

KARLA SAMANTA ORELLANA ARÉVALO

ASU Biocollections, AB144 F1, 734 W. Alameda Drive, Tempe AZ 85282
ORCID [0000-0002-4098-5823](https://orcid.org/0000-0002-4098-5823), sorellana@asu.edu

RESEARCH INTERESTS

- Taxonomy, systematics, ecology and biogeography of fungus weevils (Coleoptera: Anthribidae).
- Entomological collection management and digitization.
- Science education and outreach.

EDUCATION

- **PhD. Candidate**, Evolutionary Biology Program, School of Life Sciences, Arizona State University. Tempe, Arizona, United States of America, August 2019-present.
- **M.Sc. in Entomology**, Central American Program of M.Sc. in Entomology, Faculty of Exact Sciences and Technology, University of Panama. Panama City, Panama, 2018.
- **Postgraduate Diploma in Entomology**, Central American Program of M.Sc. in Entomology, Vice-Rectorate of Research and Postgraduate Studies, University of Panama. Panama City, Panama. Panama City, Panama, 2017.
- **B.Sc. in Biology**, School of Biology, Faculty of Chemical Sciences and Pharmacy, University of San Carlos of Guatemala. Guatemala City, Guatemala, 2014.

LANGUAGES

- Spanish (Native Language)
- English (Advanced)

RESEARCH AND TEACHING EXPERIENCE

- 2021- **Teaching Assistant.** General Biology BIO 181/182 Lab, School of Life Sciences, Arizona State University. Tempe, Arizona, USA.
- 2019-2021 **Research Assistant.** Weevils of Sonora Project, Franz Lab, Insect Systematics and Evolution, School of Life Sciences, Arizona State University. Tempe, Arizona, USA.
- 2015 **Interim Assistant Professor.** BIGU Herbarium Research Unit, School of Biology, Faculty of Chemical Sciences and Pharmacy, University of San Carlos of Guatemala, Guatemala.
- 2011-2013 **Undergraduate Teaching Assistant.** Department of Zoology, Genetics and Wildlife, School of Biology, Faculty of Chemical Sciences and Pharmacy, University of San Carlos of Guatemala, Guatemala. Zoology, Evolution and Geology courses.
- 2009 **Student Participant and Field Crew Member.** Leaf Litter Arthropods of Mesoamerica -LLAMA-: Guatemala Expedition. The Evergreen State College and The Canadian Museum of Nature. Guatemala Expedition. Guatemala.

2008-2012 **Undergraduate Research Assistant.** Center for Conservationist Studies, University of San Carlos of Guatemala and The National Science and Technology Fund (FODECYT). Guatemala City, Guatemala.

ADDITIONAL PROFESIONAL AND SERVICE EXPERIENCE

2023- **Student Councilor** (elected position). The Coleopterists Society.

2022- **Node Delegate** (volunteer position). Symbiota Support Hub Node for the Global Biodiversity Information Facility. Biodiversity Knowledge Integration Center, Arizona State University, Tempe, Arizona, USA. <https://www.gbif.org/publisher/96710dc8-fecb-440d-ae3e-c34ae8a9616f>

2021- **International Community Coordinator** (volunteer position). Symbiota Support Hub. iDigBio. Biodiversity Knowledge Integration Center, Arizona State University, Tempe, Arizona, USA. <https://symbiota.org/contact-the-support-hub>

2020-2021 **Director for Biodiversity Data Services of Latin America** (volunteer position). Biodiversity Knowledge Integration Center, Arizona State University, Tempe, Arizona, USA.

2020- **Portal Manager.** Biodiversity of Guatemala Symbiota Portal. Hosted by the Biodiversity Knowledge Integration Center, Arizona State University, Tempe, Arizona, USA. <https://biodiversidad.gt>

2014-2016 **Private Environmental Consultant.** Environmental and Biological Studies of Guatemala, National Association of Private Natural Reserves in Guatemala, National Association of Coffee-Farmers, among others. Guatemala City, Guatemala.

