KADEEM J. GILBERT, Ph.D.

W. K. KELLOGG BIOLOGICAL STATION, MICHIGAN STATE UNIVERSITY
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EDUCATION

Harvard University, Department of Organismic and Evolutionary Biology, Cambridge, MA
Doctor of Philosophy in Biology
Advisor: Naomi Pierce, Committee: N. Michelle Holbrook, David Haig, Aaron Ellison
September 2012-April 2019

Cornell University, College of Agriculture and Life Sciences, Ithaca, NY
Bachelor of Science in Natural Resources, Cum Laude with Distinction in Research
June 2008-May 2012

Union County Magnet High School for Science, Mathematics, & Technology, Scotch Plains, NJ
September 2004-June 2008

PROFESSIONAL APPOINTMENTS

Michigan State University, Kellogg Biological Station, Hickory Corners, MI, and Department of Plant Biology, East Lansing, MI
Assistant Professor August 2021-current

The Pennsylvania State University, Department of Entomology, University Park, PA
USDA-NIFA Postdoctoral Fellow September 2019-July 2021

PROFESSIONAL EXPERIENCE

Cornell University, Department of Natural Resources, Ithaca, NY
Field Technician, Cornell Black Bear Project May 2011-August 2011
Lab Assistant, Fahey Lab September 2009-May 2011

Indonesian Biodiversity Research Center, Denpasar, Indonesia
REU Student Investigator June 2010-August 2010

Hubbard Brook Experimental Forest, Thornton, NH
REU Student Investigator June 2009-August 2009

LARGE GRANTS

United States Department of Agriculture-National Institutes of Food & Agriculture Postdoctoral Fellowship
Project title: "The physiology of phylloplane pH regulation and its consequences on the microbiome". Award: $158,578 (accepted, FY 2019)

National Science Foundation Postdoctoral Research Fellowships in Biology
Project title: "The physiology of pitcher plant pH regulation and consequences to the microbiome" Award: $138,000
(declined offer in accepting USDA-NIFA postdoctoral fellowship, FY 2019)

HONORS & AWARDS

Eric E. Conn Young Investigator Award, American Society of Plant Biologists 2023
Harvard Derek Bok Center Certificate of Distinction in Teaching 2019
Les Mehroff Botanical Research Fund (joint with Min Ya & Emmi Kurosawa) 2017
Putnam Expedition Grant, $9187.86 2015

National Science Foundation Graduate Research Fellowship, Honorable Mention 2014
Ken Miyata Field Research Grant, $6440 2013
Hunter Rawlings III Cornell Presidential Research Scholar 2010-2012
Academic Competitiveness Grant 2008-2010

PUBLICATIONS [ORCID: 0000-0003-0105-8020]
(*mentee)

Floc'h, J-B*, Lopez-Gonzalez, C.*, Renner, T., and **Gilbert, K.J.** (*in prep*) Host species differences in phylloplane pH regulation shape the gene expression of bacterial communities.

Wheeler, D.A.*, Martin-Eberhardt, S.A.*, and **Gilbert, K.J.** (*in revision*) Leaf litter consumption as evidence for diet breadth expansion in the broad-ranged carnivorous plant *Sarracenia purpurea*

Lopez-Gonzalez, C.*, Floc'h, J-B*, Renner, T., and **Gilbert, K.J.** (*accepted with minor revisions*, *Journal of Experimental Botany*) Species-specific phyllosphere responses to external pH change.

Gilbert, K.J., Armitage, D., Bauer, U., Fukushima, K., Gaume, L., Love, R., Lin Q., Liu, S., Martin-Eberhardt, S.*, Millett, J., Renner, T., Scharmann, M., and Thorogood, C. (*accepted with minor revisions, Annals of Botany*) Construction costs and tradeoffs in carnivorous pitcher plant leaves: towards a pitcher leaf economic spectrum.

Rhee, S.Y., Anstett, D.N., Cahoon, E.B., Covarrubias-Robles, A.A., Danquah, E., Dudareva, N., Ezura, H., **Gilbert, K.J.,** Gutiérrez, R.A., Heck, M. and Lowry, D.B. (*in press*, *Trends in Plant Science*) Resilient plants, sustainable future.

Martin-Eberhardt, S.A.*, Weber, M.G., and **Gilbert, K.J.** (*in press, American Naturalist*) Anthocyanin impacts multiple plant-insect interactions in a carnivorous plant.

