

Seema Nayan Sheth

ssheth3@ncsu.edu

Phone: (919) 515-4168

<http://www.seemasheth.weebly.com>

Department of Plant and Microbial Biology

North Carolina State University

Raleigh, NC 27695

PROFESSIONAL APPOINTMENTS

Associate Professor Department of Plant and Microbial Biology North Carolina State University	2024 - present
Assistant Professor Department of Plant and Microbial Biology North Carolina State University	2018 - 2024
National Science Foundation Postdoctoral Fellow Department of Integrative Biology University of California, Berkeley Supporting scientists: Dr. David Ackerly and Dr. Bruce Baldwin	2016 - 2017
Postdoctoral Research Associate Department of Ecology, Evolution, and Behavior University of Minnesota Advisor: Dr. Ruth Shaw	2014 - 2015
Research Scientist: Conservation, Ecology, and Evolution Center for Conservation and Sustainable Development Missouri Botanical Garden	2006 - 2008

EDUCATION

Ph.D., Ecology Colorado State University Advisor: Dr. Amy Angert	2008 - 2014
M.S., Biology (Ecology, Evolution, and Systematics) University of Missouri - St. Louis Advisor: Dr. Bette Loiselle	2003 - 2006
B.A., Environmental Sciences and Spanish (double major) Washington University in St. Louis	1998 - 2002

RESEARCH INTERESTS

evolutionary and population ecology; biogeography; plant community responses to climate change

PUBLICATIONS

Undergraduate student^u; Graduate student^g; Postdoctoral associate^P; Research technician^t

37. **Sheth, S. N.**, L. J. Albano^P, C. Blanchard, E. J. Cook, R. Diaz, X. Gomez-Vega, K. Kutella, M. Moazed^t, M. Patel, J. Prange, N. Ramadoss, A. Regan, A. Riley, M. Rivas Hernandez, J. Rojas, M. Strebler, A. Verma, L. Villano^t, J. Waits, D. Wang, O. Wilborn-Pilotte, J. Diez, L. Flores-Renteria, J. Sexton, and C. D. Muir. 2025. Evolutionary responses to historic drought across the range of scarlet monkeyflower. *The American Naturalist*. <https://doi.org/10.1086/738434>.

36. Buckley, L. B., L. P. P. Braga, M. L. Pinsky, J. Resasco, **S. N. Sheth**, A. J. Tanentzap, and L. Zoller. (2025), Repeating historical studies to understand functional responses to environmental change. *The American Naturalist*. <https://doi.org/10.1086/738435>.
35. Kooyers, N. J., J. T. Anderson, A. L. Angert, M. L. Avolio, D. R. Campbell, M. Exposito-Alonso, T. E. Juenger, D. A. Moeller, J. D. Napier, and **S. N. Sheth**. 2025, Responses to climate change insights and limitations from herbaceous plant model species. *New Phytologist*. <https://doi.org/10.1111/nph.70468>.
34. Evans, M. E. K., P. B. Adler, A. L. Angert, S. M. N. Dey, M. P. Girardin, K. A. Heilman, S. Klesse, D. L. Perret, D. F. Sax, **S. N. Sheth**, M. Stemkovski and J. L. Williams. 2025. Reconsidering space-for-time substitution in climate change ecology. *Nature Climate Change* 15: 809-812. <https://doi.org/10.1038/s41558-025-02392-0>.
33. Goff, K. A.^g, M. F. Oldfather, J. Nachlinger, B. V. Smithers, M. J. Koontz, J. Bishop, C. Bishop, M. T. Burke, and **S. N. Sheth**. 2025. Limited directional change in mountaintop plant communities over 19 years in western North America. *Ecosphere* 16: e70197. <https://doi.org/10.1002/ecs2.70197>.
32. Cocciardi, J. M., A. M. Hoffman, D. F. Alvarado-Serrano, J. Anderson, M. Blumstein, E. L. Boehm, L. G. Bolin, I. T. Borokini, G. S. Bradburd, H. A. Branch, L. A. Brudvig, Y. Chen, S. L. Collins, D. L. Des Marais, D. Gamba, N. P. Hanan, M. M. Howard, J. Jaros, T. E. Juenger, N. J. Kooyers, E. J. Kottler, J. A. Lau, M. Menon, D. A. Moeller, T. J. Mozdzer, **S. N. Sheth**, M. Smith, K. Toll, M. C. Ungerer, M. L. Vahsen, S. M. Wadgymar, A. Waananen, K. D. Whitney, and M. L. Avolio. 2024. The value of long-term ecological research for evolutionary insights. *Nature Ecology & Evolution* 8: 1584 - 1592. <https://doi.org/10.1038/s41559-024-02464-y>.
31. Wadgymar, S. M., **S. N. Sheth**, E. B. Josephs, M. L. DeMarche, , and J. T. Anderson. 2024. Defining fitness in evolutionary ecology. *International Journal of Plant Sciences* 185: 218-227. <https://doi.org/10.1086/729360>.
30. Sasaki, M. J. M. Barley, S. Gignoux-Wolfsohn, C. G. Hays, M. W. Kelly, A. B. Putnam, **S. N. Sheth**, A. R. Villeneuve, and B. S. Cheng. 2022. Greater evolutionary divergence of thermal limits within marine than terrestrial species. *Nature Climate Change*. <https://doi.org/10.1038/s41558-022-01534-y>.
29. Coughlin^t, A. O., R. Wooliver^P, and **S. N. Sheth**. 2022. Populations of western North American monkeyflowers accrue niche breadth primarily via genotypic divergence in environmental optima. *Ecology and Evolution* 12: e9434. <https://doi.org/10.1002/ece3.9434>.
28. Wadgymar, S. M., M. L. DeMarche, E. B. Josephs, **S. N. Sheth**, and J. T. Anderson. 2022. Local Adaptation: Causal agents of selection and adaptive trait divergence. *Annual Review in Ecology, Evolution, and Systematics* 53: 87-111. <https://doi.org/10.1146/annurev-ecolsys-012722-035231>.
27. Wooliver, R.^P, E. E. Vtipilthorpe^g, A. M. Wiegmann^u, and **S. N. Sheth**. 2022. A viewpoint on ecological and evolutionary study of plant thermal performance curves in a warming world. *AoB Plants* 14: plac016, <https://doi.org/10.1093/aobpla/plac016>.
26. Querns, A.^g, R. Wooliver^P, M. Vallejo-Marín, and **S. N. Sheth**. 2022. The evolution of thermal performance in native and invasive populations of *Mimulus guttatus*. *Evolution Letters* 6: 136-148, <https://doi.org/10.1002/evl3.275>.

