MARIANA ABARCA

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Appointments

2018-Present Assistant Research Professor. Georgetown University. Biology Department.

2016-2017 Post-Doctoral Fellow. Georgetown University. Biology Department. Advisor: Dr. Leslie Ries.

Education

2010 - 2016 **Ph.D.** in Biological Sciences. The George Washington University, Advisor: John T. Lill. Dissertation: Phenology of Black Cherry and Eastern Tent Caterpillars: Impact of Global Climate change.

2007 - 2009 **M.S.** in Environmental Biology. Graduated with honors. Universidad Nacional Autónoma de México, Instituto de Ecología, Advisor: Karina Boege. Thesis: Construccion de Refugios de *Gephyra cynisca* (Lepidoptera: Pyralidae) efectos sobre la depredación y la calidad alimenticia del follaje.

2001 - 2007 **B. S.** in Biology. Universidad Nacional Autónoma de México, Facultad de Ciencias. Advisor: Karina Boege. Thesis: Biologia reproductiva y herbivoria en una especie distylica (*Psycchotria horizontalis*).

Peer-reviewed publications

Abarca M., Lill, J. T., Weiss, M. R. (In press). Host Plant and Thermal Stress Induce Supernumerary Instars in Caterpillars. Environmental entomology.

Abarca, M. 2019. Herbivore seasonality responds to conflicting cues: Untangling the effects of host quality, temperature, and photoperiod. PLOS One, 14 (9), e0222227.

Abarca, M. Larsen, E. Ries, L. 2019. Heatwaves and Novel Host Consumption Increase Overwinter Mortality of an Imperiled Wetland Butterfly. Frontiers in Ecology and Evolution. 7:193.

Abarca, M. and Lill, J. 2019. Phenological responses of eastern tent caterpillars and their egg parasitoids across latitudes. Ecological Entomology 44: 50-61.

Abarca, M., Larsen, E. Lill, J. Weiss, M. Lind, E. & Ries, L. 2018. Inclusion of host quality data improves predictions of herbivore phenology. Entomologia Experimentalis et Applicata 166: 648-660.

Abarca, M. Lill, J. and P. Frank. 2018. Latitudinal variation in responses of a forest herbivore and its egg parasitoids to experimental warming. Oecologia 186: 869-881.

Abarca, M. and Lill, J. 2015. Warming affects hatching time and early season survival of eastern tent caterpillars. *Oecologia,*169:901-912.

Abarca, M., Boege K., and Zaldivar-Riverón A. 2014. Shelter-building behavior and natural history of two pyralid caterpillars feeding on *Piper stipulaceum*. *Journal of Insect Science*. 14:39.

Abarca, M. and Boege, K. 2011. Fitness costs and benefits of shelter building and leaf trenching behavior in a pyralid caterpillar. *Ecological Entomology*, 36: 564-573.

Scholarships, Grants and Fellowships (US dollars)

2015. Harlan Graduate Summer Scholarship: Stipend
2014. Washington Biologists' Field Club Grant: $992
2014-2015. Isabella Osborn King Endowment Fellowship: Tuition award and stipend
2013. NPS George M. Wright Climate Change Youth Initiative Fellowship: $19,864
2013. GW Chapter Sigma Xi grant: $900
2013-2014. Harlan Graduate Scholarship: Tuition award and stipend
2013. UFF Graduate Research Fellowship: Stipend
2013. Harlan Graduate Summer Scholarship: Stipend
2012. Washington Biologists' Field Club Grant: $2912
2012-2013 Weintraub Fellowship: Tuition award and stipend
2010- 2014 National Science Council (CONACyT)- Mexico. PhD. Fellowship: Stipend
2009. Ecological Society of America Long Range Grant: Travel grant, $400
2007-2009. National Science Council (CONACyT)- Mexico. Masters Fellowship: Stipend

Teaching Experience

Professorial lecturer in biology

Spring 2016. Masters course: Environmental Science II, at The George Washington University, Environmental Policy Masters Program.

Fall 2015. Undergraduate course: Plant- Animal Interactions at The George Washington University, Washington, DC.

