

Barbara A. Ambrose, Ph.D.
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Education

Ph.D. in Biology, University of California, San Diego, La Jolla, CA, June 2000. PhD Supervisor: Dr. R.J. Schmidt

B.Sc. in Biology, University of the Virgin Islands, St. Thomas, U.S.V.I. 1994.

Professional positions

Director of Laboratory Research. 2017 – present. NYBG, Bronx, NY.

Associate Curator, Plant Genomics. 2014 - present. NYBG, Bronx, NY.

Assistant Curator, Plant Genomics. 2008 - 2014. NYBG, Bronx, NY.

Adjunct Professor, 2008 – present. CUNY, New York, NY.

Lecturer, 2003 -2008. IMBS, Massey University, New Zealand.

Postdoctoral Fellow, 2002 - 2003. UNAM, México.

NSF International Postdoctoral Fellow, 2000 - 2002. UNAM, México.

Publications

R. de Lutio, D. Little, B. Ambrose, and S. Belongie (2021) The Herbarium 2021 half-earth challenge dataset. arXiv:2105.13808v1 <https://arxiv.org/pdf/2105.13808.pdf>

E. Mendelson, C. Zumajo-Cardona, and B.A. Ambrose (2021) What is a leaf? In Press, *Frontiers for Young Minds: Understanding biodiversity*.

C. Zumajo-Cardona and B. A. Ambrose (2021) Deciphering the evolution of the ovule genetic network through expression analyses in *Gnetum gnemon*. In Press, *Annals of Botany*. doi: [10.1093/aob/mcab059](https://doi.org/10.1093/aob/mcab059)

B.A. Ambrose, T.L. Smalls, and C. Zumajo-Cardona (2021) All type II classic MADS-box genes in the lycophyte *Selaginella moellendorffii* are broadly yet discretely expressed

in vegetative and reproductive tissues. In Press, *Evolution & Development*.
<https://doi.org/10.1111/ede.12375>

C. Zumajo-Cardona, N. Pabón-Mora, and B.A. Ambrose (2021) The evolution of *euAPETALA2* genes in vascular plants: from plesiomorphic roles in sporangia to acquired functions in ovules and fruits. In Press, *Molecular Biology and Evolution*.
doi:10.1093/molbev/msab027

H. Suárez-Baron, J.F. Alzate, F. González, S. Pelaz, B.A. Ambrose, and N. Pabón-Mora (2021) Gene expression underlying floral epidermal specialization in *Aristolochia fimbriata* (Aristolochiaceae). In Press, *Annals of Botany*. doi: [10.1093/aob/mcab033](https://doi.org/10.1093/aob/mcab033)

B.A. Berger, B.A. Ambrose, J. Tong, and D.G. Howarth. (2021) Flower Development in *Fedia graciliflora* and *Valerianella locusta* (Valerianaceae). *Flora* 275: 151754.
doi: [10.1016/j.flora.2020.151754](https://doi.org/10.1016/j.flora.2020.151754)

B. Hernández- Hernández, R. Tapia-Lopez, B.A. Ambrose, and A. Vasco (2021) R2R3-MYB gene evolution in plants, incorporating ferns into the story. *International Journal of Plant Sciences* 182: 1-8 <https://doi.org/10.1086/710579>

A. Vasco and B. A. Ambrose (2020) Simple and divided leaves in ferns, exploring the genetic basis for leaf morphology differences in the genus *Elaphoglossum* (Dryopteridaceae). *Int. J. Mol. Sci.* 21: 5180. doi:10.3390/ijms21155180

R. Cruz, G. Melo-de-Pinna, A. Vasco, J. Prado, and B. A. Ambrose (2020) Class I KNOX is related to determinacy during leaf development of the fern *Mickelia scandens* (Dryopteridaceae)" *Int. J. Mol. Sci.* 21: 4295. <https://doi.org/10.3390/ijms21124295>

N. Pabón-Mora, Y. Madrigal, J. Alzate, B. Ambrose, C. Ferrándiz, S. Wanke, C. Neinhuis, and F. Gonzalez (2020) Class II TCP gene evolution in perianth-bearing Piperales and their contribution to the bilateral calyx in *Aristolochia*. *New Phytologist* 228: 752-769. <https://doi.org/10.1111/nph.16719>

D.P. Little, M. Tulig, K.C. Tan, Y. Liu, S. Belongie, C. Kaeser-Chen, F.A. Michelangeli, K. Panesar, R.V. Guha, and B.A. Ambrose (2020) A competition for automatic species identification from herbarium specimens. *Applications in Plant Sciences* 8 (6): e11365. doi:10.1002/aps3.11365

C. Zumajo-Cardona and B.A. Ambrose (2020) Phylogenetic analyses of key developmental genes provide insight into the complex evolution of seeds. *Molecular Phylogenetics and Evolution* 147: 106778. <https://doi.org/10.1016/j.ymev.2020.106778>.

E. Mendelson, C. Zumajo-Cardona, and B.A. Ambrose (2020) What is a fruit? *Frontiers for Young Minds: Understanding biodiversity*. 8: 27. doi: [10.3389/frym.2020.00027](https://doi.org/10.3389/frym.2020.00027).

C. Zumajo-Cardona, A. Vasco, and B.A. Ambrose (2019) The evolution of the *KANADI* gene family and leaf development in lycophytes and ferns. *Plants* 8: 313. doi:10.3390/plants8090313

K.C. Tan, Y. Liu, B. Ambrose, M. Tulig, and S. Belongie (2019) The Herbarium Challenge Dataset. arXiv:1906.05372v1

Juan F. Alzate R., H. Suárez-Baron, B. Ambrose, F. Gonzalez, N. Pabón-Mora (2019) Genetic mechanisms underlying perianth epidermal elaboration of *Aristolochia ringens* Vahl (Aristolochiaceae). *Flora* 253: 56-66.

