

Emma Reich

Pronouns: they/them/she/her

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EDUCATION

- In Progress **Northern Arizona University**
Ph.D. Informatics and Computing— Ecological and Environmental Informatics
Advisor: Dr. Kiona Ogle
Year of Study: 5th year
4.0 GPA
- 2023 **Northern Arizona University**
M.S. Informatics with Distinction
4.0 GPA
- 2019 **University of California, Berkeley**
B.S. Molecular Environmental Biology— Ecology concentration
3.6 GPA

RESEARCH

- 2023-present **NASA FINESST Fellow**
• Project: *Disentangling ecosystem-scale controls on coupled water and carbon fluxes.*
- 2023 **FLUXNET Secondment Fellow**, Max Planck Institute for Biogeochemistry
• Project: *Decoupling of transpiration and photosynthesis at the ecosystem scale.*
Hosts: Dr. Jake Nelson and Dr. Sung-Ching Lee
- 2022 **USGS Intern/ Graduate Research Assistant**, Northern Arizona University/Southwest Biological Science Center
• Project: *Assessing site-specific soil moisture release functions to improve dryland water balance models.*
- 2021 **T3 Ecoinformatics Fellow**
- 2020 **Graduate Research Assistant**, Northern Arizona University
• Contributed to project on *Ecohydrological controls on evapotranspiration across a semiarid elevation gradient*, under the mentorship of Dr. Kiona Ogle and Dr. Kimberly Samuels-Crow.
- 2017-19 **Research Assistant**, UC Berkeley, Ackerly/Dawson Labs
• Collaborated on project on vulnerability to embolism in California oaks led by Dr. Robert Skelton and Dr. Leander Anderegg.
• Independent research on flower phenology and pollinator resources across a heterogeneous grassland landscape after fire disturbance.
• Assisted with project on phenology dynamics in California grassland communities as part of doctoral candidate Rachael Olliff Yang's dissertation.
• Assisted with project on genetic diversity in red oaks.

- 2018 **Field Biologist/Student Researcher**, Richard B. Gump South Pacific Research Station, Mo'orea, French Polynesia
- Studied the effects of temperature on decalcification in crustose coralline algae from different thermal environments.
- 2017 **Research Assistant**, UC Berkeley, Sousa Lab
- Prepared leaves for stable isotope analysis and determined soil chemical composition as a part of doctoral candidate Audrey Hayne's dissertation.
- 2016 **Research Assistant**, UC Berkeley, Koehl Lab
- Recorded movement patterns of marine larvae in response to acceleration from videos on Image J and recorded data in Excel. Observed biomechanical response and larval settlement of organisms swimming in turbulent flow.
- 2016 **Research Assistant**, UC Berkeley, Looy Lab
- Assisted with project on the diversity of tropical plant fossils from the Cretaceous period as part of Dr. Dori Contreras' dissertation.

TECHNICIAN POSITIONS

- 2019 **Field Technician**, National Ecological Observatory Network, Alaska
- Collected vegetation diversity data in northern Alaska.
- 2018-19 **Prep Room Assistant**, UC Berkeley, Museum of Paleontology
- Prepared marine vertebrate and invertebrate fossils from the Miocene as a part of the Calaveras Dam project.

PUBLICATIONS AND PRESENTATIONS

Reich, E., Samuels-Crow, K. E., Braford, J., Litvak, M. E., Schlaepfer, D., and K. Ogle. A semi-mechanistic model for partitioning evapotranspiration reveals transpiration dominates the water flux in drylands. 2024. *JGR Biogeosciences*. <https://doi.org/10.1029/2023JG007914>

Reich, E., Samuels-Crow, K. E., Braford, J., Litvak, M. E., Schlaepfer, D., and K. Ogle. Ecosystem-scale intrinsic water-use efficiency is infrequently optimal in drylands. Poster presented at AGU Fall Meeting (2023).

Reich, E., Nelson, J., Lee, S-C., Zhang, Q., Migliavacca, M., Wohlfahrt, G., Paul-Limoges, E., Rossini, M., Martini, D., Zhang, Y., Kaushal, R., and K. Ogle. Evaluating photosynthesis-transpiration decoupling across timescales and ecosystems. Poster presented at FLUXNET Annual Meeting (2023).

Reich, E., Samuels-Crow, K. E., Braford, J., Litvak, M. E., Schlaepfer, D., and K. Ogle. Evapotranspiration partitioning in drylands using eddy covariance and ECOSTRESS Data. Presented at AGU Fall Meeting (2022).

Reich, E., Samuels-Crow, K. E., Braford, J., Litvak, M. E., Schlaepfer, D., and K. Ogle. Water-use efficiency predictors along an aridity gradient. Presented at the 16th Biennial Conference of

Reich, E., Samuels-Crow, K. E., Braford, J., Litvak, M. E., Schlaepfer, D., and K. Ogle. Partitioning evapotranspiration in drylands using eddy covariance fluxes and ECOSTRESS data. Poster presented at ESA Meeting (2021).

Skelton, R. P., Anderegg, L. D. L., Papper, P., **Reich, E.**, Dawson, T. E., Kling, M., Thompson, S. E., Diaz, J., and D. D. Ackerly. 2019. No local adaptation in leaf or stem xylem vulnerability

to embolism, but consistent vulnerability segmentation in a North American oak. *New Phytologist*. doi.org/10.1111/nph.15886

Reich, E. The acclimatization and susceptibility to grazing of crustose coralline algae from thermally variable and stable environments. Poster presented at Bay Area Conservation Biology Symposium (2019). Talk presented at UC Berkeley Integrative Biology department symposium (2018).

AWARDS

2023	FLUXNET Secondment recipient
2022-25	NASA FINESST recipient
2021	NSF Graduate Research Fellowship Program (GRFP) Honorable Mention
2020-21	NAU T3 Fellowship recipient
2020-24	NAU Presidential Fellowship Award recipient
2020	Most Compelling Research T3 speaker distinction

SYNERGISTIC ACTIVITIES

FLUXNET Outreach Working Group member. Planned art residencies between flux tower PIs and artists.

NAU Informatics Broadening Participation Committee officer/founder. An organization of graduate students with the aim to foster participation from underrepresented groups in science.

NAU Ecoinformatics Seminar 2022-2023 Early Career Honorarium Award founder. Acquired funding to invite and compensate two early career researchers to speak at NAU per year.

ResBaz AZ 2023 Steering Committee member. Assisting the planning of a collaborative research event for data-intensive training among quantitative scientists in Arizona.

Transcriptions Magazine editor. An online zine with the goal of building community space for scientists who are trans, non-binary, two-spirit, and gender non-conforming.

International Society of Non-binary Scientists member. An international community to build solidarity among non-binary scientists.

2022 Women and Gender Diverse People in STEM Panel speaker. A Northern Arizona University College of Environment, Forestry, and Natural Sciences organized panel for undergraduates.

GRADUATE COURSEWORK

Spring 2023	Writing Scientific Papers
Fall 2022	Applied Bayesian Modeling
Spring 2022	Large-scale Data Structures and Organization • Visualizing Scientific Results • Ethics and Strategies in Science Communication
Fall 2021	Software Development & Methodologies • Team-based Research • Research Methods in Informatics and Computing
Spring 2021	Ecological Modeling • Modern Regression II • Data Mining & Machine Learning

Fall 2020 Advanced Survey in Ecoinformatics Tools • Modern Regression I • Concepts in Ecology
Spring 2019 Stable Isotope Ecology (completed during undergraduate degree)