



Professional Appointments

Present	Assistant Professor , St Mary's College of Maryland
2018 – 2021	Postdoctoral Scholar , University of California, Riverside <i>Supervisor:</i> Dr. Joel Sachs
2016 - 2018	Koch-Richardson Teaching Postdoctoral Fellow , Tulane University <i>Supervisors:</i> Dr. Sunshine Van Bael & Dr. Jordan Karubian
2008 - 2010	Researcher & Tissue Collection Curator Alexander Von Humboldt Biological Resources Research Institute (CIAT-CGIAR, Cali-Colombia)

Education

2010 - 2016	Ph.D. Ecology and Evolutionary Biology , Purdue University <i>Advisors:</i> Dr. Nancy. C. Emery & Dr. Morris Levy <i>Dissertation:</i> “Evolutionary potential of a dispersal-restricted species in response to climate change”
2003 - 2008	B.S. Biology , Universidad del Valle <i>Graduated High Honors in Biology (Mejor graduando)</i>

Research Interests

Adaptation to variable and extreme environments, population and quantitative genetics, plant-microbe interactions, mutualism, conservation genomics

Fellowships, Awards, and Grants

FELLOWSHIPS AND AWARDS

2016 - 2018	Koch-Richardson Postdoctoral Teaching Fellowship, Tulane University
2008	Honors Graduate in Biology, Universidad del Valle, Cali-Colombia

GRANTS

2020-2021	California Conservation Genomics Project (\$50,000)
2017	CELT Faculty development grant, Tulane University (\$500)
2017 - 2018	CELT Faculty Mentored Undergraduate Research Award (\$2,000)
2014 - 2016	Dissertation Improvement Grant NSF (\$20,020)
2015	Women in science at Purdue travel grant (\$1,500)
2014 - 2015	Northern California Botanists Scholarship (\$1,000)
2013 - 2015	PRF Grant, Purdue University (\$44,000)

- 2013 Frederick N. Andrews Environmental Research Travel Grant, Purdue University
(\$1,500)

Publications

undergraduate and high-school students are underlined

JOURNAL PUBLICATIONS

8. **Torres-Martínez, L.**, Porter, S.S., Wendlandt, C., Purcell, J., Ortiz-Barbosa, G., Rothschild, J., Lampe, M., Warisha, F., Le, T., Weisberg, A.J., Chang, J.H. and Sachs, J.L. 2021. Evolution of specialization in a plant-microbial mutualism is explained by the oscillation theory of speciation. *Evolution*, 75: 1070-1086
7. **Torres-Martínez, L.**, Sanchez, M., Kimbrought, L., Hendrix, T., Hendrix, M., Day, R.D., Krauss, K.W. and S. Van Bael. 2020. Influence of microbiota on *Taxodium distichum* seedling performance during extreme flooding events. *Part of special thematic issue on applying microbial community research to improve conservation and restoration outcomes. Plant Ecology*, 221: 773-793
6. **Torres-Martínez, L.**, McCarten, N. and N.C. Emery. 2019. Adaptive potential of plant populations under extreme climate events. *Ecology Letters*, 22 (5), 866-874.
5. Tittes S, Walker J, **Torres-Martínez L** and NC Emery. 2019. Grow where you thrive or where only you can survive? A Bayesian analysis of tolerance curve evolution in a clade with diverse habitat affinities. *The American Naturalist*, 93 (4), 530-544.
4. **Torres-Martínez, L.**, P. Weldy, M. Levy and N.C. Emery. 2017. Spatiotemporal heterogeneity in precipitation patterns explain population-level germination strategies in an edaphic specialist. *Part of special issue on endemism hotspots in Annals of Botany*, 119 (2): 253-265
3. **Torres-Martínez, L.** and N.C. Emery. 2016. Using RADseq to discover SNP markers in the California vernal pool endemic herb, *Lasthenia fremontii* (Asteraceae). *Conservation Genetic Resources*, 8:145–158.

BOOK CHAPTERS

2. Schuster M., **Torres-Martínez L.**, Dukes J.S. 2012. Distribution of terrestrial ecosystems and changes in plant community composition. In: Freedman B. (Ed.) Global Environmental Change. *Handbook of Global Environmental Pollution*. Springer Netherlands, pp. 341-347.
1. Emery, N, **L. Torres-Martínez**, E. Forrestel, B.G. Baldwin and Ackerly, D.D. 2011. The ecology, evolution and diversification of the Vernal Pool Niche in *Lasthenia* (Madieae, Asteraceae) p 39- 57. In: Alexander, D.G and R.A. Schlising. 2011. Research & Recovery in Vernal Pool Landscapes. *Studies from the Herbarium*. Number 16. California State University, Chico.