P. Pérez-Mesa, H. Suárez-Baron, B. Ambrose, F. Gonzalez, N. Pabón-Mora (2019) Floral MADS-box protein interactions in the early diverging angiosperm *Aristolochia fimbriata* Cham. (Aristolochiaceae: Piperales). *Evolution & Development* 21: 96-110.

C. Zumajo-Cardona, N. Pabón-Mora, B. A. Ambrose (2018) Duplication and diversification of *REPLUMLESS* – a case study in the Papaveraceae. *Frontiers in Plant Science* 9: 1833. doi: 10.3389/fpls.2018.01833

C. Zumajo-Cardona, B.A. Ambrose, N. Pabón-Mora (2017) Evolution of the SPATULA/ALCATRAZ gene lineage and expression analyses in the basal eudicot, *Bocconia frutescens* L. (Papaveraceae). *EvoDevo* 8:5 DOI 10.1186/s13227-017-0068-8

H. Suarez Barón, Pablo Perez-Mesa, B.A. Ambrose, F. Gonzalez.and N. Pabón-Mora (2017) Deep into the *Aristolochia* flower: Expression of C, D and E-class genes in *Aristolochia fimbriata* (Aristolochiaceae). *Journal of Experimental Zoology (Molecular and Developmental Evolution)* 328B: 55-71. doi: 10.1002/jez.b.22686

A. Vasco, T.L. Smalls, S.W. Graham, E.D. Cooper, G.K.-S. Wong, D.W. Stevenson, R.C. Moran, B.A. Ambrose (2016) Challenging the paradigms of leaf evolution – Class III HD-Zip expression in ferns and lycophytes. *New Phytologist* 212: 745-758.

B.A. Ambrose and A. Vasco (2016) Bringing the multicellular fern meristem into focus. *New Phytologist* 210: 790-793. DOI: 10.1111/nph.13825

N. Pabón-Mora, H. Suarez Barón B.A. Ambrose and F. Gonzalez (2015) Flower development and perianth identity candidate genes in the basal angiosperm *Aristolochia fimbriata* (Piperales: Aristolochiaceae). *Frontiers in Plant Science* 6:1095. doi: 10.3389/fpls.2015.01095.

A. Vasco, J. Loríga, G. Rouhan, B.A. Ambrose, R.C. Moran (2015) Divided leaves in the genus *Elaphoglossum* (Dryopteridaceae): A phylogeny of *Elaphoglossum* section *Squamipedia*. *Systematic Botany* 40: 46-55.

N. Pabon-Mora, Gane Ka-Shu Wong, B.A. Ambrose (2014) Evolution of fruit development genes in flowering plants. *Frontiers in Plant Science* doi: 10.3389/fpls.2014.00300

U.C. Samarakoon, K.A. Funnell, D.J. Woolley, B.A. Ambrose and E.R. Morgan (2014) The Architectural Complexity of Crown Bud Clusters in Gentian (Gentianaceae); Anatomy, Ontogeny and Origin. *Journal of the American Society of Horticultural Science*. 139: 13-21.

A. Vasco, R.C. Moran and B.A. Ambrose (2013) The evolution, morphology and development of fern leaves. *Frontiers in Plant Science* 4: 345. doi:10.3389/fpls.2013.00345

U.C. Samarakoon, K.A. Funnell, D.J. Woolley, B.A. Ambrose and E.R. Morgan (2013) Anatomical investigations determining the origin of crown buds on the transition zones of gentians. *New Zealand Journal of Botany* 51: 264-274. DOI: 10.1080/0028825X.2013.825634

L. Gramzow, E. Barker, C. Schulz, B. Ambrose, N. Ashton, G. Theissen, A. Litt (2012) Selaginella genome analysis – entering the ‘homoplasy heaven’ of the MADS world. *Frontiers in Plant Science* 3: 214. doi: 10.3389/fpls.2012.00214.

N. Pabon-Mora, B.A. Ambrose, and A. Litt (2012) Poppy *APETALAI/FRUITFULL* orthologs control flowering time, branching, perianth identity and fruit development. *Plant Physiology* 158: 1685-1704.

J. Banks, T. Nishiyama, M. Hasebe, J.L. Bowman, M. Gribskov, C. dePamphilis, V.A. Albert, N. Aono, T. Aoyama, B.A. Ambrose, N.W. Ashton, M.J. Axtell, E. Barker, M.S. Barker, J.L. Bennetzen, N.D. Bonawitz, C. Chapple, C. Cheng, L. Gustavo, G. Correa, M. Dacre, J. DeBarry, I. Dreyer, M. Elias, E.M. Engstrom, M. Estelle, L. Feng, C. Finet, S.K. Floyd, W.B. Frommer, T. Fujita, L. Gramzow, M. Gutensohn, J. Harholt, M. Hattori, A. Heyl, T. Hirai, Y. Hiwatashi, M. Ishikawa, M. Iwata, K.G. Karol, B. Koehler, U. Kolukisaoglu, M. Kubo, T. Kurata, S. Lalonde, K. Li, Y. Li, A. Litt, E. Lyons, G. Manning, T. Maruyama, T.P. Michael, K. Mikami, S. Miyazaki, S. Morinaga, T. Murata, B. Mueller-Roeber, D.R. Nelson, M. Obara, Y. Oguri, R.G. Olmstead, N. Onodera, B.L. Petersen, B. Pils, M. Prigge, S.A. Rensing, D.M. Riaño-Pachón, A.W. Roberts, Y. Sato, H.V. Scheller, B. Schulz, C. Schulz, E.V. Shakhov, N. Shibagaki, N. Shinohara, D.E. Shippen, I. Sørensen, R. Sotooka, N. Sugimoto, M. Sugita, N. Sumikawa, M. Tanurdzic, G. Theissen, P. Ulvskov, S. Wakazuki, J.-K. Weng, W.W.G.T. Willats, D. Wipf, P.G. Wolf, L. Yang, A.D. Zimmer, Q. Zhu, T. Mitros, U. Hellsten, D. Loqué, R. Otilar, A. Salamov, J. Schmutz, H. Shapiro, E. Lindquist, S. Lucas, D. Rokhsar, I.V. Grigoriev (2011) The Selaginella Genome Identifies Genetic Changes Associated with the Evolution of Vascular Plants. *Science* 332: 961-963.

