

# Paul James CaraDonna

Research Scientist  
Chicago Botanic Garden  
Plant Conservation Science Center  
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## EDUCATION

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- 2016      Ph.D. Ecology & Evolutionary Biology  
            University of Arizona  
            Advisor: Dr. Judith L. Bronstein
- 2010      B.Sc. Botany (*magna cum laude*)  
            Humboldt State University  
            Advisors: Dr. Michael Mesler & Dr. Erik Jules

## ACADEMIC POSITIONS

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- 2016–      Research Scientist (assistant professor rank)  
            Chicago Botanic Garden  
            Glencoe, IL, USA
- 2016–      Assistant Professor of Instruction  
            Program in Biological Sciences; Plant Biology & Conservation  
            Northwestern University  
            Evanston, IL, USA
- 2015–2016      NSF/Danish National Research Foundation GROW Research Fellow  
                    Center for Macroecology, Evolution & Climate  
                    Natural History Museum of Denmark, University of Copenhagen  
                    Copenhagen, Denmark  
                    Supervisor: Dr. Nathan J. Sanders
- 2012–      Principal Investigator  
            Rocky Mountain Biological Laboratory  
            Gothic, CO, USA

PUBLICATIONS

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2020 (in press). Gruver\*, A.M., and **P. J. CaraDonna**. First records of *Megachile apicalis* (Hymenoptera: Megachilidae) from Illinois found in heavily urbanized areas within the City of Chicago. *The Great Lakes Entomologist*. \*graduate student co-author

2020 (in press). Bramon-Mora, B., E. Shin, **P.J. CaraDonna**, and D. Stouffer. Untangling the seasonal dynamics of plant-pollinator communities. *Nature Communications*.

2020. Cordes, L., D. Blumstein, K. Armitage, **P.J. CaraDonna**, D. Childs, B. Gerber, J. Martin, M. Oli, and A. Ozgul. Contrasting effects of climate change on seasonal survival of a hibernating mammal. *Proceedings of the National Academy of Sciences, USA*. 117: 18119–18126  
<https://doi.org/10.1073/pnas.1918584117>

2020. **CaraDonna, P. J.** and N.M. Waser. Temporal flexibility in structure of plant-pollinator interaction networks. *Oikos*. <https://doi.org/10.1111/oik.07526>

2020. Schwarz, B., D.P. Vázquez, **P.J. CaraDonna**, T.M. Knight, G. Benadi, C. Dormann, B. Gauzens, E. Motivans, J. Resasco, N. Blüthgen, L. Burkle, Q. Fang, C.N. Kaiser-Bunbury, R. Alarcón, N. Chacoff, S. Huang, C. Olito, T. Petanidou, C. Rasmussen, M. Simanonok, and J. Fründ. Temporal scale-dependence of plant-pollinator networks. *Oikos*. <https://doi.org/10.1111/oik.07303>

2019. Iler, A.M., A. Compagnoni, D.W. Inouye, J.L. Williams, **P.J. CaraDonna**, A. Anderson, T.E.X. Miller. Reproductive losses due to advanced flowering phenology under climate change do not threaten plant population viability in a perennial herb. *Journal of Ecology*. 107: 1931–1943. <https://doi.org/10.1111/1365-2745.13146>

2019. Forrest, J.R.K., R. Cross, and **P.J. CaraDonna**. Two-year bee, or not two-year bee? How voltinism is affected by temperature and season-length in a high-elevation solitary bee. *The American Naturalist*. 193: 560–574.

2019. Cameron, E., M. Sundqvist, S. Keith, **P.J. CaraDonna**, E. Mousing, K. Nilsson, D. Metcalfe, and A. Classen. Uneven global distribution of food web studies under climate change. *Ecosphere*. 10(3):e02645. [10.1002/ecs2.2645](https://doi.org/10.1002/ecs2.2645)

2018. Waser, N.M., **P.J. CaraDonna**, and M.V. Price. Atypical flowers can be as profitable as typical hummingbird flowers. *The American Naturalist* 192: 644–653.

