

## ANGELA S. SAENZ

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Google Scholar: <https://scholar.google.com/citations?hl=en&user=QDB68tYAAAAJ>

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## Research Interests

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My main research interest is to study the role of landscape composition in the relationship between pests and natural enemies. Most of my experience has been in agricultural ecosystems; however, as I entered my master's, a shift in interest has been moved towards conservation of forested areas and specifically towards the natural control of the invasive pest of ash trees, the Emerald Ash Borer. As I switched to the PhD. I am mostly interested in learning in depth the ecology and methods used to introduce and establish natural enemies that can lower the impact of this pest.

## Areas of Expertise

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Entomology:

- Handling and maintenance of scientific collections.
- Insect collection.
- Taxonomic identification.
- Rearing of insects for life cycle determination (beetles, praying mantis, walking sticks, crickets, and katydids), gastronomy (crickets, cockroaches, *Tenebrio molitor* and *Galleria mellonella*), and parasitoids reproduction (*Trichogramma pretiosum*).
- Collection and rearing of the Emerald Ash Borer, identification of associate insects of this introduced pest.

Weeds:

- Taxonomic identification (in-field and laboratory).
- Control through herbicides and cultural practices.
- Development of a portable and personal weed identification database through the Ninox database developer App.

## Education

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2021	PhD. Degree in Entomology, University of Maryland (ongoing).
2019	Professional post-B.S. degree with an emphasis in entomology, Agronomy, University of Costa Rica. With a thesis that studied the diversity and richness of the entomofauna in weeds present in sugar cane plantations.
2018	Bachelor's Degree in Agronomy, University of Costa Rica.
2013	National University of Distance Education: Business Administration (initiated).

## Research and Professional Experience

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Jan 2022 – Present & Jun 2021 – Aug 2021	Department of Entomology, University of Maryland. Research Assistant on Dan Gruner research laboratory.
Jan 2021 – May 2021 & Aug 2021 – Dec 2021	College of Computer, Mathematical & Natural Sciences, University of Maryland. Teaching Assistant for the undergraduate course BSCI161 - Principles of Ecology & Evolution Laboratory.
May 2019 - Nov 2019	Agronomy, Iowa State University on Matt Liebman's research laboratory. Field and laboratory research assistant.
Jan 2018 - Jul 2019	Mesoamerican Agronomy Journal, University of Costa Rica.

Mar 2016 - Nov 2018	Editor assistant. Center for Research in Crop Protection of the University of Costa Rica, Insects Museum.
Aug 2017- Dec 2017	Entomology research assistant. Work internship in the Research and Extension Department for the Sugar Cane (DIECA) of the Agricultural and Industrial League of Sugar Cane (LAICA): Development of the project "Inventory of weeds present in sugar cane in the six producers' regions of Costa Rica".
May 2015 - Dec 2017	Center for Research in Cellular and Molecular Biology of the University of Costa Rica. Biotechnology and <i>in vitro</i> laboratory research assistant.
Aug 2014 - Jan 2015	Center for Research in Crop Protection of the University of Costa Rica Entomological laboratory research assistant.
May 2012 - Dec 2012	Center for Research in Crop Protection of the University of Costa Rica Entomology laboratory research assistant.
Mar 2011 - Mar 2012	Center for Agronomic Research, Plant Biotechnology Laboratory of the University of Costa Rica. Biotechnology and <i>in vitro</i> laboratory research assistant.
Jan 2007 - Feb 2011	Arthropods Unit, National Institute of Biodiversity (INBio). Rearing insects and scientific entomology collection research assistant.

