

# MARIEKE LENA RAMSEY

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## EDUCATION

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<b>MS</b>	Northern Arizona University Biological Sciences	May 2023 GPA: 4.0
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Thesis: Lock Down the Dust: Exploring the Association Between *Coccidioides posadasii* and Biocrust

Advisor: Dr. Bridget Barker

<b>BS</b>	Northern Arizona University Major: Microbiology Minor: Chemistry	2017-2021 GPA: 3.38
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## HONORS AND AWARDS

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<b>Deans Honor List</b> For 3 academic semesters	2017-2021
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<b>Northern Arizona University Lumberjack Scholarship Award</b> Full tuition award, totaling \$42,600.00.	2017-2021
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## RESEARCH EXPERIENCE

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<b>Master's Research</b> , Pathogen and Microbiome Institute, NAU	2021 to Current
<ul style="list-style-type: none"><li>Studying the relationship between <i>Coccidioides</i> communities and biocrust in arid and semi-arid ecosystems of Arizona</li><li>Travel to field sites, collect soil samples, perform DNA soil extractions, RT-qPCR for <i>Coccidioides</i> detection, and biocrust cultivation and scoring</li><li>Leading the environmental portion of a 3-year ABOR TRIFF Award project identifying fluctuations on <i>Coccidioides</i> in the soil throughout the year comparing burrowed soils to surface soils as well as how weather may influence abundance</li><li>Experience in culturing <i>Coccidioides</i> TKO and passaging plates</li><li>ABSL-3 compliance practices and CITI certified for mice handling: scruffing, weights, necropsies, cardiac punctures, tissue extractions, plating and counting CFUs</li><li>Mentored and supervised undergrads in a BSL-2 laboratory</li></ul>	

<b>Undergraduate Research Assistant</b> , EnGGen (Full name) Lab, NAU	2020
<ul style="list-style-type: none"><li>Working with a PhD candidate under Dr. Gerard Allan to analyze isolated RNA extracted from germinated seeds of invasive and noninvasive cotton wood tree species from the Gila River and the Little Colorado River in Colorado</li><li>RNA extraction and PCR experience</li></ul>	

## WORK EXPERIENCE

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### **GTA for NAU Microbiology Lab**

Fall 2021 to Spring 2022

*Flagstaff, AZ*

- In charge of instructing two sections of the BIO205L (microbiology) for two semester at NAU
- Teach core microbiology concepts such as aseptic technique, bacterial staining, microscopy, PCR, gel electrophoresis, transformations, titer calculations, etc.

### **Supplemental Instruction for CHM360 (Biochemistry)**

2018

*Flagstaff, AZ*

- Facilitated three supplement instruction courses a week to help improve student retention on course concepts as well as providing study material

## PUBLICATIONS

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- Locking Down the Dust: Exploring the Association Between *Coccidioides posadasii* and Biocrust. **M.L. Ramsey** et al. 2023
- A Review: Biocrusts and the Impacts of Disturbances and Pathogens in Arid Ecosystems. **M.L. Ramsey** et al. (prep)
- The Ecology of Pathogenic Onygenales Fungi and the Impacts of Climate Change. E. Luberto, **M.L. Ramsey**, D.S. Kollath. (prep)

## CONFERENCE TALKS AND NEWS OUTREACH

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### **Talks:**

- **M.L. Ramsey.**, et al. “Locking down the dust: exploring the association between *Coccidioides posadasii* and biocrust”. Biennial Conference of Science & Management Flagstaff, AZ, September 2022 **(Oral)**.
- **M.L. Ramsey.**, et al. “Locking down the dust: exploring the association between *Coccidioides posadasii* and biocrust”. Coccidioidomycosis Study Group Tucson, AZ, March 2023 **(Oral)**
- **M.L. Ramsey.**, et al. “Locking down the dust: exploring the association between *Coccidioides posadasii* and biocrust”. Mycology Society of America Flagstaff, AZ, August 2023 **(Oral)**

### **News Articles:**

- CBC News (The National): A deadly fungus is creeping towards Canada because of climate change. *Lauren Pelley* 2023
- Vox: The devil lurking in the dust: How extreme weather is driving a deadly fungus further into the American West. *Keren Landman* 2023
- Arizona Center for Investigative Reporting: Scientists work to unravel fungus ecology as Valley fever expands throughout West. *Shaena Montanari* 2021

## SKILL AND TECHNIQUE

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### Field Biology Skills:

Sterile soil sampling  
Site tagging  
Biocrust stability scoring  
Registered NAU vehicle driver  
SRPMIC Cultural Sensitivity

### Lab Skills:

Gel electrophoresis and imaging  
Soil and Tissue DNA extraction  
RT-qPCR  
Plating, Passaging, and CFUs  
BSL-2 and ABSL-3 research compliance  
CITI mouse handling certified

## MENTORED

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- Katherine Curtin – Undergrad researcher, Current
- Emily Luberto – Research technician for Nevada Forest Services, 2023
- Ana Braga- Ph.D. student, Current
- Jacob Olson – Master's student, Current
- Jaida Salois – Undergrad researcher, Current
- Brianne Cooke – Master's student, 2021-2022

## REFERENCES

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Dr. Nancy Johnson,  
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Northern Arizona University  
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