TECHNICAL REPORTS

- Sweet, L.C., S. Heacox, M. Davis, P. Ramstead, **L. Torres-Martínez**, C. Barrows. (2020) Monitoring Results for the triple ribbed milkvetch (*Astragalus tricarlinatus*) within the Coachella Valley MSHCP Area. Final Report. Prepared for: *Coachella Valley Conservation Commission*.
- Bocanegra, J.L, C. Villafañe, R. Moreno, **L. Torres M**, A. Velásquez, L. Fory and G. Gallego. 2010. Genetic Characterization of wild cultivars and species of yucca (*Manibot* sp.) on the Colombian

Amazon and Orinoco. In: *Capacity building for implementation of the Protocol of Cartagena in Colombia: Sector Ambiente* - / Instituto de Investigación de Recursos Biológicos Alexander von Humboldt; Orjuela-R. M.A. y Moreno V. R. (comp.). Bogotá D.C.: Colombia: Ministerio de Ambiente, Vivienda y Desarrollo Territorial; Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.

Villafañe, C., J.L. Bocanegra, R. Moreno, **L. Torres M**, V.H. García. 2010. Genetic Characterization of wild cultivars of rice (*Oryza* spp.) collected in Vichada Colombia. In: *Capacity building for implementation of the Protocol of Cartagena in Colombia: Sector Ambiente* - / Instituto de Investigación de Recursos Biológicos Alexander von Humboldt; Orjuela-R. M.A. y Moreno V. R. (comp.). Bogotá D.C.: Colombia: Ministerio de Ambiente, Vivienda y Desarrollo Territorial; Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.

Torres L, Lopez D, Palacio J.D., Duque M.C., Perez Galindo C.A., Gonzalez Vargas I.A and H.C. Cardenas. 2009. Evaluation of the Polymorphism of Microsatellites Markers in *Guadua angustifolia* (Poaceae: Bambusoideae). *VIII World Bamboo Congress Proceedings*, 5: 64-79.

IN REVIEW

Ortiz-Barbosa G.S., **Torres-Martínez L.**, Neal S., Soubra T., Khairi F., Trinh J., Cardenas P., Porter A. and J.L. Sachs. No disruption of rhizobial symbiosis during early stages of cowpea domestication. *In review in Evolution*.

Lumibao, C., **Torres-Martínez, L.**, Megonigal, P., Van Bael, S., and M. Blum. Microbial mediation of salinity stress response varies by plant genotype and provenance over time. *In review in New phytologist*.

IN PREPARATION (*Manuscripts available upon request*)

Torres-Martínez, L., Wendlandt, C., Purcell, J. and J. L. Sachs. Genomic variation and local adaptation in a California native legume. *In prep*

Torres-Martínez, L., Brown, L., Díaz-Martín, Z., Oleas, N. and J. Karubian. Fine-scale spatial genetic structure across life stages in a tropical palm species. *In prep*

Presentations

INVITED SEMINARS

Clark University, Worcester, USA	2021
St. Mary's College of Maryland, USA	2020
University of California, Riverside, USA	2019
Universidad Nacional de Manizalez, Colombia	2018
St. Mary's College of Maryland, USA	2018
Tulane University, USA	2016

INVITED CONFERENCE PRESENTATIONS

Van Bael, S., Kimbrough, E., Lumibao, C., **Torres-Martínez, L**, Formel, S., Conner, W., Day, R and K. Krauss. 2021. Sea level rise and the microbial communities of baldcypress. Organized Oral Symposium. Plant-microbe interactions in wetland ecosystems: challenges under increasing environmental pressures. *Ecological Society of America Annual Meeting, Virtual meeting 2021*.

- L. Torres-Martínez**, Porter, S., Rothschild, J., Ortiz, G., Lampe, M., Farsamin, W., Le, T., and J. Sachs. 2020. Rapid evolution of specialization in a plant-microbial mutualism. *Northern California Botanists Symposium. California State University, Chico, CA.*
- L. Torres-Martínez** and N.C. Emery. 2019. The adaptive potential of plant populations in response to extreme climate events. *SoCal Evolutionary Genetics meeting (SCalE), University of California, Irvine.*
- Emery, N.C. and **L. Torres-Martínez**. 2015. Evolution of phenotypic plasticity and ecological specialization in temporally varying environments. Organized oral session: “Shifting dimensions: temporal ecology for the next 100 years and beyond.” *Ecological Society of America Annual Meeting, Baltimore, MD.*
- Emery, N.C. and **L. Torres-Martínez**. 2015. Rapid Evolution and Phenotypic Plasticity of Vernal Pool Plants in Response to Climate Change. Symposium title: “Best Management Practices for Climate Change Adaptation: A Wetlands Perspective.” *Society for Wetland Scientists, Providence, RI.*
- Torres-Martínez, L.** and N.C. Emery. 2014. Germination and Dormancy Variation in Fremont’s Goldfields: Implications for Vernal Pool Plant Responses to Climate Change. *Northern California Botanists Symposium. California State University, Chico, CA.*
- Torres-Martínez, L.,** D. Lopez, C. Perez-Galindo, M.C. Duque, I.A. Gonzalez, J.D. Palacio and H. Cardenas. 2009. Molecular Characterization with microsatellites markers of the Juan Maria Cespedes Botanical Garden germ bank accessions of *Guadua angustifolia* (Poaceae: Bambusoideae). *International Congress of Guadua, other Bamboos and Natural Fibers. Armenia, Colombia.*

