

ERIC A. GRIFFIN

Smithsonian Environmental Research Center
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EDUCATION

Postdoctoral Fellow (2016 - present), Smithsonian Environmental Research Center
Doctor of Philosophy (2009 - 2016), University of Pittsburgh; Ecology and Evolutionary Biology
Bachelor of Science (2004 - 2008), *summa cum laude*, Berry College; Biology, Chemistry, and Sociology

PROFESSIONAL PREPARATION

Postdoctoral Researcher, Smithsonian Environmental Research Center, 2016 – present

- I am evaluating the degree to which forest diversity is related to microbial endophyte community structure and composition. Ultimately, I am interested in providing evidence for a novel and cryptic dimension that links forest diversity to ecosystem processes, which will have implications for forest diversity sustainability and management.

Doctoral Student, University of Pittsburgh, 2009 – 2016

- Dissertation components: I (1) wrote a review paper on the ecology and natural history of plant-microbe interactions in tropical systems. In addition, I managed field projects addressing (2) the impacts of foliar microbes and soil nutrients on seedling performance and trophic cascades in tropical forests; (3) how soil fertility and tree species structure foliar bacterial communities; (4) how bacteria and soil fertility interact to leaf chemistry.

*** Dissertation nominated for the Eduardo Lozano Memorial Dissertation Award, 2016**

Additional research, University of Pittsburgh and Berry College, 2006 - 2011

- Studied how nutrient enrichment and enemy release enhance the degree of invasiveness using *Lythrum salicaria* as a model plant, University of Pittsburgh, 2008 – 2011.
- Student researcher on the Mountain Longleaf Pine Project studying the impacts of invasive pests and white-tailed deer (*Odocoileus virginiana*) on forest stands and aiding *Pinus palustris* restoration in NW Georgia, Berry College, 2006 – 2008.
- Student researcher studying *Canis latrans* morphology, longevity, and ranging patterns using radio-telemetry, camera trapping, and GIS technology, Berry College, 2006 – 2008.

PUBLICATIONS

Griffin, E. A., S. J. Wright, P. J. Morin & W. P. Carson. In press. Pervasive interactions between foliar microbes and soil nutrients mediate leaf production and herbivore damage in a tropical forest. *New Phytologist*.

Griffin, E. A., M. B. Traw, P. J. Morin, J. N. Pruitt, S. J. Wright & W. P. Carson. 2016. Foliar bacterial and soil fertility mediate seedling performance: a new and cryptic dimension of niche differentiation. *Ecology* 97: 2998-3008.

*** Nominated for the Organization for Tropical Studies Outstanding Student Paper Award**

Griffin, E. A. & W. P. Carson. 2015. The ecology and natural history of foliar bacteria in tropical forests. *The Botanical Review* 81: 105-149.

Griffin, E. A. 2016. The greater unseen: on the identities, distributions, and impacts of foliar bacteria on tropical arboreal species. Ph.D dissertation. University of Pittsburgh. 253 pp.

*** Nominated for the Eduardo Lozano Memorial Dissertation Award, 2016**

Griffin, E. A., R. Bendis, N. Brouwer, J. Hua, M. Koski, G. Meindl & W. P. Carson. 2011. Review of the book *Tropical Rain Forest Ecology, Diversity, and Conservation* by Ghazoul, J., & D. Sheil. *Plant Science Bulletin* 57 (2): 71-73.

Griffin, E. A., S. W. Kembel, A. A. Carrell, S. J. Wright & W. P. Carson. In prep. Soil resources and tree hosts shape foliar bacterial endophyte communities in a mature tropical forest. *Proc. Natl. Acad. Sci. USA*.

Griffin, E. A. In prep. Plant-microbe interactions in tropical forests: implications for plant diversity. In Frank, C. A. & A. M. Pirttila, eds. *Endophytes of Forest Trees: Biology and Applications*. Springer.