2018. **CaraDonna, P.J.**, J.L. Cunningham\* and A.M. Iler. Experimental warming in the field delays phenology and reduces body mass and survival: implications for the persistence of a pollinator under climate change. *Functional Ecology* 32: 2345–2356 \*undergraduate co-author.

2018. Ellison, A., C. LeRoy, K. Landesbergen, E. Bosanquet, D. Buckley Borden, **P.J. CaraDonna**, K. Cheney, R. Crystal-Ornelas, A. DeFreece, L. Goralnik, E. Irons, B. Garmaon Merkle, K. O’Connell, C. Penick, L. Rustad, M. Schulze, N. Waser, and L. Wysong. 2018. Art/Science Collaborations: New Explorations of Ecological Systems, Values, and their Feedbacks. *Bulletin of the Ecological Society of America* 99: 180–191.

2017. **CaraDonna, P. J.**, W.K. Petry, R.M. Brennan, J.L. Cunningham\*, N.M. Waser, J.L. Bronstein, and N.J. Sanders. Interaction rewiring and the rapid turnover of plant-pollinator networks. *Ecology Letters* 20: 385–394. \*undergraduate co-author

2016. **CaraDonna, P. J.** and J.A. Bain\*. Frost sensitivity of leaves and flowers of subalpine plants is related to tissue type and phenology. *Journal of Ecology* 104: 55–64. \*undergraduate co-author.

2015. **CaraDonna, P. J.** and D.W. Inouye. Phenological responses to climate change do not exhibit phylogenetic signal in a subalpine plant community. *Ecology* 96: 355–361.

2015. Rafferty, N.E., **P. J. CaraDonna**, J.L. Bronstein. Phenological shifts and the fate of mutualism. *Oikos* 124: 14–21. [Invited special issue paper on “Phenological change and ecological interactions”] [cover article]

2014. **CaraDonna, P. J.\***, A.M. Iler\* and D.W. Inouye. Shifts in flowering phenology reshape a subalpine plant community. *Proceedings of the National Academy of Sciences, USA* 111: 4916–4921. [Editors’ Choice Article, *Science* 344: 236] \*equal author contributions.

2013. Rafferty, N.E., **P. J. CaraDonna**, L.A. Burkle, A.M. Iler, and J.L. Bronstein. Phenological overlap of interacting species in a changing climate: an assessment of available approaches. *Ecology & Evolution* 3: 3183-3193.

2012. McKinney, A.M., **P. J. CaraDonna**, D.W. Inouye, W.A. Barr, C.D. Bertelsen, and N.M. Waser. Asynchronous changes in phenology of migrating Broad-tailed Hummingbirds and their early-season nectar resources. *Ecology* 93: 1987-1993. [cover article]

2012. **CaraDonna, P. J.** and J. D. Ackerman. Reproductive assurance for a rewardless epiphytic orchid in Puerto Rico, *Pleurothallis ruscifolia* (Orchidaceae, Pleurothallidinae). *The Caribbean Journal of Science* 46 (2-3): 249-257.

*Manuscripts in submitted, in review, in revision, or in preparation.*

*In revision.* Bain\*, J.A., R.G. Dickson, A.M. Gruver\* and **P.J. CaraDonna**. The effects of floral resource removal on plant-pollinator interactions [*manuscript available upon request*]. \*graduate student co-author

*In revision* Hui, C., D. Richardson, P. Landi, H. Minoarivelo, H. Roy, G. Latombe, **P.J. CaraDonna**, D. Gravel, B. Beckage, and J. Molofsky. Trait positions for elevated invasiveness in adaptive ecological networks.

*In revision* Semler, R.F., N.J. Sanders, **P.J. CaraDonna**, A.H. Baird, X. Jing, J.P.W. Robinson, N.A.J. Graham, and S.A. Keith. Behavioral shifts drive reorganization of ecological networks after disturbance.

*In revision* **CaraDonna, P. J.** ...[11 co-authors]... D.P. Vazquez. Seeing through the static: the temporal dimension of plant-animal mutualistic networks.

