

Nathan C. Emery

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Education

- 2016 **Ph.D. in Ecology, Evolution and Marine Biology**
University of California Santa Barbara
Title: "Summer fog and live fuel moisture in coastal California shrublands."
Advisor: Dr. Carla D'Antonio
- 2007 **B.Sc. Biology, Graduation with Distinction**
Duke University

Appointments

- 2019-present **Postdoctoral Research Associate**, Plant Biology Department and Great Lakes Bioenergy Research Center, Michigan State University (with Dr. David Lowry)
- 2016-2019 **Postdoctoral Research Associate**, Plant Biology Department, Michigan State University.
Project titled: "Longitudinal study of teaching practices in early-career biology faculty."
(with Dr. Diane Ebert-May)
- 2016 **Data Support Team Member**, NSF Arctic Data Center, National Center for Ecological Analysis and Synthesis
- 2014 **Isotope Inter-University Training for Continental-scale Ecology Fellow**, Research-in-Residence at UC Berkeley, University of Utah
- 2011-2013 **Research Assistantship**, California Energy Commission, Ecology, Evolution and Marine Biology Department, UC Santa Barbara
- 2008 **Eastern Oregon Field Ecologist**, The Nature Conservancy of Oregon

Teaching Experience

- 2018 **Instructor of Record**, Introductory Biology 162, Michigan State University
- *Taught a 200-student introductory biology course*
- 2017 **Co-Instructor of Record**, Introductory Biology 162, Michigan State University
- Co-taught a 200-student introductory biology course
 - Co-designed and implemented a course-long project consisting of students collecting, visualizing, and analyzing tree phenology patterns.
- 2014-2016 **Instructor of Record**, General Plant Ecology, UC Santa Barbara
- *Designed and taught a course for 50-85 upper-division ecology students*
 - Developed a course-long research proposal writing assignment.
- 2015 **Instructor of Record**, Ecology and Management of California Wildlands, UC Santa Barbara
- *Taught a 24-student field course* with weekly trips to California's ecosystems
- 2015 **Academic Coordinator**, Introductory Biology Lab Course, UC Santa Barbara
- *Trained and supervised eight teaching assistants to teach lab activities*
 - Developed lab quizzes, coordinate grading and maintain course website
- 2012-2013 **Curriculum development for Teaching Assistants**, UC Santa Barbara
- *Co-developed a curriculum* for the "Teaching Techniques for Teaching Assistants" course for the Biology departments with the course instructor

- 2010-2016 **Teaching Assistant**, UC Santa Barbara
- Led multiple Introductory Biology Lab Series 1, 2 and 3 (25 students each)
 - Led the lab component of Foundations of Ecosystem Restoration (2012-2014)
 - Led discussion sections for Ecology and Management of California Wildlands
 - Led discussion sections for Introduction to Ecology

Education leader/organizer

- 2019-2020 **Open Education Fellow**, Environmental Data Science Inclusion Network (EDSIN) and Quantitative Undergraduate Biology Education and Synthesis (QUBES)
- A leadership program for life science, math biology, statistics, and ecoinformatics educators interested in inclusive data science education
- 2019 **Biological and Environmental Data Education Network**, NSF RCN-UBE Incubator
- Our goal is to use data science education to make the life and environmental sciences more accessible, transparent, reproducible, and relevant.
 - Co-PI on full NSF proposal in January 2020
- 2018 **Students as Ecologists: Collaborating with Undergraduates from Scientific Question to Publication**, Ecological Society of America Annual Meeting
- Organizer/Moderator for INSPIRE Session
- 2017 - present **Biology Curriculum committee**, Michigan State University
- Participating in committees dedicated to curricula alignment
- 2017 - 2020 **Backward Design for Teaching Ecology**, ESA Annual Meetings
- Designed and led a professional development workshop for ESA attendees
- 2017 **Backward Design Workshop**, UC Santa Barbara
- Designed and led a professional development workshop for graduate students, postdocs and early-career faculty in the STEM disciplines
- 2012, 2013 **TA Orientation Workshop Leader and Panelist**, UC Santa Barbara

Publications in progress (available upon request)

** indicates undergraduate author*

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- Lott, S.* and **N. Emery**. The effect of leaf morphological traits and wet deposition on hydrophobicity. *Accepted with revisions*
- Ma, S., **Emery, N.**, Dennison, P., Moritz, M., and C. M. D'Antonio. Short-Interval Fires and Vegetation Change in Southern California. *In Review*.
- Emery, N., Bledsoe, E., and A. Hasley. Cultivating inclusive educational and research environments in ecology and evolution. *Submitted*.

