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## APPOINTMENTS

2021-present    Postdoctoral Fellow, Auburn University, Auburn, AL  
                         Dr. Michael L. Smith, Advisor  
2018-2020      Postdoctoral Science Communicator and Exhibit Designer,  
                         Parque das Aves, Foz do Iguaçu, Brazil.

## EDUCATION

2011-2018      Ph.D. **Animal Behavior**. Arizona State University  
                         Dr. Stephen C. Pratt, Advisor  
2010-2012      M.A. Research **Biological Sciences**. University of Missouri – Columbia  
                         Dr. Reginald B. Cocroft, Advisor  
2009              B.S. **Biological Sciences**. University of Missouri - Columbia

## FUNDING AND AWARDS

### *Funding and fellowships*

2023    **National Science Foundation** BIO grant on honey bee nest architecture \$949,700\*  
2021    **Creative Residency** at the Bloedel Reserve, Bainbridge Island, Washington  
2018    International Union for the Study of Social Insects Travel Award: \$1,500  
2018    School of Life Sciences Completion Fellowship: \$11,445  
2017    Assistance with Facilities, Research and Training Initiative, ASU: \$1,500  
2017    Grant-in-Aid of Research, Sigma Xi: \$400  
2015    Lewis and Clark Fund Grant, American Philosophical Society: \$3,800  
2015    **Predoctoral Smithsonian Institution Fellowship**: \$19,350  
2014    The Explorers Club Exploration Fund Grant: \$1,500  
2014    ASU-STRI Research Fellowship: approx. \$12,000  
2013    Ernst Mayr Fellowship, STRI: \$2,400  
2013    SoLS Graduate Summer Research Scholarship, ASU: \$2,700  
2012    ASU-STRI Research Fellowship: approx. \$6,000  
2012    SoLS Graduate Research Scholarship, ASU: \$1,800  
2012    Smithsonian Tropical Research Institute Short-Term Fellowship: \$850

### *Awards*

2017    1<sup>st</sup> Place YouTube Your Entomology, Entomological Society of America: \$500  
2017    Graduate Excellence Award, ASU College of Liberal Arts and Sciences: \$200  
2017    Knowledge Mobilization Award, ASU: Finalist  
2016    1<sup>st</sup> Place Graduate Student Oral Competition, International Congress of Entomology: \$75  
2012    School of Ants International Ant Essay Contest: Honorable Mention  
2011    Invertebrate Sound and Vibration Meeting: Outstanding Student Talk Award  
2011    TA Choice Awards nomination, Missouri Student Association

\*This grant has a significant broader impacts section, which establishes a research-based art exhibit examining the spatiotemporal structure of a honey bee nest. I wrote this section of the proposal, and am a named postdoc leading this aspect of the grant, as well as being part of the research team.

## PUBLICATIONS

- Bailey, C., **Marting, P.**, Smith, M. (2023) Honey bees perform fine-scale detailing that continuously reduces comb area after nest expansion. *Insectes Sociaux*. 10.1007/s00040-023-00933-4.
- Marting, P.**, Koger, B., Smith, M. (2023) Manipulating nest architecture reveals three-dimensional building strategies and colony resilience in honey bees. *Proceedings of the Royal Society B: Biological Sciences*. 290:20222565. (*Issue Cover*)
- Lucas, J., Madden, A., Penick, C., Epps, M., **Marting, P.**, Stevens, J., Fergus, D., Dunn, R., Meineke, E. (2019) Azteca ants maintain unique microbiomes across functionally distinct nest chambers. *Proceedings of the Royal Society B: Biological Sciences*. 286.
- Marting, P.**, Kallman, N., Wisclo, W., Pratt, S. (2018) Ant-plant sociometry in the Azteca-Cecropia mutualism. *Scientific Reports*. 8:17968.
- Marting, P.**, Wisclo, W., Pratt, S. (2018) Colony personality and plant health in the Azteca-Cecropia mutualism. *Behavioral Ecology*. 29:264-271.
- Marting, P.** (2018) Collective personality in the Azteca-Cecropia mutualism. Dissertation thesis. Arizona State University.
- Legendre, F., **Marting, P.**, and Cocroft, R. (2012) Competitive masking of vibrational signals during mate searching in a treehopper. *Animal Behaviour*. 83, 361-368.
- In prep: **Marting, P.**, Wisclo, W., Pratt, S. The effect of colony transplant and soil nutrients on collective personality in an ant-plant mutualism.
- In prep: **Marting, P.**, Bailey, C., Smith, M. Honey bees favor entrance proximity over ceiling attachment for nest initiation in their empty cavity.