Guest Lectures

2019 Baltimore Checkerspot decline in MD, for a biology introductory class at Cedar Crest College (Prof, Amy Faivre).

2019 Phenological mismatches for the class Global Climate Chance Ecology at Georgetown University (Prof. Leslie Ries).

2016 Transgenics, for the class Environmental Geoscience at Georgetown University (Prof. Sarah Johonson).

2014 & 2015. Plant offense and defense, for the class: Plant comparative structure and function at The George Washington University (Prof. Amy Zanne).

Teaching assistantships

2010-2012. The George Washington University, lab instructor for the courses:
Biology of Nutrition and Health, fall 2010, fall 2011.
Ecology and Evolution of Organisms, spring 2011, spring 2012.

Mentoring of undergraduate students

Erin Leeds (2019). Georgetown University. Research Intensive Senior Experience program.

Miranda Peterson (2018), Lydia Poisson (2017) Georgetown University, Research Experiences for undergraduates (REU) program.

Robert Oppenheimer (2013) and Ced Block (2014). Lill lab, George Washington University.

Professional Service

Manuscript review for the journals: *Ecological Entomology*, *Journal of Plant Interactions*, *Ecography, Ecology and Evolution, Basic and Applied Ecology, Journal of the Lepidopterists' Society, Journal of Economic Entomology, Oecologia,* and *Environmental Entomology.*

Contributed Professional Presentations

Abarca, M., Larsen, A. E. & Ries, L. 2019. Feeding on an invasive host exacerbates heatwave-induced mortality of Baltimore Checkerspots. Gordon Research Conference on Plant-Herbivore Interactions, Ventura, CA, USA.

Larsen, A. E., **Abarca, M.** & Ries, L. 2018. Prediction accuracy of phenological patterns are influenced by resource quality and season in a common North American butterfly. American Geophysical Union Fall Meeting, Washington, DC.

Abarca, M. 2018. Sharing my caterpillars: Communicating ecological research at the Rock Creek Park Nature Center. ESA 103th Annual meeting, New Orleans, Louisiana.

Abarca, M., Larsen, A. E. & Ries, L. 2018. Host quality and temperature mediate the effects of photoperiod on herbivore seasonality. ESA 103th Annual meeting, New Orleans, Louisiana.

Abarca, M., Larsen, E. Lill, J. Weiss, M. Lind, E. & Ries, L. 2017. Improving herbivore phenological predictions by incorporating variation in host plant quality. Entomological Society of America Annual meeting, Denver, CO, USA.

Abarca, M., Lill, J.T., 2015. Geographic variation in the seasonal responses of eastern tent caterpillars and their egg parasitoids. ESA 100th Annual meeting, Baltimore, Maryland.

Abarca, M., Lill, J.T., 2015. Phenology of black cherry and eastern tent caterpillars: The impact of global climate change. The George Wright Society Biennial Conference on Parks, Protected Areas and Cultural Sites, Oakland, California.

Abarca, M., Lill, J.T., 2014. How will Eastern tent caterpillars react to climate change? ESA 99 th Annual meeting, Sacramento, California. (Natural history chapter award honorable mention).

Abarca, M., Lill J. T., Frank-Bolton, P., and Leontie, R. 2012. Dealing with variable spring conditions: The strategy of eastern tent caterpillars (*Malacosoma americanum*). Entomological Society of America Annual meeting, Knoxville TN, USA.

Abarca, M. and Boege, K. 2009. Anti- predator and food quality- improving function of leaf shelters built *by Gephyra cynisca*, (Pyralidae). ESA 94th Annual meeting, Albuquerque, New Mexico.

Abarca, M. and Boege, K. 2006. Biología reproductiva y herbivoría en *Psychotria horizontalis*, Rubiaceae (Reproductive biology and herbivory of *Psychotria horizontalis*, Rubiaceae). Congreso Mexicano de Ecología, Morelia, Michoacán, Mexico.

Invited Talks

Abarca, M. 2019. Warm winters are bad for my caterpillars, Muhlenberg College.

Abarca, M. 2019. Heatwaves, novel hosts and disappearing caterpillars, University of Maryland, College Park, Department of Entomology.