*In preparation.* Cahill\*, C.M., **P.J. CaraDonna**, and J.R.K Forrest. Fitness consequences of non-native floral resource use for subalpine solitary bees. \*undergraduate co-author

*In preparation.* Ogilvie, J.E. and **P.J. CaraDonna**. An examination of the ecological trade-offs among bumble bee queens.

*In preparation.* **P.J. CaraDonna** and J.E. Ogilvie. Contrasting responses of bumble bee life history stages to floral resources and climate.

## GRANTS, FELLOWSHIPS & AWARDS

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2020. NSF RET Supplement (two supplement awards as part of DEB1754518). **\$29,828.**
2019. Northwestern University, URAP Grant (for undergraduate research assistants). **\$4,000.**
- 2018–2022. NSF DEB1754518. “Addressing the missing link: uniting demographic life history theory and pollination biology to understand the ecological consequences of pollinator declines”  
(PI = A.M. Iler; Co-PI = P.J. CaraDonna). **\$460,548.**
2015. NSF/Danish National Research Foundation (DNRF) GROW Fellowship. **\$23,000.**  
Robert Hoshaw Memorial Scholarship Award, University of Arizona. **\$2,000.**  
This award recognizes exceptional scholarship and is the highest award given to graduate students within the Department of Ecology & Evolutionary Biology.  
Darwin-Wallace Biodiversity Scholarship, University of Arizona. **\$1,000.**  
Rocky Mountain Biological Laboratory Graduate Research Fellowship. **\$250.**
2014. Outstanding Scholarship Award, College of Science, University of Arizona. **\$1,000.**  
Awarded to the top graduate student across all departments in the College of Science based on scholarship.  
Excellence in Research Award, University of Arizona.  
Awarded to the top graduate student within the Dept. of Ecology & Evolutionary Biology based on scholarship.  
Darwin-Wallace Biodiversity Scholarship, University of Arizona. **\$1,000.**  
Harvard Communicating Science Conference (ComSciCon) Scholarship. **\$400.**  
Awarded to 50 out of 900 applicants.  
Rocky Mountain Biological Laboratory Graduate Research Fellowship. **\$800.**
2013. Rocky Mountain Biological Laboratory Graduate Research Fellowship. **\$400.**  
Graduate Student Travel Award, Institute of the Environment, University of Arizona. **\$500.**
2012. NSF Graduate Research Fellowship Award. **\$136,000.**  
Rocky Mountain Biological Laboratory Snyder Fellowship. **\$650.**  
Galileo Circle Scholarship, University of Arizona. **\$1,000.**  
Best Slide Design, Grad Blitz, Institute for the Environment, University of Arizona.
2011. Graduate Student Fellowship, University of Arizona. **\$8,000.**
2010. Young Botanist Award, Botanical Society of America.  
National recognition of academic achievement in botany.  
Dennis K. Walker Botany Award, Humboldt State University. **\$1,000.**  
Awarded to the top graduating botany student at Humboldt State University.
2009. NSF REU Fellowship, El Verde Field Station and University of Puerto Rico. **\$4,500.**  
Eureka Sequoia Gardens Club Botany Scholarship, Humboldt State University. **\$300.**

## PRESENTATIONS

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### *INVITED SEMINARS*

- 2019 University of Illinois-Chicago, Biology Seminar, Chicago, IL  
University of Michigan, Complex Systems Symposium, Ann Arbor, MI  
The Field Museum, Biology Seminar, Chicago, IL  
University of Colorado, Boulder, Biology Colloquium, Boulder, CO
- 2018 University of Idaho, Biology Seminar, Moscow, ID  
Rocky Mountain Biological Laboratory, Tuesday Talks Seminar, Gothic, CO  
University of Toronto (Scarborough), Biology Seminar, Toronto, Ontario, Canada  
Northern Illinois University, Biology Seminar, DeKalb, IL
- 2017 University of Illinois Urbana-Champaign, PEEC Seminar, Urbana, IL  
Morten Arboretum, Tree Talks Seminar, Lisle, IL

