

CURRICULUM VITAE

Carrie M. Tribble

Postdoctoral Fellow

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University of Hawai'i at Mānoa

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Educational Background

University of California, Berkeley	Integrative Biology	Ph.D., 2020
Williams College	Biology	B.A., 2013 <i>magna cum laude</i>

Research and Professional Appointments

Beginning 2024	Assistant Professor and Curator, University of Washington Department of Biology and the Burke Museum
2022 – present	National Science Foundation Postdoctoral Research Fellow in Biology
2022 – present	Collections Manager, Joseph R. Rock Herbarium at UH Mānoa
2020 – 2022	Postdoctoral researcher, University of Hawai'i at Mānoa
2016 – 2018	Trainee in NSF NRT: Data Sciences for the 21 st Century: Environment and Society
2014 – 2015	Intern with the Smithsonian Tropical Research Institute
2013 – 2015	Fulbright Student Researcher with the International Institute of Education

Grants, Fellowships, and Awards

2023 *Franklin Research Grant* from the Am. Phil. Soc. (\$6,000)

2023 *Mini-ARTS Award* from the Society of Systematic Biology (\$4,000)

2022 *External collaborator on Spanish national research grant: "Patterns and mechanisms of plant diversification driven by chromosome shifts."* (€194,000)

2021 *NSF Postdoctoral Research Fellowship in Biology in Plant Genomes* (\$216,000)

2020 *Dissertation Completion Award*, UC Berkeley Integrative Biology Department (\$2,500)

2019 *Award in Tropical Botany* from the Garden Club of America (\$5,500)

2019 *Lewis and Clark Fund for Exploration and Field Research*, Am. Phil. Soc. (\$5,000)

2018 *Summer Research Award* from the UC Berkeley Integrative Biology Department (\$1,750)

2017 *Mary Sue Ittner Grant for Bulb Studies* from the Pacific Bulb Society (\$500)

2017 *Graduate Student Research Award* from the Society for Systematic Biology (\$1,300)

2017 *Graduate Student Training Fellowship* from the Torrey Botanical Society (\$1,000)

2017 *William Anderson Graduate Student Award*, American Society for Plant Taxonomy (\$1,000)

2016 *Outstanding Graduate Student Instructor Award* from UC Berkeley

2016 *Tinker Summer Field Research Grant*, UC Berkeley (\$1,000)

2015 *NSF Graduate Research Fellowship Program award* (\$138,000)

2013 *Fulbright Fellowship* for independent research in Peru (\$13,130)

Peer-Reviewed Publications [ORCID iD: 0000-0001-7263-7885](#)