Pan, V.S.*, **Gilbert, K.J.**, Wetzel, W.C. (2025) Mean Plant Toxicity Modulates the Effects of Plant Defense Variability. *Ecology*, **106**(2): e70012

Pan, V.S.*, Ghosh E., Ode, P.J., Wetzel, W.C., **Gilbert, K.J.,** Pearse, I.S. (2025) Large Differences in Herbivore Performance Emerge from Simple Herbivore Behaviors and Fine-Scale Spatial Heterogeneity in Phytochemistry. *Ecology Letters,* **28**(1): e70044.

Saul, F., Scharmann, M., Wakatake, T., Rajaraman, S., Marques, A., Freund, M., Bringmann, G., Channon, L., Becker, D., Carroll, E., Low, Y.W., Lindqvist, C., **Gilbert, K.J.**, Renner, T., Masuda, S., Richter, M., Vogg, G., Shirasu, K., Michael, T.P., Hedrich, R., Albert, V.A., and Fukushima, K. (2023) Subgenome dominance shapes novel gene evolution in the decaploid pitcher plant *Nepenthes gracilis*. *Nature Plants* **9**(12): 2000-2015.

Keagy, J., Drummond, C.P., **Gilbert, K.J.,** Grozinger, C., Hamilton, J., Hines, H.M., Lasky, J., Logan, C.A., Sawers, R., and Wagner, T. (2023) Landscape transcriptomics as a tool for addressing global change effects across diverse species. *Molecular Ecology Resources*, 00: 1–16. https://doi.org/10.1111/1755-0998.13796

Guiguet, A., McCartney, N.B., **Gilbert, K.J.,** Tooker, J., Deans, A., Ali, J., and Hines, H. (2023) Extreme acidity in a cynipid gall: a potential new defensive strategy against natural enemies. *Biology Letters,* **19**(3): 20220513.

Gilbert, K.J., Goldsborough, T.*, Lam, W-N., Leong, F. and Pierce, N.E. (2022) A semi-detritivorous pitcher plant diverges in its regulation of pitcher fluid properties. *Journal of Plant Interactions* **17**(1): 956-966.

Freund, M., Graus, D., Fleischmann, A., **Gilbert, K.J.**, Lin, Q., Renner, T., Stigloher, C., Albert, A., Hedrich, R., and Fukushima, K. (2022) The digestive systems of carnivorous plants. *Plant Physiology* **190**(1): 44-59.

Gilbert, K.J. and Renner, T. (2021) Acid or base? How do plants regulate the ecology of their phylloplane? *AoB Plants* **13**(4): plab032.

Gilbert, K.J. (2020) On the regulation of dissolved oxygen by *Nepenthes* pitchers. *Carnivorous Plants*

Newsletter **49**(4): 157-165.

Gilbert, K.J., Bittleston, L.S., Naive, M.A.K.*, Kiszewski, A.E., Buenavente, P.A.C., Lohman, D.J., and Pierce, N.E. (2020) Investigation of an elevational gradient reveals strong differences between bacterial and eukaryotic communities coinhabiting *Nepenthes* phytotelmata**.** *Microbial Ecology* **80**: 334-390.

Gilbert, K.J., Bittleston, L.S., Tong, W., and Pierce, N.E. (2020) Tropical pitcher plants (*Nepenthes*) act as ecological filters by altering properties of their fluid microenvironments. *Scientific Reports* **10**: 4431.

Wang, P., Yao, H., **Gilbert, K.J.**, Lu, Q., Hao, Y., Zhang, Z., and Wang, N. (2018) Glaciation-based isolation contributed to speciation in a Palearctic alpine biodiversity hotspot: Evidence from endemic species. *Molecular Phylogenetics and Evolution* **129**: 315–324.

Gilbert, K.J., Nitta, J.H., Talavera, G., and Pierce, N.E. (2018) Keeping an eye on coloration: ecological correlates of the evolution of pitcher traits in the genus *Nepenthes* (Caryophyllales). *Biological Journal of the Linnean Society* **123(2)**: 321–327.

Gilbert, K.J., Fahey, T.J., Maerz, J.C., Sherman, R.E., Bohlen, P., Dombroskie, J.J., Groffman, P.M, and Yavitt, J.B. (2014) Exploring carbon flow through the root channel in a temperate forest soil food web. *Soil Biology and Biochemistry* **76**: 45-52.