2016 Humboldt State University, Biology Seminar, Arcata, CA  
UC Davis, Center for Population Biology Seminar, Davis, CA  
Chicago Botanic Garden, Plant Biology and Conservation Seminar, Glencoe, IL

#### INVITED WORKING GROUP MEETINGS

2019 How to Invade an Ecological Network, University of Vermont, Burlington, VT  
2018 Next Generation Ecological Network Theory & Application, Santa Fe Institute, Santa Fe, NM  
2017 Temporal Networks, Freiburg Institute of Advanced Studies, Freiburg, Germany  
2017 Trapnest Foodwebs & Plant Diversity, University of Freiburg, Freiburg, Germany

#### CONTRIBUTED TALKS

2020. **CaraDonna, P.J.** and J.E. Ogilvie. Contrasting responses of bumble bee life stages to variation in floral resources and climate. *Ecological Society of America 105th Annual Meeting*, Salt Lake City, UT (virtual).

2020. **CaraDonna, P.J.** How flexible are species' roles within plant-pollinator networks? A within-season temporal perspective. *Ecological Society of America 105th Annual Meeting*, Salt Lake City, UT (virtual).

2020. Forrest, J.R.K. C.M. Cahill, and **P.J. CaraDonna**. Fitness Consequences of non-native floral resources for subalpine solitary bees. *Ecological Society of America 105th Annual Meeting*, Salt Lake City, UT (virtual).

2020. Iler, A.M., **P.J. CaraDonna**, and W.K. Petry. Beyond seed production: effects of pollination on plant vital rates. *Ecological Society of America 105th Annual Meeting*, Salt Lake City, UT (virtual).

2019. **CaraDonna, P.J.** and J.E. Ogilvie. Ecology Trade-offs Among Bumble Bee Queens. *Ecological Society of America 104th Annual Meeting*, Louisville, KY

2019. Bain, J.A. and **CaraDonna, P.J.** The influence of pollen protein and nectar carbohydrates on the structure of plant-pollinator networks. *Ecological Society of America 104th Annual Meeting*, Louisville, KY

2019. Breckheimer, **P.J. CaraDonna**, R.A. Durham, A.M. Iler, J.E. Ogilvie, E.J. Theobald, and D.W. Inouye. Virtual Transplant Experiments reveal that climate filters mountain plant communities via interactions with phenological traits. *Ecological Society of America 104th Annual Meeting*, Louisville, KY

2019. Iler, A.M., **P.J. CaraDonna**, et al. Genotype accounts for intraspecific variation in the timing and duration of life cycle events in a dioecious willow species. *Ecological Society of America 104th Annual Meeting*, Louisville, KY.

2018. Bain, J.A. and **P.J. CaraDonna**. The effects of floral resource removal on plant-pollinator interactions. *Ecological Society of America 103<sup>rd</sup> Annual Meeting*, New Orleans, LA.

2018. Mullett, D.E., **CaraDonna, P.J.** and Fant, J. Comparing the context dependency of plant parasitism to competition. *Ecological Society of America 103<sup>rd</sup> Annual Meeting*, New Orleans, LA.

2017. **CaraDonna, P.J.** An examination of time and topology in plant-pollinator interaction networks. *Ecological Society of America 102<sup>nd</sup> Annual Meeting*, Portland, OR. [invited presentation]