12. Edwards-Calma^u, K., L. J. Jimenez, R. Zenil-Ferguson, K. Heyduk, M. K. Thomas, and **C. M. Tribble**, “Conservation applications of niche modeling: native and naturalized ferns may compete for limited Hawaiian dryland habitat,” *Applications in Plant Sciences*, 2024. DOI: [10.1002/aps3.11598](#). **Cover of Special Issue.**
11. Plunkert, M., J. Martínez-Gómez, Y. Madrigal, A. I. Hernández, and **C. M. Tribble**, “Tuber, or not tuber: Molecular and morphological basis of underground storage organ development,” *Current Opinion in Plant Biology*, vol. 80, p. 102544, 2024. DOI:[10.1016/j.pbi.2024.102544](#).
10. **Tribble, C. M.**, F. Alzate-Guarín, E. Gándara, A. Vartoumian^u, J. G. Burleigh, R. Zenil-Ferguson, C. D. Specht, and C. J. Rothfels, “The rapid radiation of *Bomarea* (Alstroemeriaceae: Liliales), driven by the rise of the Andes,” *Evolution*, vol. 78, no. 2, pp. 221–236, 2024. DOI: [10.1093/evolut/qpaa184](#). **Editor’s Choice & Cover of March Issue.**
9. Martínez-Gómez*, J., M. J. Song*, **C. M. Tribble***, B. T. Kopperud, W. A. Freyman, S. Höhna, C. D. Specht, and C. J. Rothfels, “Commonly used Bayesian diversification-rate models produce biologically meaningful differences on empirical phylogenies,” *Evolution Letters*, vol. 8, no. 2, pp. 189–199, 2024. DOI: [10.1093/evlett/grad044](#). **Cover of April Issue.**
8. Clark, J.L., A. Fierro-Minda, M. Johnson, N. Exe, **C. M. Tribble**, and L. Jost, “*Bomarea pastazensis* (Alstroemeriaceae) an exceptionally small new species from the eastern Andean slopes of Ecuador,” *PhytoKeys*, vol. 235, pp. 31–42, 2023. DOI: [10.3897/phytokeys.235.110525](#).
7. De La Cerda, G. Y., J. B. Landis, ..., **C. M. Tribble**, ..., and C. D. Specht, “Balancing read length and sequencing depth: Optimizing nanopore long-read sequencing for monocots with an emphasis on the liliales,” *Applications in Plant Sciences*, vol. 11, no. 3, p. e11524, 2023. DOI: [10.1002/aps3.11524](#).
6. **Tribble, C. M.**, M. R. May, A. Jackson-Gain^u, R. Zenil-Ferguson, C. D. Specht, and C. R. Rothfels, “Unearthing modes of evolution of hierarchical morphological traits: differences in root morphology underlie climatic adaptation in the Liliales,” *Systematic Biology*, vol. 72, no. 1, pp. 198–212, 2023. DOI: [10.1093/sysbio/syaa070](#).
5. Barido-Sottani, J., ..., **C. M. Tribble**, A. M. Wright, April, R. Zenil-Ferguson, T. A. Heath, “Lessons learned from organizing and teaching virtual phylogenetics workshops,” *The Bulletin of the Society of Systematic Biologists*, vol. 1, no. 2, 2022. DOI: [10.18061/bssb.v1i2.8425](#).
4. **Tribble, C. M.**, W. A. Freyman, J. Y. Lim, M. J. Landis, J. Barido-Sottani, B. T. Kopperud, S. Höhna, and M. R. May, “RevGadgets: An R package for visualizing Bayesian phylogenetic analyses from RevBayes,” *Methods in Ecology and Evolution*, vol. 13, no. 2, pp. 314–323, 2022. DOI: [doi.org/10.1111/2041-210X.13750](#).

3. **Tribble, C. M.**, J. Martínez-Gómez, F. Alzate-Guarín, C. J. Rothfels, and C. D. Specht, “Comparative transcriptomics of a monocotyledonous geophyte reveals shared molecular mechanisms of underground storage organ formation,” *Evolution & Development*, vol. 23, no. 3, pp. 155–173, 2021. DOI: [10.1111/ede.12369](https://doi.org/10.1111/ede.12369).
2. **Tribble***, C. M., J. Martínez-Gómez*, C. C. Howard*, J. Males, V. Sosa, E. B. Sessa, N. Cellinese, and C. D. Specht, “Get the shovel: morphological and evolutionary complexities of belowground organs in geophytes,” *American Journal of Botany*, vol. 108, no. 3, pp. 372–387, 2021. [10.1002/ajb2.1623](https://doi.org/10.1002/ajb2.1623).
1. Howard*, C. C., **C. M. Tribble***, J. Martínez-Gómez*, E. B. Sessa, C. D. Specht, and N. Cellinese, “1, 2, 3, GO! Venture beyond gene ontologies in plant evolutionary research,” *American Journal of Botany*, vol. 108, no. 3, pp. 361–365, 2021. [10.1002/ajb2.1622](https://doi.org/10.1002/ajb2.1622).

Preprints and Submitted Manuscripts

2. Song, M. J., F.-W. Li, F. Freund, **C. M. Tribble**, E. Toffelmier, C. Miller, H. B. Shaffer, and C. J. Rothfels, “The nitrogen-fixing fern *Azolla* has a complex microbiome characterized by multiple modes of transmission,” *bioRxiv*, 2024. [Preprint](#).
1. **Tribble***, C. M., J. I. Márquez-Corro*, M. R. May, A. L. Hipp, M. Escudero, and R. Zenil-Ferguson, “Detecting shifts in the mode of chromosomal speciation across the cosmopolitan plant lineage *Carex*,” *bioRxiv*, 2023. [Preprint](#).