E.R. Álvarez-Buylla*, B.A. Ambrose*, E. Flores-Sandoval*, M. Englund, A. Garay-Arroyo, B. García-Ponce, E. de la Torre-Bárcena, S. Espinosa-Matías, E. Martínez, A.

Piñeyro-Nelson, P. Engström and E.M. Meyerowitz (2010) B-function expression in the flower center underlies the homeotic phenotype of *Lacandonia schismatica* (Triuridaceae). *Plant Cell* 22: 3543-3559. *These authors contributed equally.

K. Prasad and B.A. Ambrose (2010) Shaping up the fruit: control of fruit size by an Arabidopsis B-sister MADS-box gene. *Plant Signaling & Behavior* 5: 899-902.

C. Eaton, M. Cox, B. Ambrose, M. Becker, U. Hesse, C. Schardl, and B. Scott (2010) Disruption of Signaling in a Fungal-Grass Symbiosis Leads to Pathogenesis. *Plant Physiology* 153: 1780-1794.

K. Prasad, X. Zhang, E. Tobón and B.A. Ambrose. (2010) The Arabidopsis B-sister MADS-box protein, GORDITA, represses fruit growth and contributes to integument development. *The Plant Journal* 62: 203-214.

B.A. Ambrose (2010) MADS-Box Genes in Plant Evolution and Development. *International Journal of Plant Developmental Biology* 4: 30-37.

R.C. Day, R.P. Herridge, B.A. Ambrose and R.C. Macknight. (2008) Transcriptome analysis of proliferating arabidopsis endosperm reveals biological implications for the control of syncytial division, cytokinin signaling and gene expression regulation. *Plant Physiology* 148: 1964-1984.

K. May, M. Bryant, X. Zhang, B.A. Ambrose and B. Scott. (2008) Patterns of expression of a lolitrem biosynthetic gene in the *Epichloë festucae* – perennial ryegrass symbiosis. *Molecular Plant-Microbe Interactions*. 21: 189-197.

B.A. Ambrose, S. Espinosa-Matías, S. Vázquez-Santana, F. Vergara-Silva, E. Martínez, J. Márquez-Guzmán and E. Alvarez-Buylla. (2006) Comparative developmental series of the Mexican triurids support an euanthial interpretation for the unusual reproductive axes of *Lacandonia schismatica* (Triuridaceae). *Am. J. Bot.* 93: 15-35.

C.J. Whipple, P. Ciceri, C.M. Padilla, B.A. Ambrose, S.L. Bandong and R.J. Schmidt. (2004) Conservation of B-class floral homeotic gene function between maize and *Arabidopsis*. *Development* 131: 6083-6091.

B.A. Ambrose and K. Prasad. MADS about Plant Development. (2004) NZ Bioscience (August) 8-13.

K. Bomblies, R-L. Wang, B.A. Ambrose, R.J. Schmidt, R.B. Meeley, J. Doebley. (2003) Duplicate *FLORICAULA/LEAFY* homologs *zfl1* and *zfl2* control inflorescence architecture and flower patterning in maize. *Development* 130: 2385-2395.

F. Vergara-Silva, S. Espinosa-Matías, B.A. Ambrose, S. Vázquez-Santana, A. Matínez-Mena, J. Márquez-Guzmán, E. Martínez, E.M. Meyerowitz, E. Alvarez-

Buylla. (2003) Inside-out flowers characteristic of *Lacandonia schismatica* (Lacandoniaceae: Triuridales) evolved at least before the divergence from its sister taxon, *Triuris brevistylis*. *Intl. J. Plant Sci.* 164: 345-357.

B.A. Ambrose, D.R. Lerner, P. Ciceri, C.M. Padilla, M.F. Yanofsky, and R.J. Schmidt (2000) Molecular and genetic analyses of the *Silky1* gene reveal conservation in floral organ specification between eudicots and monocots. *Molecular Cell* 5: 569-579.

R.J. Schmidt and B.A. Ambrose (1998) The blooming of grass flower development. *Curr. Op. In Pl. Bio.* 1: 60-67.

M. Mena, B.A. Ambrose, R.B. Meeley, S.P. Briggs, M.F. Yanofsky, and R.J. Schmidt (1996) Diversification of C-function activity in maize flower development. *Science* 274:1537-1540.

Books

Barbara A. Ambrose and Michael D. Purugganan, Editors. 2013. 'The Evolution of Plant Form' Annual Plant Reviews 45. Wiley-Blackwell, London.

Barbara A. Ambrose. 2013. *The Morphology and Development of Lycophytes* in 'The Evolution of Plant Form' B.A. Ambrose and M.D. Purugganan (Eds.) Annual Plant Reviews 45. Wiley-Blackwell, London.

Barbara A. Ambrose and Cristina Ferrandiz. 2013. *Development and the Evolution of Form* in 'The Evolution of Plant Form' B.A. Ambrose and M.D. Purugganan (Eds.) Annual Plant Reviews 45. Wiley-Blackwell, London.

Other Publications

B.A. Ambrose, K.G. Karol, L.M. Kelly and F.A. Michelangeli. 2012. Foreword: A Festschrift on the occasion of Dennis Wm. Stevenson's 70th birthday. *Botanical Review* 78 (4): 307-309.

SEM photographs. 2001. Luna Córnea: 21/22.

SEM photographs. 2002. Ciências: 65.