25. Lee-Yaw, J. A., McCune J. L., Pironon, S. and **S. N. Sheth**. 2022. On the predictive value of species distribution models in population biology. *Ecography* 2022: e05877, <https://doi.org/10.1111/ecog.05877>. (**Runner-up for Ecography E4 Award**)
24. Preston, J. C., R. Wooliver^P, H. Driscoll, A. Coughlin^t, and **S. N. Sheth**. 2022. Spatial variation in high temperature-regulated gene expression predicts evolution of plasticity with climate change in the scarlet monkeyflower. *Molecular Ecology* 31: 1254-1268, <https://doi.org/10.1111/mec.16300>.
23. Barley, J. M., B. S. Cheng, M. Sasaki, S. Gignoux-Wolfsohn, C. G. Hays, A. B. Putnam, **S. N. Sheth**, A. R. Villeneuve, and M. W. Kelly. 2021. Limited plasticity in thermally tolerant ectotherm populations: evidence for a trade-off. *Proceedings of the Royal Society B* 288: 20210765, <https://doi.org/10.1098/rspb.2021.0765>.
22. Vtipil, E. E.^{u,g} and **S. N. Sheth**. 2020. A resurrection study reveals limited evolution of phenology in response to recent climate change across the geographic range of the scarlet monkeyflower. *Ecology and Evolution* 10: 14165-14177, <https://doi.org/10.1002/ece3.7011>.
21. Wooliver, R.^P, S. B. Tittes, and **S. N. Sheth**. 2020. A resurrection study reveals limited evolution of thermal performance in response to recent climate change across the geographic range of the scarlet monkeyflower. *Evolution* 74: 1699-1710, <https://doi.org/10.1111/evo.14041>.
20. **Sheth, S.N.**, N. Morueta-Holme, and A. L. Angert. 2020. Determinants of geographic range size in plants. *New Phytologist* 226: 650-665, <https://doi.org/10.1111/nph.16406>.
19. Briscoe Runquist, R. D., A. J. Gorton, J. B. Yoder, N. J. Deacon, J. J. Grossman, S. A. Kothari, M. P. Lyons, **S. N. Sheth**, P. Tiffin, and D. A. Moeller. 2020. Context dependence of local adaptation to abiotic and biotic environments: a quantitative and qualitative synthesis. *The American Naturalist* 195: 412-431, <https://doi.org/10.1086/707322>.
18. Smithers, B. V., M. F. Oldfather, M. J. Koontz, J. Bishop, C. Bishop, J. Nachlinger, and **S. N. Sheth**. 2020. Community turnover by composition and climate affinity across scales in an alpine system. *American Journal of Botany* 107: 239-249, <https://doi.org/10.1002/ajb2.1376>.
17. Oldfather, M. F., M. M. Kling, **S. N. Sheth**, N. C. Emery, and D. D. Ackerly. 2020. Range edges in heterogeneous landscapes: integrating geographic scale and climate complexity into range dynamics. *Global Change Biology* 26: 1055-1067, <https://doi.org/10.1111/gcb.14897>.
16. Lowry D. B., J. M. Sobel, A. L. Angert, T-L. Ashman, R. L. Baker, B. K. Blackman, Y. Brandvain, K. J. R. P. Byers, A. M. Cooley, J. M. Coughlan, M. R. Dudash, C. B. Fenster, K. G. Ferris, L. Fishman, J. Friedman, D. L. Grossenbacher, L. M. Holeski, C. T. Ivey, K. M. Kay, V. A. Koelling, N. J. Kooyers, C. J. Murren, C. D. Muir, T. C. Nelson, M. L. Peterson, J. R. Puzyer, M. C. Rotter, J. R. Seeman, J. P. Sexton, **S. N. Sheth**, M. A. Streisfeld, A. L. Sweigart, A. D. Twyford, M. Vallejo-Marin, J. H. Willis, C. A. Wu, and Y. W. Yuan. 2019. The case for the continued use of the genus name *Mimulus* for all monkeyflowers. *Taxon* 68: 617-623, <https://doi.org/10.1002/tax.12122>.
15. Kulbaba, M. W., **S. N. Sheth**, R. E. Pain, V. M. Eckhart, and R. G. Shaw. 2019. Additive genetic variance for lifetime fitness and the capacity for adaptation in the wild. *Evolution* 73: 1746-1758, <https://doi.org/10.1111/evo.13830>.