* co-first authors ^u undergraduate mentee

Other Publications

2. Krieg, C. P., **C. M. Tribble**, and R. Long, “From theory to practice: new innovations and their application in conservation biology,” *Applications in Plant Sciences*, p. e11599, 2024. [10.1002/aps3.11599](https://doi.org/10.1002/aps3.11599).
1. M. Escudero, E. Maguilla, J. I. Márquez-Corro, S. Martín-Bravo, I. Mayrose, A. Shafir, L. Tan, **C. M. Tribble**, and R. Zenil-Ferguson, “Using ChromEvol to Determine the Mode of Chromosomal Evolution,” in *Plant Cytogenetics and Cytogenomics: Methods and Protocols*, pp. 529–547, Springer, 2023.

Seminars and Conference Presentations

Invited Conference or Symposium Contributions

3. **Tribble, C. M.**, “Evolución del género *Bomarea* (Alstroemeriaceae) en el Neotrópico.” Invited contribution to the First Annual Symposium of the Jardín Botánico Medellín: Advances en el Conocimiento de la Flora Colombiana, 2023^{es}.
2. **Tribble, C. M.**, “Macroevolutionary consequences of going underground: How belowground structures allow plants to thrive in seasonal climates.” Invited contribution to the 18th Annual Early Career Scientists Symposium: Global Change and Its Consequences for Green Life, at the University of Michigan Matthaei Botanical Gardens, 2023.

1. **Tribble, C. M.**, J. Martínez-Gómez, F. Alzate-Guarin, C. J. Rothfels, and C. D. Specht, “Comparative transcriptomics of tuberous vs. non-tuberous roots of the tropical monocotyledonous geophyte *Bomarea multiflora* (Alstroemeriaceae).” Invited talk as part of the "Time to dig: the importance of underground storage organs in plant evolution" colloquium: BOTANY 2019 meeting, 2019.

Invited Seminars

- 2024 Universidad Mayor de San Andres, Herbario Nacional de Bolivia (with Fernando Alzate)^{es}
- 2023 Michigan State University Department of Plant Biology (Graduate student invited speaker)
- 2023 University of Hawai'i at Mānoa School of Life Sciences
- 2023 University of Arkansas Department of Biological Sciences
- 2023 New York Botanical Garden
- 2023 Wake Forest University Department of Biology
- 2023 University of Washington Burke Museum
- 2023 University of Washington Department of Biology
- 2023 University of Illinois Urbana Champaign Department of Plant Biology
- 2022 Universidad de Antioquia Instituto de Biología^{es}
- 2022 Oklahoma State University Department of Plant Biology, Ecology, and Evolution
- 2021 University of Florida Department of Biology
- 2021 noRth: Conference for R users in the Twin Cities and greater north region
- 2021 University of Hawai'i at Mānoa Ecology, Evolution, and Conservation Biology Group
- 2020 University and Jepson Herbaria, University of California, Berkeley
- 2018 Universidad Autónoma del Estado de Morelos^{es}

Organized Symposia and Colloquia

- 2021 Modeling the Processes that Mediate Speciation and Extinction Rates Across Plants. Colloquium: Botany 2021 Virtual Conference.

Selected Conference Talks and Posters

8. Lau, Priscilla^u, S. Zhang^u, J. G. Burleigh, L. Huiet, R. Zenil-Ferguson, K. Wood, C. J. Rothfels, and **C. M. Tribble**^p, “Is Hawaiian *Doryopteris* an incipient radiation?.” Talk presented at the BOTANY 2023 meeting, 2023.
7. **Tribble, C. M.**, M. R. May, R. Zenil-Ferguson, C. D. Specht, and C. J. Rothfels, “Unearthing modes of evolution of hierarchical morphological traits: differences in root morphology underlie climatic adaptation in Liliales.” Talk presented at the Evolution 2021 meeting ([video](#)), 2021.
6. **Tribble, C. M.**, F. Alzate-Guarín, A. Vartoumian^u, J. G. Burleigh, R. Zenil-Ferguson, C. D. Specht, and C. J. Rothfels, “Untangling the phylogenetic relationships of *Bomarea* (Alstroemeriaceae).” Talk presented at the BOTANY 2021 meeting ([video](#)), 2021.
5. Howard, Cody Coyotee, **C. M. Tribble**, and E. Sessa, “Plant diversification in Africa.” Talk presented at the BOTANY 2021 meeting, 2021.