AWARDS AND ACCOLADES

- Nominated for the Organization for Tropical Studies Outstanding Student Paper Award, 2016
- Winner: Best Poster Presentation, University of Pittsburgh Grad Student Expo, 2015
- Winner: Three Minute Thesis Competition, Natural Sciences, University of Pittsburgh, February 25, 2015
- Winner: Best Poster Presentation, University of Pittsburgh, Department of Biological Sciences Retreat, 2014
- Winner: Stanton Crawford Teaching Award at the University of Pittsburgh, 2014-2015
- Selected to serve on the National Association of Biology Teachers Global Perspectives Committee, 2014 - 2015
- Smithsonian Tropical Research Pre-Doctoral Fellow, 2012 - 2013
- National Science Foundation Graduate Research Fellow, 2010 - 2013
- Winshape Foundation Fellow, Berry College, 2004-2008

TEACHING EXPERIENCE, DEVELOPMENT, AND OUTREACH

Teaching Assistant, University of Pittsburgh

- Conservation Biology (BIOSC 1610), Summer 2016
- Foundations of Biology Research (BIOSC 0067), Spring 2016
- Microbiology Laboratory (BIOSC 1860), Fall 2015
- Conservation Biology (BIOSC 1610), Summer 2015
- Genetics (BIOSC 0350), Spring 2015
- Microbiology Laboratory (BIOSC 1860), Fall 2014
- Ecology of the Napo Valley, Ecuador (BIOSC 0825), Spring 2014
- Field Botany (BIOSC 1340), Summer 2010, Pymatuning Laboratory of Ecology
- Forest Ecology (BIOSC 1160), Summer 2010, Pymatuning Laboratory of Ecology

Teaching Assistant, Penn State University

- CHANCE (Connecting Humans and Nature through Conservation Experiences): A field practicum in Panama (Biology 2971/4971), Summer 2013

Teaching Assistant, Berry College

- Principles of Zoology (BIO 202), 2007 - 2008
- Biological Inquiry (BIO103), 2007 - 2008

Environmental Educator, Wahsega 4-H Center, University of Georgia Cooperative Extension, Dahlonega, GA, 2008 - 2009

- Taught over 25 academic field-based courses to enhance student environmental awareness and increase student achievement in science.
- Developed curricula for existing as well as new courses, including Field Botany and Forest Ecology.

Center for Instructional Development & Distance Education Workshops, University of Pittsburgh, 2014 - 2016

- The Role of the TA
- Getting Started in the Classroom
- Developing a Lesson Plan
- Syllabus Construction
- Teaching with Powerpoint
- Developing a Teaching Portfolio
- Encouraging Student Participation

K-12 outreach, Pittsburgh Science and Technology Academy, Pittsburgh, PA, 2010 – 2016

- Served as a judge at the Annual Middle School Science Fair in 2014.
- Mentored student independent projects in 2012.
- Gave lectures to the Environmental Science course in 2012 and was the keynote speaker at the Science Forum in 2010.
- Peer Reviewer, Middle School and High School Teaching Resources, EcoEdDL

NOTABLE GRANTS/FELLOWSHIPS AWARDED

- Maryland Native Plant Society Grant \$3,000 (2017-2018)
- Washington Biologists' Field Club Grant \$2,000 (2017-2018)
- Smithsonian Environmental Research Center Fellow \$104,000 (2016-2018)
- American Philosophical Society Lewis and Clark Fellowship \$5,000 (2013-2014)
- Smithsonian Tropical Research Institute Pre-Doctoral Fellowship \$34,800 (2012-2013)
- Sigma Xi Grant in Aid of Research \$800 (2009 and 2012)
- National Science Foundation Graduate Research Fellowship \$91,000 (2010-2013)
- Smithsonian Tropical Research Institute Short-term Fellowship \$2,800 (2011)
- Pymatuning Laboratory of Ecology Pape Award \$1,901 (2011)
- Pymatuning Laboratory of Ecology McKinley Award \$1,469 (2011)
- Pymatuning Laboratory of Ecology Pape Award \$2,194 (2010)
- Winshape Scholarship Fellow \$34,000 (2004-2008)
- Berry College Academic Scholarship \$32,000 (2004-2008)

ORAL PRESENTATIONS

Griffin, E. A. *Do foliar bacteria facilitate the maintenance of hyper-diverse tropical forests?* Rhodes College. Memphis, TN, May 8, 2017.

Griffin, E. A. *Foliar bacteria and soil fertility mediate seedling performance: a new and cryptic dimension of niche differentiation.* Smithsonian Environmental Research Center. Edgewater, MD, November 10, 2016.

Griffin, E. A. *The greater unseen: on the identities, distribution, and impacts of foliar bacteria among tropical arboreal species*. Ph.D. defense. Department of Biological Sciences. University of Pittsburgh, PA, April 20, 2016.