14. **Sheth, S. N.**, M. W. Kulkaba, R. E. Pain, and R. G. Shaw. 2018. Expression of additive genetic variance for fitness in a population of partridge pea in two field sites. *Evolution* 72: 2537-2545, <https://doi.org/10.1111/evo.13614>.
13. **Sheth, S. N.** and A. L. Angert. 2018. Demographic compensation does not rescue populations at a trailing range edge. *Proceedings of the National Academy of Sciences (USA)* 115: 2413-2418, <https://doi.org/10.1073/pnas.1715899115>.
12. Pain, R. E., R. G. Shaw, and **S. N. Sheth**. 2018. Costs associated with N-fixing rhizobia early in the life of partridge pea *Chamaecrista fasciculata*. *American Journal of Botany* 105: 796-802, <https://doi.org/10.1002/ajb2.1077>.
11. Morueta-Holme, N., M. F. Oldfather, R. L. Olliff-Yang, A. P. Weitz, C. R. Levine, M. M. Kling, E. C. Riordan, C. Merow, **S. N. Sheth**, A. H. Thornhill, and D. D. Ackerly. 2018. The language of climate change: best practices in research and publication. *Nature Climate Change* 8: 92-94, <https://doi.org/10.1038/s41558-017-0060-2>.
10. Angert, A. L., M. Bayly, **S. N. Sheth**, and J. R. Paul. 2018. Testing range-limit hypotheses using range-wide habitat suitability and occupancy for the scarlet monkeyflower (*Erythranthe cardinalis*). *The American Naturalist* 191: E76-E89, <https://doi.org/10.1086/695984>.
9. **Sheth, S. N.** and A. L. Angert. 2016. Artificial selection reveals high genetic variation in phenology at the trailing edge of a species range. *The American Naturalist* 187: 182-193, <https://doi.org/10.1086/684440>. (American Naturalist 2016 Student Paper Award)
8. **Sheth, S. N.**, I. Jiménez, and A. L. Angert. 2014. Identifying the paths leading to variation in geographical range size in western North American monkeyflowers. *Journal of Biogeography* 41: 2344-2356, <https://doi.org/10.1111/jbi.12378>.
7. **Sheth, S. N.** and A. L. Angert. 2014. The evolution of environmental tolerance and range size: a comparison of geographically restricted and widespread *Mimulus*. *Evolution* 68: 2917-2931, <https://doi.org/10.1111/evo.12494>.
6. **Sheth, S. N.**, L. G. Lohmann, T. Distler, and I. Jiménez. 2012. Understanding bias in geographic range size estimates. *Global Ecology and Biogeography* 21: 732-742, <https://doi.org/10.1111/j.1466-8238.2011.00716.x>.
5. Paul, J. R., **S. N. Sheth**, and A. L. Angert. 2011. Quantifying the impact of gene flow on phenotype-environment mismatch: a demonstration with the scarlet monkeyflower *Mimulus cardinalis*. *American Naturalist* 178: S62-S79, <https://doi.org/10.1086/661781>.
4. Angert, A. L., **S. N. Sheth**, and J. R. Paul. 2011. Incorporating population-level variation in thermal performance into predictions of geographic range shifts. *Integrative And Comparative Biology* 51: 733-750, <https://doi.org/10.1093/icb/icr048>.
3. **Sheth, S. N.**, B. A. Loiselle, and J. G. Blake. 2009. Phylogenetic constraints on fine-scale patterns of habitat use by eight primate species in eastern Ecuador. *Journal of Tropical Ecology* 25: 571-582, <https://doi.org/10.1017/S0266467409990216>.
2. **Sheth, S. N.**, L. G. Lohmann, T. Consiglio, and I. Jiménez. 2008. Effects of detectability on estimates of geographic range size in Bignonieae. *Conservation Biology* 22: 200-211, <https://doi.org/10.1111/j.1523-1739.2007.00858.x>.

1. Amend, J. P., D. A. R. Meyer-Dombard, **S. N. Sheth**, N. Zolotova, and A. C. Amend. 2003. *Palaeococcus helgesonii* sp. nov., a facultatively anaerobic, hyperthermophilic archaeon from a geothermal well on Vulcano Island, Italy. *Archives of Microbiology* 179: 394-401, <https://doi.org/10.1007/s00203-003-0542-7>.

Manuscripts in review/revision

Pennington^P, L., **S. N. Sheth**, S. J. Franks, J. T. Anderson, and E. Hamann. 2025. Two decades of resurrection studies: What have we learned about contemporary evolution of plant species? bioRxiv. In revision for *American Journal of Botany*. Pre-print: <https://doi.org/10.1101/2025.07.27.667050>.

Williams, J. L., A. L. Angert, A. Compagnoni, A. Campbell, M. L. DeMarche , M. E. K. Evans , J. C. Fowler, E. J. González, A. M. Iler, J. A. Loesberg, A. M. Louthan, A. B. Martin, J. K. Moutouama, S. W. Nordstrom, W. K. Petry, B. en, **S. N. Sheth**, and TEX Miller. 2025. Linking climate and demography to predict population dynamics and persistence under global change. In revision for *Ecology Letters*. Pre-print: <https://doi.org/10.22541/au.175270366.69122163/v1>.

Albano^P, L. J., R. A. Bingham, S. Correa^u, C. G. Laufenberg^u, C. Payst^u, C. D. Muir, **S. N. Sheth**. 2025. Range-wide responses to an extreme heat event in *Mimulus cardinalis*. In revision for *American Journal of Botany*. Pre-print: <https://doi.org/10.1101/2025.05.01.651703>

Anstett, D. N., J. Anstett, **S. N. Sheth**, D. R. Moxley, H. A. Branch, M. Jahani, K. Huang, M. Todesco, R. Jordan, J. M. Lazaro-Guevara, L. H. Rieseberg, and A. L. Angert. 2024. Evolutionary rescue during extreme drought. bioRxiv. In revision for *Science*. Pre-print: <https://doi.org/10.1101/2024.10.24.619808>.