2017. **CaraDonna, P.J.** Transformation, abstraction, and reassembly of information: an art-science exchange informs perceptions of nature. *Ecological Society of America 102<sup>nd</sup> Annual Meeting*, Portland, OR. [invited presentation]
2015. **CaraDonna, P.J.** Effects of experimental warming in the field on an early season pollinator. *British Ecological Society Annual Meeting*, Edinburgh, Scotland.
2015. **CaraDonna, P.J.** Beta-diversity of plant-pollinator community interactions: a three-year study from the Colorado Rocky Mountains. *Scandinavian Pollination Ecology Meeting*, Silkeborg, Denmark.
2015. **CaraDonna, P.J.** Ecological timing, community context, species interactions and climate change. *Center for Macroecology, Evolution and Climate Seminar Series*, University of Copenhagen, Denmark.
2015. **CaraDonna, P.J.** Within-season temporal dynamics of plant-pollinator interactions. *Ecological Society of America 100<sup>th</sup> Annual Meeting*, Baltimore, MD.
2015. **CaraDonna, P.J.** Transformation, abstraction, and reassembly of information: an art-science exchange informs perceptions of nature. *More Than Pretty Pictures: The Aesthetics of Data Representation* [conference]. Aarhus Institute of Advanced Studies, Aarhus University, Denmark.
2015. **CaraDonna, P.J.** Temporal dynamics of plant-pollinator community interactions. *Department of Ecology & Evolutionary Biology Noon-seminar*, University of Arizona, Tucson, AZ.
2014. **CaraDonna, P.J.** Within-season temporal dynamics of plant-pollinator interactions. *Joint British Ecological Society & French Ecological Society Meeting*, Lille, France. [invited]
2014. Rafferty, N.E., **P.J. CaraDonna**, and J.L. Bronstein. Characteristics predicted to predispose mutualisms to phenological mismatch. *Ecological Society of America 99<sup>th</sup> Annual Meeting*, Sacramento, CA.
2014. **CaraDonna, P.J.** Exploring variation in phenological shifts: climate, seasonality, and phylogeny. *Department of Ecology & Evolutionary Biology Noon-seminar*, University of Arizona, Tucson, AZ.
2014. Cunningham, J. L.,\* and **P.J. CaraDonna**. Phenology and species interactions. *Día del Biólogo*, Universidad de la Sierra in Moctezuma, Mexico. [presentation in Spanish] [invited] \*undergraduate researcher
2013. **CaraDonna, P.J.**, A.M. Iler, and D.W. Inouye. Change in flowering phenology, community patterns, and implications for pollinators. *Ecological Society of America 98<sup>th</sup> Annual Meeting*, Minneapolis, MN.
2013. **CaraDonna, P.J.** Species-specific shifts in flowering phenology reshuffle community-level patterns. *Department of Ecology & Evolutionary Biology Noon-seminar*, University of Arizona, Tucson, AZ.
2012. **CaraDonna, P.J.** Species-specific shifts in flowering phenology scale up to influence community-level patterns. *National Phenology Network*, Tucson, AZ.
2012. **CaraDonna, P.J.** A. M. McKinney, D.W. Inouye, W.A. Barr, C.D. Bertelsen, and N.M. Waser. Asynchronous changes in phenology of migrating Broad-tailed Hummingbirds and their early-season nectar resources. *Ecological Society of America 97<sup>th</sup> Annual Meeting*, Portland, OR.
2012. McKinney, A.M., **P.J. CaraDonna**, D.W. Inouye, W.A. Barr, C.D. Bertelsen, and N.M. Waser. Asynchronous changes in phenology of migrating Broad-tailed Hummingbird and their early-season nectar resources. *Botanical Society of America Annual Meeting*, Columbus, Ohio. [invited]
2012. Rafferty, N.E., **P.J. CaraDonna**, L.A. Burkle, A.M. Iler, and J.L. Bronstein. Phenology of species interactions in a changing climate: an assessment and illustration of approaches. *Botanical Society of*

*America Annual Meeting*, Columbus, Ohio. [invited]

2010. **CaraDonna, P.J.** and J.D. Ackerman. Reproductive assurance for a rewardless epiphytic orchid in Puerto Rico: *Pleurothallis ruscifolia* (Orchidaceae, Pleurothallidinae). *Botanical Society of American Annual Conference*, Providence, RI.

2009. **CaraDonna, P.J.** Reproductive biology of *Pleurothallis ruscifolia* (Orchidaceae) in Puerto Rico. *Friday Botany Talks Seminar Series*, Humboldt State University.

#### CONTRIBUTED POSTERS

2020. Fitzgerald, J.L., J.E. Ogilvie, and **P.J. CaraDonna**. Intraspecific body size variation in subalpine bumble bees. *Ecological Society of America 105th Annual Meeting*, Salt Lake City, UT (virtual).