## **Conferences and Symposiums**

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- Oral presentation of "Synchrony of larval parasitoids of the emerald ash borer with susceptible stages" in the Entomology Seminar Series – Colloquium of the Entomology Department of the University of Maryland, College Park, MD, USA on December 2<sup>nd</sup>, 2022.
- Oral presentation of "Synchrony of larval parasitoids of the emerald ash borer with susceptible stages" in the 2022 Annual Meeting of the Entomological Society of America that took place in Vancouver, Canada on November 13<sup>th</sup>-16<sup>th</sup>, 2022.
- Virtual oral presentation of "Plagas forestales invasoras: La crisis del barrenador Esmeralda de árboles de fresno en Norte América, caso de estudio" in the Series of Lectures in Commemoration of the 60 years of the Insects Museum of the University of Costa Rica that took place in San José, Costa Rica on November 3<sup>rd</sup> & 10<sup>th</sup> of November 2022. (Audience 25 people in person, 371 virtual).
- Participation in the EntoQuest Entomological Society of America Eastern Branch Summer Meeting that took place in Fort Royale, VA, USA on September 9-11<sup>th</sup>, 2022.
- Poster presentation of "Recovery of introduced biological control agents of emerald ash borer (*Agilus planipennis*) in Maryland, a preliminary study" in the "Entomological Society of America Eastern Branch Meeting" that took place in Philadelphia, PA, USA on April 25<sup>th</sup> and 26<sup>th</sup>, 2022.
- Poster presentation of "Beneficial insects found in weeds surrounding sugar cane plantations in Costa Rica" in the "Entomological Society of America Annual Meeting" that took place in Saint Louis, MO, USA on November 17<sup>th</sup> to 20<sup>th</sup>, 2019.
- Poster presentation of "Entomofauna benéfica asociada a arvenses en caña de azúcar" in the "XXIV Congreso Latinoamericano de Malezas" that took place in Heredia, Costa Rica on June 5<sup>th</sup> to 7<sup>th</sup>, 2019.
- Participation in the 1<sup>st</sup> Costa Rican Congress of Butterflies Gardens and Related that took place in the University of Costa Rica, San José, Costa Rica on February 15<sup>th</sup> and 16<sup>th</sup>, 2019.
- Oral presentation of "Identificación de arvenses asociadas al cultivo de caña de azúcar y su similitud entre las seis regiones cañeras de Costa Rica" in the General Assembly of the Costa Rican Association for the Study of Weeds on October 6<sup>th</sup>, 2018.
- Oral presentation of "Identificación de arvenses asociadas al cultivo de caña de azúcar y su similitud entre las seis regiones cañeras de Costa Rica" and participation in the VII Technological Congress of DIECA 2018 that took place in San Carlos, Costa Rica on August 29<sup>th</sup> to 31<sup>st</sup>, 2018.
- Poster presentation of "Inventory of the biofunctional weeds present in sugar cane in Costa Rica" in the 18<sup>th</sup> European Weed Research Society Symposium that took place in Ljubljana, Slovenia on June 17<sup>th</sup> to 21<sup>st</sup>, 2018.

- Participation on the “50 Años del Museo de Insectos” Symposium that took place in San Jose, Costa Rica on October 9<sup>th</sup> to 11<sup>th</sup>, 2012.
- Participation in the 7<sup>th</sup> International Congress of Dipterology that took place in San José, Costa Rica on August 8<sup>th</sup> to 13<sup>th</sup>, 2010.

## **Short Courses and Workshops**

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- 2022 Adult Mental Health First Aid USA by the National Council for Mental Wellbeing, USA.
- 2018 Academic Workshop of Statistical Analysis with R, CENAT, San José, Costa Rica.
- 2018 “Weed functional traits” workshop by Dr. Jonathan Storkey as part of the 18<sup>th</sup> EWRS Symposium in Ljubljana, Slovenia.
- 2017 Regional Course of Genetic Improvement for the resistance to biotic stress through mutation inductions, ARCAL CL, Costa Rica.
- 2012 Forensic entomology workshop by Dr. Lee Goff, University of Costa Rica, Costa Rica.

## **Awards & Fellowships**

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Teaching Achievement Award. 2021. Department of Entomology. University of Maryland  
 Early Career Scientist travel funds for the 18<sup>th</sup> EWRS Symposium that took place in Ljubljana, Slovenia on June 17<sup>th</sup> to 21<sup>st</sup>, 2018 (\$1000).  
 University of Costa Rica travel fellowship 2018 (\$500).