CONTRIBUTED PRESENTATIONS*undergraduate students are underlined*

- Torres-Martínez, L.,** C. Wendlandt, J. Purcell and J. Sachs. 2019. Climate, but not symbiosis, drives local adaptation of an annual legume. *Symbiosis symposium. Yosemite, California, USA*
- Torres-Martínez, L** and N.C. Emery. 2015. The spatial scale of genetic differentiation in wetland plant populations: implications for adaptation to changing climate. *Evolution. Guarujá, Sao Pablo, Brazil.*
- Emery, N.C., **L. Torres-Martínez**, and M. Madden. 2013. Reaction norm evolution and habitat specialization in California goldfields (*Lasthenia*, Asteraceae). *Evolution. Snowbird, UT.*

POSTER PRESENTATIONS*undergraduate students are underlined*

- Sweet, L.C., **Torres-Martínez, L.,** Naomi S. Fraga, N.S., La Doux, T., Heacox, S., Davis, M., and Joel L. Sachs. 2021. Genomic diversity of the narrow endemic and endangered legume *Astragalus tricarlinatus*. *Ecological Society of America Annual Conference, Virtual meeting 2021.*
- Torres-Martínez, L.,** C. Wendlandt, J. Purcell and J. Sachs. 2019. Climate, but not symbiosis, drives local adaptation of an annual legume. *Gordon Research Seminar (GRS) on Genomic Changes Behind Adaptation and Ecosystem Functions. Southern New Hampshire University, Hooksett, NH.*
- Torres-Martínez, L.,** Hendrix, T., Kimborough, L., Hendrix, M., Sánchez, M., and S. Van Bael. 2018. The role of root fungi swamp cypress seedling tolerance to extreme climate events. *Ecological Society of America Annual Conference, New Orleans.*
- Sánchez, M., **Torres-Martínez, L.** and S. Van Bael. 2018. Impact of differential flooding regimes on the Arbuscular Mycorrhizal Fungi and Root Fungal Endophytes of Baldcypress seedlings (*Taxodium distichum*). *International Mycological Congress, San Juan, Puerto Rico.*
- Hendrix, T., **Torres-Martínez, L.,** Kimborough, L., Hendrix, M., Sanchez, M., and S. Van Bael. 2018. Influence of root fungi on the resilience of swamp cypress seedlings to extreme climate events. *CELT Student Poster Presentation, Tulane University, New Orleans.*
- Torres-Martínez, L.,** D. Lopez, C. Perez-Galindo, M.C. Duque, I.A. Gonzalez, J.D. Palacio and H. Cardenas. 2009. Evaluation of the polymorphism of microsatellites markers in *Guadua angustifolia* (Poaceae: Bambusoideae). *VIII World Bamboo Congress. Thailand, Bangkok.*
- Torres-Martínez, L.,** D. Lopez, C. Perez-Galindo, M.C. Duque, I.A. Gonzalez, J.D. Palacio and H. Cardenas. 2009. Molecular Characterization with microsatellites markers of the Juan Maria

Cespedes Botanical Garden germ bank accessions of *Guadua angustifolia*. V Colombian Congress of Botany. Nariño University, Pasto, Colombia.

Teaching and Mentorship

INSTRUCTOR AND LECTURER

**designed and taught*

- 2017 - 2018 **Genomics and Bioinformatics (EBIO 6660)***
Graduate level course covering main principles in programming and analyses of next generation sequencing technique. Department of Ecology and Evolutionary Biology. Tulane University, New Orleans, LA.
- 2016 - 2018 **Plant Biology and Adaptations (EBIO 3591/6591)***
Graduate and undergraduate level course covering main principles in plant physiology and evolution. Department of Ecology and Evolutionary Biology. Tulane University, New Orleans, LA.
- 2016 **Tropical Plant Biology (Independent Study Course)***
Reviewed taxonomy of tropical plants with PhD Student John White. Department of Ecology and Evolutionary Biology. Tulane University, New Orleans, LA

