

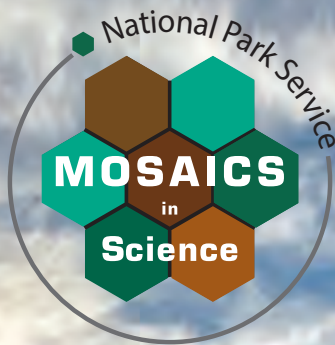


# 2020 Program Accomplishments Report

## **MOSAICS IN SCIENCE** Diversity Internship Program

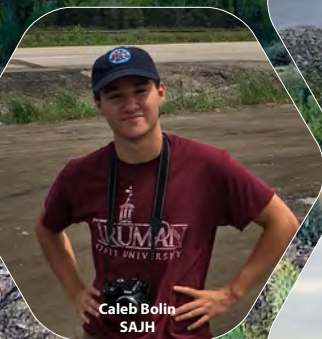






# 2020

## MOSAICS IN SCIENCE Diversity Internship Program







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Lindsey Ries speaks with Sheylda Díaz Méndez about Justin Wilson's work in bird conservation at Fire Island National Seashore, NY.



## EXECUTIVE SUMMARY

In 2020, the Mosaics in Science (MIS) Diversity Internship Program successfully completed its 7th year and placed 15 interns in 15 parks in ten of the 12 Unified Regions of the Department of the Interior (DOI) and three inventory and monitoring networks. These talented college students and recent graduates supported the NPS mission by completing important natural resource science projects, gaining on-the-ground work experience, and obtaining an understanding of the importance of conservation and resource stewardship on public lands.

Projects ranged from inventory and monitoring, to research, and developing and presenting educational and interpretive programs. The 2020 MIS interns' work contributed 6,920 service hours or the equivalent of 3.32 years of full time work doing critical science projects for the NPS.

In 2020, the Mosaics in Science Diversity Internship Program accomplished the following:

- Provided job opportunities to 15 interns during a global pandemic, when many projects and programs were canceled
- Conducted two site visits to Fire Island National Seashore, NY, and Wind Cave National Park, SD
- Hosted the first virtual workshop with participants in different time zones including Hawai'i, Puerto Rico, and Alaska



# WHO'S WHO IN MOSAICS IN SCIENCE

Mosaics in Science is supported by a dedicated team at the National Park Service and Environment for the Americas. The selection of host sites, promotion of the program, recruitment and hiring of interns, site visits, organization of the culminating intern workshop, and programmatic reports required over one year of effort by the NPS and Environment for the Americas. The success of this program is due to the tremendous support for all aspects of Mosaics in Science. Environment for the Americas appreciates the opportunity to be involved in such a valuable program that promotes youth engagement at national parks and opportunities to gain important career-building skills at some of the most beautiful places in the United States.

## ABOUT THE PARTNER ORGANIZATIONS

**Environment for the Americas**  
[www.environmentamericas.org](http://www.environmentamericas.org)

Environment for the Americas (EFTA) is a non-profit organization that is committed to providing environmental education opportunities and materials throughout the Western Hemisphere, with the primary goal of improving public understanding of shared resources and their conservation. EFTA believes providing opportunities for youth to become involved in science and natural resource careers is key to ensuring the protection and future existence of quality public lands and wildlife habitat. EFTA is committed to increasing participation in environmental education and outdoor recreation across all demographics and has conducted research and efforts to reduce barriers to participation since 2009.

**National Park Service, Geologic Resources Division**  
[www.nps.gov/subjects/geology](http://www.nps.gov/subjects/geology)

The NPS Geologic Resources Division (GRD), within the Natural Resource Stewardship and Science Directorate, provides Service-wide leadership in the understanding and management of geologic resources, processes, and energy and mineral development activities. GRD has a strong commitment to providing science-based, on-the-ground youth career development opportunities through the management of the Mosaics in Science Diversity Internship Program (created in 2013) and the long-standing Geoscientists-in-the-Parks (GIP) Internship Program (created in 1996).

**National Park Service, Youth Programs Division**  
[www.nps.gov/subjects/youthprograms](http://www.nps.gov/subjects/youthprograms)

The NPS Youth Programs Division engages youth between the ages of 5 and 35 years old in various National Park Service programs to develop a life-long commitment to support our national parks and protect our natural environment and cultural heritage. Currently there are over 25 youth programs operating throughout the National Park System. Youth programs encompass a wide range of missions and responsibilities including the fostering of a strong relationship between youth and the natural and cultural resources managed by the NPS and instilling a work ethic into our nation's youth.