2020. Kirschke, G., J.A. Bain, J.E. Ogilvie, and **P.J. CaraDonna**. Quantifying nectar trait responses to natural variation in water availability in subalpine plant communities. *Ecological Society of America 105th Annual Meeting*, Salt Lake City, UT (virtual).

2018. Bain, J.A., R.G. Dickson, and **P.J. CaraDonna**. The effects of floral resource removal on plant-pollinator interactions. *American Society of Naturalists Annual Meeting*, Asilomar, CA.

2014. **CaraDonna, P.J.** Within-season temporal dynamics of plant-pollinator interactions. *Joint British Ecological Society & French Ecological Society Meeting*, Lille, France.

2013. Cunningham, J.L. and **P.J. CaraDonna**. The nesting ecology of native bees. *Ecological Society of America 98th Annual Meeting*, Minneapolis, MN.

2008. **CaraDonna, P.J.** Reproductive biology of *Pleurothallis ruscifolia* (Orchidaceae). *El Verde REU Symposium*, University of Puerto Rico (Río Piedras), San Juan, Puerto Rico.

#### TEACHING

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##### COURSES, WORKSHOPS, & OTHER TEACHING

- 2019—. Plant-Animal Interactions (BIOL SCI 333), Northwestern University (enrollment = 25 students)
- 2018—. Pollination Ecology: From Conservation to Extinction (BIOL SCI 107-6), Northwestern University (enrollment = 15 students; first-year student seminar; winter quarters)
- 2017—. The Nature of Plants (BIOL SCI 109), Northwestern University (enrollment = 80–100 students; non-science majors course; fall quarters)
- 2017, 2018. Ecology of Climate Change (ENVR SCI 390/PBC 470), Northwestern University (enrollment = 15–20 students; spring quarters)
- 2017, 2019. Visual Design Principles for Scientists (workshop), Chicago Botanic Garden, Professional Development Series of Graduate Students.
- 2015, 2018, 2019, 2020. Visual Design Principles for Scientists (workshop), Rocky Mountain Biological Laboratory (RMBL) Undergraduate Education Program
2014. The Art of Scientific Observation (workshop), RMBL Undergraduate Education Program
2013. Experimental Design Workshop, RMBL Undergraduate Education Program.
2013. Plant Taxonomy Laboratory (ECOL 472/572), University of Arizona

##### INVITED GUEST LECTURES (teaching)

2016. Climate Change & Biodiversity, University of Copenhagen.
2014. The Importance of Biological Timing, Rocky Mountain Biological Lab, Adult Education Program.

2013. Climate Change Ecology, Western State Colorado University Field Course.  
2012. Climate Change Ecology, Conservation Biology (ECOL 406), University of Arizona.

#### *GRADUATE STUDENT TEACHING ASSISTANT*

2013. Plant Taxonomy (ECOL 472/572), University of Arizona  
2012. Conservation Biology (ECOL/RNR 406/506), University of Arizona  
2012. Evolutionary Biology (ECOL 335), University of Arizona  
2011. Animal Behavior (ECOL 487/587), University of Arizona

#### *OTHER TEACHING*

- Substitute Teacher, Missoula County Public Schools, Missoula, MT (2010)  
Teaching Assistant and Nature Program Coordinator, The Kids Club, Andover, MA (2006)

#### CURRENT GRADUATE STUDENTS

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- Justin Bain, PhD exp. 2022 (Northwestern University)  
Andrea Gruver, MSc exp. 2020 (Northwestern University)  
Amelia Litz, PhD exp. 2023 (co-advised, Northwestern University)  
Jacquelyn Fitzgerald, PhD exp. 2024 (Northwestern University)  
Victoria DeLira, MSc. exp. 2022 (Northwestern University)  
Alexandra Zink, MSc. Exp. 2022 (Northwestern University)