## **Service**

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- Social Chair for the Entomology Student Organization of the Entomology Department of the University of Maryland (2021-2023). Organization of departmental events for students, faculty, and staff.
- CoopeManzu Co-Op founding member and active participant of extension and outreach for citizens and farmers in Costa Rica.
- Volunteer work with the Corcovado community, workshops about home grown food, creation of natural repellents, fungicides and organic fertilizers, and hydroponics. 400 hours.

## **Scientific Organizations Affiliations**

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Social Chair for the Entomology Student Organization of Maryland University (2021-2023)  
 Member of the Entomological Society of America (ESA)  
 Member of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)  
 Ex-member of the European Weed Research Society (EWRS)  
 Ex-member of the Costa Rican Association for the Study of Weeds (ACEM)

## **Peer reviewed publications (2)**

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**Saenz, A.S.**; Cadet-Piedra, E. & Gómez-Gómez, R. Asociación entre entomofauna y arvenses en caña de azúcar (*Saccharum officinarum*). Revista Agronomía Mesoamericana. [under review].  
 Salcedo, M.K.; Ellis, T.E.; **Saenz, A.S.**; Lu, J.; Worrell, T.; Madigan, M.L. & J.L. Socha. Transient use of hemolymph for hydraulic wing expansion in cicadas. Nature Ecology and Evolution. [under review].

## **Blogs and other writings (21)**

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**Saenz, A.** 2022. Cómo crear un plan de cultivo. Blog de Extensión de la Universidad de Maryland. December, 2022. <https://extensionesp.umd.edu/2022/12/12/como-crear-un-plan-de-cultivo/>  
**Saenz, A.** 2022. Verduras de invierno. Blog de Extensión de la Universidad de Maryland. November, 2022. <https://extensionesp.umd.edu/2022/11/28/verduras-de-invierno/>