## The Mosaics Team



**George McDonald**  
Division Chief  
Youth Programs Division



**Ernestine White**  
National Youth Employment Coordinator  
Youth Programs Division



**Limaris Soto**  
Program Manager  
National Park Service



**Cathleen Yung**  
Program Assistant  
National Park Service



**Chelsea Bitting**  
Program Analyst  
National Park Service



**Sheylda Díaz-Méndez**  
Program Coordinator  
Environment for the Americas



**Stephen Poblete**  
Internship Programs Assistant  
Environment for the Americas



# Statement of Purpose



## Mosaics in Science Statement of Purpose

The Mosaics in Science Diversity Internship Program provides diverse youth who are under-represented in natural resource science career fields with on-the-ground, science-based, work experience in the National Park System. Established in 2013, this multi-disciplinary program provides opportunities for undergraduate/graduate students and recent graduates to work on inventory and monitoring, research, GIS and other technologies, and interpretation and education projects. The Mosaics in Science Diversity Internship Program helps parks complete high priority science projects at a low cost to the federal government, connects the public to our parks through educational and interpretive programs led by the interns, and builds the next generation of park stewards. The program is administered by the National Park Service Geologic Resources and Youth Programs Divisions in partnership with Environment for the Americas.

## Program Objectives

- Provide meaningful and relevant science-based internships for racially and ethnically diverse undergraduate/graduate students and recent graduates allowing the NPS to increase relevancy, diversity and inclusion
- Support high priority resource management and visitor education and interpretation projects in national parks
- Promote the National Park Service mission

## Mosaics in Science Diversity Internship Sites: 2013 - 2020



**161**  
MIS interns



**72,950**  
Hours of service



**83**  
NPS Units



“Attending the virtual career workshop was an amazing experience. I was happy to see what all the other interns had been working on all summer and really appreciated the advice from the guest speakers. I gathered a lot of useful information from this experience that I will use to help start my professional career.”  
-Saida Burns-Moore,  
Wind Cave National Park, SD

# PROGRAM ALIGNMENT WITH DOI PRIORITIES

This program supports the following U.S. Department of the Interior (DOI) priorities and objectives outlined in the DOI Strategic Plan for Fiscal Years 2018 – 2022:

## Mission Area #1 – Conserving our Lands and Water

Goal 1 – Utilize science in land, water, species, and habitat management supporting decisions and activities. *Tania Parra's work in Glen Canyon National Recreation Area contributed to the park's knowledge of bat species and the habitats in which they are found.*

Goal 3 – Foster partnerships to achieve balanced stewardship and use of our public lands.

*Amani Canada connected local partners to Padre Island National Seashore to raise awareness of the sea turtles that depend on protected beaches. Partners included Texas A&M University in Corpus Christi, the Texas State Aquarium, the National Estuarine Research Reserve, and Friends of Padre.*

Completion of high priority STEM projects in parks in partnership with conservation organizations and the use of interns substantially helps the NPS achieve its resource management stewardship goals.

## Mission Area #3 – Expanding Outdoor Recreation and Access

Goal 2 – Enhance public satisfaction at DOI sites.

*Daniel Hubner assisted with the development of education curriculum at Hawai'i Volcanoes National Park. As a Native Hawaiian, Dan was able to create a curriculum that introduced visitors to the park's petroglyphs, native Hawaiian terms for natural and historical features, and the spectacular geological landscape.*

The Mosaics in Science Program directly supports this DOI priority by developing and providing science education programs and activities to park neighbors and the public and building stewards and supporters of our national parks.

The Mosaics in Science Program also closely aligns with recently released DOI Secretarial Order 3369 - Promoting Open Science (issued 9/28/18). This order requires DOI bureaus to “...base its decisions on the best available science and provide the American people with enough information to thoughtfully and substantively evaluate the data, methodology, and analysis used by the Department to inform its decisions.” Science projects completed in this program are intended to provide sound science for parks to use in decision-making and the results are provided to the public through reports, outreach materials, websites, and public interpretive and educational programs.



“Since beginning my internship, I have gained more skills in communication, from working on my loon video as well as collaborating with my peer mentors. Working with them has been amazing, and I have learned so much from them. Making this conservation video has taught me how important science communication is, and shown me more of what goes into it.”

- Lynneva Carroll,  
Central Alaska Inventory & Monitoring Network, AK



# Funding Overview



The total National Park Service budget from the NPS Youth Programs Division for the 2020 Mosaics in Science Diversity Internship Program was \$160,000 to support 18 interns. Due to the global pandemic, 3 of these positions were cancelled. The Northern Great Plains Inventory & Monitoring Network and Mount Rushmore National Historical Park provided funds to extend Sydney Fuller. Additionally, the Central Alaska Inventory & Monitoring Network provided funds to facilitate Lynneva Carroll's travel in Alaska. Additional funds for these projects totaled \$2,900.



"This program helped me grow into a better version of myself, and I fully intend on reaching out and giving back to the next generation of brilliant thinkers."

*- Maaz Fareedi,  
Mammoth Cave National Park, KY*



# Federal Workforce Success Stories



Mosaics in Science tracks the success of its interns, specifically if they find positions with the National Park Service, other federal agencies, and non-governmental organizations. Since 2013, twenty Mosaics in Science interns have been hired into permanent, seasonal, or term positions with the National Park Service or other federal agencies. Thirteen of the interns were hired into the NPS and five of these used their Direct Hire Authority - Resource Assistant flexibility. Some of our interns have been hired into the following General Schedule Series: GS-0404, GS-1702, GS-0025, and GS-0090.