Peer Review and Recognition

- 2020. *APPS* article highlighted in *Botany One* from *Annals of Botany*. Machine learning can clear herbarium backlogs & potentially discover new species by Erin Zimmerman. <https://www.botany.one/2020/07/machine-learning-can-help-clear-herbarium-backlogs-potentially-discover-new-species/>
- 2007 Grady L. Webster Structural Botany Publication Award for *Am. J. Bot* (2006) 93: 15-35 publication.
- Faculty of 1000 factor 3.0 recognition for article in *Am. J. Bot* (2006) 93: 15-35.

- Photograph selected for **Cover** of *Am. J. Bot* (2006) 93: 15-35.
- Faculty of 1000 factor 6.0 recognition for article in *Development* (2004) 131: 6083-91.
- Faculty of 1000 factor 3.0 recognition for article in *Development* (2003) 130:2385-95.
- MORPH recognition of paper *Development* (2003) 130: 2385-2395.
- MORPH recognition of paper *Intl. J. Plant Sci.* (2003) 164: 345-357.
- Article *Molecular Cell* (2000) 5: 569-579 highlighted in *Cell* (2000) 101: 5-8.
- Photograph selected for **Cover** of *Molecular Cell* (2000) 5: 569-579.
- Photograph selected for **Cover** of *Science* (1996) 274:1537-1540.

Oral Presentations

(A complete list available upon request)

- Indian Institute of Science Education and Research, Thiruvananthapuram, India. (Invited talk: Evolution as problem solving: What lycophytes and ferns can teach us). February 10, 2021.
- University of Connecticut. (Invited talk: Leaf evolution and development: From flowers to leaves and back again). October 15, 2020.
- Columbia University. (Invited talk: Plant Evo-Devo: From flowers to leaves and back again). September 29, 2020.
- 7th Fine-Grained Visual Categorization (FGVC7) workshop in conjunction with the Institute of Electrical and Electronics Engineers (IEEE) conference on Computer Vision and Pattern Recognition (CVPR). (Invited Speaker: *Wait. You do what at a botanical garden?*) Via Zoom due to Covid19 restrictions on June 19, 2020. <https://sites.google.com/view/fgvc7/program>
<http://www.wikicfp.com/cfp/servlet/event.showcfp?eventid=100360©ownerid=162025>
- CUNY Graduate Center City of Science: Plants, Biodiversity, and the survival of the Planet. (Invited talk: Patterns and Processes of Plant Diversity). May 2, 2019. CUNY GC. 365 5th Ave, NY, NY.
- Cooper Hewitt. Garden of Secrets; Nature exhibit (Invited talk: Plant Evolution and Diversity). May 18, 2019. Cooper Hewitt. 2 E. 91st St. NY, NY.
- Evolution 2018 Conference. (Invited oral presentation: The evolution of a morphological novelty – leaves). Montpellier, France. August 18 -22.
- Invisible Worlds – Science Colloquium. (Invited talk: Plant development and diversity). American Museum of Natural History. New York, NY. October 15, 2018.
- XVII National Congress on Plant Biochemistry and Molecular Biology. X Joint Mexico - U. S. Symposium (Invited Plenary Talk: The evolution and development of the land plant body plan; a tale told by lycophytes and ferns. November 15, 2017. Puerto Vallarta, Mexico.

- NYU Plant Genome Workshop (Invited talk: Evolution and development in lycophytes and ferns) May 13, 2017. New York, NY.
- Botany 2016 (Invited talk: Equisetum morphology: an evo-devo perspective) August 1, 2016. Savannah, GA.
- Plant and Animal Genome XXIV (Invited talk: Evo-devo of leaves: A story told by lycophytes and ferns) January 9, 2016. San Diego, CA.
- Botany 2015 (Evolution and development in lycophytes and ferns). July 25-29, 2015. Edmonton, Canada.
- Next Generation Pteridology 2015 (Evolution and development in lycophytes and ferns). June 1-5, 2015. Washington, D.C.
- Cullman Symposium. (Discovery: Understanding the genetic mechanisms underlying plant biodiversity). June 1, 2015. NYBG Bronx, NY.

Research Fellowships and Funding

- NSF-EAGER: Artificial Intelligence (AI) to accelerate plant species discovery. Awarded. \$299,754. May 15, 2021 – April 20, 2023. (D. Little, B. Ambrose, F. Michelangeli, K. Watson) DEB 2054684.
- NYBG Plant Genomics Program. Farvue Foundation. \$50,000. Farvue Foundation. Awarded January 2021 - December 2021.
- The Eppley Foundation for Research, Inc. Plant stem cells: From marginal meristems to reproductive meristems. Awarded. \$20,000. January 01, 2021 - December 31, 2021.
- Maxwell/Hanrahan Foundation. Field Research Fund. \$10,000. Awarded (B. Ambrose and L.M. Kelly) January 01, 2021- December 31, 2021.
- NYBG Plant Genomics Program. Farvue Foundation. \$50,000. Awarded January 2021 – December 2021.
- Marie Skłodowska Curie Research and Innovation Staff Exchange (MSCA-Rise-2020). Collaborators from Italy, Spain, Germany, Netherlands, Mexico, Colombia, United States of America (B.Ambrose), Brazil, and Australia. Evolution of genetic network required for fruit and fruit-like structures development of land plants (EVOfruland). 662,400 Euros. Awarded September 2020. 09/01/2021-08/31/2025.
- The Eppley Foundation for Research, Inc. Why don't ferns make flowers? Awarded. \$26,450. January 01, 2020 - December 31, 2020.
- Eugene M. Lang Foundation. Pathways Program of Science Interns. Awarded (B. Ambrose and L.M. Kelly). \$10,000. January 01, 2020 - December 31, 2020.
- NYBG Plant Genomics Program. Farvue Foundation. \$50,000. Farvue Foundation. Awarded January 2020 - December 2020.
- NSF-MRI Acquisition. Advancing plant and fungal research at NYBG with a modern Scanning Electron Microscope. \$162,275 (\$69,547 cost share). Awarded June 2018. 09/01/2018-08/31/2021. (B. Ambrose, D. Little, F. Michelangeli). DBI 1828479.

