

Lia Ossanna

PHD STUDENT · RANGELAND AND RESTORATION ECOLOGIST

School of Natural Resources and the Environment, University of Arizona, Tucson, AZ 85719, USA

☎ (520) 396-9155 | ✉ lossanna@arizona.edu | 🌐 lossanna

Education

University of Arizona

PHD STUDENT IN NATURAL RESOURCES, ECOLOGY OF RANGELANDS

Tucson, AZ

Aug 2020 - Present

- Advisor: Elise Gornish

University of Arizona

BS IN ENVIRONMENTAL SCIENCE WITH HONORS, SUMMA CUM LAUDE

Tucson, AZ

Aug. 2015 - May 2019

- Minors in Sustainable Plant Systems, East Asian Studies
- Thesis: Nitrogen dynamics as an indicator of mine waste revegetation progress

Fellowships & Awards

FELLOWSHIPS

- 2022-2023 **Data Science Ambassador**, University of Arizona
- 2019-2024 **NSF Graduate Research Fellow (\$138,000)**, National Science Foundation
- 2020-2021 **Graduate College Fellowship (\$1,400)**, University of Arizona
- 2019-2020 **Superfund Research Program Training Core Fellow**, University of Arizona
- 2018-2019 **Undergraduate Research Fellowship (\$2,000)**, American Society for Microbiology

AWARDS

- 2022 **Student Travel Grant (\$500)**, Ecological Society of America, Southwest Chapter
- Travel Grant (\$1,100)**, Graduate and Professional Student Council, University of Arizona
- 2019 **2nd Place Student Poster Presentation**, Society for Ecological Restoration
- Outstanding Senior**, University of Arizona Department of Environmental Science
- Silver Award for Excellence**, University of Arizona Honors College
- 2nd Place SWESx Undergraduate Oral Presentation**, UArizona Dept of Environmental Science
- 2018 **1st Place SWESx Undergraduate Oral Presentation**, UArizona Dept of Environmental Science
- 2017 **2nd Place SWESx Undergraduate Poster Presentation**, UArizona Dept of Environmental Science
- 2015-2019 **Dean's List with Distinction**, University of Arizona

Professional Experience

PhD Student

UNIVERSITY OF ARIZONA

Tucson, AZ

Aug. 2020 - Present

- Research on restoration ecology and invasive plant species management.

Research Specialist

UNIVERSITY OF ARIZONA

Tucson, AZ

May 2019 - Aug. 2020

- Analyzed microbial diversity, community composition, and soil microbe-plant relationships for mine reclamation and rubber biosynthesis in arid lands.
- Managed quality control standards and protocol optimization for DNA extractions and qPCR.

Undergraduate Researcher

UNIVERSITY OF ARIZONA

Tucson, AZ

July 2016 - May 2019

- Researched mine revegetation to support sustainable reclamation management practices by analyzing quality of waste rock and capping materials (soil samples).
- Managed total nitrogen analysis and DNA extractions for soil and waste rock samples.
- Completed individual research on biogeochemical indicators of soil quality, and the effects of nitrogen cycling and fertility island on ecosystem regeneration for Honors Thesis.

Environmental Organic Chemistry Preceptor

UNIVERSITY OF ARIZONA

Tucson, AZ

Aug. 2018 - Dec. 2019

- Upper-division mixed graduate/undergraduate class.
- Held weekly office hours, and homework and test review sessions.
- Graded homework and exams.

Citizen Scientist Intern

SAGUARO NATIONAL PARK

Tucson, AZ

Aug. 2015 - May 2016

- Led and managed volunteer groups of all ages in conducting Centennial Saguaro Surveys.

Publications

Ossanna LQR, Gornish ES. 2022. Efficacy of labile carbon addition to reduce exotic invasive plants: A review and meta-analysis. *Journal of Applied Ecology*. (In review)

Ossanna LQR, Serrano K, Jennings LL, Dillon J, Maier RM, Neilson JW. 2022. Progressive development in belowground indicators associates with sustainable plant establishment during copper mine waste revegetation. *Applied Soil Ecology*. (In review)

Research Presentations

Ossanna LQR, Sittig J, Miller M, Davis R, Gornish ES. Induced meandering watershed restoration using rock structures to decrease arroyo erosion. Poster presentation: Society for Range Management Annual Meeting. February 2022. Santa Fe, NM.

Ossanna LQR, Serrano K, Jennings LL, Maier RM, Neilson JW. Vegetation-driven soil development during waste rock reclamation at a copper mine. Oral presentation: Soil Science Society of America Annual Meeting. November 2020. Virtual.

Neilson JW, **Ossanna LQR**, Placido D, Elshikha DE, Dong C, Ponciano G, Maier RM, McMahan C. Associations between the Guayule (*Parthenium argentatum* G.) rhizosphere microbiome, plant growth stage, and rubber production. Oral presentation: Soil Science Society of America Annual Meeting. November 2020. Tucson, AZ (Virtual).

Ledesma L, **Ossanna LQR**, Placido D, Elshikha DE, Dong C, Ponciano G, McMahan C, Maier RM, Neilson JW. Associations between soil rhizosphere bioavailable phosphorus, phosphorus solubilizing microorganisms, and guayule growth stage and rubber production. Poster presentation: Soil Science Society of America Annual Meeting. November 2020. Virtual.

Ossanna LQR, Brown KS, Chen Y, Placido D, Elshikha DE, Dong C, Ponciano G, Wang S, Waller PM, Dierig D, McMahan C, Maier RM, Neilson JW. The significance of the soil microbiome to guayule production. Oral presentation: SBAR Annual Retreat. July 2020. Tucson, AZ (Virtual).