PUBLICATIONS

2024 **Orellana, K.S.,** Girón, J. State of the State of knowledge of the Anthribidae (Insecta: Coleoptera: Curculionoidea) in Colombia with a key to genera. *Biota Colombiana*, 25, 1-18. <https://doi.org/10.21068/2539200X.1149>

2023 **Orellana, K.S.,** Franz, N.M. Checklist of the Anthribidae (Coleoptera: Curculionoidea) of Guatemala, including new country records and a key to genera. In: Yoshimoto, J., Schuster, J. & Monzón, J. (Eds.) Biodiversidad de Guatemala. Vol. 3. Universidad del Valle de Guatemala: Guatemala. <https://doi.org/10.5281/zenodo.10424024>

Orellana, K.S., López, Z.M., Yoshimoto, J., Quezada, M., Prado, L., Ambrocio, A.L., Dávila, L., Barrios-Izás, M., Bustamante, M., Franz, N.M., Gilbert, E. Digitalización de Colecciones Biológicas en el Portal Symbiota de Biodiversidad de Guatemala (*Digitization of Natural History Collections in the Guatemala Biodiversity Symbiota Portal*). In: Yoshimoto, J., Schuster, J. & Monzón, J. (Eds.) Biodiversidad de Guatemala. Vol. 3. Universidad del Valle de Guatemala: Guatemala. <https://doi.org/10.5281/zenodo.10424127>

Pearson, K., Gilbert, E., **Orellana, K.S.,** Post, G., Walker, L., Yost, J., Franz, N. Growth and Evolution of the Symbiota Portal Network. *Biodiversity Information Science and Standards*, 6, e112028. <https://doi.org/10.3897/biss.7.112028>

Gilbert, E., Sterner, B., Fisher, M.A., **Orellana, K.S.**, Pearson, K., Post, G., Walker, J., Wilt, L., Yost, J.M., Franz, N. Symbiota Integrations: Exploration of Historical and Current Methods of Data Sharing Across a Decentralized Portal Network and Goals of Extending Interoperability Globally. *Biodiversity Information Science and Standards*, 6, e111680. <https://doi.org/10.3897/biss.7.111680>

Yoshimoto, J., Cano, E.B. & **S. Orellana** (Editors) "Insectos de Guatemala: Guía de Identificación (*Insects of Guatemala: Identification Guide*)". Third Edition. Guatemala: University Del Valle of Guatemala, The Museum of Natural History and the Biology School of San Carlos of Guatemala University. (Book).

2022 **Orellana, K.S.**, Gilbert, E., Walker, L. J., Pearson, K., Prado, L. R., Post, G., Yost, J., & Franz, N. "Taxonomic Curation in a Multi-taxa Symbiota Portal". *Biodiversity Information Science and Standards*, 6, e93671. <https://doi.org/10.3897/biss.6.93671>

Pearson, K., Gilbert, E., Franz, N., **Orellana, S.**, Post, G., Rocha Prado, L., Walker, L. J., & Yost, J. M. "Leveraging the Symbiota Support Hub for Biodiversity Data Mobilization". *Biodiversity Information Science and Standards*, 6, e93893. <https://doi.org/10.3897/biss.6.93893>

2021 **Orellana, S.** & Barrios, H. "Catalogue of the Anthribidae (Coleoptera: Curculionoidea) of Panama, including new country records and a key to genera". *Zootaxa* 4904 (1), 1-71. doi.org/10.11646/zootaxa.4904.1

2018 **Orellana, S.** & Barrios, H. "Abundancia de Coleópteros (Insecta: Coleoptera) en dos órdenes de macrohongos (Basidiomycota) de un bosque tropical de Panamá". *Scientia Panamá* 28(1): 45-59.

Yoshimoto, J., Cano, E.B. & **S. Orellana** (Editors) "Insectos de Guatemala: Guía de Identificación (*Insects of Guatemala: Identification Guide*)". Second Edition. Guatemala: University Del Valle of Guatemala, The Museum of Natural History and the Biology School of San Carlos of Guatemala University. (Book).

2015 **Orellana, S.** & M. Quezada. "Efecto de la conformación del paisaje en coleópteros (Insecta: Coleoptera) asociados a macrohongos de la Ecorregión Lachuá, Alta Verapaz, Guatemala (*Effect of landscape conformation on the coleopterans (Insecta: Coleoptera) associated with fungi of the Eco-region Lachua, Alta Verapaz, Guatemala*)". *Revista Científica* 25(1): 37-48.

2015 Yoshimoto, J., Cano, E.B. & **S. Orellana** (Editors). "Insectos de Guatemala: Guía de Identificación (*Insects of Guatemala: Identification Guide*)". Guatemala: University Del Valle of Guatemala and The Museum of Natural History of San Carlos of Guatemala University. (Book).

