

# Carolyn A. Wessinger

Department of Biological Sciences  
University of South Carolina  
Columbia, SC, USA 29208

wessinc@mailbox.sc.edu  
wessingerlab.github.io

## Education & Professional Experience

---

Assistant Professor, Dept of Biological Sciences, University of South Carolina	2020 – Present
Postdoctoral Associate, University of Kansas	2017-2019
NIH NRSA Postdoctoral Fellow, University of Kansas, Advisors: Lena Hileman & John Kelly	2014-2017
PhD, Duke University Program in Genetics and Genomics, Advisor: Mark Rausher	2013
Research Technician, University of California, Davis, Advisor: Julin Maloof	2004-2006
BSc, Honors, Brown University, Advisor: Johanna Schmitt	2004

## Recent Awards

---

2022-2025 U of SC College of Arts and Sciences, Peter and Bonnie McCausland Faculty Fellowship

## Current Grants

---

2021–2026 NSF DEB 2052904, *The contribution of introgression to convergent floral adaptation in Penstemon*. PI: [C.A. Wessinger](#). **\$953,034** total costs.

2021-2026 NIH R35 GM142626, *Quantitative genetics and population genomics of repeated complex trait evolution*. PI: [C.A. Wessinger](#). **\$1,840,840** total costs.

## Prior Grants & Fellowships

---

2015–2020 NSF DEB-1542402, Dimensions: Collaborative research: *The evolution of pollination syndrome diversity in Penstemon*. PI: L.C. Hileman (KU), co-PI: [C.A. Wessinger](#) (KU), PI: M.D. Rausher (Duke U). **\$999,783** total costs awarded to KU.

2014–2017 NIH F32 GM110988 Ruth L. Kirschstein Postdoctoral National Research Service Award: *The genetic and developmental basis of repeated phenotypic shifts in Penstemon*. **\$159,906**.

2010 NSF DEB-1010886, Dissertation research: *Genetic basis of parallel flower color shifts in Penstemon*. PI: M.D. Rausher (thesis advisor), co-PI: [C.A. Wessinger](#). **\$15,000**.

2007–2012 Duke University Biology Department Grant-In-Aid. **\$1,000** (awarded four times), Duke University Conference Travel Fellowship. **\$500** (awarded three times).

2006, 2008 Honorable Mention, National Science Foundation Graduate Research Fellowship (awarded two times).

2004 Society for the Study of Evolution, Undergraduate Diversity Travel Award for Evolution Conference 2004.

2002 Brown University Undergraduate Teaching and Research Award.

## Peer-Reviewed Publications

---

2022 Hamilton, A.M, and **C.A. Wessinger**. Adaptation to lower latitudes and lower elevations precedes the evolution of hummingbird pollination in western North American *Penstemon*. *American Journal of Botany* 109: 1047-1055.

2021 **Wessinger, C.A.** From pollen dispersal to plant diversification: genetic consequences of pollination mode. *New Phytologist* 229: 3125-3132.

2020 **Wessinger, C.A.** and L.C. Hileman. Parallelism in flower evolution and development. *Annual Reviews of Ecology, Evolution, and Systematics* 51: 387-408.