GRANTS, FELLOWSHIPS, AND AWARDS

Major grants and fellowships

Goodnight Early Career Innovators Award, \$66,000 (PI)	2023 - 2026
National Science Foundation, DEB, Total: \$600,000 (\$593,400 to NCSU)	2024 - 2029
<i>LTREB: Population persistence in a variable world: spatiotemporal variation in climate and demography across the range of scarlet monkeyflower (lead PI). co-PI: Amy Angert (U. of British Columbia).</i>	
National Science Foundation, DEB, Total: \$29,839 (\$11,646 to NCSU)	2023 - 2025
<i>ROA supplement to Collaborative Research: BEE: Integrating evolutionary genetics and population ecology to detect contemporary adaptation to climate change across a species range (lead PI, with subaward to Robin Bingham at Western Colorado University).</i>	
National Science Foundation, IOS, Total: \$2,236,397 (\$399,383 to NCSU)	2023 - 2026
<i>Collaborative Research: ORCC: RUI: Integrating evolutionary and migratory potential of Chamaecrista fasciculata into forecasts of range-wide population dynamics under climate change (co-PI). lead PI: Jill Anderson (U. of Georgia); co-PIs: Megan Demarche (U. of Georgia), Susana Wadgymar (Davidson College), Emily Josephs (Michigan State U.), and Jenny Cruse-Sanders (State Botanical Garden of Georgia).</i>	

National Science Foundation, DEB, Total: \$1,452,695 (\$509,734 to NCSU)	2022 - 2025
<i>Collaborative Research: BEE: Integrating evolutionary genetics and population ecology to detect contemporary adaptation to climate change across a species range (lead PI). co-PIs: Chris Muir (U. of Hawai'i at Mānoa), Lluvia Flores-Rentería (San Diego State U.), Jason Sexton (U. of California, Merced), and Jeff Diez (U. of Oregon).</i>	
NSF Postdoctoral Research Fellowship in Biology, \$138,000	2016 - 2017
<i>Relationships among climatic tolerance, trait evolution, and diversification in the California flora</i>	
NSF DEB Evolutionary Ecology, \$14,984	2012 - 2014
<i>Dissertation Research: Role of evolutionary potential in limiting species' distributions (co-PI)</i>	
NSF GK-12 Fellowship, Univ. of Missouri-St. Louis, \$30,000	2005 - 2006
Awards	
Runner-up, Ecography Award for Excellence in Ecology and Evolution (E4)	2022
Awarded to early career researchers (Lee-Yaw et al.) for an outstanding Review paper in journal <i>Ecography</i>	
American Naturalist 2016 Student Paper Award	2017
Small grants, fellowships, and honors	
GLORIA Great Basin, \$10,189	2024 - 2027
<i>Long-term effects of climate change on 29 alpine peaks in California and Nevada (PI)</i>	
NCSU Kenan Institute for Technology, Engineering and Science Climate Leadership Program (PI), \$5,000	2023
NCSU Faculty Research and Professional Development Fund, \$5,250	2022 - 2023
<i>A functional trait perspective on alpine plant community shifts in a rapidly changing climate (PI)</i>	
NCSU Faculty Research and Professional Development Fund, \$5,000	2019 - 2020
<i>Rapid evolution of thermal tolerance across a species' geographic range (PI)</i>	
Postdoctoral Association Career Development Award, U. of Minnesota, \$400	2015
Finalist, University of California President's Postdoctoral Fellowship	2014
Outreach Grant, Society for the Study of Evolution, \$800	2012
Global Sustainability Leadership Fellow, Colorado State University	2012
Rosemary Grant Award, Society for the Study of Evolution, \$2,500	2010
Graduate Student Research Award, Botanical Society of America, \$500	2010
Finalist, Environmental Protection Agency STAR Graduate Fellowship	2009
Steinkamp Fund, Colorado Native Plant Society, \$1,000	2009
Women in Natural Sciences Travel Grant, Colorado State University, \$300	2009
Awards from Department of Biology, Colorado State University, \$7,425	2009 - 2014
Grad. Degree Program in Ecology Fellowship, Colorado State University, \$1,000	2008
NSF GK-12 Fellowship, Colorado State University, \$4,000	2008
Awards from Department of Biology, Univ. of Missouri-St. Louis, \$3,500	2004 - 2005

Primate Action Fund, Conservation International, \$3,000 2004

PRESENTATIONS

Invited symposia

Botany, Palm Springs, CA	2025
Symposium: Reproductive ecology and evolution of plants in stress-prone environments	
“Evolutionary responses to historic drought across the range of scarlet monkeyflower” (Sheth, S. N. and 24 co-authors)	
Botany, Palm Springs, CA	2025
Colloquium: Common gardens in the 21st Century: the intersection between evolution and ecology, science and management	
“Plastic responses to drought in <i>Mimulus cardinalis</i> vary among traits and populations” (Cook, E., L. Albano, K. Kutella, D. Wang, Flores-Rentería, J. Sexton, C. D. Muir, S. N. Sheth , and J. Diez; presented by E. Cook)	
Cologne Spring Meeting, Cologne, Germany	2025
International Symposium: Plant Ecological Genetics	
“Evolutionary responses to historic drought across the range of scarlet monkeyflower” (Sheth, S. N. and 24 co-authors)	
3rd Joint Congress on Evolutionary Biology, Montreal, Canada	2024
Symposium: Predicting evolutionary responses to a changing world	
“Predicting evolutionary rescue using landscape genomics” (Anstett, D. N., J. Anstett, S. N. Sheth , D. Moxley, M. Jahani, K. Huang, M. Todesco, R. Jordan, J. Lázaro-Guevara, L. Rieseberg, and A. L. Angert; presented by D. Anstett)	
3rd Joint Congress on Evolutionary Biology (virtual)	2024
American Society of Naturalists Vice Presidential Symposium: Quantifying organismal function through time to detect ecological and evolutionary responses to global change	
“Evolutionary responses to historic drought across the range of scarlet monkeyflower” (Sheth, S. N. and 24 co-authors)	
Ecological Society of America, Portland, OR	2023
Symposium: Combining ecology and evolutionary knowledge for conservation	
“Using landscape genomics and resurrection studies to understand whether rapid evolution can forestall range contractions” (Angert, A., D. N. Anstett, H. Branch, J. Anstett, S. N. Sheth , L. Rieseberg, D. Moxley, M. Todesco, K. Huang, M. Jahani, R. Jordan, and J. Lázaro-Guevara; presented by A. Angert)	
46th Annual Southern California Botanists Symposium (virtual)	2020
Living on the edge - Plants in extreme environments	
“The role of demographic and evolutionary processes in buffering populations from climate change”	