CONFERENCE PRESENTATIONS

2024 **Orellana, K.S.**, López, Z.M., Gilbert, E., Franz, N. "Enabling Biodiversity Research in Guatemala with a Customized Symbiota Portal". Digital Data Conference, iDigBio and Natural Science Collections Alliance, hosted by Kansas University. Lawrence, Kansas, USA (in person).

- Orellana, K.S.** “Generating an Illustrated Catalog of Anthribidae (Coleoptera: Curculionoidea) with TaxonWorks and TaxonPages”. TaxonWorks Together 2024 (virtual). <https://youtu.be/eMI7sMyDGwY?si=t8hj9eEGRrgPAQhd>
- 2023 **Orellana, K.S.**, Gilbert, E., Franz, N.M. “Bilingual Tools to Increase Digital Representation of Latin American Collections and Entomologists”. Entomological Collections Network Annual Meeting. National Harbor, Maryland, USA (in person).
- Johnston, A. Girón, J., **Orellana, K.S.**, Seltmann, K.C., Walker, L.J., Lee, S. “Ecdysis, an emerging community resource for digital specimen data and research”. Entomological Collections Network Annual Meeting. National Harbor, Maryland, USA (in person).
- Orellana, K.S.**, Mermudes, J.R.M., Franz, N. “Advances in the Study of Central American Anthribidae”. Online Weevil Workers Meeting, Texas Tech University, United States Department of Agriculture, Canadian Museum of Nature (virtual). <https://youtu.be/GVoLYO0NDy4?si=u9jD7xv8Nfm25XvO>
- Yost, J., **Orellana, K.S.** “Communities of Practice Across the Americas”. Digital Data Conference, iDigBio and Natural Science Collections Alliance, hosted by Arizona State University. Tempe, Arizona, USA (in person).
- 2022 **Orellana, K.S.** “The O’Brien Collection, a valuable resource for the study of Anthribidae”. Online Weevil Workers Meeting, Texas Tech University, United States Department of Agriculture, Canadian Museum of Nature (virtual). <https://www.youtube.com/watch?v=ZdvaG9udVUM>
- Orellana, K.S.** “Symbiota Portals as Digitization Tools for Herbarium Collections” (In Spanish). II Simposio de Botánica de Guatemala, Universidad de San Carlos de Guatemala (virtual).
- Orellana, K.S.** “Engaging underrepresented communities with Symbiota portals: The case of Guatemala”. Digital Data Conference, iDigBio and Natural Science Collections Alliance, hosted by the Field Museum (virtual).
- Gilbert, E., **Orellana, K.S.**, Pearson, K., Post, G., Rocha Prado, L., Yost, J., Sterner, B., Franz, N. “Using Symbiota to establish a global, decentralized model for data aggregation: Novel concepts and designs to improve the interoperability of occurrence-based biodiversity data”. Conference of the Society for the Preservation of Natural History Collections. Edinburg in person, and virtual. <https://doi.org/10.5281/zenodo.6573863>
- Pearson, K., Franz, N., Gilbert, E., **Orellana, K.S.**, Post, G., Rocha Prado, L., Yost, J. New Symbiota Features to Support Digital and Extended Specimen Data. Conference of the Society for the Preservation of Natural History Collections. Edinburg in person, and virtual. <https://doi.org/10.5281/zenodo.6573863>
- Rocha Prado, L., Gilbert, E., Franz, N., **Orellana, K.S.**, Pearson, K., Post, G., Yost, J. “Identifiers and labels for everyone: Recent developments in Symbiota”. Conference of the Society for the Preservation of Natural History Collections. Edinburg in person, and virtual. <https://doi.org/10.5281/zenodo.6573863>