## ART • OUTREACH • SCIENCE COMMUNICATION

### Exhibitions

- 2022 “Art of Social Insects by Social Insect Scientists”  
- Organized, curated, and contributed to an art exhibit at the IUSSI conference with original artwork submitted by researchers from the society that depicted social insects, San Diego, CA
- 2021 “Explore the World of Ants”  
- Multifaceted public exhibit on Thatching ant research, including a presentation, data-inspired art piece, documentary short, and live ants on display at Islandwood, Bainbridge Island, WA.
- 2019 “Cecropia Exposition”  
- Month-long public educational exhibit using video footage, interactive art, and living organisms to explain the Azteca-Cecropia mutualism and assess public learning
- 2017 “ARTiculating Science”  
- Organized, curated, and contributed to an art exhibit at Onyx Art Gallery in Phoenix, AZ.  
- Scientists from the AEOR course (listed above) expressed their research through art.
- 2017 “Portraits of Science”  
- Organized, curated, and contributed to a month-long art exhibit at The MonOchid Gallery in the arts district of Phoenix, AZ. Exhibit for the AEOR course (listed above).
- 2012 “N’Sex: a collaboration between artists and entomologists on insect reproduction”  
- Art exhibit (ceramics and wood) at the Eye Lounge, Phoenix, AZ

### Artwork

- 2022 “Tracing the Origin of a Society”  
- Illuminated, life-size, artistic representation of a complete honey bee nest using experimental data, showing the shape and trajectory of comb growth with interactive capabilities

- 2022 "Tabletop Mini Glowing Symbiont"  
- A smaller version of the interactive art piece showcasing the Azteca-Cecropia mutualism through an illuminated physical model encoded with light animation from ant data
- 2021 "Ribbons of Modular Architecture"  
- Digital animation art piece created with behavioral data on Thatching ants rearranging the sticks on their nest mounds
- 2021 "The Endotherm Collective"  
- An interactive, illuminated sculpture depicting nest thermoregulation of Thatching ants.
- 2017 "Forest of the Glowing Symbionts"  
- Interactive tree sculptures that light up with ant activity data, exhibited at The MonOchid Gallery for 4 months. Phoenix, AZ.
- 2014 "Cecropia Treesongs: The Music of an Ant-Plant Mutualism"  
- Musical album created by ant distribution data converted to musical notes
- 2013 "Leaf 5 Lover" interactive public performance art  
- Explained the Azteca/Cecropia mutualism in Gamboa, Panama
- 2013 "Jungle Fluids" performance art/environmental manipulation  
- Exposed tropical insects and plants to the novel stimulus of ice in central Panama

#### **Public Outreach and Science Communication**

- 2023 "About Western Thatching Ants and Artistically Conveyed Data"  
- Public seminar at Bloedel Reserve, WA about my research-based artwork.
- 2021 "The Wondrous World of Western Thatching Ants"  
- A documentary short on Thatching ant biology through detailed macro footage.
- 2019 "Calling on Cecropia trees to help save the Atlantic Rainforest"  
- Public seminar at St. Louis University High School, St. Louis, MO.
- 2019 "Azteca-Cecropia Stories"  
- Engaging bi-weekly public post series highlighting fascinating aspects of the *Azteca-Cecropia* mutualism through photos, videos, and text.
- 2019 "Small World"  
- Engaging bi-weekly public post series showcasing invertebrates, fungus, and small plants with photos, videos, and text.
- 2018 "Cecropia trees, Ant Bodyguards, and Collective Personality"  
- Podcast interview with Matt Candeias for *In Defense of Plants*
- 2017 "Superorganism personality in the Azteca-Cecropia mutualism"  
- Public seminar at St. Louis University High School, St. Louis, MO
- 2017 "Biomusic: Cecropia Treesongs"  
- Presented my musical data to a third-grade music class as part of a module on biomusic. Kyrene de la Paloma Elementary School. Chandler, AZ.
- 2016 "Make a Wish Foundation"  
- Gave a make-a-wish participant an interactive tour of the *Azteca-Cecropia* mutualism in my greenhouse in Gamboa, Panama.
- 2015 "Azteca-Cecropia Behavioral Ecology" - [www.AztecaCecropia.com](http://www.AztecaCecropia.com)  
- Launched website dedicated to informing public and future collaborators about the mutualism, current research, and artwork
- 2015 "Gamboa School Field Trips"  
- Lead many small field trips for students to participate in Azteca-Cecropia experiments
- 2014 "Behavioral ecology of Azteca ants in Cecropia trees"  
- Public seminar at St. Louis University High School, St. Louis, MO
- 2013 "The Smithsonian, ant personalities, and life in the forest"

