

Lauren A. Castro

Graduate Research Scholar
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Education

- **University of Texas at Austin** Austin, TX
Ecology, Evolution, and Behavior Ph.D Candidate 2014 - Present
 - College of Natural Sciences Concentration in Teaching and Mentoring
- **Princeton University** Princeton, NJ
Ecology and Evolutionary Biology, B.A. cum laude 2009 - 2013
 - Certificate in Latin American Studies

Related Research Experience

- **Meyers Research Lab** UT-Austin
Graduate Research Scholar Sept. 2014 - Present
 - Developing quantitative approaches to assess the disease risk and optimize the detection of arboviral diseases in Texas. Activities include species distribution modeling of important vectors and assessment of important climatic variables in determining the suitability for sustained disease transmission.
 - Exploring the evolutionary dynamics of viral pathogens in heterogeneous host populations by integrating network theory and population genetics to investigate the impacts of host contact networks on the genesis and maintenance of genetic variation in viral populations. Results will be applied towards developing a framework for inferring both host contact structure and evolutionary parameters from genetic and epidemiological data.
- **Defense Systems and Analysis Division** Los Alamos National Laboratory
Post Baccalaureate Student Jun. 2013 - Jul. 2014
 - Member of a multi-disciplinary team tasked to build a suite of tools that provide relevant and timely information during infectious disease outbreaks. Activities include identifying proximal and distal determinants that influence the progression of an outbreak and developing an epidemiological model characterization framework.
- **Dobson Research Lab** Princeton University
Undergraduate Student Jan 2012 - May 2013
 - Explored how anthropogenic landscape changes affect spatial dissemination of Chagas disease in reservoir animals and humans. Conducted flight performance studies on experimentally infected laboratory triatomine colony for flight performance studies at the Gorgas Memorial Institute for Health Studies in Panama City, Panama. Built a computational agent-based model that simulated the rural transmission cycle of Chagas disease in peridomestic habitats.
- **Defense Systems and Analysis Division** Los Alamos National Laboratory
Undergraduate Summer Student Jun. 2012 - Sep. 2012
 - Completed epidemiological simulations and data stream analysis for disease specific outbreaks. Presented and reported findings to government agency sponsors as part of a systemic evaluation of data streams for integrated global bio-surveillance systems.

- **Smithsonian Tropical Research Institute/Princeton Biology Field Program** Panama City, Panama
Field Semester Abroad Jan. 2012 - May 2012
 - Participated in a semester-long field biology program in Panama jointly organized by the Smithsonian Tropical Research Institute and Princeton, completing four independent research projects that required journal formatted reports and oral presentations. Gained familiarity with various stages of the scientific process by conducting systematic literature reviews; developing scientific questions; executing field methodologies; and analyzing and presenting my data under time constraints.
- **Biosciences Division** Los Alamos National Laboratory
Undergraduate Summer Student Jun.-Sep. 2009, 2010
 - Provided technical support on the BioWatch Gen 3 Detection System Evaluation Project. Activities included analysis of swipe samples and identification of various DNA samples through molecular techniques.

Presentations and Publications

• Publications

- **Castro, L.A.**, Fox, S.J., Chen, X., Liu, K., Bellan, S.E., Dimitrov, N.B., Galvani, A.P., Meyers, L.A. (2016) Real-time Zika risk assessment in the United States. bioRxiv. doi:10.1101/056648.
- Margevicius, K.J., Generous, N., Esteban A., Althouse, B., Burkom, H., **Castro, L.**,...& Deshpande, A. (2016). The Biosurveillance Analytics Resource Directory(BARD): Facilitating the use of epidemiological models for infectious disease surveillance. PloS one, 11(1) e0146600.
- **Castro, L.A.**, Chen, X., Dimitrov, N., & Meyers, L.A. Texas Arbovirus Risk. (2015). Texas Scholar Works.
- Althouse, B.M., Scarpino, S.V. Meyers L.A., Ayers, J.W., Barsten, M., Baumbach, J., Brownstein J.S., **Castro, L.**, ...& Wesolowski A. (2015) Enhancing disease surveillance with novel data streams: challenges and opportunities. EPJ Data Science, 4(1), pp 1-8.
- **Castro, L. A.**, Peterson, J. K., Saldaña, A., Perea, M. Y., Calzada, J. E., Pineda, V., ... & Gottdenker, N. L. (2014). Flight Behavior and Performance of *Rhodnius pallescens* (Hemiptera: Reduviidae) on a Tethered Flight Mill. Journal of medical entomology, 51(5), 1010-1018.
- Generous, N., Margevicius, K. J., Taylor-McCabe, K. J., Brown, M., Daniel, W. B., **Castro, L.**, ... & Deshpande, A. (2014). Selecting Essential Information for Biosurveillance—A Multi-Criteria Decision Analysis. PloS one, 9(1), e86601.
- Margevicius, K. J., Generous, N., Taylor-McCabe, K. J., Brown, M., Daniel, W. B., **Castro, L.**, ... & Deshpande, A. (2014). Advancing a framework to enable characterization and evaluation of data streams useful for biosurveillance. PloS one, 9(1), e83730.