- 2021 **Orellana, K.S.** “Symbiota: A platform to mobilize, integrate and use natural history collections data (In Spanish). Webinars Series 2021, Sistema de Información sobre Biodiversidad de Colombia (virtual).
- Orellana, K.S.** “Guatemala Biodiversity Portal: Digitizing the biological collections of the country” (In Spanish). Conference Series “Women in STEM: Science, Technology, Engineering, and Mathematics, Women Who Code, Guatemala (virtual).
- 2020 **Orellana, K.S.** “Current studies on Central American Anthribidae (Coleoptera: Curculionoidea): The impressive diversity of fungus weevils in Panama”. Entomological Society of America Annual Meeting (virtual).
- Orellana, K.S.** “Promoting the digitization of Latin American entomological collections using Symbiota portals”. Equity, Justice and Inclusion in Ento: Making Entomological Collections Research More Accessible Mini Symposium. Entomological Collections Network Annual Meeting (virtual).
- Orellana, K.S.** “Digitization of Mesoamerican Biological Collections using Symbiota portals” (In Spanish). Mesoamerican Society of Biology and Conservation, I Virtual Meeting (virtual).
- Orellana, K.S.** “Collection-based research: Discovering the Neotropical Anthribidae”. II Symposium of Evolutionary Biology, School of Life Sciences, Arizona State University, Arizona (virtual).
- 2019 **Orellana, K.S.** “Research experiences in Central America: Tropical forests, beetles and collections”. II Symposium of Evolutionary Biology, School of Life Sciences, Arizona State University, Arizona.
- 2018 **Orellana, K.S.** “New country records and range extensions for the Anthribidae (Coleoptera: Curculionoidea) of Panama” (In Spanish). III Colloquium of Biology. University of The Valley of Guatemala, Guatemala City, Guatemala.
- 2015 **Orellana, K.S.** “Effect of landscape conformation on the coleopterans (Insecta: Coleoptera) associated with fungi of the Ecoregion Lachua, Alta Verapaz, Guatemala” (In Spanish). Annual Scientific Meeting of the Chemical and Biological Research Institute. Faculty of Pharmacy and Chemical Sciences, University of San Carlos of Guatemala, Guatemala City, Guatemala.

POSTER PRESENTATIONS

- 2023 Walker, L., Fisher, M., Franz, N., Gilbert, E., Pearson, K., Post, G., **Orellana, S.**, and Yost, J. (2023,June). Symbiota. iDigBio’s Digital Data in Biodiversity Research Conference, Tempe, AZ.
- 2022 Gilbert, E., Pearson, K., Post, G., Rocha Prado, L., **Orellana, K.S.**, Walker, L., Yost, J. & Franz, N. “The state of the Symbiota Portals: Gateways to digital management and discovery”. Conference of the Society for the Preservation of Natural History Collections. Edinburg in person, and virtual. <https://doi.org/10.5281/zenodo.6573863>

2014 Quezada, M., Perez-Silva, E & **K.S. Orellana**. "Coleoptera associated to Marasmiaceae and Polyporaceae fungi in the Lachua rainforest in Guatemala" (In Spanish). International Mycological Association, Medellín, Colombia. VIII Latin American Congress of Mycology (Poster).

SCIENTIFIC OUTREACH, PRESENTATIONS AND WORKSHOPS

2023 **"Interactive Tools for the Study of Guatemalan Biodiversity"**. (In Spanish). Workshop organizer and instructor (virtual). September 2023.

"A Guided Tour of the Guatemala Biodiversity Portal". (In Spanish). Workshop organizer and instructor (virtual). March 2023.

2022 **"Natural History Collections Digitization and Mobilization with Symbiota Portals: Mexican Herbaria Network"**. (In Spanish). Workshop co-organizer and instructor. Directed to Collection Managers in Mexico (virtual). November 2022.

"Symbiota Portals". (In Spanish). Guest speaker. Natural History Collections Management Workshop, Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Colombia. September 2022 (virtual).

"Digitizing Natural History Collections in Guatemala". Guest speaker. Connecting Collections Workshop Series, hosted by the Global Information Biodiversity Facility nodes from Ecuador, Argentina, Guatemala and the Society for the Preservation of Natural History Collections. September 2022 (virtual).

"Natural History Collections Digitization and Mobilization with Symbiota Portals". (In Spanish). Workshop organizer and instructor, directed to Collection Managers in Latin America. September 2022 (virtual).

"Biodiversity Data Digitization and Mobilization Resources in the Guatemala Biodiversity Portal". (In Spanish). Workshop organizer and instructor. Directed to Collection Managers in Guatemala. August 2022 (virtual).

"Publication of biodiversity data to GBIF from the Guatemala Biodiversity Portal". (In Spanish). Guest speaker. College of Professional Pharmacists and Chemists of Guatemala. May 2022 (virtual).

"Digitization of Natural History Collections in the Guatemala Biodiversity Symbiota Portal, for Biology Students". (In Spanish). Workshop organizer and instructor. March 2022 (virtual).

2021 **"Introduction to the Guatemala Biodiversity Portal"**. (In Spanish). Guest speaker. Natural History Collections Digitization Workshop, University del Valle de Guatemala, Guatemala. August 2021 (virtual).

"Importance of Natural History Collections for the study of biodiversity". (In Spanish). Guest lecturer, Botany undergraduate course, School of Agricultural Sciences, University Rafael Landívar, Guatemala City. July 2021 (virtual).