Jennings LL, **Ossanna LQR**, Fontana C, Farrell H, Kline A, Gornish E, Neilson JW, Maier RM. Biotic potential of degraded soil development on reclaimed mine tailings in southern Arizona. Poster presentation: American Geophysical Union Annual Meeting. December 2019. San Francisco, CA.

Ossanna LQR, Serrano K, Jennings LL, Neilson JW, Maier RM. Identifying biogeochemical indicators to measure fertility island effects during mine waste revegetation. Poster presentation: NIEHS Superfund Research Program Annual Conference. November 2019. Seattle, WA.

Ossanna LQR, Serrano K, Jennings LL, Neilson JW, Maier RM. Nitrogen dynamics as an indicator of mine waste revegetation progress. Poster presentation: Society for Ecological Restoration Southwest Chapter Annual Conference. November 2019. Tucson, AZ.

- Ossanna LQR**, Placido D, Elshikha DE, Dong C, Ponciano G, McMahan C, Maier RM, Neilson JW. Root-zone microbiome dynamics and guayule rubber production. Poster presentation: SBAR Annual Retreat. September 2019. Tucson, AZ.
- McMahan C, Placido D, Elshikha DE, Dong C, Ponciano G, **Ossanna LQR**, Neilson JW. Dormancy and the guayule (*Parthenium argentatum* G.) soil microbiome. Poster presentation: Association for the Advancement of Industrial Crops Annual Conference. September 2019. Tucson, AZ.
- Ossanna LQR**, Serrano K, Jennings LL, Neilson JW, Maier RM. Nitrogen dynamics as an indicator of mine waste revegetation progress. Poster presentation: American Society of Microbiology Annual Conference. June 2019. San Francisco, CA.
- Ossanna LQR**, Serrano K, Jennings LL, Neilson JW, Maier RM. Nitrogen dynamics as an indicator of mine waste revegetation progress. Oral presentation: University of Arizona SWESx. March 2019. Tucson, AZ.
- Ossanna LQR**, Serrano K, Jennings LL, Neilson JW, Maier RM. Nitrogen dynamics as a biogeochemical indicator of revegetation progress for mine waste rock. Poster presented at: Soil Science Society of America Annual Conference. January 2019. San Diego, CA.
- Jennings LL, **Ossanna LQR**, Theilmann ML, Neilson JW, Maier RM. Microbial bio-indicators of degraded lands on reclaimed mine tailings in southern Arizona. Invited oral presentation: Soil Science Society of America Annual Conference. January 2019. San Diego, CA.
- Serrano K, **Ossanna LQR**, Jennings LL, Neilson JW, Maier RM. Biogeochemical factors affecting phosphorous availability during revegetation of mine waste rock slopes. Poster presentation: Soil Science Society of America Annual Conference. January 2019. San Diego, CA.
- Ossanna LQR**, Serrano K, Jennings LL, Neilson JW, Maier RM. Using total nitrogen and DNA biomass content as biogeochemical indicators of incipient soil development through measuring mine waste rock revegetation. Oral presentation: University of Arizona SWESx. April 2018. Tucson, AZ.
- Ossanna LQR**, Gil-Loaiza J, Jennings LL, Maier RM, Neilson JW. Determining biogeochemical indicators of soil quality: Measuring mining waste rock revegetation progress using total nitrogen and biomass content. Poster presentation: University of Arizona SWESx. April 2017. Tucson, AZ.

Skills

Field work	Soil sampling; plant survey and rangeland monitoring; plant identification
Software & coding	Microsoft Office Suite, R/RStudio, Git/GitHub, Markdown, \LaTeX , ArcGIS Pro
Laboratory analyses	DNA extraction; PCR; qPCR; amplicon sequencing analysis; gel electrophoresis; soil chemical analysis

Professional Development

Container Basics Workshop

CYVERSE

Tucson, AZ (virtual)

May 2022

- 2-day intensive workshop on how to use containers workflows and improve reproducibility.

Reproducibility and Data Science Skills Workshop

UNIVERSITY OF ARIZONA

Tucson, AZ (virtual)

Feb. 2022 - Apr. 2022

- 10-session workshop covering Git and GitHub, project management and best practices for coding, and data cleaning and visualization in R.

Foundational Open Science Skills Workshop

CYVERSE

Tucson, AZ (virtual)

Sept. 2021 - Nov. 2021

- 10-week workshop covering the principles and practice of open science, developing data management plans and metadata standards, and using CyVerse infrastructure.

Software Carpentries Workshop

UNIVERSITY OF ARIZONA

Tucson, AZ

Oct. 2019

- 2-day intensive workshop on introductory Unix shell, Git/GitHub, and R/RStudio skills.

Transdisciplinary Environmental Science for Society

UNIVERSITY OF ARIZONA

Tucson, AZ (virtual)

Sept. 2019

- 4-week course designed to connect scientific knowledge with policymakers and practitioners through transdisciplinary research to solve complex environmental problems.

Service

- 2022-2023 **Natural Resources Graduate Student Organization**, Range Management Representative
- May 2022 **ResBaz Tucson**, Helper for Git/GitHub workshop
- Mar 2022 **Southern Arizona Regional Science and Engineering Fair (SARSEF)**, Judge
- Mar 2022 **UArizona Ecological Restoration Club**, Invited talk
- Girls on outdoor Adventures for Leadership and Science (GALS)**, Mentor
- 2021 **Reflecting on Postdoc Mentoring**, Panelist, University of Arizona
- ESA Early Career Outstanding Restoration Paper Award**, Judge
- 2019 **SBAR Project Puente**, Mentor for undergraduate intern, University of Arizona
- KXCI Thesis Thursday**, Invited guest, KXCI Community Radio

PROFESSIONAL MEMBERSHIPS

Ecological Society of America, Society for Range Management, Society for Ecological Restoration