- Saenz, A. 2022. El ruibarbo – Cómo cultivar este vegetal ideal para platos dulces. Blog de Extensión de la Universidad de Maryland. October, 2022. <https://extensionesp.umd.edu/2022/10/17/el-ruibarbo-un-vegetal-perfecto-para-platos-dulces/>
- Saenz, A. 2022. Buenas prácticas en la cosecha. Blog de Extensión de la Universidad de Maryland. September, 2022. <https://extensionesp.umd.edu/2022/09/12/buenas-practicas-en-la-cosecha/>
- Saenz, A. 2022. Factores bióticos y abióticos: ¿Cómo afectan mis cultivos? Blog de Extensión de la Universidad de Maryland. August, 2022. <https://extensionesp.umd.edu/2022/08/15/factores-bioticos-y-abioticos-como-afectan-mis-cultivos/>
- Saenz, A. 2022. Manejo Integrado de Plagas: Barrenador de la vid de la calabaza. Blog de Extensión de la Universidad de Maryland. July, 2022. <https://extensionesp.umd.edu/2022/07/18/manejo-integrado-de-plagas-barrenador-de-la-vid-de-la-calabaza/>
- Saenz, A. 2022. Pulgones y su Manejo Integrado. Blog de Extensión de la Universidad de Maryland. June, 2022. <https://extensionesp.umd.edu/2022/06/20/pulgones-y-su-manejo-integrado/>
- Saenz, A. 2022. Cultivo de verduras de primavera. Blog de Extensión de la Universidad de Maryland. May, 2022. <https://extensionesp.umd.edu/2022/05/23/cultivo-de-verduras-de-primavera/>
- Saenz, A. 2022. Consideraciones para control de plagas, antes, durante y posteriores al cultivo. Blog de Extensión de la Universidad de Maryland. April, 2022. <https://extensionesp.umd.edu/2022/04/19/consideraciones-de-control-de-plagas-antes-durante-y-posteriores-al-cultivo/>
- Saenz, A. 2022. Preparación del suelo: ideas y consideraciones. Blog de Extensión de la Universidad de Maryland. March, 2022. <https://extensionesp.umd.edu/2022/03/29/preparacion-del-suelo-ideas-y-consideraciones/>
- Saenz, A. & T. Ribeiro. 2022. Diversifying stem voices. Department of Entomology Colloquium Blog. <https://entomology.umd.edu/news/seminar-blog-diversifying-stem-voices>
- Saenz, A. 2022. Cómo preparar almácigos de verduras. Blog de Extensión de la Universidad de Maryland. February, 2022. <https://extensionesp.umd.edu/2022/02/14/como-preparar-almacigos-de-verduras/>
- Saenz, A. 2021. Heladas en plantas. Blog de Extensión de la Universidad de Maryland. December, 2021. <https://extensionesp.umd.edu/2021/12/14/heladas-en-plantas/>
- Saenz, A. 2021. Verduras de invierno, consideraciones y buenas prácticas. Blog de Extensión de la Universidad de Maryland. November, 2021. <https://extensionesp.umd.edu/2021/11/16/verduras-de-invierno-consideraciones-y-buenas-practicas/>
- Saenz, A. 2021. Consideraciones postcosecha para cucurbitáceas. Blog de Extensión de la Universidad de Maryland. October, 2021. <https://extensionesp.umd.edu/2021/10/25/consideraciones-postcosecha-de-cucurbitaceas/>
- Saenz, A. & A. Shokoohi. 2021. Agroecology and the reconstruction of a post-Covid 19 agriculture. Department of Entomology Colloquium Blog. <https://entomology.umd.edu/news/agroecology-and-the-reconstruction-of-a-post-covid-19-agriculture>
- Saenz, A. 2021. Plagas y Enfermedades de la Col, el Repollo y asociados. Blog de Extensión de la Universidad de Maryland. September, 2021. <https://extensionesp.umd.edu/2021/09/20/plagas-y-enfermedades-de-la-col-repollo-y-asociados/>
- Saenz, A. 2021. Problemas comunes en el cultivo de verduras de hoja. August, 2021. <https://extensionesp.umd.edu/2021/08/16/problemas-comunes-en-el-cultivo-de-verduras-de-hoja/>
- Saenz, A. 2021. Enfermedades, plagas y malformaciones comunes del tomate. Blog de Extensión de la Universidad de Maryland. July, 2021. <https://extensionesp.umd.edu/2021/07/19/enfermedades-plagas-y-malformaciones-comunes-del-tomate/>
- Saenz, A. 2021. Deficiencias nutricionales en verduras. Blog de Extensión de la Universidad de Maryland. June, 2021. <https://extensionesp.umd.edu/2021/06/21/deficiencias-nutricionales-en-verduras/>
- Saenz, A. & E. Perry. 2021. Fair-weather friends: How mycorrhizal associations can be conditionally beneficial. Department of Entomology Colloquium Blog. <https://entomology.umd.edu/news/fair-weather-friends-how-mycorrhizal-associations-can-be-conditionally-beneficial>

## **Extension, media appearances, talks and others**

- Undergraduate Research & Networking Panel for undergraduate students. SACNAS, UMD. College Park. (September 7<sup>th</sup>, 2022) in person, audience 25 people.
- Maryland State Fair – Insect Petting Zoo Volunteer for Maryland State Fair, an extension and outreach activity at the Maryland State Fair. Aug 27<sup>th</sup>, 2022.
- Maryland Day – Insect Petting Zoo Volunteer for Maryland Day, an extension and outreach activity at the University of Maryland campus. April 30<sup>th</sup>, 2022.
- Invited to give a lecture talk about weed-insect interactions for the grad course Weed Management of the University of Costa Rica held through Zoom (April 18<sup>th</sup>, 2022), audience 8 master's students and 2 professors.