International Biogeography Society Humboldt-250 Meeting, Quito, Ecuador	2019
Symposium: Architects of variation: How climate and physiology shape patterns of biodiversity	
“Can plant thermal tolerance evolve under climate change? A comparison of central and edge populations” (<u>Wooliver, R.P.</u> , S. Tittes, and S.N. Sheth ; presented by R. Wooliver)	
Green Life Sciences, University of Michigan, Ann Arbor, MI	2018
Symposium: Plant-environment interactions across scales	
“Do demographic compensation and adaptation buffer species from changing climate?”	
Society for the Study of Evolution, Portland, OR	2017
American Society of Naturalists Symposium: Across the Nth dimension: Quantitative and conceptual advances in the study of niche breadth	
“Does niche breadth predict vulnerability to changing environments? From population-level traits and demography to diversification in deep time”	
SACNAS, Long Beach, CA	2016
Scientific Symposium: (Day and) Night at the Museum: Exploring Research in Ecology and Evolution Behind the Scenes of Natural History Museums	
“Harnessing the power of herbarium specimen data for ecological and evolutionary studies”	
Jornadas Argentinas de Botanica, Corrientes, Argentina	2007
Symposium: Conservation and Threat Assessments of Plants	
“Riesgo de extinción en Bignonieae (Bignoniaceae): una perspectiva filogenética” (Sheth, S.N. , L.G. Lohmann, T. Consiglio, and I. Jiménez)	
Botanical Society of America and Plant Biology Joint Congress, Chicago, IL	2007
Colloquium: Integration of spatial and ecological data in evolutionary studies	
“Extinction risk in Bignonieae (Bignoniaceae): a phylogenetic perspective” (Sheth, S.N. , L.G. Lohmann, T. Consiglio, and I. Jiménez)	

Invited seminars

Biology Lunch Bunch, Department of Biology, University of North Carolina	2025
Department of Biology, Appalachian State University	2024
Graduate Program in Plant Biology and Conservation, Chicago Botanic Garden	2024
Department of Applied Ecology, North Carolina State University	2024
Graduate Program in Plant Biology and Conservation, Chicago Botanic Garden	2024
Department of Plant and Microbial Biology, North Carolina State University	2023
Department of Biology, Utah State University	2023
Department of Plant Biology, Carnegie Institution for Science	2023
Department of Biology, Wake Forest University	2022
Genetics and Genomics Academy, North Carolina State University	2022
Department of Biology, University of Toronto, Mississauga	2022
*** Graduate Student Invited Speaker ***	
Department of Plant Biology, University of Georgia	2021
*** Graduate Student Invited Speaker ***	
Department of Ecology and Evolutionary Biology, University of Tennessee, Knoxville	2021
Department of Ecology and Evolutionary Biology, University of Colorado, Boulder	2021

Department of Ecology and Evolutionary Biology, University of California, Irvine	2021
Ecology, Evolution, and Behavior Program, Michigan State University	2021
Department of Integrative Biology, University of California, Berkeley	2020
*** Graduate Student Invited Speaker ***	
Department of Ecology and Evolutionary Biology, University of Arizona	2020
Department of Ecology and Evolutionary Biology, Tulane University	2019
Program in Ecology, Duke University	2019
Kellogg Biological Station, Michigan State University	2019
Genetics and Genomics Seminar Series, North Carolina State University	2019
Bio-Pop Seminar Series, Department of Biology, University of North Carolina	2018
Department of Plant Biology, University of Vermont	2018
EEBio Seminar Series, Department of Biology, University of Virginia	2018
Department of Forestry and Environmental Resources, North Carolina State University	2018
Department of Biological Sciences, California Polytechnic State University	2017
Department of Ecology and Evolutionary Biology, University of California, Los Angeles	2017
Environmental Systems Graduate Group, University of California, Merced	2017
School of Integrative Plant Science, Plant Biology Section, Cornell University	2017
Center for Population Biology, University of California, Davis	2017
Department of Biology, University of Utah	2017
Natural History Museum of Utah	2017
Department of Plant and Microbial Biology, North Carolina State University	2017
Department of Biology, Williams College	2016
Department of Biology, University of San Francisco	2016
Department of Biology, Grinnell College	2015
Department of Plant Biology, University of Minnesota	2015
Department of Biology, Washington University in St. Louis	2007
Department of Biology, St. Louis University	2007

Contributed conference presentations

Goff, K. A. ^g , M. F. Oldfather, J. Nachlinger, B. Smithers, M. J. Koontz, J.	2025
Bishop, C. Bishop, M. T. Burke, and S. N. Sheth . "Limited directional change in mountaintop plant communities over 19 years in the Sierra Nevada and Great Basin, U.S.A." Ecological Society of America, Baltimore, MD (presented by K. A. Goff)	
Durán, L. M., N. Ramadoss, S. Sheth , and L. Flores-Rentería. "Investigating genetic spillage in a <i>Erythranthe cardinalis</i> common garden experiment."	2025
Botanical Society of America, Palm Springs, CA (presented by L. Durán)	
Albano, L. J. ^p , R. A. Bingham, S. Corera, C. G. Laufenberg, A. C. Payst, C.	2025
D. Muir, and S. N. Sheth . "Range-wide responses to an extreme heat event in <i>Mimulus cardinalis</i> ." Evolution, Athens, GA (presented by L. J. Albano)	
Pennington, L. K. ^p , S. N. Sheth , S. J. Franks, E. Hammann, J. T.	2025
Anderson. "Range-wide responses to an extreme heat event in <i>Mimulus cardinalis</i> ." Evolution, Athens, GA (presented by L. K. Pennington)	
Goff, K. A. ^g , M. F. Oldfather, J. Nachlinger, B. Smithers, M. J. Koontz, J.	2024
Bishop, C. Bishop, M. T. Burke, and S. N. Sheth . "Limited directional change in mountaintop plant communities over 19 years in the Sierra Nevada and Great Basin, U.S.A." MtnClim, Lake Tahoe, CA (presented by M. F. Oldfather)	
Waits, J., S. Sheth , and L. Flores-Rentería. "Phenological variation and evolution across space and time in <i>Erythranthe cardinalis</i> ." Ecological Society of America, Long Beach, CA (presented by J. Waits)	2024