**Ricardo Escobar**  
Rocky Mountain National  
Park, CO



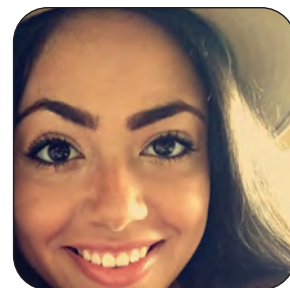
**Brenna Rodriguez**  
White Sands National  
Park, NM



**Richard Duenas**  
U.S. Census Bureau,  
Washington, D.C.



**Gabriela Dunn**  
Golden Gate National  
Recreation Area, CA



**Kayla Fermin**  
Lewis and Clark  
National Historical Park, WA



**Sophia Bass - Werner**  
Boston Harbor Islands  
National Recreation  
Area, MA



**Elizabeth Rico**  
Big South Fork National  
River & Recreation  
Area, KY



**Fabiane Barato Speyrer**  
Gulf Coast Inventory &  
Monitoring Network,  
Gulf Coast states



**Laura Del Valle**  
Sequoia & Kings Canyon  
National Parks, CA



**Laura Palma**  
Biscayne National Park, FL



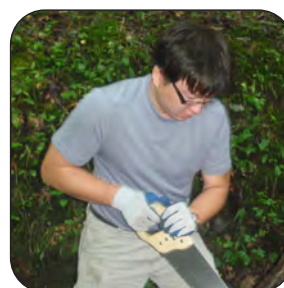
**Jeanie Lai**  
U.S. Fish and Wildlife  
Service in Bismarck, ND



**Howasta Tahiry**  
US Forest Service, Cibola  
National Forest, NM



**Stephen Roethle**  
U.S. Army Corps of  
Engineers, NM



**Jay Stevenson Kim**  
Environmental  
Protection Agency, IL



**Chelsea Collins**  
Bureau of Land  
Management, CA





**Rhys Joaquin**  
Mount Rainier National  
Park, OR



**Diego Morales**  
Environmental Protection  
Agency, CA



**Dominique Sanchez**  
Mammoth Cave National  
Park, KY



**Jaylin Solberg**  
Theodore Roosevelt  
National Park, ND



**Christian Knutson**  
Badlands National Park,  
SD



This opportunity is a gold mine in terms of learning how to develop scientific skills, networking, exposure to new career paths, and being a lifelong steward to the environment. This is a time I will forever cherish.

*- Caleb Bolin,  
San Juan Island National Historical Park, WA*



# IMPACTS OF COVID-19

The COVID-19 pandemic impacted almost every aspect of the MIS Diversity Internship Program. From the time that candidates applied to the internship to the Career Workshop, changes were made to the program due to the nature of the pandemic. Listed below are some of the impacts to the NPS, the interns, and program management.

## Impacts to the National Park Service

- Three sites canceled their 2020 internships including: Isle Royale National Park, Mesa Verde National Park, and Monocacy National Battlefield.
- Supervisors had to alter some positions, especially those that required interactions with the public.
- 12 positions were shifted, so that they began later.
- 2 positions were changed to remote work.

## Impacts to the Interns

- 2 interns worked remotely for the full internship.
- 14 interns had delayed start dates (12 started later and 2 started later and remained remote positions).
- 4 positions were altered to accommodate the pandemic and reduce interactions with the public.
- 9 interns were required to quarantine during the first two weeks of their internships.
- 1 intern arrived late to the park which resulted in the park extending their internship several weeks.
- 4 interns had trouble getting their background check completed.
- 13 interns arrived at their site and worked while using a face mask or shield.