Wronski, T., **Gilbert, K.**, Long, E., Michá, B., Quinn, R., and Hausdorf, B. (2014) Species richness and meta-community structure of land snails along an altitudinal gradient on Bioko Island, Equatorial Guinea. *Journal of Molluscan Studies*, **80(2)**: 161-168.

PRESENTATIONS: INVITED LECTURES

Gilbert, K.J. Exploring *Nepenthes* pH regulation. International Carnivorous Plant Society. Vienna, Austria, 2024

Gilbert, K.J. Microbes and pH in leaf surface microecosystems. Department of Plant Biology Seminar Series, University of Massachusetts Amherst. Amherst, MA, 2024

Gilbert, K.J. Microbes and pH in leaf surface microecosystems. Division of Biosphere Sciences and Engineering Seminar Series, Carnegie Institution for Science. Palo Alto, CA, 2024

Gilbert, K.J. Microbes and pH in leaf surface microecosystems. Departments of Horticulture and Plant, Soil, and Microbes Seminar Series, Michigan State University. East Lansing, MI, 2024

Gilbert, K.J. Fantastic worlds of, in, and on pitchers and leaves. Biology Seminar, Hope College. Holland, MI, 2024

Gilbert, K.J. Microbes and pH in leaf surface microecosystems. Ecology and Evolutionary Biology Seminar Series, University of Pittsburgh. Pittsburgh, PA, 2023

Gilbert, K.J. Phytotelmata and phylloplane: Leaf traits mediate biotic interactions. Ecology and Evolutionary Biology Seminar Series, University of Kansas. Lawrence, KS, 2023

Gilbert, K.J. Phytotelmata and phylloplane: Leaf traits mediate biotic interactions. Population Biology, Ecology, and Evolution Seminar Series, Emory University. Atlanta, GA, 2023

Gilbert, K.J. Phytotelmata and phylloplane: Leaf traits mediate biotic interactions. Biological Sciences Seminar Series, Western Michigan University. Kalamazoo, MI, 2023

Gilbert, K.J. Fantastic worlds of/in/on pitchers and leaves. Darwin Day Talk, Kalamazoo College. Kalamazoo, MI, 2023

Gilbert, K.J. Phytotelmata and phylloplane: Leaf traits mediate biotic interactions. Department of Plant and Microbial Biology Seminar Series, University of Minnesota. Saint Paul, MN, 2023

Gilbert, K.J. Phytotelmata and phylloplane: Leaf traits mediate biotic interactions. University of Georgia Plant Center Retreat. Young Harris, GA, 2022

Gilbert, K.J. Phytotelmata and phylloplane: Leaf traits mediate biotic interactions. Department of Science Seminar Series, University of Hawaii at Manoa. Manoa, HI (virtual), 2022

Gilbert, K.J. Plant-Regulated Micro-Ecosystems: Pitchers and Leaves. Department of Ecology and Evolutionary Biology Seminar Series, University of Arizona. Tucson, AZ, 2022

Gilbert, K.J. Plant-Regulated Micro-Ecosystems: Pitchers and Leaves. Genetics, Development, and Cell Biology Seminar Series, Iowa State University. Ames, IA (virtual), 2022

Gilbert, K.J. Plant-Regulated Micro-Ecosystems: Pitchers and Leaves. Department of Natural History Research Seminar Series, University of Florida. Gainesville, FL (virtual), 2021

Gilbert, K.J. Plant-regulated interactions: Insights from pitcher plants. Kellogg Biological Station, Michigan State University. Hickory Corners, MI (virtual), 2021

Gilbert, K.J. Plant traits and ecological associations in tropical pitcher plants (*Nepenthes*). Science Seminar Series, Widener University. Chester, PA (virtual), 2021

Gilbert, K.J. Microbial communities in tropical pitcher plants: the role of plant-regulated factors. Microbiome Center Seminar Series, The Pennsylvania State University. University Park, PA, 2020

Gilbert, K.J. Tropical pitcher plants (*Nepenthes)* as an ecological filter. Herbarium Seminar Series. Harvard University. Cambridge, MA, 2019

Gilbert, K.J. Evolution and ecological consequences of diverse traits in tropical pitcher plants (*Nepenthes*). Botanical Society of America, part of special symposium: Evolution, ecology, development, and genomics of carnivorous plants. Rochester, MN, 2018