WORKSHOPS LED

- 2018 **Brown Bag Seminar Series: “How to teach science”**
Center for Engaged Learning at Tulane (CELT), New Orleans, USA April 4th
- 2017 **Genomics of adaptation: understanding the genetic basis of evolutionary change**
Bioinformatics Center of Colombia (BIOS), Manizales, Colombia, September 28-29th

TEACHING ASSISTANT

- 2012 - 2016 **Evolution (BIOL 580)**
 Department of Biological Sciences, Cluster of Ecology and Evolution. Purdue University, West Lafayette, IN. *Instructor: Dr. Morris Levy.*
- 2013 – 2015 **Biology (BIOL 110)**
 Department of Biological Sciences, Cluster of Ecology and Evolution. Purdue University, West Lafayette, IN. *Instructor: Dr. Athena Anderson*
- 2013 **Conservation Biology (BIOL 483)**
 Department of Biological Sciences, Cluster of Ecology and Evolution. Purdue University, West Lafayette, IN. *Instructor: Dr. Kerry Rabenold*

RESEARCH STUDENTS MENTORED (20 TOTAL)

University of California	Jacob Rothschild	Native symbionts of <i>Acmispon spp</i>
	Zenia Rana	Native symbionts of <i>Acmispon spp</i>
	Matt Sung	Evolution of host specificity in <i>Acmispon spp</i>
	Tram Le	Evolution of host specificity in <i>Acmispon spp</i>
Tulane University	Emma Tower	Dormancy and viability in baldcypress

	Trey Hendrix	AMF influence in baldcypress resilience to flooding
	Caitlin Ducat	AMF influence in baldcypress resilience to flooding
	Miranda Hendrix	AMF influence in baldcypress resilience to flooding
	Emma Darr	AMF influence in baldcypress resilience to flooding
Purdue University	Alan Clinton	Characterization of microsatellites in <i>Lasthenia</i>
	Shannon Kuznar	Dispersal trait variation in <i>Lasthenia fremontii</i>
	Nicholas G. Barton	Adaption of <i>L. fremontii</i> to climate change
	Wanyu Wang	Adaption of <i>L. fremontii</i> to climate change
	Suraya Williams	Germination strategies of <i>L. fremontii</i>
	Phillip Weldy	Germination strategies of <i>L. fremontii</i>
	Baylie Hochstedler	Adaption of <i>L. fremontii</i> to climate change
	Ching-Hui Wu	Adaption of <i>L. fremontii</i> to climate change
	Brittany R. Croy	SNP variation in <i>L. fremontii</i>
	Megan Sullivan	Adaption of <i>L. fremontii</i> to climate change
	Danielle Paglia	Adaption of <i>L. fremontii</i> to climate change

Professional Training

2019	Evolutionary Quantitative Genetics Workshop. <i>Friday Harbor Laboratories</i> . University of Oregon, June 10th-15
2017	Brown Bag Series: Lecturing can be fine- just add some spice! <i>Center for Engaged learning and Teaching</i> . Tulane University
2016	Building rapport with your students. <i>Center for Instructional Excellence</i> . Purdue University
2016	Active Learning I: Encouraging active learning. <i>Center for Instructional Excellence</i> . Purdue University.
2016	Active Learning II: Experiential learning. <i>Center for Instructional Excellence</i> . Purdue University.
2015	Workshop in conservation genomics. Lakretz Field Station. University of California, Los Angeles, CA, USA. March 22-27, 2015
2011	Practical computing for biologist. NESCENT. North Carolina State University, Raleigh, NC, USA. June 6-1, 2011
2009	Course in Phylogeography: sequence and microsatellites data analyses. Universidad del Valle, Biological Sciences Department, Cali, Colombia. June 22-27, 2009

Professional Service and Outreach

REVIEWER	<u>Scientific Journals</u> : Evolution, Ecosphere, American Journal of Botany, Madroño, Conservation Genetics, Agriculture, Forest, Tree genetics & Genomes, Plants, PeerJ, Plant Biology, <u>Research Grants</u> : National Science Foundation (2020)
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PROFESIONAL
SERVICE**Mentored undergraduates as part of Women in Science at Tulane (WISE)**

Advised several undergraduates in their career development and advancement in science

Plant Journal Coordinator

Scheduled meetings for the weekly discussions on plant biology research in the EEB department at *Tulane University*

Secretary of CSAP (Colombian Student Association at Purdue)

Supported the advancement of higher education of Colombian students at *Purdue University*

OUTREACH

Volunteer of GIST (Girls in Stem at Tulane) series

Department of Ecology and Evolutionary Biology. *Tulane University*

Volunteer of BATS (Boys at Tulane in Stem) series

Department of Ecology and Evolutionary Biology. *Tulane University*

SCIENTIFIC SOCIETIES

Society for the Study of Evolution (SSE), Ecological Society of America (ESA), Northern California Botanist, California Botanical Society, American Association for the Advancement of Science (AAAS)