Griffin, E. A. *Soil fertility mediates seedling responses to foliar bacteria in a tropical forest: evidence for a new axis of niche differentiation*. Department of Biological Sciences. University of Pittsburgh, Pittsburgh, PA, April 9, 2015.

Griffin, E. A. *Why are tropical forests so diverse? Evidence for foliar bacteria as critical determinants of tree species coexistence*. Three-Minute Thesis Competition, University of Pittsburgh, February 25, 2015.

***First Place Winner (Natural Sciences)**

Griffin, E. A., Pruitt, J. N., Wright, S. J., & W. P. Carson. *More foe than friend: Foliar bacteria change rank order performance across fertility treatments and tree species in a tropical forest*. Annual Conference, Ecological Society of America Sacramento, CA, August 10-15, 2014.

Griffin, E. A., Wright, S. J., Traw, M. B., & W. P. Carson. *Do foliar bacteria and resource supply impact seedling performance: results from a long-term fertility experiment in a tropical forest in Panama*. Association for Tropical Biology and Conservation & Organization for Tropical Studies Meeting. San Jose, Costa Rica. June 23-27, 2013.

Griffin, E. A. *The distribution and impact of foliar bacteria among tropical arboreal trees*. Smithsonian Tropical Research Institute tour guide and intern training, Smithsonian Tropical Research Institute, Barro Colorado Island, Panama, May 21, 2012.

Griffin, E. A. *The great unseen: On the distribution and impact of foliar bacteria on tropical arboreal species*. Department of Biological Sciences. University of Pittsburgh, Pittsburgh, PA, February 15, 2012.

Griffin, E. A. *Dead but still kicking: the effect of plant litter on colonization between invasive- and native-dominated communities*. Pymatuning Laboratory of Ecology, Linesville, PA, June 29, 2011.

Griffin, E. A. *Impacts of foliar bacteria among tropical trees in Panama*. Smithsonian Tropical Research Institute, Barro Colorado Island, Panama. March 14, 2011.

Griffin, E. A. *Does a drought disturbance reinforce an invaded community? Using purple loosestrife and broad-leaf cattail to understand dynamics of invasion*. Pymatuning Laboratory of Ecology, Linesville, PA, June 16, 2010.

GUEST SEMINARS

Griffin, E. A. *Climate change: plants, pests, and production*. Rhodes College. Memphis, TN, May 8, 2017.

Griffin, E. A. *Foliar bacteria and soil fertility mediate seedling performance: a new and cryptic dimension of niche differentiation*. Invited Speaker, Smithsonian Tropical Research Institute Microbial Symposium. Panama City, Panama. October 27, 2016.

Griffin, E. A. *Soil fertility mediates seedling responses to foliar bacteria in a tropical forest:*

experimental evidence for a new dimension of niche differentiation. Advanced Ecology Graduate Course (BIOSC 2361), University of Pittsburgh, November 17, 2015.

Griffin, E. A. *Microbes: The unseen majority in nature*. Ecology (BIOSC 0370), University of Pittsburgh, September 24, 2015.

Griffin, E. A. *Foliar bacteria as key drivers of tree diversity in a tropical forest*. Microbiology (BIOSC 1860), University of Pittsburgh, September 18, 2015.

Griffin, E. A. *More foe than friend: foliar bacteria decrease plant performance among seedlings in a tropical forest*, Disease Ecology (BIOSC 1220), Pymatuning Laboratory of Ecology, July 7, 2015.

Griffin, E. A. *Soil fertility mediates seedling responses to foliar bacteria in a tropical forest: evidence for a new axis of niche differentiation*, Conservation Biology (BIOSC 1610), Pymatuning Laboratory of Ecology, May 26, 2015.

Griffin, E. A. *The ecology of invasive species*, Conservation Biology (BIOSC 1610), Pymatuning Laboratory of Ecology, May 15, 2015.

Griffin, E. A. *Microbes: "The great unseen" and the last frontier of biodiversity*, Ecology (BIOSC 0370), University of Pittsburgh, September 25, 2014.

Griffin, E. A. *More friend or foe: how do foliar bacteria impact seedling performance in a tropical forest?* Microbiology (BIOSC 1860), University of Pittsburgh, September 5, 2014.

Griffin, E. A. *Tropical ecology: an introduction to tropical rainforests*, Ecology of the Napo Valley, Ecuador, March 11, 2014.

Griffin, E. A. *The importance of microbes: a new frontier of ecology*, Ecology (BIOSC 0370), University of Pittsburgh, November 7, 2013.