- NSF-Plant Genome. Living Fossils: Applying advances in single molecule sequencing to decode large and complex genomes of ancient plant lineages. Awarded \$3,936,179 (NYBG \$367,223) to D. Little, B. Ambrose, D. Stevenson and NY Plant Genomics Consortium. 09/01/2018-08/31/2022. IOS 1758800.
- NYBG Plant Genomics Program. Farvue Foundation. \$50,000. Farvue Foundation. Awarded January 2019 – December 2019.
- The Eppley Foundation for Research, Inc. The origin of the fruit. Awarded. \$28,800. July 2018-2019.
- Dovetail Genomics. Sequencing and assembling the genome of the lycophyte, *Selaginella apoda*. Awarded December 2017.
- Eppley Foundation for Research, Inc. The evolution of fruit morphology. Awarded. December 2015-2016.
- Ambrose Monell Foundation. “How Evolution Happens:” Exploring Unknown Branches on the Tree of Life. \$100,000. Awarded July 2016-June 2017. of Life.
- Ambrose Monell Foundation. “How Evolution Happens - A new model organism.” \$100,000. Awarded July 2015.
- National Science Foundation EDEN host lab for Colombian student Cecilia Zumajo. Awarded for summer 2015.
- The Eppley Foundation for Research, Inc. Laying the Foundation for Fern Genomics: Investigations in *Marsilea* Biology. Awarded 2014-2015.
- FP7-PEOPLE-2013-IRSES- Marie Curie Action – International Research Staff Exchange Scheme (IRSES). ‘FRUIT LOOK – The physiology and genetics of fruit formation: from genes to networks’. Collaborators from Italy, Spain, Sweden, and USA (B. Ambrose). Awarded. 203,700 Euros. 01/01/2014-12/31/2017.
- National Science Foundation. ‘The role of gene duplication in the floral symmetry pathway in Dipsacales.’ 2012-2014. Senior Personnel with PI Dr. Dianella Howarth.
- Eppley Foundation for Research, Inc. ‘Transforming *Selaginella apoda* into a major model system. Awarded 2013-2014.
- National Science Foundation EDEN host lab for Columbia University thesis student Adam Geber. Awarded for summer 2012.
- National Science Foundation microMORPH host lab-interdisciplinary training for postdoctoral fellow Dr. Cynthia Skema from the lab of Dr. Jennifer Tate, Massey University, New Zealand. Submitted March 9, 2012. Awarded.
- National Science Foundation. REU (Research Experiences for Undergraduates) supplement to NSF grant on *Elaphoglossum*. Awarded January 2011.
- National Science Foundation. “Taxonomic Revision, Phylogenetic analysis and Leaf Evolution in *Elaphoglossum* sect. *Squamipedia* (Dryopteridaceae)”. November 2010-October 2013. Co-PI with Dr. Robbin Moran.
- Generalitat Valencia. Training Grant to work with Dr. Cristina Ferrándiz at NYBG. Awarded November 2009.

- Massey University postdoctoral fellowship, Co-PI with Dr. Jennifer Tate for postdoctoral position at Massey University, “Evolution of sexual dimorphism in *Plagianthus* (Malvaceae)” New Zealand, Awarded 2009-2011.
- National Science Foundation (NSF) MORPH Training Grant to New York Botanical Garden (NYBG) and New York University (NYU). 2007.
- Generalitat Valencia. Training Grant to work with Dr. Cristina Ferrándiz at the Institute of Molecular and Cellular Biology of Plants. Valencia, Spain. 2007.
- Massey University Research Fund (MURF) 2006, Floral Organ Boundaries.
- University Technical Assistance Award (UTAA) 2006.
- Massey University Research Fund (MURF) 2005 MADS-box expression analyses.
- University Technical Assistance Award (UTAA) 2005.
- Centre for Functional Genomics funding. October 2003-August 2008.
- National Science Foundation (NSF) International Postdoctoral Fellowship. UNAM. June 2000 – June 2002.
- ARCS Fellowship. University of California, San Diego, September 1996-June 1999.
- National Institute of Health MARC Fellowship. University of the Virgin Islands, St. Thomas, U.S.V.I., 1992 – 1994.

Science Outreach Activities

- Interviewed by artist Ishita Jain on our use of plants. Our laboratory research will be featured in her graphic art thesis. October 24, 2019.
- Gave plant diversity seminar for CSHL course Frontiers of Plant Science at NYBG. June 20, 2019.
- Judge for 2019 National High School Design Competition. Design Solutions Inspire by Nature- Cooper Hewitt Design Triennial. June 9, 2019. Cooper Hewitt. 2 E. 91st St. NY, NY.
- Presentation and Panel Discussion for CUNY Graduate Center City of Science: Plants, Biodiversity, and the survival of the Planet. “Patterns and Processes of Plant Diversity.” May 2, 2019. CUNY GC. 365 5th Ave, NY, NY.
- Presentation and Panel Discussion for Garden of Secrets; Nature - Cooper Hewitt Design Triennial. Barbara A. Ambrose “Plant Evolution and Diversity”. May 18, 2019. Cooper Hewitt. 2 E. 91st St. NY, NY.
- St. Barnabas High School. Bronx, NY. Invited panel speaker for International Day of Women and Girls in Science. February 11, 2019.
- Judge for 2019 National High School Design Competition. Design Solutions Inspire by Nature- Cooper Hewitt Design Triennial. June 9, 2019. Cooper Hewitt. 2 E. 91st St. NY, NY.
- Gave plant diversity seminar for CSHL course Frontiers of Plant Science at NYBG. June 20, 2019.
- Editor-in-Chief, *Botanical Review*, April 2017-present.
- Presentation at NYBG *Entwined* Symposium. March 3, 2017.