Peer-Reviewed Publications ([Google Scholar Page](#))

15. **Emery, N.**, Maher, J. M., and D. Ebert-May. Longitudinal persistence of teaching professional development of early career biology faculty. *In Press at Science Advances* ([pre-print available: bioRxiv 785857](#))
14. Alund, M. †, **Emery, N.** †... and E. Gering. A clear and sustainable vision for training the growing postdoctoral workforce. [Nature Ecology & Evolution 4, 777–781](#). (†Co-first author)

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13. Doerr, A., **Emery, N.**, Ficken, C., Scherer, A., Fullman, T. and M. Reichenborn. Human dimensions: Professional development for the everyday early career ecologist. 2020. [Bulletin of the Ecological Society of America 00\(00\):e01695](#)
 12. **Emery, N.**, Roth, K., and A. Pivovarov. 2019. Flowering phenology indicates plant flammability in a dominant shrub species. [Ecological Indicators, 109, 105745](#)
 11. **Emery, N.**, Maher, J. M., and D. Ebert-May. 2019. Professional Development in STEM Higher Education: Studying the Educational Ecosystem. [Innovative Higher Education 44\(6\), 469-479.](#)
 10. **Emery, N.**, Trujillo, C., Jarosz, A., and T. Long. 2019. Quantifying and Visualizing Campus Tree Phenology. [CourseSource.](#)
 9. **Emery, N.**, Hund, A., Burks, R., Duffy, M., Scoffoni, C., and A. Swei. 2019. Students as ecologists: Strategies for successful mentorship of undergraduate researchers. [Ecology and Evolution, 9: 4316–4326](#)
 8. Pivovarov, A. L., **Emery, N.**, Sharifi, M. R., Witter, M., Keeley, J. E., & P. W. Rundel. 2019. The Effect of Ecophysiological Traits on Live Fuel Moisture Content. [Fire, 2\(2\), 28.](#)
 7. VanWallendael, A., Soltani, A., **Emery, N. C.**, Peixoto, M. M., Olsen, J., & D. B. Lowry. 2019. A Molecular View of Plant Local Adaptation: Incorporating Stress-Response Networks. [Annual Review of Plant Biology, 70.](#)
 6. Berry, Z. C., **Emery, N. C.**, Gotsch, S. G., & G. R. Goldsmith. 2019. Foliar water uptake: processes, pathways, and integration into plant water budgets. [Plant, Cell & Environment, 42\(2\), 410-423.](#)
 5. **Emery, N.**, C. M. D'Antonio, and C. J. Still. 2018. Fog and live fuel moisture in coastal California shrublands. [Ecosphere, 9\(4\)](#)
 4. **Emery, N.** 2016. Foliar uptake in coastal California shrub species. [Oecologia. 182\(3\), 731-742.](#)
 3. **Emery, N.** 2016. Writing an Ecology Research Proposal. [EcoEDigital Library. Ecological Society of America.](#)
 2. **Emery, N** and J. Lesage*. 2015. Late summer fog use in the drought deciduous shrub, *Artemisia californica* (Asteraceae). [Madroño. 62: 150-157.](#)
 1. Chen, X., **Emery, N.**, Garcia, E. S., Hanan, E. J., Hodges, H. E., Martin, T., ... & C. Tague. 2013. Perspectives on disconnects between scientific information and management decisions on post-fire recovery in western US. [Environmental management, 1-12.](#)

Other Publications

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- Ebert-May, D. and **N. Emery**. 2017. Teaching like a scientist: assessing your assessments. [Frontiers in Ecology and the Environment, 15\(5\), 227-227.](#)

Grants and Fellowships (total = \$39,693)