• Presentations

- "Surety BioEvent App." Biosurveillance Ecosystem and BSV Analytic Applications Technical Interchange Meeting, Alexandria, VA, February 2017 (Poster Presentation)
- "Real-Time Zika Risk Assessment in the United States." MIDAS Network Meeting, Reston, VA, May 2016 (Poster Presentation)
- "Determining Appropriate Surveillance Triggers for Implementing Zika Control Measures in Texas." Integrative Biology Graduate Symposium, Austin, TX, April 2016 (Oral Presentation)
- "Species distribution modeling of arbovirus vector species." Diseases in Nature Transmissible to Man Conference, Galveston, TX, May 2015. (Oral Presentation)

- "The Surveillance Window Application: A web-hosted tool to facilitate situational awareness during outbreaks." AAAI-15: World Wide Web and Public Health Intelligence Workshop, Austin, TX, Jan 2015. (Oral Presentation)
- "Enhancing Situational Awareness by Ground Truthing with Historical Outbreaks," International Society of Disease Surveillance Conference, New Orleans, LA, Dec 2013. (Oral Presentation)
- "Characterization and Trypanosome Effects on the Flight Performance of *Rhodnius pallescens*" Ecology and Evolution of Infectious Diseases Conference, Penn State, PA, May 2013. (Poster Presentation)
- "Multiplexed detection of citrus pathogens using a LANL patented assay," Los Alamos National Laboratory Student Symposium, Los Alamos, NM, August 2012. (Poster Presentation)

Grants

National Defense Science & Engineering Graduate Fellowship (\$102,000)	2016-2019
UT-Austin: College of Natural Sciences Dean's Office Recruitment Fellowship (\$72,000) . . .	2014-2016
UT-Austin: Ecology, Evolution, and Behavior Starting Research Grant (\$2,000)	2015
Princeton University Senior Thesis Research Grants (\$5,000)	2012-2013

Awards & Honors

Department of Energy CSGF: Honorable Mention Recipient	2015
University of Washington SIS MID Workshop Travel Award (\$450)	2015
LANL Small Team Distinguished Performance Award	2013
LANL Small Team Decisions Analysis Division Symposium Winner	2011
Los Alamos Employees Scholarship Fund: Bronze Scholar (\$4,000)	2009-2013
J. Robert Oppenheimer Memorial Scholar (\$2,500)	2009

Skills

Programming and Markup Languages: **Expert:** "R", **Intermediate:** Java, Python, L^AT_EX
 Software: **Expert:** MS Access, MS Excel, MS Word, **Intermediate:** Quantum GIS

Professional Associations

American Association for the Advancement of Science
 International Society of Disease Surveillance
 MAES Latinos in Science and Engineering
 Sigma Xi

Institutional Service

College of Natural Sciences Diversity and Inclusion Committee 2016-Present
EEB Student Representative to the CNS Dean's Office Graduate Council 2015-Present

Community Involvement

- Breakthrough Austin – Volunteer
 - Tutor for upper level STEM classes at Austin High School and statistics coach for UT students. Activities include advising potential and current first-generation college students on effective academic practices and problem-solving skills.
- Austin Science Advocates - CoFounder
 - Established and co-organizing a student group aimed at improving communication between scientists, the public, and policymakers. Activities include planning meetings, presentations, and leading policy discussions.