- Member Kaplan Lecture Committee for Botanical Society of America, January 2017 – 2018.
- Member of Grady Webster Award Committee for Botanical Society of America, January 2017 – present.
- Media enquiry, Constance Casey – Landscape Architecture magazine – “species” Feb. 4, 2016
- Co-organized symposium for Next Generation Pteridology 2015. ‘Evolution and development in ferns and lycophytes: Case studies and perspectives.’ 1-5 June 2015.
- Using exceptions to understand the rules? Recent advances in understanding developmental evolution and the diversity of monocots. Symposium at Monocots V, July 2013. Organizers Paula Rudall, Chelsea Specht, Barbara Ambrose
- Associate Editor, Botanical Review. March 2012-March 2017.
- Reviewer for National Science Foundation (NSF), French National Research Agency (ANR) and U.S.-Israel Binational Agricultural Research and Development Fund (BARD) grant proposals
- Reviewer for manuscripts from *Plant Cell*, *Plant Physiology*, *Molecular Biology and Evolution*, *Frontiers in Plant Science*, *American Journal of Botany*, and *Plant Journal*, *Annals of Botany*, and *Journal of Experimental Botany*
- Review Editor for *Frontiers in Plant Genetics and Genomics*

NYBG Outreach Activities
(complete list available on request)

- *From Cosmic Nature to Emerging Frontiers of Laboratory Research*. Presentation to NYBG science committee board members. May 13, 2021.
- Kusama Cosmic Nature Exhibit. Generated SEM and histology photos for display in ECAG April 2021-October 2021.
- Kusama Cosmic Nature Exhibit. Wrote essay for Kusama Exhibition catalog. “Vision of Repetition”: Building Patterns in Plants by B.A. Ambrose.
- *The Herbarium meets Artificial Intelligence: New Frontiers in Species Discovery*. Multiple presentations to NYBG science committee board members via zoom. October 15, 2020; November 20, 2020; December 11, 2020; March 4, 2021.
- Lab tour for new board member Holly Lowen. November 13, 2019.
- Lab tour for TeaLeaves. September 20, 2019.
- Lab tour for Doug Daly and John Mitchell donor. September 13, 2019.
- Goal leader for Science; NYBG Strategic Planning. September 2019-March 2020.
- Participated in American Alliance of Museums (AAM) site visit. Developed and wrote lab portion of AAM re-accreditation document. July 29, 2019.
- Lab tour for Costa Brazil. July 18, 2019.
- Lab tour for Isaacson Miller. July 16, 2019.
- Lab tour for NPR SciFri producer Lauren Young. July 12, 2019.

- Developed and gave Mini-lab program for NYBG’s ECAG summer campers (8-10 yr olds). July 11, 2019.
- Lab tour for NYBG-Fordham STEP program July 8, 2019.
- Lab tour for chairman of the NYBG board, Barclay Collins III, June 25, 2019.
- Attended luncheon for Perennial Society, NYBG. June 25, 2019.
- Member of search committee for Dean of Science, NYBG June 2019-June 2020.
- Lab tour for NYBG summer intern enrichment activity. June 19, 2019.
- Science consultant to “Chorus in the Forest” composer Angelica Negron. Forest tour and plant diversity. May 8, 2019.
- Organized Laboratory Open House for NYBG staff. April 24, 2019.
- Organized Lab Tours for Earth Day weekend. April 20 -22, 2019.
- Lab tour for Sahara Moon Cahpotin Exec. Dir. U.S. Botanical Garden. April 17, 2019.
- Lab tour for The Climate Group. April 10, 2019.
- Britton Gallery talk. Evolution and the Tree of Life: Problem Solving through time. April 5, 2019 with D.W. Stevenson
- SEM and lab tour for Florence Davis, Starr Foundation. April 4, 2019
- Britton Gallery talk. Evolution and the Tree of Life: Problem Solving through time. Oct. 12, 2018. With D.W. Stevenson and L. Kelly.
- Earth Day Conservatory tours. April 20, 2018.
- Britton Gallery Talk “Evolution and the Tree of Life: Problem-solving through time.” With Dennis Stevenson and Larry Kelly. October 13, 2017.
- Filmed a segment with NY1 about laboratory research at NYBG.
<http://www.ny1.com/nyc/all-boroughs/news/2017/11/22/new-york-botanical-garden-s-fruitful-research-center>
- NYBG Plant Explorer’s. Hands on lab demo. August 8, 2017. NYBG.
- Girls who code lab tour and hands on demo. July 21, 2017.
- NYBG Plant Explorer’s. Hands on lab demo. July 11, 2017. NYBG.
- Taught class *Patterns in Nature*. April 5, 2017. NYBG adult education.
- Britton Gallery talk. How Evolution works, conservatory tour. October 14, 2016.
- STEM talk to Bronx high school students for NYBG Green School. July 26, 2016.
- STEM talk to Bronx 6th grade students for NYBG Green School. July 20, 2016.
- NPR media visit with Karen Michel. July 19, 2016.
- NYBG Science Day Open house. Conservatory tours, May 20, 2016.
- Lab tour for The Taft School. May 4, 2016.
- NYTimes interview about flowering time. *Blossoming on Cue*. March 24, 2016.
http://www.nytimes.com/interactive/2016/03/25/science/spring-science.html?_r=1
- Britton Gallery talk. *Molecular Research at the Garden: Understanding how plants grow, develop, function and evolve*. Feb. 5, 2016.
- Gave presentation on lab science summer intern program to NYBG Education committee at ECAG discovery center. Oct. 29, 2015.
- Participated in documentary for Lewis Cullman “Look who’s minding our planet”. Aug. 3-4. <https://www.nybg.org/blogs/science-talk/2017/02/look-whos-minding-our-planet/>