Wilborn-Pilotte, O., E. Cook, K. Kutella, S. Sheth , and J. Diez. "Pollination strategy as an evolutionary response to changing climate in <i>Erythranthe cardinalis</i> ." Ecological Society of America, Long Beach, CA (presented by O. Wilborn-Pilotte)	2024
Anstett, D., J. Anstett, J., S. Sheth , D. Moxley, M. Jahani, K. Huang, M. Todesco, R. Jordan, L. Rieseberg, A. Angert. "Does genetic offset predict population decline?" Ecological Society of America, Portland, OR (presented by D. Anstett)	2023
Anstett, D., J. Anstett, J., S. Sheth , D. Moxley, M. Jahani, K. Huang, M. Todesco, R. Jordan, L. Rieseberg, A. Angert. "Does genetic offset predict population decline?" Evolution, Albuquerque, NM (presented by D. Anstett)	2023
Cheng, B., M. Sasaki, J. M. Barley, S. Gignoux-Wolfsohn, C. G. Hays, M. W. Kelly, A. B. Putnam, S. N. Sheth , and A. R. Villeneuve. "Greater local adaptation of thermal limits within marine than terrestrial species" Benthic Ecology Meeting, Miami, FL (presented by B. Cheng)	2023
Goff, K. A. ^g , M. F. Oldfather, J. Nachlinger, B. Smithers, M. J. Koontz, J. Bishop, C. Bishop, and S. N. Sheth . "Plant community responses to climate change over an 18-year period on alpine summits in the Sierra Nevada and Great Basin, USA." MtnClim, Gothic, CO (poster presented by K. A. Goff)	2022
Lee-Yaw, J. A., McCune J. L., Pironon, S. and S. N. Sheth . "How well do species distribution models predict parameters of interest in population biology?" Ecological Society of America; Montreal, Canada (presented by J. Lee-Yaw)	2022
Preston, J. C, <u>R. Wooliver</u> ^P , H. Driscoll, A. Coughlin ^t , and S. N. Sheth . "Spatial variation in high temperature-regulated gene expression predicts evolution of plasticity with climate change in the scarlet monkeyflower." Botany (virtual; presented by J. C. Preston)	2021
Olliff Yang, R. L., S. N. Sheth , and D. Ackerly. "Population differentiation in flowering time in <i>Lasthenia gracilis</i> , a widespread annual forb." Botany (virtual; presented by R. L. Olliff Yang)	2021
Smithers, B. V., M. F. Oldfather, M. J. Koontz, J. Bishop, C. Bishop, J. Nachlinger, and S. N. Sheth . "Community turnover by composition and climate affinity across scales in an alpine system." Ecological Society of America (virtual; presented by B. Smithers)	2020
<u>Wooliver, R.</u> ^P , <u>E.E. Vtipil</u> ^g , and S.N. Sheth . "A call for unified study of plant thermal performance in a warming world." Botany (virtual; presented by R. Wooliver)	2020
Querns, A. ^g , <u>R. Wooliver</u> ^P , M. Vallejo-Marín, and S.N. Sheth . "The evolution of thermal performance in native and invasive populations of <i>Mimulus guttatus</i> ." Botany (virtual; poster presented by A. Querns)	2020
*** Winner of Best Graduate Student Poster in Ecology ***	
Wooliver, <u>R.</u> ^P , S. Tittes, and S.N. Sheth . "Can plant thermal tolerance evolve under climate change? A comparison of central and edge populations." Southeast Population Ecology and Evolutionary Genetics, Clemson, SC (presented by R. Wooliver)	2019

Vtipil, E.E. ^{u,g} and S.N. Sheth. "The evolution of flowering time in response to climate change in <i>Erythranthe cardinalis</i> ." Southeast Population Ecology and Evolutionary Genetics, Clemson, SC (poster presented by E. Vtipil).	2019
*** Winner of Second Best Graduate Student Poster ***	
Kulbaba, M., S.N. Sheth, R.E. Pain, V.M. Eckhart, and R.G. Shaw. "Adaptive potential and realized changes in fitness in natural populations." Society for the Study of Evolution, Montpellier, France (poster presented by M. Kulbaba)	2018
Sheth, S.N. and A.L. Angert. "Demographic compensation does not rescue <i>Erythranthe cardinalis</i> populations at the southern edge of the species range." Ecological Society of America, Portland, OR	2017
Kulbaba, M., R.E. Pain, V.M. Eckhart, S.N. Sheth, and R.G. Shaw. "The immediate capacity for adaptation and its realization in natural plant populations." International Botanical Congress, Shenzhen, China	2017
Sheth, S.N., M. Kulbaba, R.E. Pain, and R.G. Shaw. "Expression of additive genetic variance for fitness in a population of partridge pea grown in two field sites." Society for the Study of Evolution, Portland, OR (presented by R.G. Shaw)	2017
Sheth, S.N., W.A. Freyman, B.G. Baldwin, and D.D. Ackerly. "Relationships among rates of climatic niche evolution and diversification." Society for the Study of Evolution, Austin, TX (poster)	2016
Sheth, S.N. and A.L. Angert. "Artificial selection reveals high genetic variation in phenology at the trailing edge of a species range." Ecological Society of America, Baltimore, MD	2015
Sheth, S.N. and A.L. Angert. "Does a jack-of-all-temperatures have a large geographic range?" Society for the Study of Evolution, Snowbird, UT	2013
Sheth, S.N., I. Jiménez, and A.L. Angert. "Effects of niche properties on variation in geographic range size among species of western North American monkeyflowers." Ecological Society of America, Portland, OR	2012
Sheth, S.N., L.G. Lohmann, T. Distler, and I. Jiménez. "The Wallacean shortfall: bias in estimates of geographic range size." Botanical Society of America, St. Louis, MO (presented by I. Jiménez)	2011
Sheth, S.N. and A.L. Angert. "Ecological niche attributes and geographic range size in western North American monkeyflowers." Society for the Study of Evolution, Portland, OR	2010
Sheth, S.N., L.G. Lohmann, I. Jiménez, and T. Consiglio. "Riesgo de extinción en Bignonieae (Bignoniaceae) estimado con datos de herbario." Congreso Latinoamericano de Botánica. Santo Domingo, Dominican Republic (presented by L. G. Lohmann)	2006