- Guest lecture at The Gamboa Rainforest Resort, Gamboa, Panama
- 2012 "Ant Personalities, rainforest creatures, and the jungle experience"
- Public seminar at St. Louis University High School, St. Louis, MO
- 2012 "Life in the Tropical Rainforest" interactive lesson
- Guest speaker for 1<sup>st</sup> grade at St. Peters Grade School, Kirkwood, MO
- 2012 "Leafcutter Ants: Division of Labor and Growing Your Own Food" interactive lesson
- Guest speaker for 3<sup>rd</sup> grade at Old Bonhomme Elementary School, Ladue, MO
- 2012 *We the Forest: Becoming a Part of the Jungle* by Peter R. Marting
- Photography book on the Peruvian rainforest and field experiences from 2009
- 2011-2018: ASU's *Ask a Biologist* online inquiry respondent

## SELECTED PRESENTATIONS

### ***Invited Talks***

- 2023 "A behavioral ecologist's insights on Western Thatching Ants." UP Lift event at Bloedel Reserve, Bainbridge, WA.
- 2023 "Form and function of nest architecture in Honey bees." Departmental seminar for Entomology and Nematology, University of Florida – Gainesville.
- 2023 "Artistic expression of research: transforming raw data into art." Artistic Expression Seminar Series, University of California – Riverside.
- 2022 "Nest architecture and colony function in honey bees" Departmental Seminar for Biological Sciences, Auburn University, AL.
- 2021 "The Wondrous World of Western Thatching Ants." Bloedel Reserve at Islandwood, Bainbridge Island, WA.
- 2019 "Inherent and environmental factors shaping colony behavior." Simposio de Mirmecologia, Belo Horizonte, Brazil.
- 2019 "Collective personality in the *Azteca-Cecropia* mutualism." Federal University for Latin American Integration, Foz do Iguaçu, Brazil.
- 2018 "Artistic expression of *Azteca-Cecropia* research." Parque das Aves, Foz do Iguaçu, Brazil.
- 2018 "Can scientists show research findings using the arts?" Transformative Knowledge by Design. Washington, DC.
- 2016 "Exploring colony personality in the *Azteca-Cecropia* mutualism." Smithsonian Tropical Research Institute Tupper Seminar. Panama City, Panama.

### ***Conference Talks***

- 2023 "Nest architecture and colony defense: How do entrance features influence aggression?" Annual Meeting of the Animal Behavior Society. Portland, OR.
- 2022 "Exhibiting nest thermoregulation through light-up sculpture, macro footage, and live ants on display." International Union for the Study of Social Insects. San Diego, CA.
- 2022 "How do honey bees shape their nest and does it matter?" International Union for the Study of Social Insects. San Diego, CA.
- 2021 "The endotherm collective: visualizing ant nest thermoregulation through sculpture and light." Annual Meeting for the Ethological Society. Virtual conference.
- 2020 "Science communication: video footage, interactive sculptures, and living organisms are effective for visitor absorption." Annual Meeting of the Animal Behavior Society. Virtual conference.
- 2018 "The effect of host transplants and soil nutrients on colony personality in the *Azteca-Cecropia* mutualism." International Society for Behavioral Ecology. Minneapolis, MN.
- 2018 "Soil nutrients and colony personality in the *Azteca-Cecropia* Mutualism." International Union for the Study of Social Insects. Guarujá, Brazil.