Gilbert, K.J. The colorful and varied ecology of *Nepenthes*. International Carnivorous Plant Society Meeting. Kew Gardens, London, United Kingdom, 2016

Gilbert, K.J. Exploring the role of intraspecific variation in the pitcher plant *Nepenthes gracilis*. Nanyang Technological University Department of Biological Sciences Graduate Student Seminar Series. Singapore, 2016

PRESENTATIONS: SUBMITTED ABSTRACTS

Gilbert, K.J. Phylloplane pH regulation in plants. American Society of Plant Biologists. Honolulu, HI, 2024 (poster)

Gilbert, K.J., Floc'h, J-B., Lopez-Gonzalez, C., and Renner, T. Leaf surface pH impacts bacterial communities. Botanical Society of America. Grand Rapids, MI, 2024

Gilbert, K.J., Floc'h, J-B., and Renner, T. Host species differences in phylloplane pH regulation shape the gene expression of bacterial communities. Ecological Society of America. Portland, OR, 2023

Gilbert, K.J. Pitcher plants: Death traps and tiny worlds. Inspire Session, Ecological Society of America. Portland, OR, 2023

Gilbert, K.J., Goldsborough, T., Lam, W-N., Leong, F. and Pierce, N.E. A semi-detritivorous pitcher plant diverges in its regulation of pitcher fluid properties. Botanical Society of America. Boise, ID, 2023

Gilbert, K.J. & Renner, T. The physiology of phylloplane pH regulation and its consequences on the microbiome. Botanical Society of America. Anchorage, AK, 2022

Gilbert, K.J. & Renner, T. Acid or base? How do plants regulate the ecology of their phylloplane? Botanical Society of America. Virtual, 2021

Gilbert, K.J., Bittleston, L.S., Tong, W., Pierce, N.E. Tropical pitcher plants (*Nepenthes*) as an ecological filter. Botanical Society of America. Tucson, AZ, 2019

Gilbert, K.J., Nitta, J.H., Talavera, G., Pierce, N.E. Ecological correlates of the evolution of pitcher traits in the genus *Nepenthes* (Caryophyllales). Harvard Plant Biology Initiative Symposium. Cambridge, MA, 2017 (poster)

Gilbert, K.J. The role of pitcher characteristics in prey capture and inquiline abundance in the tropical

pitcher plant *Nepenthes gracilis*. Social Insects in the Northeast Regions 5. Boston University. Boston, MA, 2015

Gilbert, K.J. Investigating the forest invertebrate system through stable isotope analysis. Presented to the College of Agriculture and Life Sciences, Natural Resources, of Cornell University in partial fulfillment of the requirements for the research honors program. Ithaca, NY, 2012

Gilbert, K.J. Reconstructing forest invertebrate trophic levels through use of stable isotopes. Hunter Rawlings III Cornell Presidential Research Scholars Senior Expo. Ithaca, NY, 2012 (poster)

Gilbert, K.J. The phylogeography of *Acanthaster planci* in Indonesia. Diversity Project Student Research Conference. Denpasar, Bali, Indonesia, 2010

Gilbert, K.J. Investigating the correlations that exist between moose population density and factors such as vegetation and elevation. 2nd Annual Undergraduate Research and Outreach Conference. Hubbard Brook Experimental Forest, NH, 2009

WORKSHOPS ATTENDED

Virtual RNAseq Workshop (Non-Model), University of Connecticut 4-7 October 2021

Workshop to Enhance Collaboration Between US & Indonesia in Biodiversity & Conservation Research, Bogor, Indonesia 14-19 August 2019

MEGA2018 TagSeq Workshop, Summerland Key, FL 10-16 June 2018

TEACHING HISTORY

Instructor of record:

IBIO/PLB 896: Population & Community Ecology, Michigan State University Fall 2022, 2023, 2024

Teaching assistant:

OEB 57: Animal Behavior, Harvard University Spring 2017, 2018, 2019

OEB 114: Vertebrate Viviparity, Harvard University Fall 2018

OEB 54: Biology of the Fungi, Harvard University Fall 2017

OEB 10: Foundations of Biological Diversity, Harvard University Fall 2015, 2016

NTRES 2100: Field Biology, Cornell University Fall 2011

POSTDOCTORAL TRAINEES

1. Cristal López González, Michigan State University, 2022-current
2. Jean-Baptiste Floc'h, Michigan State University, 2022-2024