Abarca, M. 2017. Predicting butterfly phenology in a changing world. Georgetown University.

Abarca, M. 2016. Phenological responses of eastern tent caterpillars and their egg parasitoids. Presented at the 1181 Regular meeting of the Entomological Society of Washington and at Blandy Experimental Farm, University of Virginia.

Abarca, M. 2015. Regional variation in the response of eastern tent caterpillars to global Climate change. Smithsonian Environmental Research Center. Maryland, USA

Abarca, M. 2013. Phenology of black cherry and eastern tent caterpillars: The impact of global climate change. To volunteers of the Insect Zoo and Butterfly Pavilion, Smithsonian National Museum of Natural History.

Abarca, M. 2008. Impacto de la calidad de las plantas y del ataque de los enemigos naturales en el desarrollo y el comportamiento de *Gephira cynisca*, Lepidoptera:Pyralidae. (Effect of plant quality and natural enemy attack on the development and behavior of *Gephira cynisca*, Lepidoptera: Pyralidae), Estación de Biología de Chamela, UNAM, Mexico.

Outreach

2019. Presented the talk "Insecticidio", covering insect decline, as part of the monthly meeting of the outreach organization "Sociedad de científicos anonimos". Mexico City, Mexico. (full video on facebook).

2014. Developed and presented the permanent exhibit: "Have you seen a change?" This is a bilingual display explaining the effects of climate change on phenology and plant-insect interactions at the Rock Creek Park Nature Center, Washington, DC.

2014, 2012, 2011. Served as a judge for the annual science fair of Forest Knolls Elementary School, Montgomery County, MD, USA.

2013. Presented a workshop about eastern tent caterpillars at the San Miguel School, Washington, DC, which is a middle-school institution serving Hispanic disadvantaged boys.

2012. Presenter during the Hispanic Heritage Career Day at the San Miguel School, Washington, DC.

2011, 2012. Volunteer to present a caterpillar roadshow for *Green Kids*, a non-profit environmental education organization serving elementary school students in Maryland, USA.

Media Presence and other publications

Abarca, M. 2018. Hay veces que las mujeres matan a sus hijos: El infanticidio bajo una perspectiva evolutiva. In Cota Iriart A. & Jardón N. (Eds.) La Sociedad de Científicos

Anónimos. Montzalez, S.C./Secretaría de Cultura. México, Ciudad de México. Pp 121-136.

2014. Authored a column about the natural history of selected insect species for El Ideógrafo, a digital platform for the communication of science and culture (in Spanish) http://cientificosanonimos.org/termitas-de-humedad-vida-guerra-y-muerte-en-los-troncos/ http://cientificosanonimos.org/la-doble-vida-de-la-mariposa-cartografica/, http://cientificosanonimos.org/palomilla-invernal/

2012. Research featured in cover article: St. Ours D. 2012. (Ed.) The Caterpillar factor: How climate change affects plant-animal interactions. Columbian College of Arts and Sciences Magazine. Fall/ Winter 2012.

Additional Research Experience and Professional Development

2019. Attended Teaching, Learning and Innovation Summer Institute, at Georgetown University.

2015. ESA/AAAS Communicating Climate Science Workshop. AAAS Headquarters, Washington, DC.

2015. Internship at Dr. John Parker, Terrestrial Ecology Lab, Smithsonian Environmental Research Center, MD, USA.

2009. Internship at Dr. Karina Boege, Plant-Animal interactions laboratory in the Instituto de Ecología, UNAM, Mexico.

2009. "Ultimate and proximate mechanisms of cooperative behaviour" Professor: Michael Taborsky. University of Berne (Suiza). In Tlaxcala, Tlaxcala, Mexico.

2009. XIV Bases Biológicas de la Conducta (Biological basis of behavior). UAT-UNAM, Tlaxcala, Tlaxcala, Mexico

Scientific Societies

Sigma Xi (2012 – 2015)
Entomological Society of America (2012 – present)
Ecological Society of America (2009 – present)

Languages

Spanish and English (bilingual)

Software

Microsoft Office, R.