4. Lau^u, Priscilla, S. Zhang^u, J. G. Burleigh, L. Huiet, R. Zenil-Ferguson, K. R. Wood, C. J. Rothfels, and **C. M. Tribble**, “Origins of Hawaiian *Doryopteris* (Pteridaceae).” Poster presented at the BOTANY 2021 meeting, 2021.
3. Tajima^u, Adia, **C. M. Tribble**, J. G. Chery, and C. J. Rothfels, “Comparative anatomy of climbing and non-climbing monocotyledenous sister genera of Alstroemeriaceae.” Poster presented at the BOTANY 2019 meeting, 2019.
2. **Tribble, C. M.**, A. Lyons, D. Beal, J. Lee, N. Pak, E. Riddell, K. Wefferling, and K. Wrensford, “Project Field Equity (Fe): A three-pronged approach to preventing SVSH & maximizing inclusivity in biological fieldwork.” Poster presented at the 2019 NASEM Action Collaborative on Preventing Sexual Harassment in Higher Education, 2019.
1. Jackson-Gain^u, Abigail, **C. M. Tribble**, and C. J. Rothfels, “Species distribution modeling in the order Liliales.” Poster presented at the BOTANY 2018 meeting, 2018.

* co-first authors ^u undergraduate mentee ^p presenting author, if not first ^{es} Spanish language

Teaching and Mentoring

present	Led DNA & RNA extraction workshops at collaborating institutions (Universidad Nacional de Colombia and Museo de Historia Natural UNMSM)
present	Data Carpentry Instructor; most recently co-led an introductory R workshop at the University of Hawai‘i at Mānoa (2023)
present	Mentor for two undergraduate or post-bacc students at University of Hawai‘i at Mānoa: both have received travel grants to attend and present at major international conferences (SACNAS 2022, SSB 2023, Hawai‘i Conservation Conference 2023, SACNAS 2023).
2021	Co-instructor of Stay-at-Home RevBayes Workshop Spring 2021
2021	Guest lecturer on plant systematics (UC Berkeley)
2020	Guest lecturer on statistical phylogenetics (UC Berkeley)
2020	Instructor of State-dependent Diversification Models via Graphical Models and RevBayes at the Society for Systematic Biology 2020 meeting
2019	Instructor for UC Berkeley’s Center for Computational Biology Python Bootcamp
2018	UC Berkeley Graduate student instructor (GSI): IB 200 (graduate level course on the core theory and methodology of phylogenetics)
2016–2018	Designed and led introductory R workshops for faculty and students at UC Berkeley
2017	Designed and led an R workshop for plant systematic students in La Selva Biological Research Station, Costa Rica (Spanish language)
2016	UC Berkeley graduate student instructor: Climate Change & the Future of California
2016	Received the Outstanding Graduate Student Instructor Award from UC Berkeley
2015	UC Berkeley Graduate student instructor: Bio 1B (introductory biology)
2015-2020	Mentor for six undergraduate students at UC Berkeley: three presented at major conferences (2018, 2019, 2020) and two are currently working on first-author publications.