2019	Environmental Data Science Inclusion Network & Quantitative Undergraduate Biology Education and Synthesis Open Education Fellow (\$2,200)
2016	Coastal Fund Grant , UCSB Associated Students (\$584)
2014-2015	Ecology, Evolution and Marine Biology Block Grant , UCSB (\$10,000)
2014	Isotope Inter-University Training for Continental-scale Ecology Fellowship (\$4,043)
2013-2014	Ecology, Evolution and Marine Biology Block Grant , UCSB (\$1,500)
2013	Instruction Improvement Grant , Office of Instructional Development, UCSB (\$2,000)
2013	Ellen Schamberg Burley Graduate Scholarship , UCSB (\$700)
2013	NSF Doctoral Dissertation Improvement Grant , NSF (\$16,766)
2013	Mildred Mathias Research Grant , UC Natural Reserve System (\$1,900)

Awards

2019	Ecological Society of America: Education Section Paper Award
2016	Vernon Cheadle Award , Cheadle Center for Biodiversity and Ecological Restoration
2015	Doctoral Student Travel Grant , UC Santa Barbara
2013	Graduate Student Association Excellence in Teaching Award , UC Santa Barbara
2012	California Native Plant Society Education Award , CNPS
2011, 2013	Worster Award for Graduate and Undergraduate Research Pairing, UC Santa Barbara

Scientific Presentations

2019	Invited Talk: Self-Efficacy and persistence of teaching professional development Bowling Green State University
2019	Talk: Persistence of professional development in early-career biology faculty Ecological Society of America: 104 th Annual Meeting
2019	Talk: Persistence of professional development outcomes and self-efficacy in early-career faculty Society for the Advancement of Biology Education Research meeting
2019	Talk:
2018	Poster: When flowers fade, fire risk grows: Phenology predicts flammability in semi-arid shrublands Poster: Professional development: Evidence for predicting teaching practices in early-career biology faculty Ecological Society of America: 103 rd Annual Meeting
2018	Poster: Evidence for Predicting Teaching Practices in Early-Career Biology Faculty Teaching & Learning Spring Conference, Michigan State University
2017	Talk: Coastal fog and plant flammability in California shrublands Talk: Factors that predict teaching practices of early-career biology faculty Ecological Society of America: 102 nd Annual Meeting
2017	Poster: Contextual factors that impact early-career faculty teaching practices Society for the Advancement of Biology Education Research west conference
2015	Co-organizer and presented in the Organized session: Head in the clouds: How fog and dew affects ecosystems around the world. Ecological Society of America: 100 th Annual Meeting
2014	Poster: Fog Water Use in Coastal California Shrub Species American Geophysical Union: Fall Meeting
2014	Talk: Coastal fog effects on live fuel moisture of California shrublands

- 2014 MEDECOS XIII: Crossing Boundaries across Disciplines and Scales (Chile)
Talk: **Foliar uptake and physiology of California shrub species**
Ecological Society of America 99th Annual Meeting
- 2013 Talk: **Fog water use in coastal California shrublands**
Ecological Society of America 98th Annual Meeting
- 2012 Talk: **How does fog affect fuel moisture?**
California Native Plant Society Conservation Conference

Professional Development/Training

- 2019 **Future Faculty Teaching Summit**, Center for the Integration of Research Teaching and Learning
- 2018 **PhysFest II: Short course in plant ecophysiology**, Holden Arboretum/Kansas State University
- 2018 **Student Success Summit and 2018 Teaching & Learning Spring Conference**, Michigan State University
- Participated in workshop on data-driven assessment of student learning
- 2017 **BioQuest/QUBES Workshop**, Making Meaning through Modeling: Problem solving in biology
- 2017 **Advanced Learning through Evidence-Based STEM Teaching Course**, Center for the Integration of Research Teaching and Learning
- 2016 **Universal Design in Learning: Reaching and Teaching Diverse Learners**, Center for the Integration of Research, Teaching and Learning
- 2016 **Pathways to Scientific Teaching Course**, Michigan State University
- 2016 **Certificate in College and Undergraduate Teaching**, UC Santa Barbara
- 2016 **Geographic Information Systems course**, Bren School of the Environment, UC Santa Barbara
- 2015 **Software Carpentry R workshop**, UC Santa Barbara
- 2015 **Advanced Remote Sensing course**, UC Santa Barbara
- 2013 **Summer Teaching Institute for Associates**, UC Santa Barbara
- 2011 **Stable Isotopes in Ecology workshop**, University of Utah
- 2011 **Advanced Biostatistics course**, UC Santa Barbara
- 2005 **Costa Rica study abroad program**, Organization for Tropical Studies
- Present **Language fluency**: Proficient in reading, writing and speaking Spanish.

