Tomás Martín León, PhD – Lecturer & Postdoctoral Researcher

2121 Berkeley Way #5302, School of Public Health, Berkeley, CA 94720 USA

EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY, EHS Graduate Group **Berkeley, California**
Doctor of Philosophy in Environmental Health Sciences, *2018*
Designated Emphasis in Development Engineering
Dissertation: Elucidating Liver Fluke Transmission Dynamics: Synthesizing Lab, Field, & Modeling Methods

- National Science Foundation Graduate Research Fellow, Foreign Language & Area Studies Fellow, and Fulbright Thailand Research Scholar

Master of Science in Global Health and Environment GPA: 3.98 *2014*
Thesis: Environmental Factors Impacting Liver Fluke Transmission in Natural Waters and Aquaculture Systems

GEORGIA INSTITUTE OF TECHNOLOGY, College of Engineering **Atlanta, Georgia**
Bachelor of Science in Environmental Engineering GPA: 3.97 *2012*
Minor in Sociology

- President's Scholar, Outstanding Senior in CEE, Visionary Service and Leadership Award

WORK & RESEARCH EXPERIENCE

UNIVERSITY OF CALIFORNIA, BERKELEY, Marshall Lab **Berkeley, California**
Postdoctoral Researcher *2018 – Present*

- Coordinating between scientists and field team for ecological and entomological work of island field trials for releases of modified mosquitoes
- Investigating the role of environmental factors in modeling gene drive spread of modified *Aedes aegypti* and *Anopheles gambiae* mosquitoes
- Generating models of fine-scale mosquito dispersal incorporating wind and landscape variables to optimize mosquito surveillance methods and MRR experiment design and for comparison with genetic methods

TROPICAL DISEASE RESEARCH LABORATORY/CHINESE CENTER FOR DISEASE CONTROL AND PREVENTION **Khon Kaen, Thailand/ Jiangmen and Chengdu, China**
Graduate Researcher/Fulbright Scholar *2013 - 2018*

- Developed hydrology-driven metapopulation disease transmission model for liver flukes in Thailand
- Conducted field work for M.S. and Ph.D. in Thai and Chinese villages studying the transmission of the liver flukes *Opisthorchis viverrini* and *Clonorchis sinensis* in aquaculture and natural settings
- Planned and coordinated research experiments and lab operations with collaborators and local field teams, processing water, snail, fish, and reservoir host samples

AMERICAN JOBS PROJECT **Berkeley, CA**
State of Georgia Intern *2014*

- Researched Georgia's competitive advantages in clean energy economy for job creation and development
- Interviewed major stakeholders in government, industry, non-profit, and academia, generating memos for use in shaping state clean energy policy

CENTERS FOR DISEASE CONTROL AND PREVENTION (NCEH/ATSDR) **Chamblee, GA**
Collegiate Leader in Environmental Health Intern/ORISE Fellow *2011 - 2012*

- Prepared environmental chemical exposure reports for brownfield sites across United States
- Developed programming tool to calculate doses of chemical and particulate emission exposures
- Modeled and analyzed emissions from contaminated Chinese drywall to determine human health effects

ENVIRONMENTAL MICROBIAL GENOMICS LABORATORY **Georgia Tech, Atlanta, GA**
Undergraduate Researcher with Dr. Konstantinidis *2010 - 2012*

- Studied strains of *E. coli* to differentiate between them in order to better determine which species indicate fecal contamination in water sources through isolation work and metagenomic mapping

PIEDMONT PARK CONSERVANCY **Atlanta, GA**
Sustainability Intern *2010*

- Pursued and fostered collaborative partnerships for the park with environmental and arts groups
- Learned grant-writing and about nonprofit funding

MISSION IMPACT, HECHOS 2:8 **Antigua/Ixcan, Guatemala**
Intern *2009*

- Worked in rural northern Guatemala implementing biosand water filter projects in poor communities
- Gave presentations in Spanish to communities about health and hygiene and tested water quality of filtered and unfiltered water

AWARDS & SCHOLARSHIPS

Graduate: NSF Graduate Research Fellowship, Foreign Languages & Area Studies Fellowship (Southeast Asia), Fulbright U.S. Student Award (Thailand), C.C. Chen Research Funding, EHS Block Grant Fellowship

Undergraduate: Georgia Tech President's Scholarship, J. Erskine Love, Jr. Philanthropy Award, Hannabach Achievement Award, Visionary Service and Leadership Award, Outstanding Senior Award in Civil and Environmental Engineering, GT Internship Student of the Year Award, Henry Ford II Scholar Award

MANUSCRIPTS

T.M. León, A. Cornel, K.K. Brisco, J.M. Marshall (2020, in prep). Maximum likelihood method for analyzing mark-release-recapture data of *Aedes aegypti* using environmental and landscape data. Invited submission in *Ecology Letters*.

T.M León, V. Plermkamon, K. Kuntiyawichai, B. Sripa, R.C. Spear (2019, submitted). Hydrology-informed metapopulation modeling of liver fluke transmission in the Lawa Lake complex of northeast Thailand. Preprint available on bioRxiv: https://www.biorxiv.org/content/biorxiv/early/2019/03/06/569913.full.pdf

J.M. Marshall, R. Raban, N.P. Kandul, J.R. Edula, T.M. León, O. Akbari (2019). Winning the tug-of-war between effector gene design and pathogen evolution in vector population replacement strategies. *Frontiers in Genetics*.