TEACHING

North Carolina State University

Plant Ecology, PB450/550-001, solo instructor	2019 - present
Colorado State University	
Principles of Plant Biology Laboratory, teaching assistant	2008 - 2014
Plant Ecology, guest lecturer	2012 - 2013
Plant Ecology, teaching assistant	2011 - 2012

Biology of Organisms, guest lecturer	2009
Cache La Poudre Junior High School, NSF GK-12 fellow, LaPorte, CO	2008 - 2009
Missouri Botanical Garden	
Neotropical Plant Families, guest lecturer for University of Michigan course	2008
Conservation Biology, guest lecturer for University of Missouri - St. Louis course	2008
University of Missouri - St. Louis	
McCluer High School, NSF GK-12 fellow, Florissant, MO	2005 - 2006
Organisms and the Environment Laboratory, guest lecturer	2005
AmeriCorps Partnership for Youth	
Woodward Elementary School, tutor and teaching assistant, St. Louis, MO	2002 - 2003
MENTORING	
North Carolina State University	
<i>Postdoctoral associates</i>	
Dr. Lucas Albano	2024 - present
Dr. Lillie Pennington (co-advised and based at U. of Georgia)	2023 - present
Dr. Rachel Wooliver	2018 - 2020
<i>Graduate students</i>	
Annabel Lewis (Ph.D.)	2024 - present
Kaleb Goff (Ph.D.)	2021 - present
Emma Vtipilthorpe (Ph.D.)	2020 - 2021
Aleah Querns (M.S.)	2018 - 2020
Emma Vtipil (M.R.)	2019 - 2020
<i>Undergraduate researchers</i>	
Devin Adas	2021
Brooke Caldwell	2019 - 2020
Sulma Correa	2024
Eve Eddy	2025 - present
Mataeus Funderburk (Honor's thesis student; McNair Scholars Program)	2022 - 2025
Natalie Gold	2019
Mariah Kidd	2019 - 2020
Catherine Laufenberg (Honor's thesis student; NCSU Chilton Research Awardee)	2023 - 2025
Sophie Meng	2022 - 2023
Cristina Payst	2023 - 2025
Daisy Ryan	2020 - 2021
Emily Powell	2021
Everett Strain	2025 - present
Jessie Torres	2018 - 2019
Anika Vaidya	2025 - present
Emma Vtipil (Honor's thesis student; NCSU Chilton Research Awardee)	2018 - 2019
Mia Wiegmann	2018 - 2021
Emma Wilson	2021 - 2022
Collin Yurish	2018 - 2019
<i>Research technicians</i>	
Aeran Coughlin, Lab Manager	2019 - 2021
Derek Delong, Field Technician	2024
Maggie Evans, Field Technician	2024

Magdalene Lo, Field Technician	2021
MC Moazed, Field Technician	2023
Sahalie Pittman, Field Technician	2025
Malia Reiss, Field Technician	2022
Nathan Ross, Field Technician	2023
Kyla Schmitt, Field Technician	2025
Marissa Strebler, Field Technician	2025
Lindsay Villano, Field Technician	2023

Graduate student committees

Emily Cook, University of Oregon	2023 - present
Erin Eichenberger, NCSU	2020 - present
Erin Emmott, NCSU	2025 - present
Samuel Flake, NCSU	2018 - 2021
Melina Keighron, NCSU	2022 - present
Jimmy Kieu, Duke University	2024 - 2025
Gwen Kirschke, NCSU	2025 - present
Kira Lindelof, NCSU	2020 - present
Ryan O'Connell, Duke University	2020 - 2024
Elizabeth Paillan, NCSU	2025 - present
Simon Pinilla-Gallego, NCSU	2018 - 2021
Alden Sears, NCSU	2023 - present
Catie Sherry, NCSU	2023 - 2024
Anita Simha, Duke University	2020 - 2024
Jordan Waits, San Diego State University	2024
Brook Wallasch, California Polytechnic State University, San Luis Obispo	2024 - 2025
Dachuan Wang, University of Wisconsin-Madison	2024 - present
Greg Wilson, NCSU	2018 - 2019

University of California, Berkeley

Mentored 7th graders at King Middle School as part of Be a Scientist outreach program 2017

University of Minnesota

Sam Weaver (NSF REU student from St. Olaf College) 2015

Colorado State University

Amber Weimer (Honor's thesis undergraduate student) 2013 - 2014
Trained, mentored, and supervised 17 undergraduates & recent college graduates 2009 - 2014
Biological Summer Undergraduate Research Experience program committee member 2012

SERVICE

University service

Department head search committee, Dept. of Plant and Microbial Biology, NCSU	2025
Evolution faculty search committee, Dept. of Plant and Microbial Biology, NCSU	2024 - 2025
College of Agricultural and Life Sciences Research Committee , NCSU	2024
Plant Biology Graduate admissions committee, NCSU	2018 - 2024
College of Agricultural and Life Sciences greenhouse committee, NCSU	2019 - present
Ecology faculty search committee, Dept. of Plant and Microbial Biology, NCSU	2019 - 2020
Biology faculty search committee, Colorado State University	2012 - 2013