Mentorship

- 2018-2019 **Research Mentor**, Plant Biology 498, Michigan State University
- Guided a senior plant biology major through an independent research project complete with poster, oral presentation, and writing of a manuscript for publication (*Lott and Emery 2019*)
- 2011-2016 **Research Mentor**, UC Santa Barbara
- Mentored three undergraduates through senior thesis projects that results in written papers and presentations at on-campus research symposia. One has been published (*Emery and Lesage 2015*)
 - Involved over 15 other students in my research program
- 2013 **Summer Institute for Math and Science Mentor**, UC Santa Barbara

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- Mentored four incoming freshmen on an independent research project to demonstrate the scientific method
- 2012 **Jack Kent Cooke Bridges Mentor**, UC Santa Barbara
- Mentored four community college students for a one-week intensive program to learn about research methods and the scientific process which resulted in a presentation.
- 2012 **Summer Research Mentorship Program**, UC Santa Barbara
- Mentored a high school student: Together we developed a research study, conducted fieldwork, analyzed data. Student gave a final presentation to faculty and peers.

Professional Service

- Peer-Reviewer for:** “International Journal of Wildland Fire”, “American Journal of Botany”, “CBE Life Science Education”, “Tree Physiology”, “CourseSource”, “Physical Review Physics Education Research”, “Annals of Applied Biology”, “Plant, Cell, and Environment”, “MDPI-Forests”, “Planta”
- 2019-present **Editor**, CourseSource
- 2019 **Search Committee member** for Office of Postdoctoral Affairs Director, Michigan State University
- 2019-present **Publications Committee member**, Ecological Society of America
- 2018-2019 **Professional Development Committee Chair**, Michigan State University – Postdoc Association
- 2018-2019 **Chair**, Ecological Society of America Early-Career Ecologists Section
- Attended ESA Governing Board meetings and ran section activities/programs
- 2017-2018 **Vice-Chair**, Ecological Society of America Early-Career Ecologists Section
- Organized and led a professional development webinar series
- 2013-2014 **UC Natural Reserve System Graduate Student Representative**, UC Santa Barbara
- 2011-2013 **Departmental Seminar Series Coordinator**, EEMB, UC Santa Barbara
- 2011 **Graduate Student Symposium Coordinator**, EEMB, UC Santa Barbara

Professional Membership

Ecological Society of America 2010-present

Outreach

- 2018-present **Skype a Scientist**, <https://www.skypeascientist.com>
- 2017-2018 **#ClimateChanged Blog author**, Plant People <http://www.plantpeopleblog.com>
- 2017 **Biology on Tap**, Lansing, Michigan.
- Two different science café talks on wildfires and non-native plants
- 2015 **SciTrek**, UC Santa Barbara Chemistry Department.
- Taught 7th graders about electrochemistry
- 2015 **Science on Site**, SB Museum of Natural History.
- Taught visitors how to do stomatal peels to learn about gas exchange
- 2013-2016 **Scienceline contributor** for educational outreach, UCSB
- Answered science questions from students of all ages
- 2010-2016 **Santa Barbara County Science Fair Judge (High school students)**, UCSB

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- 2014 **SciencePub** hosted by the Santa Barbara Natural History Museum
Talk: *California on Fire: How native plants respond to wildfire*
- 2014 **Santa Barbara Native Plant Society**, Talk - Fog use in shrub species
- 2014 **Santa Barbara Fire Safety Council**, Talk - Fuel moisture research
- 2013 **Master Gardeners of Santa Barbara County**, Talk - Fire disturbance
- 2013 **SciencePub** hosted by the Santa Barbara Natural History Museum
Talk: *I invade with a little help from my friends: How plants have moved around the world*
- 2013 **The Santa Barbara Sentinel** article about my research, pg. 23
Title: *June Gloom is Good (Sort Of)*