Emma Reich
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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
4.0 GPA

2019 **University of California, Berkeley**
B.S. Molecular Environmental Biology— Ecology concentration
3.6 GPA

RESEARCH

2023-present **NASA FINESST Fellow**

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 Lab
• 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. *JGR Biogeosciences* (2024). In review.

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 Science & Management on the Colorado Plateau and Southwest Region (2022).

Ogle, K., **Reich, E**., Samuels-Crow, K. E., Litvak, M. E., Braford, J., and D. Schlaepfer. A mixture modeling approach for imputing missing environmental time-series data: Application to soil water content along an elevation gradient. Poster presented at ESA Meeting (2022).

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).

Samuels-Crow, K. E., **Reich, E**., Litvak, M. E., and K. Ogle. Across semiarid ecosystems, evapotranspiration responds to environmental drivers over longer timescales when conditions are dry. Poster presented at AGU Fall Meeting (2020).

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 pilot 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.

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)