## Impacts to the Coordinating Organization(s)

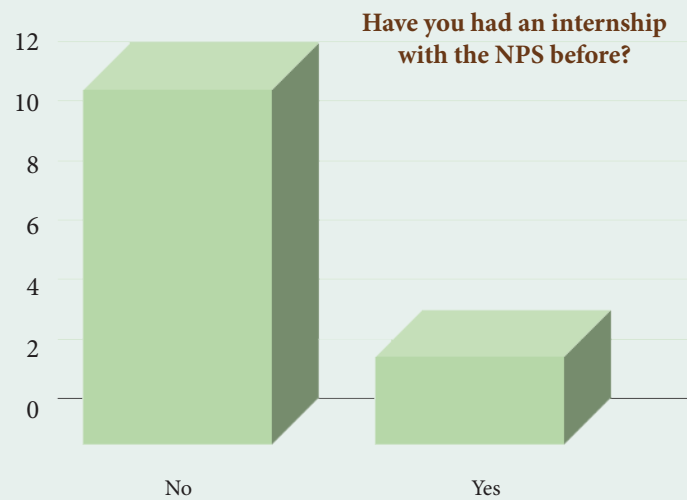
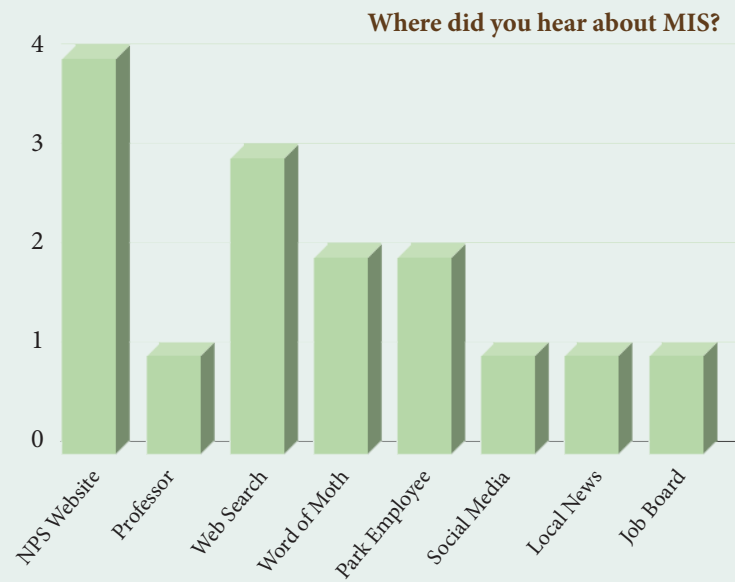
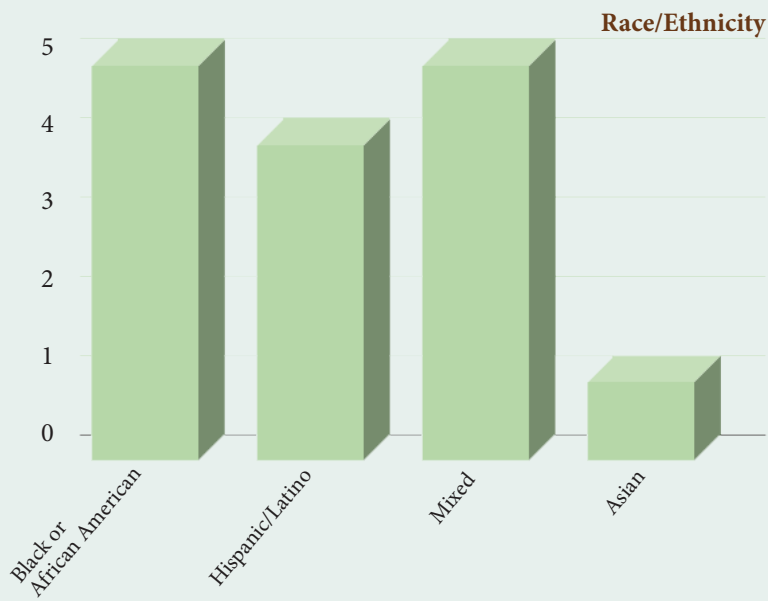
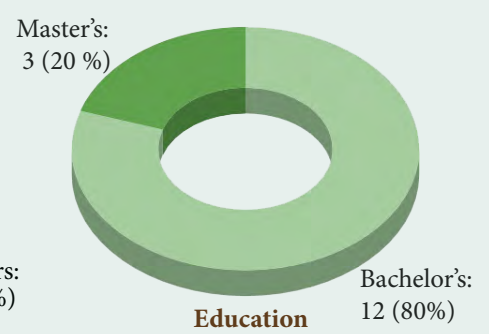
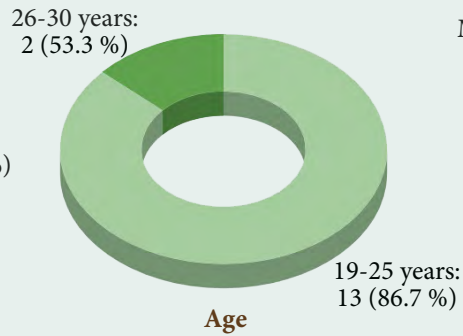
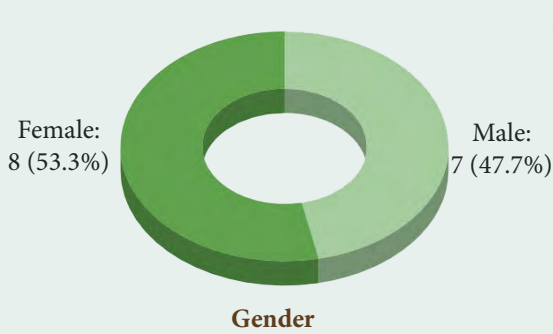
- Staff handled uncertainties surrounding the internship positions during the early stages of COVID-19. They worked with supervisors to determine if positions could proceed either on-site or remotely.
- All training was hosted virtually, including the Career and Leadership Workshop, where interns usually have the opportunity to meet face-to-face.



Sheylda Díaz-Méndez, MIS coordinator meets with Rene Ohms to discuss the findings and contributions of intern Sydney Fuller at Mount Rushmore National Memorial, SD.