#### SERVICE ON GRADUATE STUDENT COMMITTEES

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- Lea Richardson (PhD exp. 2020), Drake Mullet (MSc exp. 2018), Kat Andrews (MSc exp. 2019),  
Kristin Manion (MSc exp. 2019), Marie Faust (MSc exp. 2019), Diana Jerome (MSc ex. 2020)

#### UNDERGRADUATE MENTORING

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2020. Clayton Pokorny, Northwestern University  
Luke Liu, Northwestern University  
Laura Caride, Northwestern University  
Paola Lopez (UC Davis), Rocky Mountain Biological Laboratory (RMBL) NSF REU  
Alexandra Tash (Oberlin University), RMBL NSF REU  
2019. Victoria DeLira (Northwestern University), Rocky Mountain Biological Laboratory  
Gwen Kirschke (Agnes Scott College), Rocky Mountain Biological Laboratory.  
Nolan Carothers (Lake Forest College), Chicago Botanic Garden  
Samantha Russell (Lake Forest College), Chicago Botanic Garden  
Lucia Basacoma, Northwestern University  
Maggie Cheever, Northwestern University  
Hannah Dembosky, Northwestern University  
Bailey Fleugel, Northwestern University  
Sophia Settle, Northwestern University  
Johnathan Zhang, Northwestern University  
2018. N. Atticus Murphy (University of Toronto), Rocky Mountain Biological Laboratory NSF REU.  
2018. Maya Dutta (Washington Univ. St. Louis), Chicago Botanic Garden (CBG) NSF REU (co-mentored).  
2017. Rachel Dickson (University of Montana), RMBL NSF REU.  
2015. Katherine Wyatt (Yale University), RMBL Advanced Independent Research.  
2015. Sander B. Boisen, Aarhus University Independent Research.  
2014. Justin A. Bain (UC San Diego), RMBL, Advanced Independent Research.



2014. Rachel E. Tsong, University of Arizona Senior Thesis Project\*.  
*\*Rachel was awarded the UA Ecology & Evolutionary Biology Excellence in Undergraduate Research Award in part because of this research – this is the department's highest honor for undergraduate research.*
2013. James L. Cunningham (University of Arizona), RMBL NSF REU\*.  
*\*James was awarded the UA Ecology & Evolutionary Biology Excellence in Undergraduate Research Award in part because of this research – this is the department's highest honor for undergraduate research.*
2012. Valerie Milici (Indiana University), RMBL, Advanced Independent Research.
- 2010–2011. "Planting Science" Scientist Mentor, Botanical Society of America.  
*Student science project mentor (via online blogging interface) for Landmark H.S., Manhattan, NY, and Woodstock H.S., Woodstock, GA.*
2010. Craig Connelly (College of the Holy Cross), Independent Research, University of Massachusetts.