GRADUATE STUDENT TRAINEES

1. Sylvie Martin-Eberhardt, Michigan State University, 2021-current
2. Daniel Mok, Michigan State University, 2023-current
3. Vincent Pan, Michigan State University, 2023-current

GRADUATE COMMITTEES SERVED

1. Vincent Pan, Department of Integrative Biology, Michigan State University, 2022-2023
2. Princess Abu, Department of Plant Biology, Michigan State University, 2023-current
3. Cecil (Trip) Hash, Department of Plant Biology, Michigan State University, 2024-current
4. Ronnie Dewberry, Department of Plant Biology, Michigan State University, 2024-current
5. Magie Williams, Department of Plant Biology, Michigan State University, 2024-current
6. Josefa Corpuz, Department of Plant Biology, Michigan State University, 2024-current

UNDERGRADUATE MENTORSHIP

1. Lillian Holl, REU student investigating plasticity and pH regulation in *Taraxacum officinale*, Kellogg Biological Station, 2024
2. Sidney Richardson, REU student investigating phylloplane pH regulation in *Zea mays*, Kellogg Biological Station, 2023 (currently technician in my lab)
3. Dillon Wheeler, REU student investigating capture and utilization of leaf litter by *Sarracenia purpurea*, Kellogg Biological Station, 2022 (currently PhD student at Harvard University)
4. Adam Bettinger, examining phylogenetic diversity of phylloplane pH, The Pennsylvania State University, 2020-2021 (currently technician at Ayr Wellness Inc.)
5. Elise Elizondo, examining evolutionary history of the plant plasma membrane H+-ATPase gene family, The Pennsylvania State University, 2020 (currently intern at The Land Institute)
6. John Fulginiti, phylloplane pH measurement, The Pennsylvania State University, 2020 (currently PhD student at University of Tennessee)
7. Thibaut Goldsborough, Laidlaw scholar with independent project on denitrification activity in *Nepenthes*, University of St. Andrews, 2019-2021 (currently PhD student at University of Edinburgh)
8. Mark Arcebal K. Naive, assistance with field ecology of *Nepenthes mindanaoensis*, Central Mindanao University, 2016-2020 (currently PhD student at Chinese Academy of Sciences)
9. Ashley Bae, assistance with *Nepenthes* oxygenation project in design of artificial pitchers, University of St. Andrews, 2014-2015 (currently PhD student at Dartmouth College)
10. Sasha Johnson-Freyd, assistance with Singapore fieldwork and *Nepenthes* coloration project, Harvard University, 2012-2013 (currently social science research professional at Stanford University)

COMMUNITY INVOLVEMENT/OUTREACH

Dessert with Discussion, Kellogg Biological Station, Hickory Corners, MI (September 2024)

I gave a public lecture entitled "Extraordinary Leaves" to a general audience from the Kalamazoo area. This was designed to be understandable to viewers without a significant background in STEM or biology, with the aim of engendering an interest in plants. This talk was well-attended by an audience of about 100 people in person and on Zoom.

Sounds of Science: Inspiring Connections, MSU Science Festival, East Lansing, MI (April 2024)

I participated in an outreach event combining science with music. I along, with several other faculty, postdocs, and graduate students gave a 5-minute lightning talk describing my research and my passion for my subject of study, while a local musician gave a live performance of his electronic music compositions in the background. This took place at Mac's Bar in East Lansing as part of the MSU Science Fest.

KBS BioBlitz, Kellogg Biological Station, Hickory Corners, MI (June 2023, 2024).

I helped lead a team of volunteers from the general public to identify forest plant species, during the annual KBS Bioblitz event, uploading all observation records on iNaturalist.

Falling Tree Collaborative concert, MSU Science Festival, East Lansing, MI (April 2023).

I was one of four plant biologists participating in this event founded by Dr. Berkley Walker, where the four PIs were each paired up with a local composer to create a musical piece representing their research. I collaborated with Dr. Lisa Coons of Western Michigan University,

and was also part of the performance itself. The event was well-attended by dozens of members of the general public. Full concert recording here: https://www.pbs.org/video/falling-tree-collaborative-plant-biocomposition-rcknsm/

International Carnivorous Plant Society, virtual webinar series (December 2022).