# Intern Demographics





# EXAMPLES OF PROJECTS COMPLETED

## Research

- Bat monitoring for white-nose syndrome and education of microplastics in fresh water research, Mount Rainier National Park, WA
- Acoustic Bat Monitoring and data collection/analysis of current year and previous 5 years at Glen Canyon National Recreation Area, AZ and UT

## Inventory and Monitoring

- Inventory and monitoring of unstable slopes on trails and roads, to reduce risk and deterioration of park infrastructure, Southeast Arizona Group (SEAZ) - Coronado National Memorial, AZ
- Lepidoptera surveys, nature photography, and other species monitoring, San Juan Island National Historical Park, WA
- Air quality sampling, to establish a baseline for the ongoing visitor use management study, Mammoth Cave National Park, KY
- Butterfly species monitoring and climate data collection, Saguaro National Park, AZ
- Shorebirds surveys with emphasis on an endangered species and ecosystem monitoring, Fire Island National Seashore, NY
- Brook trout distribution assessments to detect long-term changes in headwater species migration and changes in water quality, Great Smoky Mountains National Park, NC & TN

## GIS and other technologies

- Social trails mapping for conservation and restoration with a GIS component, Northern Great Plains Inventory & Monitoring Network and Mount Rushmore National Historical Park, SD

## Education / Interpretation

- Curriculum development and programming assistance, Hawai'i Volcanoes National Park, HI
- Cave science interpretation and citizen science programs, Wind Cave National Park, SD
- Science communication and education focusing on entomology and endangered species, Vicksburg National Military Park, MS

## Multi-faceted

- Songbird surveys, small mammal surveys, and education and outreach (video), Central Alaska Inventory & Monitoring Network, AK
- Science communication, social media, web design, conservation and education, Padre Island National Seashore, TX

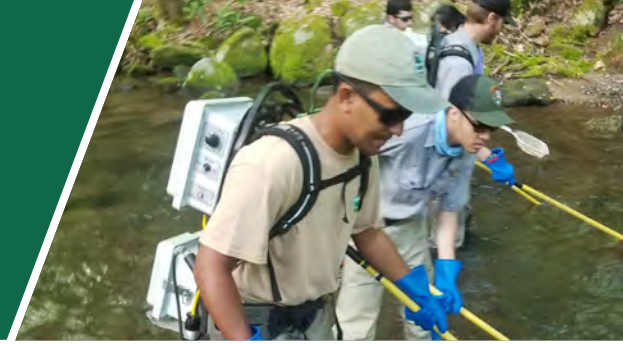
"I'm still thoroughly enjoying my internship and the people here (though it can be a bit lonely sometimes) and I'm immensely grateful for this opportunity."

- Justin Wilson,  
Fire Island National Seashore, NY





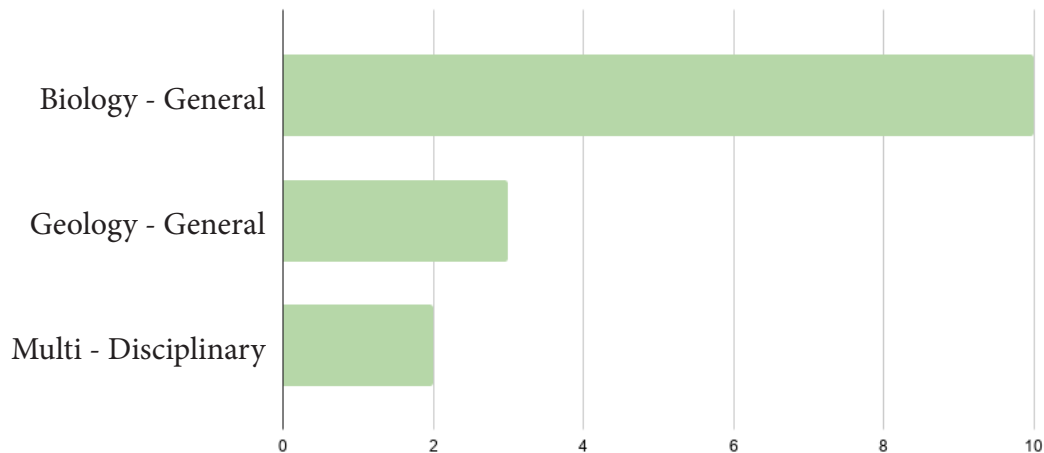
# Program Summary



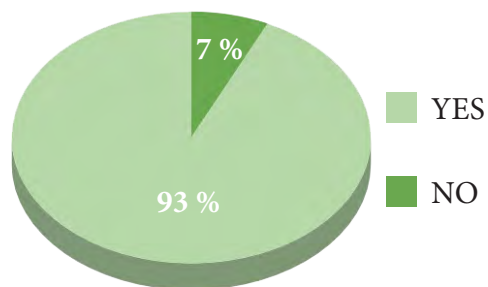
The National Park Service is organized by 12 Unified Regions. In 2020, MIS interns held positions in 10 of these regions.