- 2018 "Ant-plant sociometry: growth, distribution, morphology, and behavior in the *Azteca-Cecropia* mutualism." International Union for the Study of Social Insects. Guarujá, Brazil.
- 2018 "Forest of the glowing symbionts" National Academy of Sciences Sackler Colloquium: Creative Collaborations. Washington, DC.
- 2018 "The effects of soil nutrients on collective behavior in an ant-plant mutualism" Society for Integrative and Comparative Biology. San Francisco, CA.
- 2017 "Ant-plant sociometry: how tree and colony structure interact and give rise to emergent behavior." Annual Meeting of the Animal Behavior Society. Toronto, ON.
- 2016 "Colony personality and plant health in the *Azteca-Cecropia* mutualism." International Congress of Entomology. Orlando, FL.
- 2016 "A colony-level behavioral syndrome links to plant health in the *Azteca-Cecropia* mutualism." Annual Meeting of the Animal Behavior Society. Columbia, MO.
- 2015 "A colony-level behavioral syndrome links with plant health in the *Azteca-Cecropia* mutualism." ASU - UWü International Symposium and Workshop. Arizona State University, Tempe, AZ.
- 2015 "A collective behavioral syndrome links with plant health in the *Azteca-Cecropia* mutualism." Smithsonian Tropical Research Institute Fellowship Symposium. Panama City, Panama.
- 2014 "Collective behavioral syndromes of *Azteca* ants in *Cecropia* trees." ASU - UWü International Symposium and Workshop. Würzburg, Germany.
- 2013 "Collective individuality of *Azteca* ant colonies in *Cecropia* trees." Collective Behavior of Social Insects Mini-Conference. University of Arizona, Tucson, AZ.
- 2011 "Competitive signal masking during mate localization in a treehopper." Invertebrate Sound and Vibration Meeting. University of Missouri, Columbia.

#### **Conference Posters**

- 2017 "Ant-plant sociometry: tree structure, colony distribution, colony size, and ant morphology" Association for Tropical Biology and Conservation. Mérida, Yucatán, Mexico.
- 2013 "Testing for collective personalities in *Azteca* ant colonies." Smithsonian Tropical Research Institute Fellowship Symposium. Panama City, Panama.
- 2012 "Testing for collective personalities in *Azteca* ant colonies." International Union for the Study of Social Insects – North American Section Meeting. Greensboro, NC.
- 2010 "Signal masking during mate localization in a treehopper." Annual Meeting of the Animal Behavior Society. College of William and Mary, Williamsburg.

#### **Campus and Departmental Presentations**

- 2022 "How to make figures informative, compelling, and beautiful" Guest lecture, Auburn University.
- 2021 "Natural history of the *Azteca-Cecropia* symbiosis." Symbiosis Ecology, Connecticut College, CN.
- 2020 "How internal and external factors shape collective personality." Animal Behavior Group, Smithsonian Tropical Research Institute, Panama.
- 2018 "Collective personality in the *Azteca-Cecropia* mutualism." Dissertation Defense Seminar. Arizona State University, Tempe, AZ. Talk.
- 2018 "Basic science is exhilarating – let's express it that way." Science Communication Guest Speaker. Arizona State University, Tempe, AZ. Talk.
- 2016 "Azteca-Cecropia behavioral ecology." Graduate Student Seminar. Arizona State University, Tempe, AZ. Talk.
- 2016 "Exploring colony personality: colony transplants, soil nutrients, and ontogeny in the *Azteca-Cecropia* mutualism." Social Insect Research Group Seminar. Arizona State University, Tempe, AZ. Talk.
- 2016 "Exploring colony personality in the *Azteca-Cecropia* mutualism." Smithsonian Tropical Research Institute Behavior Seminar. Panama City, Panama. Talk.

- 2016 "Cocha Cashu and the heart of darkness: exploring a biological station in the depths of Amazonia." Graduate Student Seminar. Arizona State University, Tempe, AZ. Talk.
- 2016 "Cecropia treesongs: the music of an ant-plant mutualism." Graduate Student Seminar. Arizona State University, Tempe, AZ. Talk.
- 2014 "Collective behavioral syndromes of *Azteca* ants in *Cecropia* trees." Smithsonian Tropical Research Institute Gamboa Seminar. Gamboa, Panama. Talk.
- 2014 "Collective personality of *Azteca* ants in *Cecropia* trees." Graduate Student Seminar. Arizona State University, Tempe, AZ. Talk.
- 2013 "Collective individuality of *Azteca* ant colonies in *Cecropia* trees." Social Insect Research Group Seminar. Arizona State University, Tempe, AZ. Talk.
- 2013 "Collective individuality of *Azteca* ant colonies in *Cecropia* trees." Smithsonian Tropical Research Institute Bambi Seminar. Barro Colorado Island, Panama. Talk. 2013 "Behavioral ecology and individuality of *Azteca* ant colonies." Smithsonian Tropical Research Institute Gamboa Seminar. Gamboa, Panama. Talk
- 2012 "Behavioral ecology and individuality of *Azteca* ant colonies." Social Insect Research Group Seminar. Arizona State University, Tempe, AZ. Talk.
- 2012 "Collective personalities in *Azteca* ant colonies." Smithsonian Tropical Research Institute Behavior Seminar. Panama City, Panama. Talk.
- 2012 "Competitive signal masking in a duetting insect." Social Insect Research Group Seminar. Arizona State University, Tempe, AZ. Talk.
- 2009 "Testing for kin recognition during mate competition." Undergraduate Achievements and Creative Forum. University of Missouri, Columbia. Poster.