I gave a virtual talk to the International Carnivorous Plant Society entitled "Evolution of *Nepenthes* pitcher diversity and their interactions with symbiotic insects and microbes". Around 20 members attended the live broadcast. The recording is available for viewing for ICPS members, which largely consists of growers, plant collectors, and other hobbyists.

Southwest Michigan Botanical Club meeting, Kalamazoo, MI (October 2022).

I gave a public talk entitled "Fantastic worlds of/in/on pitchers and leaves" to the roughly dozen members of the local chapter of the Michigan Botanical Club, which consists of adults with varying formal biology backgrounds (some with Master's degrees in life sciences).

Penn State Department of Entomology, The Great Insect Fair, State College, PA (September 2019).

I helped run a booth about evolutionary adaptations of carnivorous plants and beetles, interacting with members of the general public of all ages and backgrounds. Hundreds of guests attended.

Harvard Museum of Natural History, I Heart Science Museum Festival, Cambridge, MA (February 2015, 2018, 2019).

I helped design and run a booth at the I Heart Science Museum Festival, an annual event. I helped display live pitcher plants and various other carnivorous plants, explaining aspects of the biology of carnivorous plants to museum-goers, including the prevalence of convergent evolution. This is always one of the largest events of the year at the HMNH and I may have talked to >100 people of all ages and backgrounds in the span of three hours each time.

Harvard Museum of Natural History, Darwin's Backyard, Cambridge, MA (September 2017).

I designed and ran a demonstration booth for a museum event focused on the experiments Charles Darwin conducted at his home laboratory. This was in conjunction with a lecture by James Costa based on his book *Darwin's Backyard: How Small Experiments Led to a Big Theory*, which discusses the various experiments that Darwin conducted at his home. To complement the lecture, graduate students organized booths demonstrating some of Darwin's experiments on worms, bees, carnivorous plants, and climbing plants. I designed and ran the booth on carnivorous plants, demonstrating the difference in digestion between protein-rich and lipid-rich food fed to Venus flytraps, as well as displaying the form and function of sundew tentacles. The audience for this event was museum-goers of all ages and backgrounds. I ran this booth again the following day at a truncated version of the original event, this time presented specifically to a group of 30 students from the Amigos School, a local bilingual middle school.

New England Carnivorous Plant Society meeting, Bristol, RI (October 2016).

I gave a talk to members of the New England Carnivorous Plant Society entitled "Examining the influence that pitcher traits have on inquilines and prey capture". This was a scientific presentation adapted for a more general audience. The members of this club largely consisted of hobbyists, growers, collectors, and enthusiasts who did not necessarily have a direct background in science. The ages ranged from college age to senior citizens.

Harvard Museum of Natural History, Biology Teacher Workshop, Cambridge, MA (August 2016).

The Harvard Museum of Natural History hosted a professional development workshop for Boston-area middle and high school science teachers to be updated on new science teaching standards, including standards regarding plant biology and "tree thinking" in evolutionary biology. I volunteered to give a one-hour presentation to a group of teachers (~20). I designed and gave a talk in which I reviewed how to read phylogenetic trees, explained briefly how they are built, and demonstrated how phylogenies can be used to explore the concept of convergent

evolution. I went further in-depth in the convergence section using carnivorous plants as an example, including ancestral state reconstructions I generated from my own research.

Raffles Institution, Café Scientifique, Singapore (February 2016).

I was an invited guest at an event at the Raffles Institution, a private preparatory school in Singapore. Café Scientifique is a recurring series in which a small group of Raffles students get the opportunity to chat informally with a scientist about research and their path to becoming a scientist. Though initially intended to be limited to the first 15 students to sign up, due to strong interest I ended up speaking to a room of >30 middle to high school-aged children. I gave a presentation on my research on *Nepenthes gracilis* taking place in Singapore and fielded questions related to applying to and succeeding in college and graduate school.

Harvard Museum of Natural History, Mott Hall Bridges visit, Cambridge, MA (April 2015 & March 2016).