Region	NPS UNIT
Region 1- North Atlantic- Appalachian	Fire Island National Seashore
	Mammoth Cave National Park
Region 2-South Atlantic Gulf	Biscayne National Park
	Great Smoky Mountains National Park
Region 4-Mississippi Basin	Vicksburg National Military Park
Region 5-Missouri Basin	Northern Great Plains Inventory & Monitoring and Mount Rushmore National Memorial
	Wind Cave National Park
Region 6-Arkansas-Rio Grande-Texas-Gulf	Padre Island National Seashore
Region 7-Upper Colorado Basin	Glen Canyon National Recreation Area
Region 8-Lower Colorado Basin	Saguaro National Park
	Southeast Arizona Group (SEAZ)
Region 9 Columbia-Pacific Northwest	Mount Rainier National Park
	San Juan Island National Historical Park
Region 11-Alaska	Central Alaska Network
Region 12-Pacific Islands	Hawai'i Volcanoes National Park

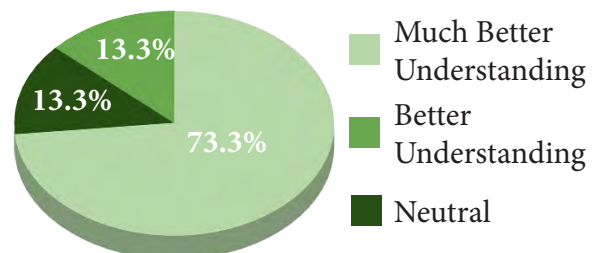
## PROJECT CATEGORY SUMMARY



## DID THIS INTERNSHIP INFLUENCE YOUR CAREER GOALS?



## DO YOU HAVE A BETTER UNDERSTANDING OF HIRING AUTHORITIES?





# Intern Training



Before beginning their internships, participants attended webinars that provided basic information about Mosaics in Science, introduced them to the partner organizations, and helped them to understand their responsibilities and the expectations of the program. Each intern received a digital copy of an Intern Manual to serve as a guide to program logistics.

## Webinars

During the internship, the Mosaics in Science team offered weekly webinars to connect with participants, to provide additional training, and to answer any questions or concerns. Webinar topics included:

Date	Time	Topic
5/5/2020	12:00 PM (MT)	Direct Hire Authority for Research Assistant Internships (DHA-RAI) - Intern Overview
5/7/2020	2:00 PM (MT)	Welcome to MIS
5/14/2020	2:00 PM (MT)	Safety, Timesheets, Logistics
5/20/2020	11:00 AM (MT)	Public Land Corps Hiring Authority, Federal Resume Building, and USAJobs.gov
5/21/2020	2:00 PM (MT)	Workplace Culture, Policies, Harassment
5/28/2020	2:00 PM (MT)	Blogs, Social Media, Professionalism
6/4/2020	12:00 PM (MT)	Diversity, Equity, and Inclusion
6/9/2020	12:00 PM (MT)	Welcome to the National Park Service: An Introduction for NPS Interns
6/11/2020	2:00 PM (MT)	Resumes and Navigating USAJobs
6/25/2020	2:00 PM (MT)	Applying to Graduate School
7/2/2020	2:00 PM (MT)	HOLIDAY (No webinar)
7/9/2020	2:00 PM (MT)	Transitioning to a Federal Career
7/16/2020	2:00 PM (MT)	Sustainability and your Lifestyle
7/23/2020	2:00 PM (MT)	How to prepare the workshop presentation
7/30/2020	2:00 PM (MT)	Workshop Preparations





## CAREER WORKSHOP

In 2020, the MIS team adapted quickly to the needs of the parks and the interns during the COVID-19 pandemic. The annual gathering of interns in-person was cancelled, but a dynamic virtual program was developed to provide additional training, motivate discussion, and provide opportunities for the interns to interact. The 4-day workshop was conducted via Zoom, with portions livestreamed to Facebook to reach the broader public. A new website—<https://diversityinconservation.org/mosaics>—was developed to enhance the virtual workshop experience, provide the schedule, and highlight the many guest speakers who contributed. Because of the virtual nature of the workshop, we were able to involve a more diverse group of presenters than previous years. In addition, interns were provided with workshop materials and a meal delivery service for food during the week.