J.C. Utazirubanda, T.M. León, P. Ngom (2019). Variable selection via Group LASSO Approach: Application to the Cox Regression and frailty model. *Communication in Statistics: Simulation and Computation*.

T.M. León, T.C. Porco, C.S. Kim, S. Kaewkes, W. Kaewkes, B. Sripa, R.C. Spear (2018). Modeling liver fluke transmission in northeast Thailand: impacts of development, hydrology, and control. *Acta Tropica*.

P. Echaubard, T.M. León, K. Suwanatrai, J. Chaiyos, C.S. Kim, F.F. Mallory, S. Kaewkes, R.C. Spear, B. Sripa (2017). Experimental and Modeling Investigations of *Opisthorchis viverrini* Miracidium Transmission Over Time and Across Temperatures: Implications for Control. *International Journal for Parasitology* 47(5): 257-270.

X. Li, X. Chen, X. Yuan, G. Zeng, T.M. León, J. Liang, G. Chen, X. Yuan (2017). Characteristics of Particulate Pollution ($PM_{2.5}$ and PM_{10}) and Their Spacescale-Dependent Relationships with Meteorological Elements in China. *Sustainability* 9(12): 2330.

X. Li, W. Liu, Z. Chen, G. Zeng, C. Hu, T.M. León, J. Liang et al. (2015). The application of semicircular-buffer-based land use regression models incorporating wind direction in predicting quarterly NO_2 and PM_{10} concentrations. *Atmospheric Environment* 103: 18-24.

W. Liu, X. Li, Z. Chen, G. Zeng, T.M. León, J. Liang, G. Huang et al. (2015). Land use regression models coupled with meteorology to model spatial and temporal variability of NO 2 and PM 10 in Changsha, China. *Atmospheric Environment* 116: 272-280.

RECENT CONFERENCE PRESENTATIONS

T.M. León, H.M. Sánchez C., J.M. Marshall. Mosquitoes in paradise, but can malaria be driven out? Forthcoming talk Bay Area EEID 2020, Berkeley, CA.

T.M. León, J.B. Bennett, A.J. Cornel, J.M. Marshall. Incorporating environmental variables into mosquito gene drive modelling: fine-scale dispersal, temperature, and landscape-dependent connectivity. Poster presentation given at Epidemics7 International Conference on Infectious Disease Dynamics (2019), Charleston, SC.

T.M. León, A. Cornel, K.K. Brisco, J.M. Marshall. Maximum likelihood method for analyzing mark-release-recapture data of *Aedes aegypti* using environmental and landscape data. Contributed talk given at 2019 Ecological Society of America Annual Meeting, Louisville, KY.

T.M. León, V. Plermkamon, K. Kuntiyawichai, B. Sripa, R.C. Spear. Liver fluke transmission in northeast Thailand: rain, reinfection, and reservoir hosts. Poster presentation given at Bay Area EEID 2019, Palo Alto, CA.

T.M. León, V. Plermkamon, K. Kuntiyawichai, B. Sripa, R.C. Spear. Liver fluke transmission in northeast Thailand: rain, reinfection, and reservoir hosts. Poster presentation given at 11th Annual CEND Symposium (2019), Berkeley, CA.

H.M. Sánchez C., J. Bennett, S.L. Wu, V. Vasquez, T.M. León, J.M. Marshall. MGDrivE: A simulation framework for gene drive in spatially-explicit mosquito populations and its applications to threshold-dependent systems. Poster presentation given at 2018 Annual Meeting of American Society of Tropical Medicine and Hygiene, New Orleans, LA.

TEACHING

University of California, Berkeley
Introduction to GIS for Public Health – instructor of record and lecturer (2020)
Environmental and Occupational Epidemiology – guest lecture, “WaSH and Helminth Disease Epidemiology” (2019, 2020)
CRISPR Genome Editing: From Biology to Technology – guest lecture, “Gene Drives” (2020)
Infectious Disease Modeling – guest lecture, “Introduction to Stochastic Modeling” (2019)
Intro to Environmental Health Sciences (for MPH students) – graduate student instructor (2017)
Intervention Trial Design – graduate student instructor and guest lectures (2016)
Intro to Environmental Health Sciences (for MPH students) – guest lecture, “Environmental Pathways for Infectious Disease” (2015)

Patten University/Prison University Project
Public Health – curriculum designer and lead instructor (2019)
Environmental Justice Workshop – research assistant and guest lecturer (2019)
Elementary Algebra – co-instructor (2017), study group coordinator (2014)
Developmental Math 50B – lead instructor (2016), co-instructor (2013, 2015)
Developmental Math 50A – co-instructor (2013)

SERVICE

Students Supervised
Thien-An Ha, MPH Candidate, Epidemiology & Biostatistics, School of Public Health, UC-Berkeley 2019-2020
Cheyenne Butcher, MS, Environmental Health Sciences, School of Public Health, UC-Berkeley 2017-2018

Thesis Committees
Luis Rodrigo Careaga Sotomayor, MS Computer Science, Tecnológico de Monterrey, México 2019

SKILLS

Languages: English – native; Spanish – conversational; Thai – conversational
Programming: R – advanced; Python, MATLAB, C++ – basic
Other: GIS – advanced; Git – intermediate
Hobbies: Hiking, puzzling, collecting flags and audiocassettes, volunteering, world percussion