Mott Hall Bridges Academy is a public middle school in a low-income area of Brooklyn, serving a predominantly black and Hispanic student body. They received viral internet spotlight when one student was featured on the blog "Humans of New York" recounting why his principal is the most influential person in his life. His principal then started an online fundraising campaign to fund a school visit to Harvard, as a way to inspire her students to strive to be lifelong scholars. The campaign quickly exceeded its target (it raised $1.4 million in 3 weeks). They arranged a full-day visit for the entire school (~250 students) to Harvard in April 2015 where several departments and affiliated units worked to create different activities, providing simultaneous options for groups of students to partake in. I worked with the Harvard Museum of Natural History to provide one option at the Museum: I gave ~20 students a tour of the entomology exhibit, gave a talk about plant-insect interactions, and gave advice on applying to college and deciding on a career path and how to prepare early, as well as relating my experience that coming from a low-income background need not preclude anyone from going on to having a successful academic career in science (or any other field of their choosing) by informing them of need-based and merit-based scholarships. The school returned for a second visit the following year, for which I gave a brief entomology exhibit tour and smaller-scale informal chat.

Cornell University Student Chapter of the Wildlife Society, Ithaca, NY (May 2010 & February 2014).

I presented scientific talks to the Cornell Wildlife Society, one entitled "My Journey to Indonesia" discussing my REU project on Indonesian crown-of-thorns phylogeography while I was an undergraduate member in 2010, and a second one in 2014 as a Harvard graduate student entitled "The curious case of frog-pitcher plant interactions" detailing some of my preliminary fieldwork in Singapore.

OTHER RESEARCH/FIELD EXPERIENCES

Michigan State University, Hickory Corners, MI 26 July – 3 August 2024

Undertook field expedition in Cambodia (several sites in the southwest region of the country, including Kiriom National Park and Botom Sakor National Park), in collaboration with Francois Mey and Michal Golos. Collected preliminary in-vivo data on pitcher fluid properties including calcium and nitrate concentrations, and how they vary across species and ontogeny.

XPRIZE Rainforest, Singapore 31 May – 8 June 2023

Participated in the XPRIZE Rainforest rapid biodiversity survey competition semi-finals with other Michigan State University researchers on the team "Act Now - Amazonas Action Alliance". The goal of the competition was to survey as much biodiversity as possible in a small plot of forest in Singapore, utilizing autonomous data collection technology. Specifically, I contributed to the metabarcoding component of our team's strategy, in which we used ground robots to collect

soil/leaf litter samples from the site in order for us to conduct metabarcoding using Nanopore sequencing at the ranger station.

New England Carnivorous Plant Society, Dracut, MA February 2017-2019
Collaborating with University of Massachusetts Amherst graduate student Emmi Kurosawa and Harvard graduate student Min Ya on project aiming to karyotype all of the bladderwort species (*Utricularia*) of New England.

Organismic and Evolutionary Biology, Harvard University, Cambridge, MA April 2013-August 2019
Conducted work on *Nepenthes*-animal/microbe interactions for PhD. Field seasons: January 2014, Singapore; June-August 2014, Philippines (Luzon and Negros) and Singapore; February 2016, Singapore; July 2016, Philippines (Mindanao) and Singapore; June-August 2019, Singapore and Indonesia (Sulawesi). Studying potential functional roles of intraspecific diversity, conducting phylogenetic comparative analysis to examine the evolution of interspecific diversity, examining how different *Nepenthes* species can regulate abiotic factors to differentially shape their microbiomes in common garden, and examining how community structure of insects and microbes in pitchers changes along an altitudinal gradient. Singapore June-July 2019: advised St. Andrew's University undergrad on project on inter- and intraspecific variation in *Nepenthes* pitcher fluid properties in nature and the impact on denitrifying bacteria.

Organismic and Evolutionary Biology, Harvard University, Cambridge, MA March 2013
Assisted fellow Harvard graduate student Leonora Bittleston with field collections of insects associated with *Nepenthes* pitcher plants in Singapore; conducted preliminary surveys on Mount Kinabalu, Malaysian Borneo (Sabah).

Organismic and Evolutionary Biology, Harvard University, Cambridge, MA September 2012-May 2013
Collaborated with fellow Harvard graduate student Alexis Harrison on project on mate choice in two allopatric species of *Anolis* using behavioral data from laboratory experiments.

Organismic and Evolutionary Biology, Harvard University, Cambridge, MA June 2012-August 2012
Assisted Harvard graduate student Shane Campbell-Staton with collecting green anoles (*Anolis carolinensis*) from several sites across the Southeastern United States as well as testing their thermal tolerance, collecting tissues for DNA extraction, and preparing them as specimens.