Professional service

Associate Editor, <i>The American Naturalist</i>	2025 - present
Advisory Board Member, Project Baseline (NSF-sponsored seed bank)	2025 - present
Member, Hamilton Award for Outstanding Graduate Student Presentation Committee, Society for the Study of Evolution	2024 - present
Chair, Workshop and Regional Society Committee, American Society of Naturalists	2023
Member, Workshop and Regional Society Committee, American Society of Naturalists	2021 - 2022
Manuscript reviewer: <i>American Journal of Botany</i> , <i>American Naturalist</i> , <i>Annals of Botany</i> , <i>AoB PLANTS</i> , <i>Biology Letters</i> , <i>BMC Evolutionary Biology</i> , <i>Conservation Biology</i> , <i>Current Biology</i> , <i>Ecography</i> , <i>Ecological Applications</i> , <i>Ecology</i> , <i>Ecology Letters</i> , <i>Evolution</i> , <i>Evolutionary Ecology</i> , <i>Functional Ecology</i> , <i>Journal of Animal Ecology</i> , <i>Journal of Ecology</i> , <i>Molecular Ecology</i> , <i>New Phytologist</i> , <i>Philosophical Transactions of the Royal Society B</i> , <i>PNAS</i> , <i>Proceedings of the Royal Society B</i> , <i>Science Advances</i> , <i>Trends in Ecology and Evolution</i>	2009 - present
Panelist: NSF Division of Environmental Biology	2022
Proposal reviewer: NSF Division of Environmental Biology	2014 - 2024
Book proposal reviewer: Oxford University Press	2018

Other service

Science Director and Board Member: GLORIA (Global Observation Research Initiative in Alpine Environments) Great Basin	2018 - present
Volunteer: Global Observation Research Initiative in Alpine Environments (GLORIA) Great Basin	2017 - present
Exhibitor, Reach For the Stars! Be a Star! STEM and Resource Fair for K-12 Students with Disabilities, Family and Friends, North Carolina State University	2025
Invited Speaker, New Hope Audubon Society Monthly Meeting, North Carolina Botanical Garden, Chapel Hill, NC. "Species ranges in a changing world"	2022
Invited Panelist, Community Dialogue on Asian Americans and Pacific Islanders in Ecology and Evolutionary Biology (virtual), Northeastern University Marine Science Center	2022
Invited Panelist, Forestry and Environmental Resources Leadership Board's Research Panel and Mixer, NCSU	2022
Invited Panelist, PhD Career Panel (virtual), Graduate Degree Program in Ecology, Colorado State University	2021
Exhibitor, Darwin Day, North Carolina Museum of Natural Sciences	2019, 2021, 2022
Primary Atlaser (Cary SE Priority Block) and Volunteer: North Carolina Bird Atlas	2021 - present

Judge, Southeast Population Ecology and Evolutionary Genetics	2019
Advisory board member: Science Ambassador Scholarship (for undergraduate women in science, technology, engineering, or math), Cards Against Humanity	2017 - 2018
Collaborated with National Park Service to recruit Navajo Nation students to assist with fieldwork in Canyon de Chelly National Monument, AZ	2009
Volunteer, Putnam Elementary Science Carnival, Fort Collins, CO	2009
Volunteer, Unidad Técnica (environmental NGO), Managua, Nicaragua	2001
WORKING GROUPS AND WORKSHOPS	
Climate-Demography Workshop, Rice University, Houston, TX	2023
Working group on evolutionary processes in Long-Term Ecological Research sites (Evo-LTER), Sevilleta National Wildlife Refuge LTER, La Joya, NM	2022
Mentoring Makes a Difference Workshop Series, North Carolina State University (virtual)	2022
HHMI Inclusive Excellence Faculty Workshop, North Carolina State University, Raleigh, NC	2021
Agricultural Leadership Learning Institute for Faculty, North Carolina State University, Raleigh, NC	2019
Evolution in Changing Seas Synthesis Workshop, Shoals Marine Laboratory, Appledore, ME	2019
Software Carpentry Workshop, Berkeley Institute of Data Sciences, Berkeley, CA	2016
Early Career Centennial Mentoring Program, Ecological Society of America, Baltimore, MD	2015
Quantitative Genetics and Mixed Models in Quantitative Genetics, Summer Institute in Statistical Genetics, University of Washington, Seattle, WA	2013
Intro to Python for ArcGIS Workshop, Colorado State University, Fort Collins, CO	2013
Science Communication Workshop, Colorado State University, Fort Collins, CO	2012
Living on the edge: integrating science into the management of range-margin populations, University of Wyoming, Laramie, WY	2010
Applied Phylogenetics Workshop, Bodega Bay Marine Laboratory, CA	2010
Working with ArcGIS Spatial Analyst (short course), Environmental Systems Research Institute, St. Charles, MO	2007
Distance Sampling Workshop, University of Missouri - St. Louis, St. Louis, MO	2006
Assessing extinction risk in Bignonieae (summer internship), Center for Conservation and Sustainable Development, Missouri Botanical Garden, St. Louis, MO	2005
Geographic Information Systems (course), University of Missouri - St. Louis	2004
Tropical Biology: An Ecological Approach (course), Organization for Tropical Studies, Costa Rica	2004
Historical Biogeography (short course), University of Missouri - St. Louis	2004

PROFESSIONAL AFFILIATIONS AND SOCIETIES

Faculty Affiliate: NC State Global One Health Academy

Faculty Affiliate: NC State Genetics and Genomics Academy

Faculty Affiliate: Southeast Climate Adaptation Science Center

American Society of Naturalists

Botanical Society of America

Ecological Society of America

Society for the Study of Evolution

last updated November 25, 2025