- Gave conservatory tours for NYBG Science Open House. May 29, 2015
- NPR Science Friday podcast. *What is the sun?* May 7, 2015. <http://www.sciencefriday.com/educational-resources/what-does-the-sun-do-solar-experts-respond/>
- Yahoo Foodie Science interview *Why is there an onion inside this onion* April 21, 2015. <https://www.yahoo.com/style/why-is-there-an-onion-inside-this-onion-116936416506.html>
- Lab tour STEM camp schoolgirls from Yonkers, NY (Sister-to-sister) July 9, 2014.
- Blog ‘Why study plants?’
- Hosted Fruitlook grant meeting at NYBG. June 11-12, 2014.
- Lab tour for Science open house. June 1, 2014.
- Britton Rotunda talk and conservatory tour. April 11, 2014.
- Organizer of NYBG seminar series, Sept. 2009 – August 2011.
- Intern Enrichment Activity. “Graduate school and careers in botany.” August 3, 2011.
- Intern Enrichment Activity. “Plant evolution, the explosion and diversity of land plants”. August 1, 2011.
- Garden News article “Meadow Spikemoss: A New Model Species to Understand the Plant Kingdom”, 2011.
- Intern Enrichment Activity-Luncheon, “Introduction to Taxonomic Diversity in Mosses, Lichens and Ferns”. July 6, 2011
- Gallery Talk. Talk “DNA study of Plants” Britton Rotunda, NYBG. April 8, 2011.
- Garden News article “Fern Leaf Diversity” October 2010.
- Article for Town & Country June 2011 issue. Science article featuring my research.
- Article for Garden News. April 23, 2010. Science article featuring my research.

Field Experience

Hawaii; collections of transgenic maize for reverse genetics experiment, 1999. Chiapas, Mexico; collections of *L. schismatica* and *T. brevistylis*, 2000-2002. Saül, French Guiana; collections of *S. albescens*, 2000.

Teaching Experience

- CUNY graduate seminar, Plant Evolutionary Developmental Biology October 9, 2020.
- CUNY Graduate Center, Comparative Morphology of Vascular Plants, 2018. Co-taught with Dr. Dennis Stevenson, NYBG.
- CUNY Graduate Center, Comparative Morphology of Vascular Plants, 2015. Co-taught with Dr. Dennis Stevenson, NYBG.
- CUNY Graduate Center, Comparative Morphology of Vascular Plants, 2013. Co-taught with Dr. Dennis Stevenson, NYBG.

- CUNY Graduate Center, Plant Development, 2012. Co-taught with Dr. Amy Litt, NYBG.
- CUNY Graduate Center, Comparative Morphology of Vascular Plants, 2011. Co-taught with Dr. Dennis Stevenson, NYBG.
- CUNY Graduate Center, Plant Development, 2010. Co-taught with Dr. Amy Litt, NYBG.
- Invited course contributor at NYU, “Evolution and development.”
Course: Evolution, April 8, 2009.
- Lecturer, Massey University, October 2003-August 2008
Course title: Biology of Plants (crop evolution and domestication section)
- Lecturer, Massey University, October 2003- August 2008
Course title: Plant development
- Lecturer, Massey University, October 2003- August 2008
Course title: Developmental Genetics module of Genetic Analysis
- Lecturer, Massey University, October 2003- August 2008
Course title: Plant Structure and Development (one module of graduate course)
- Lecturer, Massey University, October 2003- August 2008
Course title: Advanced Genetics (one module of graduate course)
- Teaching Assistant, University of California, San Diego, 1997
Course title: Metabolic Biochemistry
Course director: Paul Price
- Teaching Assistant, University of California, San Diego, 1997
Course title: Introduction to Plant Biology
Course directors: R.J. Schmidt and Nigel Crawford
- Teaching Assistant, University of California, San Diego, 1996
Course title: Biochemical Techniques
Course director: Patricia Laurenson
- University of the Virgin Islands, St. Thomas, U.S.V.I., 1994
Course title: General Chemistry Laboratory
- University of the Virgin Islands, St. Thomas, U.S.V.I., 1994
Course title: General Biology Laboratory

Intern and Academic Mentoring

- Mentor for summer Intern. Undergraduate. Danielle Sonnenleiter. Cornell University. June-August 2019.
- Mentor for visiting MSc. student. Carolina Rodriguez. U. de Antioquia. June – August 2019.
- Mentor for high school summer intern, Teddy Verheggen, Taft High School, June – August 2018.
- Mentor for undergraduate summer intern, Catherine Labarca, Virginia Commonwealth University June – August 2018.
- Mentor for postgraduate summer intern, Sarah Elkayam, Adlephi Univeristy Msc. student, June – August 2018.