## TEACHING

### **Primary Instructor**

- 2021-2022 Auburn University, "Animal Behavior," Co-instructor, 2 semesters
- 2017 Arizona State University, "Artistic Expression of Original Research," 2 semesters
- Designed, created, instructed the course
  - Graduate student scientists express their own research through art

### **Teaching Assistant**

- 2011-2017 Arizona State University
- General Biology Laboratory (3 semesters)
  - Animal Physiology Laboratory (4 semesters), Lecture (1 semester)
- 2010-2011 University of Missouri
- Cell Biology (3 semesters)

### **Training**

- 2010 Completed *College Science Teaching* graduate course, University of Missouri

## RESEARCH SUPERVISION

### **Undergraduate Lab Assistants**

- |           |                       |           |                          |
|-----------|-----------------------|-----------|--------------------------|
| 2022-2023 | Olivia Smith, Auburn  | 2016-2018 | Brandon Aki-Jackson, ASU |
| 2022      | Gabi Cano, Auburn     | 2016-2017 | Patrick McCarthy, ASU    |
| 2021-2023 | Claire Bailey, Auburn | 2016-2017 | Nan Qui, ASU             |
| 2021-2023 | Maritza Spott, Auburn | 2014-2017 | Zakaria Mohmoud, ASU     |
| 2018      | Danielle Fry, ASU     | 2014-2016 | Nicole Kallman, ASU      |
| 2018      | Moira McCarthy, ASU   | 2015      | Melissa Lopez, ASU       |
|           |                       | 2015      | Venessa Howg, ASU        |

### **Field Assistants**

2015 Coline Muller, STRI, Panama  
2014 Taylor Mazzacavallo, STRI, Panama  
2013 Gabe Patterson, STRI, Panama

### **PEER REVIEW**

*Basic and Applied Ecology*  
*Behavioral Ecology*  
*Behavioral Ecology and Sociobiology*  
*Biotropica*  
*Current Zoology*  
*Ecology*

*Insectes Sociaux*  
*Integrative and Comparative Biology*  
*Journal of Animal Ecology*  
*Journal of Hymenoptera Research*  
*Myrmecological News*  
*Scientific Reports*

### **SOCIETY MEMBERSHIPS**

Animal Behavior Society  
Association for Tropical Biology and Conservation  
Entomological Society of America  
International Society for Behavioral Ecology  
International Union for the Study of Social Insects – North American Section  
Society for Integrative and Comparative Biology

### **MEDIA COVERAGE**

2023 Earth.com “Honeybees have surprising abilities to maintain their nest structure” by Eric Ralls  
2021 Azteca research spotlight in Rotating Planet Documentary Film Series. “Animal Personality” ARTE  
2019 SciNews. “Nurseries of Azteca Ants are Cleaner than Human Ones, Researchers Find”  
2019 Phys.Org. “For at least one species, ant nurseries are cleaner than human ones” by Matt Shipman  
2018 Council of Graduate Schools. “GradImpact: Studying Animal Behavior to Determine How Personality Is Shaped”  
2018 In Defense of Plants Podcast. “Cecropia trees, Ant Bodyguards, and Collective Personality” by Matt Candeias  
2018 EQW News. “Anthropomorphism and the Prospect of Individual Animal Personality” by Cedric Dent  
2018 ASU Now. “Snobs and slobs: ants are just like us” by Scott Seckel  
2017 Science & Vie “‘Superorganisms’ like anthills have personality” by Roman Ikonicoff  
2017 Forskning. “Why do ants differ in different ways” by Eirin Bruholt  
2017 STRI News. “Ant Colonies with Attitudes”  
2017 LiveScience. “They’ve Got Personality: Ant ‘Superorganisms’ Have Unique Temperaments” by Wynne Parry  
2017 Smithsonian Insider. “Ant colony ‘personality’ may play role in survival of its host plant” by Daniel Luzer  
2016 APS News. “Azteca Ants and their Cecropia Tree Hosts”  
2013 Discovery Channel News. “Jungle Fluids – Ant Rescues Nestmate from Ice”  
2013 STRI News. “What Irks a Superorganism?”