Outreach and Service

Public lectures

- 2019 *PLANTS + PEOPLE Lunchtime Lectures: Evolution and Domestication of Bomarea edulis*, UC Botanical Garden
- 2019 *RevGadgets: developing user-friendly R interfaces for command line evolutionary inference methods*, Women in Data Science event hosted by R-Ladies and Lyft
- 2018 *Hablemos de Evolución: Historia evolutiva de Hawai'i*, Universidad Autónoma del Estado de Morelos, Cuernavaca, Mexico (spanish language)

Public engagement

- 2023 Organizer of Herbarium Blitz 2023 with the Botanical Society of America Hawai'i student chapter to show students and the public how to press and mount herbarium specimens
- 2021 – present Volunteer with [Protect & Preserve Hawai'i](#), working to restore Hawaiian ecosystems
- 2021 Co-taught Jepson public workshop "Fiddleheads! Become fern fluent"
- 2018 Panelist for 500 Queer Scientists inaugural event at California Academy of Sciences
- 2017 Designed and ran a public outreach event for families and children at the UC and Jepson Herbaria on fern biology and life cycles
- 2017 Featured in ScienceIRL videos on herbarium collections ([part 1](#) and [part 2](#))

Equity in science

- 2023 – present Member of the Society for the Study of Evolution's Diversity Committee
- 2022 – 2023 Member of the "Rooting Out Oppression Together & SHaring Our Outcomes Transparently" (Root&Shoot) Inclusive Conferences Working Group, designing more equitable and just botanical conferences
- 2022 – 2023 Participant in the Root&Shoot Movement Consulting Training series, learning to implement social justice principles in botanical society leadership roles
- 2021 – present Certified prevention trainer for [Building a Better Fieldwork Future \(BBFF\)](#): Preventing Sexual Harassment and Assault in Field Settings, ed multiple BBFF trainings for student, staff, and faculty at the University of Hawai'i at Mānoa and the Smithsonian Tropical Research Institute
- 2020 Participant in [Hālau Ohi'a](#), a group fostering a working knowledge of Native Hawaiian perspectives on biological resources and resource management
- 2020 – 2023 Member of the American Society of Plant Taxonomists' Diversity Committee
- 2019 – 2020 Received \$2,500 seed grant from UC Berkeley to support safer fieldwork initiatives
- 2018 & 2019 Attended and presented at several conferences to advocate for safer fieldwork: Clinton Global Initiative University meeting and the NASEM Action Collaborative on Sexual Harassment in Higher Education meeting
- 2018 – 2020 Served on the Women in Science graduate student advocacy group board, University of California, Berkeley
- 2017 – 2020 Co-founder and policy coordinator of [Project Field Equity \(Fe\)](#) at UC Berkeley

Service

- 2024 National Science Foundation Panelist
- 2023-2024 Guest Editor of special issue of *APPS: Conservation Biology*
- 2022 Guest Associate Editor for *G3: Genes, Genomes, Genetics*
- 2017 – 2019 Graduate student representative to UC Berkeley Integrative Biology faculty

Referee

Referee for American Journal of Botany, Annals of Botany, the Botanical Journal of the Linnean Society, Molecular Phylogenetics and Evolution, New Phytologist, Functional Ecology, Evolution, and Madroño.

Coding and Programming Skills

- Lead developer and maintainer of an R package [RevGadgets](#) for visualizing phylogenetic activities, designed to make script-based phylogenetic programs like RevBayes more accessible to biologists
- Proficient in R, RevBayes, Bash, Git, and Python. See examples of my code on my [GitHub page](#) (github.com/cmt2).

Software Tutorials

- **Tribble, C. M.** and M. R. May, *Introduction to RevGadgets: Plotting the output of RevBayes analyses in the R package RevGadgets*, 2021. Available [here](#).

Museum Curation and Fieldwork

- Interim collections manager of the Joseph R. Rock Herbarium at the University of Hawai'i at Mānoa, supervising complete digitization of the collections and student engagement
- Experienced tropical field botanist: Peru (2013-2014, 2022, 2024), Bolivia (2024), Panama (2014-2015), Colombia (2016, 2022, 2023), Costa Rica (2017), Mexico (2018).
- Confident at planning multi-month field trips, including international permitting and export
- Dedicated to museum curation through deposition of specimens in regional and international collections and specimen annotation and revision

Professional Societies

Member of the American Society of Plant Taxonomists, the Society of Systematic Biologists, the American Fern Society, the Botanical Society of America, the Society for the Study of Evolution, and the International Association of Plant Taxonomy.