- 2020 Colicchio, J., P. Monnahan, **C. Wessinger**, K. Brown, J. Kern, J. Kelly. Individualized mating system estimation using genomic data. *Molecular Ecology Resources* 20: 333-347.
- 2019 **Wessinger, C.A.**, M.D. Rausher, and L.C. Hileman. Adaptation to hummingbird pollination is associated with reduced diversification in *Penstemon*. *Evolution Letters* 3: 521-533.
- 2019 Katzer, A.M., **C.A. Wessinger**, and L.C. Hileman. Nectary size is a pollination syndrome trait in *Penstemon*. *New Phytologist* 223: 377-384.
- 2018 **Wessinger, C.A.**, J.K. Kelly, P. Jiang, M.D. Rausher, and L.C. Hileman. SNP-skimming: a fast approach to map loci generating quantitative variation in natural populations. *Molecular Ecology Resources* 18: 1402-1414.
- 2018 **Wessinger, C.A.** and J.K. Kelly. Selfing can facilitate shifts in pollination syndrome. *The American Naturalist* 191: 582-594.
- 2016 Becklin, K.M., J.T. Anderson, L.M. Gerhart, S.M. Wadgymar, **C.A. Wessinger**, J.K. Ward. Examining plant physiological responses through an evolutionary lens. *Plant Physiology* 172: 635-649. *All authors contributed equally to this publication*
- 2016 **Wessinger, C.A.** and L.C. Hileman. Accessibility, constraint, and repetition in adaptive floral evolution. *Developmental Biology* 419: 175-183.
- 2016 **Wessinger, C.A.**, C.C. Freeman, M.E. Mort, M.D. Rausher, and L.C. Hileman. Multiplexed shotgun genotyping resolves species relationships within the North American genus *Penstemon*. *American Journal of Botany* 103: 912-922.
- 2015 **Wessinger, C.A.**, and M.D. Rausher. Ecological transition predictably associated with gene degeneration. *Molecular Biology and Evolution* 32: 347-354.
- 2014 **Wessinger, C.A.**, L.C. Hileman, and M.D. Rausher. Identification of major QTLs underlying floral syndrome divergence in *Penstemon*. *Philosophical Transactions of the Royal Society B* 370: 20130349.
- 2014 **Wessinger, C.A.** and M.D. Rausher. Predictability and irreversibility of genetic changes underlying flower color change in *Penstemon barbatus*. *Evolution* 68: 1058-1070.
- 2012 **Wessinger, C.A.** and M.D. Rausher. Lessons from flower color evolution on targets of selection. *Journal of Experimental Botany* 63: 5741-5749.
- 2008 Filiault, D.L\*, **C.A. Wessinger\***, J.R. Dinneny, J. Lutes, J.O. Borevitz, D. Weigel, J. Chory, and J.N. Maloof. Amino acid polymorphisms in *Arabidopsis* phytochrome B cause differential responses to light. *Proceedings of the National Academy of Sciences, U.S.A.* 105: 3157-3162. *\*These authors contributed equally*
- 2007 Balasubramanian, S., S. Sureshkumar, M. Agrawal, T.P. Michael, **C. Wessinger**, J.N. Maloof, R. Clark, N. Warthmann, J. Chory, and D. Weigel. The PHYTOCHROME C photoreceptor gene mediates natural variation in flowering and growth responses of *Arabidopsis thaliana*. *Nature Genetics* 38: 711-715.

#### Non-Peer Reviewed Invited Commentaries

---

- 2022 **C.A. Wessinger**. Small genetic steps lead to mechanical isolation in hummingbird-pollinated gingers. *Molecular Ecology* 31: 4205-4207.
- 2015 **C.A. Wessinger**. A genetic route to yellow flowers. *New Phytologist* 206: 1193-1195.

#### Invited Talks

---

- 2022 Dept of Botany & Plant Pathology, Oregon State University
- 2022 Dept of Biology, University of Toronto Mississauga
- 2021 Dept of Genetics, University of Georgia
- 2020 Evolution Letters Online Summer Talks
- 2020 Chicago Plant Science Symposium 2020, The Field Museum, Chicago *canceled due to COVID*

2020 Dept of Biology, Pop Bio Seminar, Duke University  
 2019 Dept of Ecology, Evolution, and Marine Biology, University of California, Santa Barbara  
 2019 Dept of Biology and Biochemistry, University of Houston  
 2019 Dept of Ecology and Evolutionary Biology, Brown University  
 2018 Dept of Biological Sciences, University of South Carolina  
 2018 Dept of Biology, Emporia State University  
 2017 International Botanical Congress, Shenzhen, China  
 2017 Div of Biology, Kansas State University  
 2017 Dept of Biology, University of Denver  
 2017 MicroMORPH workshop, Arnold Arboretum of Harvard University  
 2017 Dept of Plant and Microbial Biology, North Carolina State University  
 2017 Dept of Biology, University of Virginia  
 2016 Dept of Biology, Texas Tech University  
 2016 Dept of Plant Biology, University of Minnesota.