- Panel in the Teaching and Learning Transformation Center (TLTC) orientation for STEM graduate students (January 21<sup>st</sup>, 2022) held through Zoom, audience 20 people.
- Insect Zoo – DC Bilingual Elementary Presentation. September 23<sup>rd</sup>, 2021.
- Writer in the extension and outreach Spanish blog of the University of Maryland “Extensión en Español” <https://extensionesp.umd.edu/tag/AngelaSotoSaenz/>
- GeoDC - talk MS. Lindsay Barranco and Angela Saenz “17 Years Periodical Cicadas” for geospatial enthusiasts (June 2<sup>nd</sup>, 2021) held through Zoom, audience 31 people.
- Austrian Broadcasting Corporation. Cicada interview by Inka Pieh aired on Austrian radio on June 2<sup>nd</sup>, 2021 and TV on June 3<sup>rd</sup>, 2021.
- STEM Night for Deep Run Elementary School - talk MS. Angela Saenz. “Cicadas/Chicharras” for students and parents held in English and Spanish (May 26<sup>th</sup>, 2021) held through Zoom, audience of 76 people.
- Insect Feasts – Documentary participation for Blink Films (May 20<sup>th</sup>, 2021).
- Fox News Cicada Interview by Madeleine Rivera aired on TV on May 21<sup>st</sup>, 2021 on Atlanta, Houston, Portland, Minneapolis, and other locations.
- Interview with The Ringer “Summer Is Coming. So Are Trillions of Brood X Cicadas” by Lex Pryor May 11<sup>th</sup>, 2021 at <https://www.theringer.com/2021/5/11/22429664/cicadas-brood-x-emergence-17-year-wait>
- Mount Saint Joseph High School - talk MS. Lindsay Barranco and Angela Saenz “The Amazing 17-year Periodical Cicadas!” for students and parents (May 11, 2021) held through Zoom, audience of 102 people.
- Q&A UMD Cicada Crew Panel for STEM Salon as part of the Life Sciences and Outreach Library series for students, faculty and administrative staff (May 3<sup>rd</sup>, 2021) held through Zoom, audience of 76 people
- Aid to the BBC Documentary on Periodical Cicadas (May 5<sup>th</sup>, 2021).
- Q&A UMD Cicada Crew Panel for Entomology Faculty, staff, students, AGNR Extension Specialists and agents, and HGCI staff (April 19<sup>th</sup>, 2021) held through Zoom, audience of 31 people.
- Beltsville talk - Dr. Michael Raupp, and Ms. Angela Soto "Climate and the Insect World, Cicadas and the Spotted Lanternfly, Oh My!" Brood X Cicada Crew Outreach and Extension Service – Department of Entomology University of Maryland (held through Zoom audience 60 people).

## Teaching Experience

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Spring 2021 & Fall 2021    Course BSCI 161: Principles of Ecology and Evolution (Virtual and in person)  
 In charge of the laboratory portion of this course.  
 Lecture, lab prep and grading for weekly assignments and three large assignments  
 (2 sections per semester, 25 students each).

Received the **2021 Teaching Achievement Award** from the Department of Entomology, University of Maryland while teaching this course.

## Mentoring

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Undergrad Richard Alejandro Fradera-Gonzalez from the University of Puerto Rico-Arecibo. May 23-July 29, 2022. SOARE Program. Research title: “Fungal identification in the Emerald Ash Borer’s (EAB, *Agilus planipennis* Fairmaire) frass in Ash trees (*Fraxinus* spp.) in Maryland” resulting in a poster.

## Relevant Technical Skills

- Taxonomic identification of insects and weeds.
- Insect field collection, management of scientific collections, insect rearing.
- *In vitro* culture medium preparations, transference and maintenance of *in vitro* plants.

Agronomic skills:

The core curriculum of the Agronomy major at the University of Costa Rica include courses on horticulture, crop production, soil classification, plant nutrition, integrated pest management, weed’s management, statistics, plant physiology, plant pathology, and genetics.

- Focused on entomology, biological control, insect rearing, insectary plants, apiculture, and agroecology.

Software use:

- Highly proficient with MS Office Suite.
- Basic use of Quantum QGIS, Surfer 13, SigmaPlot 12.5, InfoStat, R software.

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**Languages** Spanish (native) and English (fluent TOEFL iBT: 110/120), Portuguese (basic).

**Soft Skills** Hard worker, proactive, fast and easy learner, able to work under pressure, team worker, empathetic, good public relations, patient, honest, organized, very responsible.

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