- Mentor for high school student, Carly Zelner, June – August 2017.
- Mentor for Columbia University undergraduate, Scottie Lin Sheaffer. January 2017- June 2017.
- Hosted Dr. Cristina Ferrandiz and Paco Madueño from UPV, Valencia Spain on IRSES Marie Curie Fruitlook project. October – November 2016.
- Hosted visiting scientist Dr. Natalia Pabon-Mora from Universidad de Antioquia, Colombia. June – July 2016.
- Mentor for high school summer intern Eliza Price from the Taft School. June – Aug 2016.
- Hosted PhD student Andrea Aguilar Jaramillo from CRAG, Barcelona, Spain on TEMPRANILLO project. June – August 2016.
- Hosted Dr. Soraya Pelaz from CRAG Barcelona, Spain for project on Tempranillo genes. Sept 2015- June 2016.
- Mentor for Cristina Puricelli from Brera Botanical Garden on EU IRSES exchange program. June – August 2016.
- Mentor for PhD student Rafael Cruz from Universidade de São Paulo, Brazil on the Molecular genetics of leaf development in the fern genus *Mickelia*. February 2016 - February 2017.
- Mentor for high school summer intern Natasha Batten from the Taft School. June – Aug 2015.
- Hosted and trained BSc. Student Cecilia Zumajo from Antioquia University, Colombia in the lab. June – Sept 2015.
- Hosted Dr. Natalia Pabon-Mora from Antioquia University, Colombia in the lab. June – Sept 2015.
- Hosted and trained MSc. Student Harold Suarez from Antioquia University, Colombia in the lab. July – Sept 2015.
- Hosted. Dr. Chiara Mizzotti from the University of Milan in the lab as part of the IRSES Marie Curie Fruitlook project. Jul-August 2015.
- Hosted Dr. Cristina Ferrandiz from U. Politecnica Valencia, Spain in the lab as part of the IRSES Marie Curie Fruitlook project. Oct-Nov 2015.
- Hosted Dr. Francisco Madueno from U. Politecnica Valencia, Spain in the lab as part of the IRSES Marie Curie Fruitlook project. Oct-Nov 2015.
- Sept 2015- Jan 2016. Hosting Dr. Soraya Pelaz from CRAG Barcelona, Spain
- Natasha Batten – summer intern, (The Taft School, CT), July-August 2014.
- Lauren Henderson – summer intern, (SUNY, Purchase), May – August 2013.
- Dr. Cynthia Skema (postdoctoral fellow from Massey University, funded by Marsden Fund and NSF-EDEN). Worked on collaborative dioecy project, September-October 2012.
- Chiara Mizzotti (Ph.D student from University of Milan), worked on collaborative fruit project, April-July 2011.
- Anna Kudla (Mount Holyoke) NSF-REU summer student, May – Aug. 2011.
- Alison Mello (PhD student of Ken Birnbaum, NYU) trained *in situ* hybridizations. May 2011.
- Trained 2 Phd students (Claudia and Zelda) from the lab of Gregory Lampard, Pace University in making crosses in *Arabidopsis thaliana*. March 2011.

- Alejandra Vasco –NSF postdoctoral fellow. November 2010 – December 2013.
- Anna Kudla - summer intern (Mount Holyoke), May – Aug. 2010.
- Vanya Petrova – CUNY Ph.D. student – lab rotation, Feb-May 2009.
- Anthony DeVivo - summer intern, May-Aug. 2009.
- Helena Schmitz- P.G.Dip. student. November 2006-February 2007.
- Xiuwen Zhang – postdoctoral fellow. July 2006-February 2008.
- Wendy Topless, summer intern. December 2005-February 2006.
- Ryohei Kaji- MSc. student. February 2005-February 2008.
- Kalika Prasad- postdoctoral fellow. May 2004-September 2005.
- Arti Reddy-MSc. student. February 2004-2007.
- Robyn Johnston-PhD candidate. Committee member, July 2004-2007.
- Jean-Marc Celton-PhD candidate. Committee member, September 2004-2007.

Academic Committees

- PhD co-mentor. Elissa Sorojsrisom. Columbia University. New York, NY. August 2020-present.
- PhD committee member. Heather Philips. Cornell University, Ithaca NY. January 2020-present.
- PhD committee member. Aleca Borsuk. Yale University. New Haven, CT. January 2020-present.
- BSc. thesis Honors mentor. Ellie Mendelson. Brandeis University. Waltham, MA. 2019-2020.
- PhD committee member. Veronica Sondervan. New York University. New York, NY. September 2019-present.
- BSc. thesis mentor and research advisor. Dominique Groffmann. Columbia University, New York, NY. 2018-2020.
- MSc. thesis mentor. Asif Ali. New York University. New York, NY. 2018-2020.
- MSc. Committee member. Carolina Rodriguez. Universidad de Antioquia. Medellin, Colombia. May 2018 – present.
- PhD advisor. Cecilia Zumajo Cardona. NYBG-CUNY. New York, New York. August 2016-present.
- PhD committee member. Harold Suárez Baron. Universidad de Antioquia, Medellin, Colombia. August 2016-present.
- BSc. thesis mentor and research advisor. Adam Geber. Columbia University. New York, New York. (funded by NSF-EDEN), May 2012-May 2013.
- PhD committee member for Natalia Pabon-Mora. September 2008 – 2012. CUNY.
- Honours thesis examiner for Helen Sheehan. U of Auckland . Jan 2008.
- Honours thesis examiner for Lulu Zhang. U of Auckland . Jan 2008.
- PhD examiner for Hilbert Grievink. April 2007.
- PhD thesis examiner for Joanne Simons. April 2007.
- Honour's thesis examiner for Charlotte Smith. November 2006. Massey University.
- PhD examiner for Chris Kirk. November 2006.
- PhD thesis examiner for Vernon Trainor. July 2006. Massey University.

- Master's thesis examiner for Alexa Jury. February 2006. Massey University.
- Master's thesis examiner for Hongping Jin. February 2006. Massey University.
- PhD examiner for Toni Waugh. October 2005.
- PhD thesis examiner for Balance Chen. July 2005. Massey University.
- PhD examiner for Nadi Pathirana. April 2005.
- PhD examiner for Roger Watkins. April 2005.
- PhD examiner for Suzanne Lambie. March 2004.

Administrative Committees

- NYBG Press Advisory Committee. August 2017- present.
- Chair of Botany sub-committee in IMBS, Massey University. August 2005- August 2008.
- Manawatu Microscopy and Imaging Centre (MMIC) on Steering Committee, August 2005- August 2008.
- Selection committee member for Plant Physiology Chair position at Massey University, October 2005.
- Selection committee member for Lecturer/Senior Lecturer position at Massey University, Albany. April 2005.
- Staff-Student Committee. April 2005- August 2008.
- IMBS Course Committee. February 2005- August 2008.
- Web Committee. January 2005- August 2008.