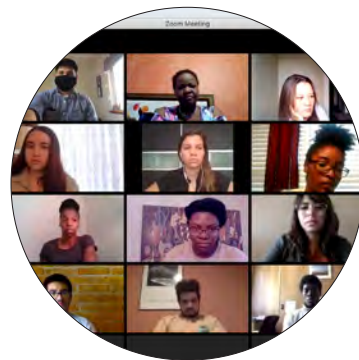
**15**

**Guest Speakers**



**11**

**Alumni**

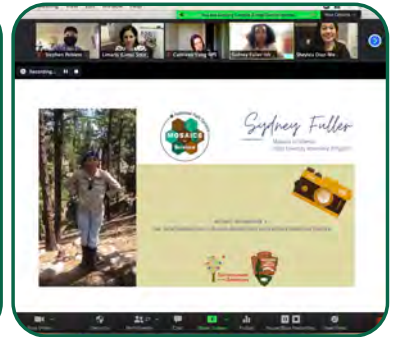
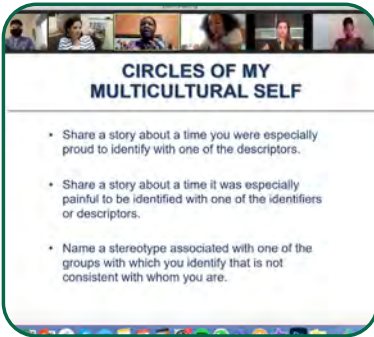
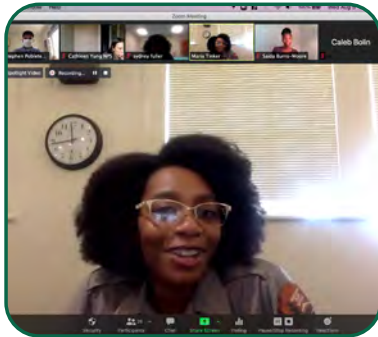
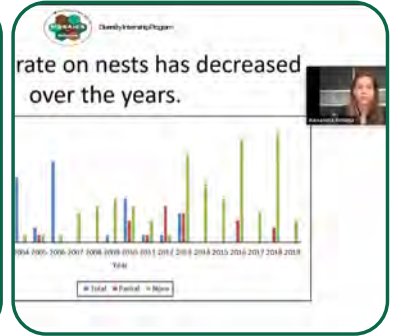
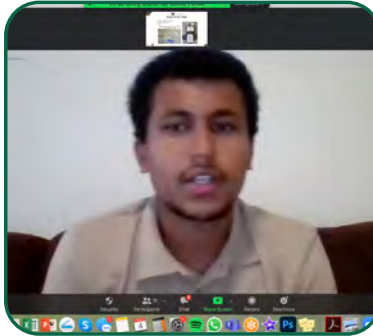
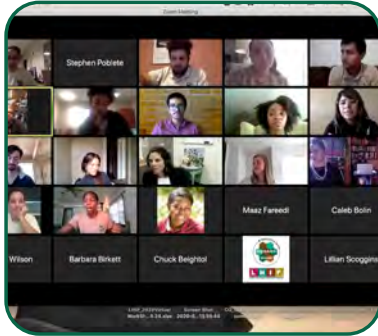


**30.45**

**Hours LIVE**



# CAREER WORKSHOP



## Intern Presentations

Both DHA-RA and PLC interns presented their park projects during the first virtual Mosaics in Science Career and Leadership Workshop. Because the presentations were hosted in Zoom and livestreamed to the Mosaics in Science Facebook page, many viewers were able to join and learn about the program, the interns, and their projects.

"I loved this program so much. Honestly this program is so inspirational and has given me such a leg up in this world. I am truly blessed and thankful for my time with MOSAICS. Thank you Lima, Sheylda, EFTA, Mosaics team, and the NPS. I will always cherish my time with you all."  
- Amani Canada, Padre Island National Seashore, TX





“The Mosaics in Science program would give me invaluable experience to help amplify my contribution to the park’s educational resources. I also welcome the opportunity to deepen and explore how Hawaiian culture connects to geological events. I feel I connect with my Hawaiian heritage by learning about the places my ancestors lived and the environment that surrounded them. Through volunteering at Hawai’i Volcanoes National Park, I have become connected to the place and the people. I am also hoping that this position might lead to a future career with the park service at this park and beyond.”

- Dan Hubner, Hawai’i Volcanoes National Park, HI



# PROJECT HIGHLIGHTS

The Kemp's Ridley sea turtle is an endangered species that depends on the beaches in Padre Island National Seashore. Because the park has the longest undeveloped barrier island beach in the world, it supports the largest nesting colony for Kemp's Ridley sea turtles in the United States. Each year, 100 to 350 nests are found there, and park staff works hard to ensure that the eggs hatch successfully.

Raising awareness of this declining species and how people can help to protect them was intern Amani Canada's job this summer. As the Science Communication Assistant, she was responsible for spreading the word about turtles and their conservation through social media, video, and "The Ridley TV Show." Producing the show was a highlight for Amani, and she loved learning the details of putting together the audio, video, and graphic design elements. By summer's end, she had assisted with the production of more than one dozen programs, each with a special focus on the park and conservation. Amani's work attracted the attention and collaboration of many other organizations and agencies, such as the Texas State Aquarium, the City of Corpus Christi and Friends of Padre Island National Seashore.

