory exams. Coordinated and assisted students with field trips and data analysis.

Aug-Dec 1997 Teaching Assistant, Ecology laboratory at Universidad del Valle de Guatemala. Coached fourteen students during laboratory hours. Prepared laboratory material. Designed and graded laboratory exams. Coordinated and assisted students with field trips and data analysis. Aided students with collection

methods and taxonomy for their invertebrate specimen collection which constituted 30% of their grade

Jan-May 1996 Teaching Assistant in an introductory Biology laboratory at Universidad del Valle de Guatemala. Prepared laboratory material, taught three credit hours. Evaluated students' performance during the laboratory. All teacher assistants helped monitor and grade term exams. Advisor of multiple Freshman research teams that were competing at the annual science fair. One of the advised teams won first place in the science fair.

Research project advisor

2012-2013, Stony Brook University, NY- Three Graduate students and three undergraduate students.

2005-2008, Tulane University, LA and Mesa State College, CO- One graduate student and seven undergraduate students.

2003-2008, Universidad del Valle de Guatemala, Guatemala- advised two Licenciatura in Biology Thesis projects.

REFERENCES

Lee A. Dyer
Professor & Director of the Ecology, Evolution
& Conservation Biology Graduate program
University of Nevada, Reno
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Roland Jansson
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