Department of Natural Resources, Cornell University, Ithaca, NY September 2009-May 2012
Worked on research project investigating belowground forest soil invertebrate trophic interactions in stable isotope labelling experiment under mentorship of Tim Fahey. Analyzed and interpreted results in Honor's Thesis.

Department of Natural Resources, Cornell University, Almond, NY May 2011-August 2011
Worked as field technician for Cornell graduate student Catherine Sun's thesis project on estimating population density and gene flow of black bears in southwestern New York using noninvasive genetic sampling.

Bioko Biodiversity Protection Program, Equatorial Guinea January 2011-March 2011
Studied abroad in Equatorial Guinea for Spring 2011 semester with a program through Drexel University. Included a two-week field course in the southern part of Bioko Island, conducting monkey census; three weeks of field research at the Moka Wildlife Center, in which I worked with two other study abroad students to conduct a study of snail diversity across an altitudinal transect; and about five weeks of taking classes at la Universidad Nacional de Guinea Ecuatorial.

The Diversity Project, Denpasar, Bali, Indonesia June 2010-August 2010
Did marine research through the Diversity Project, run by Paul Barber (UCLA) and Kent Carpenter (Old Dominion University). Researched the phylogeography of crown-of-thorns (*Acanthaster planci*) throughout Indonesia.

Hubbard Brook Experimental Forest, NH June 2009-August 2009

Conducted a research project investigating correlations between moose population density and the vegetation composition, elevation, and other factors in the Hubbard Brook Experimental Forest.

LANGUAGES

English - Native Speaker/Fluent
Spanish – Professional Working Proficiency
Bahasa Indonesia/Malaysia – Professional Working Proficiency
Colloquial Tibetan - Elementary (Reading/Speaking/Listening)
Mandarin - Elementary (Reading/Speaking/Listening)

PROFESSIONAL ASSOCIATIONS

Botanical Society of America, International Carnivorous Plant Society, American Society of Plant Biologists, Ecological Society of America, American Association for the Advancement of Science

SERVICE TO PROFESSION

Departmental services:

Graduate Student Representative to Organismic and Evolutionary Biology Seminar Series, Harvard University (2017-2019)
Strategic Planning Committee, Department of Entomology, Penn State (2020-2021)
Grad & Postdoc Awards Committee, EEB Program, Michigan State (2021-2022)
Plant Sciences Fellowship Committee, Michigan State (2021-current)
Department of Plant Biology Seminar Committee, Michigan State (2022-current)
Kellogg Biological Station Graduate Affairs Committee, chair, Michigan State (2022-current)
1855 Developmental Plant Biology Faculty Search Committee, Michigan State (2022-2023)

University service:

Graduate Student Council, Harvard University (2015-2019)

Service to the disclipine:

Peer review services: New Phytologist (2024), Tropical Ecology (2023), Perspectives in Plant Ecology, Evolution, and Systematics (2023), Plant Ecology and Evolution (2023), Biodiversitas (2022), Science (2022), Philippine Journal of Science (2022), American Journal of Botany (2022), Animal Microbiome (2021), Proceedings of the Royal Society B (2021), Arthropod-Plant Interactions (2021), Western North American Naturalist (2020), Integrative and Comparative Biology (2020), Scientific Reports (2019), Molecular Phylogenetics & Evolution (2019), New Phytologist (2017)
Grant Panelist: USDA-NIFA FY23 A1402 Agricultural Microbiomes, 5-8 December 2023

ACADEMIC ACTIVITIES

Cambridge Entomological Club, member, Cambridge, MA	2013-2019
Phylogenetics Journal Club, member, Harvard University	2013-2019
Ecology Journal Club, member, Harvard University	2012-2019
Wildlife Society, member, president (2011-2012), Cornell University	2008-2012
Herpetological Society, member, Cornell University	2009-2012

OTHER ACTIVITIES

Kalamazoo Bach Festival Chorus, bass section, Kalamazoo, MI	2023-current
State College Choral Society, bass section, State College, PA	2019-2021
Dudley House Choir, bass section, Harvard University	2013-2019
Calliope Music Ensemble, bass section, Boston, MA	2013-2019
Piano Society, volunteer teacher (2008-2012), events coordinator (2009), Cornell University	2008-2012
Contrapunkt, member, composer, Cornell University	2009-2012
Big Red Marching Band, cymbalist, sub-section leader (2010-2012), Cornell University	2008-2012

REFERENCES

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