- “Digitization of biological collections with the Guatemala Biodiversity Portal”.** (In Spanish). Guest lecturer, undergraduate Collections Management course of the School of Biology, University of San Carlos of Guatemala, Guatemala City. February 2021 (virtual).
- 2020 **“Introduction to Coleoptera”.** (In Spanish) Guest lecturer, Entomology undergraduate course, Agricultural Sciences of the University of Costa Rica, campus Guanacaste, Costa Rica. November 2020 (virtual).
- “Taxonomy of Anthribidae”.** (In Spanish). Guest lecturer, Taxonomy undergraduate course, School of Biology, University of San Carlos of Guatemala, Guatemala City. August 2020 (virtual).
- “Introduction to Symbiota databases platform: Consortium of Small Vertebrate Collection”.** Workshop organizer and instructor, Biological Collections System of the School of Biology, University of San Carlos of Guatemala, Guatemala City. August 2020 (virtual).
- “Introduction to Symbiota databases platform: ecdysis”.** (In Spanish). Workshop organizer and instructor. Arthropod Systematics Laboratory, University of the Valley of Guatemala, Guatemala City, Guatemala. July 2020 (virtual).
- “Importance of entomological collections in the study of biodiversity: Research experiences in North and Central America”** (In Spanish). Guest lecturer, School of Biology, University of San Carlos of Guatemala, Guatemala City, Guatemala.

PUBLISHED WEBSITES

- **Anthribidae of the World Online.** Virtual Catalog of Anthribidae. <https://anthribidae.github.io/species>. October 25, 2023.
- **Anthribidae of the World.** Website dedicated to share information about the Anthribidae specimens in the O’Brien Collection. <https://anthribidae.github.io>. January 14, 2022.
- **Portal de Biodiversidad de Guatemala.** Virtual portal for the management of Guatemalan biological collections (in English and Spanish). <https://serv.biokic.asu.edu/guatemala/>. Created by Edward Gilbert, co-managed by S. Orellana and Z. López. September, 14, 2020.
- **Insectos de Guatemala.** Website in Spanish designed to share information about the groups of insects in Guatemala (in Spanish). www.insectosdeguatemala.org. January 1, 2020.

RELEVANT SCIENTIFIC TRAINING

- 2022 **Entomological Collection Management** (Workshop). Entomological Collection Network. Arizona State University. Participant (in person).
- 2021 **Tenebrionidae Identification and Classification Virtual Workshop.** Arizona State University. Participant (in person).
- 2018 **Introduction to Molecular Biology Techniques** (Workshop). University of San Carlos of Guatemala.

Use of Leica M205A Stereomicroscope and Imaging Software (Workshop). University of Panama, Panama City, Panama.

2015 **Identification of the Main Species of Scale Insects (Hemiptera: Coccoidea) of Agricultural Relevance** (Course-Workshop). University of The Valley of Guatemala and United States Department of Agriculture (USDA). Guatemala City, Guatemala.

Zoological Nomenclature (Course). Biological Sciences Graduate Program, Autonomous National University of Mexico, University of San Carlos of Guatemala and the International Commission on Zoological Nomenclature. Guatemala City, Guatemala.

2013 **Morphology and Identification of Hymenoptera, with emphasis on parasitoid wasps** (Course). University of The Valley of Guatemala, United States Department of Agriculture (USDA) and University of Costa Rica. Guatemala City, Guatemala.

Spatial Analysis of Biodiversity, with Geographical Information Systems (Course). BIGU Herbarium Research Unit, University of San Carlos of Guatemala. Guatemala City, Guatemala.

2010 **Introduction to Chrysomelidae (Coleoptera) Taxonomy** (Course). Multidisciplinary Academic Unit of Agriculture and Sciences, Autonomous University of Tamaulipas. Victoria City, Tamaulipas, México.

AWARDS

- **Full Scholarship for Master's Degree Studies.** Central American Regional Program, German Academic Exchange Service -DAAD- (2016-2018).
- **Research Incentives Award.** Research Directorate, University of San Carlos of Guatemala, Guatemala City, Guatemala (2016).
- **Best Biology B.S. Thesis 2014-2015.** Faculty of Pharmacy and Chemical Sciences, University of San Carlos of Guatemala, Guatemala City, Guatemala (2015).

PROFESSIONAL ORGANIZATIONS

- The Coleopterist Society
- Entomological Society of America
- Organization for Women in Science for the Developing World
- College of Professional Pharmacists and Chemists of Guatemala