## SCIENCE OUTREACH & COMMUNICATION

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- 2018, 2019. Native Bees Diversity & Conservation, Uearth Science Festival, Chicago Botanic Garden.
- 2017–2019. Scientific Advisor and Planning Committee Member, "Bees and Beyond 2019", Chicago Botanic Garden
2017. Pollinator Diversity Booth, World Environment Day, Chicago Botanic Garden
- 2013–. Director and Co-founder, The Art-Science Exchange Project, Rocky Mountain Biological Laboratory (RMBL), Gothic, CO. *This artist in residence project seeks to enhance the intellectual collaboration between the arts and the sciences, with the primary goal of improving communication of complex biological phenomena to a broad audience. Artist Fellows: Lucia Monge (2015), Brian House (2015), Ellie Irons (2014), Mark Dorf (2013), Nathan Hass (2012).*
- 2013–2015. Science Writer/Columnist, Crested Butte News, Crested Butte, CO ( $n = 14$  articles).
14. *There Is More to Being a Butterfly than Being a Butterfly*, September 2015
  13. *Queens of the Rockies*, August 2015
  12. *The Secret, Microscopic World of a Leaf*, August 2015
  11. *The Cold Truth About Springtime Frost in the Rockies*, July 2015
  10. *Roots –The Secret World of the Plant Underground*, August 2014
  9. *Our Alpine Meadows are Buzzing with Cheaters and Robbers and Thieves*, August 2014
  8. *The Frasera Flowering Forecast '14*, July 2014
  7. *The Buzz About Bees*, July 2014
  6. *Marmot Fights: Signs of Early Spring in the Mountains*, June 2014
  5. *Secrets of the Naked Leaf and the Carbon Economy*, August 2013
  4. *Good For Nothing Lazy Males*, August 2013
  3. *What Are The Consequences of a Bad Flowering Year?* July 2013
  2. *Mistimed Travel Plans: Mexico to Crested Butte*, July 2013
  1. *A Gothic Drama*, June 2013
2014. Program on bees and pollination, Sam Hughes Middle School, Tucson, AZ.
2014. Program on bees and pollination, Mountain Roots Kids Camp, Crested Butte, CO.
2014. Program on bees and pollination, Tucson Magnet High School, Tucson, AZ.
- 2012, 2014. Scientist Judge, Undergraduate Poster Session, University of Arizona, Tucson, AZ.
- 2011–2013. Presentation(s) on bees and pollination, RMBL Kids Camp Program.
- 2011, 2012. Preceptor, Arizona Insect Festival (public event), University of Arizona, Tucson, AZ.
2012. Presentation on pollination, Instituto de Educacion Secundaria Rio Nora, Pola de Siero, Spain.

## MEDIA COVERAGE OF RESEARCH

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Print: *New York Times*, *Los Angeles Times*, *High Country News*, *Earthweek – Dairy of the Planet*, *Northwestern Research News*, and various local newspapers.

Online: *New York Times* (2), *National Geographic News* (2), *TIME Magazine*, *Yale Climate Change Connections* (2), *Los Angeles Times*, *News Week*, *Mother Jones/Climate Desk/Grist*, *Live Science*, *The Christian Science Monitor*, *High Country News* (2), *Scientific American*, *Climate Wire*, and other online media.

Press releases: *National Science Foundation (3), University of Maryland (2), University of Arizona, Northwestern University.*

## PROFESSIONAL SERVICE

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2019– Associate Editor, *Journal of Pollination Ecology*

2012– *Manuscript Reviewer:*

*Biotropica*

*Ecology*

*Ecological Applications*

*Ecology Letters*

*Ecosphere*

*Environmental Entomology*

*Functional Ecology*

*Global Change Biology*

*Global Ecology & Biogeography*

*International Journal of Biometeorology*

*International Journal of Plant Sciences*

*Journal of Animal Ecology*

*Journal of Ecology*

*Journal of Pollination Ecology*

*Naturwissenschaften*

*PLOS One*

*Proc. B.*

*PNAS*

*Grant Proposal Reviewer:*

2018. National Science Foundation (USA).

2017. Swiss National Science Foundation.

*Applicant Reviewer:*

2016–current. Graduate Student Application Review, Plant Biology & Conservation Program, Chicago Botanic Garden and Northwestern University.

2012, 2013. NSF REU Applications, RMBL.

*Other Service:*

2019–. RMBL Communications Committee (co-chair), Gothic, CO.

2019–. CBG Science Department, Science Communication Committee, Glencoe, IL.

2013–2014. RMBL Facilities Planning & Design Committee, Gothic, CO.

2013. Invited Member. Borderlands Restoration Initiative Working Group, Santa Rita Experimental Range, Pima, AZ.

2012. Invited Member. USA National Phenology Network Research Coordination Network Working Group, Milwaukee, WI.

## PROFESSIONAL DEVELOPMENT

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2018–2020. Harassment & Discrimination Training Workshop, Chicago Botanic Garden, Glencoe, IL

2016. Teaching Workshop, Northwestern University, Evanston, IL

2015. Visual Design Principles for Scientific Data with Martin Kryzwiniski, Aarhus University, Denmark.

2014. Communicating Science Workshop (ComSciCon), Harvard University, Cambridge, MA.

2014. Teaching Pedagogy Workshop with Dr. Edward Prather, University of Arizona, Tucson, AZ.