Griffin, E. A. *Microbes: the last frontier of ecology*, Ecology (BIOSC 0370), University of Pittsburgh, November 14, 2011.

Griffin, E. A. *On the biodiversity and impact of microbes in nature*, Ecology (BIOSC 0370), University of Pittsburgh, November 20, 2010.

Griffin, E. A. *Unseen but not unimportant: bacteria and fungi in natural communities*. Environmental Science, Pittsburgh Science and Technology Academy, October 4, 2012.

Griffin, E. A. *Using purple loosestrife to understand species invasion*, **Keynote speaker**, Pittsburgh Science and Technology Academy, Science Forum, December 16, 2010.

POSTER PRESENTATIONS

Griffin, E. A., Kembel, S. W., Carrell, A. A., Wright, S. J. & W. P. Carson. *Soil resources and tree hosts shape foliar bacterial endophyte communities among seedlings in a mature tropical forest*. Poster Presentation, Science 2015: Unleashed! Pittsburgh, PA, October 8-10, 2015.

Griffin, E. A., Pruitt, J. N., Wright, S. J. & W. P. Carson. 2015. *Soil fertility determines seedling*

responses to foliar bacteria in a tropical forest: evidence for a new axis of niche differentiation. Poster Presentation, Grad Student Expo, University of Pittsburgh, March 19, 2015.

***Winner: Best Poster Presentation**

Griffin, E. A., Pruitt, J. N., Wright, S. J. & W. P. Carson. 2014. *Foliar bacteria decrease tree seedling performance in a tropical rain forest: research in tandem with the CHANCE undergraduate program in Panama.* Poster Presentation, National Association of Biology Teachers Professional Development Conference. Cleveland, OH, November 12-15, 2014.

Griffin, E. A., Pruitt, J. N., Wright, S. J. & W. P. Carson. 2014. *Foliar bacteria and soil resource supply mediate rank order performance of seedlings of five competing tree species in a tropical forest.* Poster Presentation, Science 2014: Sustain It! Pittsburgh, PA, October 1-3, 2014.

Griffin, E. A., Pruitt, J. N., Wright, S. J., Traw, M. B. & W. P. Carson. *Soil fertilization exacerbates the negative impact of foliar bacteria among tree species in a tropical forest.* Poster Presentation, Department of Biological Sciences Annual Retreat, Pymatuning Laboratory of Ecology. Linesville, PA, September 12-14, 2014.

***Winner: Best Poster Presentation**

Griffin, E. A., Traw, M. B., and W. P. Carson. *Do foliar bacteria maintain tropical forest diversity? Evidence for host-specific pathogens among tree species in a tropical forest in Panama.* Poster Presentation, Science 2012: Translation. Pittsburgh, PA, October 3-5, 2012.

Griffin, E. A., Wright, S. J., Traw, M. B., and W. P. Carson. *How do herbivore damage and bacterial abundance among arboreal species respond to resource supply in a tropical forest?* Poster Presentation, Science 2011: Next Gen. Pittsburgh, PA, October 6-7, 2011.

Griffin, E. A., Wright, S. J., Traw, M. B., and W. P. Carson. *Do foliar bacteria loads differ among tree species in a tropical forest? Insights into the last frontier of ecology.* Poster Presentation, Department of Biological Sciences Annual Retreat, Pymatuning Laboratory of Ecology. Linesville, PA, September 23-25, 2011.

Griffin, E. A., Wright, S. J., Traw, M. B., and W. P. Carson. *Are herbivore damage and bacterial presence related to resource supply: results from a long-term fertility experiment in a tropical forest.* Poster Presentation, Annual Conference, Ecological Society of America. Austin, TX, August 7-12, 2011.

PEER REVIEW SERVICE

- Reviewed papers for *Journal of Ecology*, *Ecology*, *Oecologia*, *Journal of Ecology and the Natural Environment*, *Axios Reviews*, *Plant-Arthropod Interactions*

SERVICE AND SOCIETY MEMBERSHIP

- Ecological Society of America (2010-present), Sigma Xi (2009-present), Organization of Tropical Biology and Conservation (2011-present), National Association of Biology Teachers (2014-present)
- Independent consultant for Pittsburgh Water and Sewer Authority, 2017

SOFTWARE PROFICIENCY

R, SAS, JMP, SPSS, QIIME, Sigma Plot, Microsoft Office