### Submitted Talks

---

2022 Evolution, Cleveland, Ohio  
 2021 Evolution, Online virtual meeting  
 2020 Botany, Online virtual meeting  
 2019 Unveil Symposium, Lincoln, Nebraska  
 2019 Evolution, Providence, Rhode Island  
 2018 Botany, Rochester, Minnesota  
 2018 PEQG, Madison, Wisconsin  
 2017 Evolution, Portland, Oregon.  
 2016 Evolution, Austin, Texas.  
 2015 Pan-American Society for Evolutionary Developmental Biology, Berkeley, California  
 2014 Ecological Genomics Symposium, Kansas City, Missouri.  
 2014 Evolution, Raleigh, North Carolina.  
 2013 Evolution, Snowbird, Utah.  
 2012 Southeast Population, Ecology, and Evolutionary Genetics Meeting. Clemson, South Carolina.  
 2012 Evolution, Ottawa, Canada.  
 2010 Evolution, Portland, Oregon.  
 2009 Evolution, Moscow, Idaho.  
 2008 *Poster Presentation.* Evolution, Minneapolis, Minnesota.  
 2004 *Poster Presentation.* Evolution, Fort Collins, Colorado.

### Teaching

---

University of South Carolina, Assistant Professor, *Ecology and Evolution* (Lecture, 60 students) Spring 2022  
 University of South Carolina, Assistant Professor, *Speciation* (Seminar, 14 students) Fall 2021  
 University of South Carolina, Assistant Professor, *Ecology and Evolution* (Lecture, 47 students) Spring 2021  
 University of South Carolina, Assistant Professor, *Ecology and Evolution* (Lecture, 51 students) Spring 2020  
 University of Kansas, Guest Lecturer, *Evolution* 2016  
 Duke University, Teaching Assistant, multiple courses 2008-2011  
 Duke University, Guest Lecturer, *Ecology and Evolution* 2009

### Training in Teaching

---

Duke University Teaching Triangles Program 2011

Duke University Seminar in Teaching Biology, Julie Reynolds, PhD	2009
Duke University Teaching Mentorship with Alison Hill, PhD	2009
Duke University Introduction to College Teaching, Hugh Crumley, PhD	2009

### **Student Mentorship & Outreach**

---

2021 -	Mentor for University of South Carolina Top Scholars program
2021	Mentor for Society for the Study of Evolution Student-Faculty Networking program
2020 -	Mentored 1 postdoc, 2 technicians, 3 graduate students, and 5 undergraduates in independent lab projects at the University of South Carolina (despite pandemic).
2005-2019	Mentored 11 undergraduates, 2 high school students in independent research projects at Duke University and University of Kansas (including 9 women & 5 minority students)
2018	Panelist for Big Botany Symposium, Spencer Art Museum. Public discussion of my research and panel discussion with artists and poets.
2017	Spencer Art Museum Integrated Arts Research Initiative (IARI) research forum. Public discussion of my interdisciplinary work with poet and IARI fellow Megan Kaminski (Dept English, KU)
2016	Volunteer, Deerfield Elementary School, Lawrence, KS. Led students through activities to explain pollination and floral adaptations to different animal pollinators
2015	Volunteer, Girl Scouts of Lawrence, KS. Led Scouts through activities to explain and identify floral pollination syndromes

### **Service Activities at U of SC**

---

2021	New Faculty Orientation event panelist, College of Arts and Sciences
2021-Present	Search Committee for Experimental Community Ecologist, Dept of Biological Sciences
2020-Present	Future Hires Committee, Dept of Biological Sciences
2020	Continuing Student Outreach Initiative participant
2020-Present	Diversity Committee, Dept of Biological Sciences
2020	Catalyst First Gen in STEM event panelist, College of Arts and Sciences

### **Professional Service**

---

#### *Manuscript Reviewer for the following journals*

American Journal of Botany, American Naturalist, Annals of Botany, Botanical Journal of the Linnean Society, Brittonia, Ecology, Ecology Letters, Evolution, Frontiers in Plant Sciences, Genetics, Genome Biology and Evolution, G3, International Journal of Plant Sciences, Journal of Heredity, Journal of Plant Research, Molecular Biology and Evolution, Molecular Ecology, New Phytologist, Perspectives in Plant Ecology, Evolution and Systematics, Plant Cell, PLoS One, PNAS, Seminars in Cell and Developmental Biology, Systematic Botany

#### *Research Proposal Reviewers*

2022	National Science Foundation (ad-hoc reviewer)
2019	European Research Council (ad-hoc reviewer)

#### *Member*

Society for the Study of Evolution (2008-present), Botanical Society of America (2016-present)