“ This experience has been absolutely wonderful and it has provided me a lot of confidence in exploring new career paths that I had not considered. It has also given me a new appreciation for community collaboration and the outdoors. I can honestly say that this has been a great summer for my personal and professional growth and that I wouldn't want to be anywhere else this summer! ”

**Amani Canada**

Padre Island National Seashore,  
Texas





# PROJECT HIGHLIGHTS

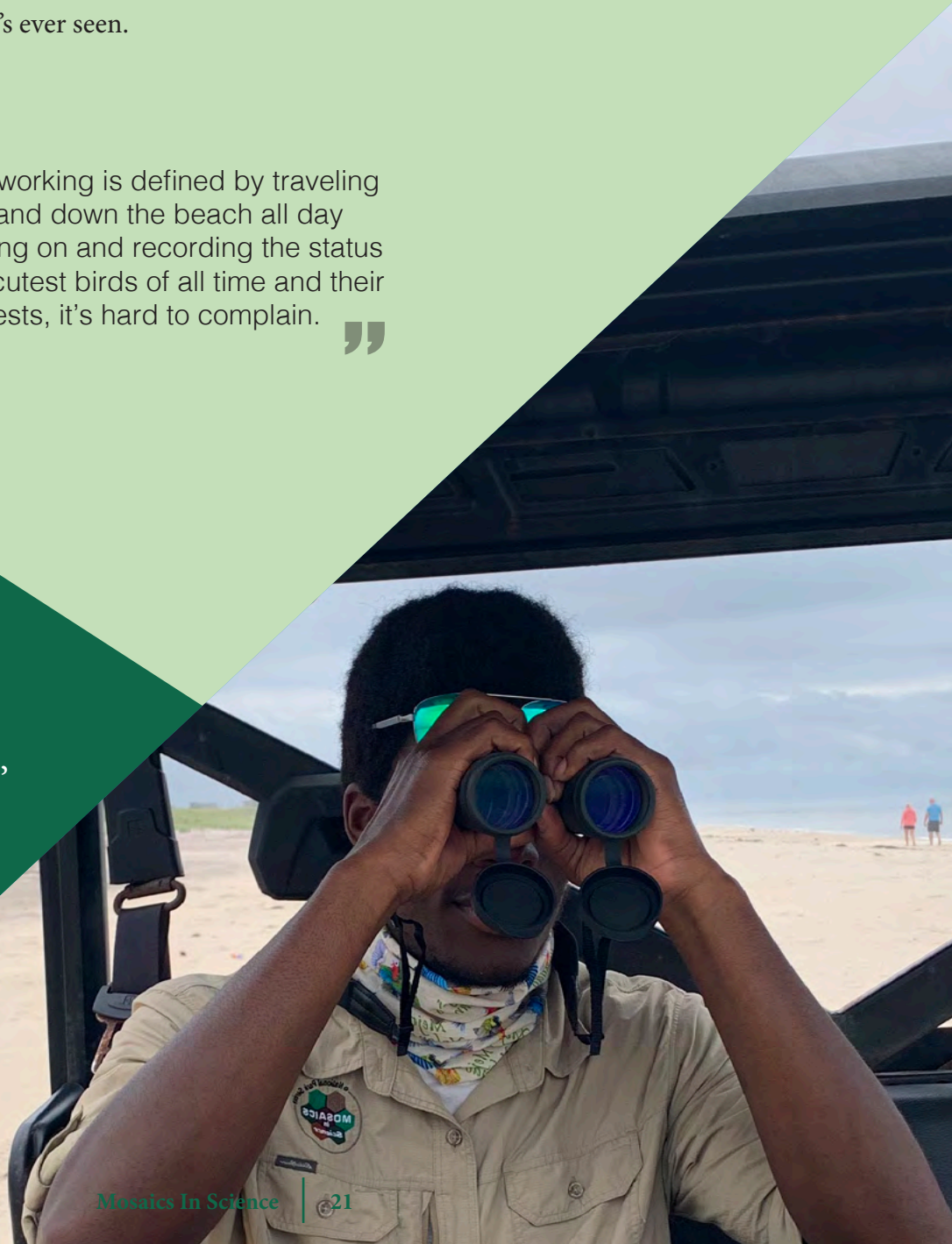
The Piping Plover (*Charadrius melodus*) is a diminutive migratory shorebird whose Atlantic coast population breeds on beaches from Virginia to Canada in summer and over winters along the Gulf Coast, Bahamas, and West Indies. It is a federally endangered species that finds refuge at Fire Island National Seashore (FIIS). Long-term studies of this plover at the park have led to seasonal restrictions of pets, kites, and driving on portions of the beach. Intern Justin Wilson joined the FIIS research team to monitor Piping Plovers and to ensure that they nest and raise young successfully.

Justin came to the position with a degree in Natural Resources and Environmental Science from Purdue University. His experience may not have prepared him for the extreme summer heat or the quantity of mosquitoes, but he learned to survey the beaches for nests, eggs, and chicks. He described the fledgling plovers as “possibly the cutest baby animal” he’s ever seen.

“When working is defined by traveling up and down the beach all day checking on and recording the status of the cutest birds of all time and their nests, it’s hard to complain.”

**Justin Wilson**

Fire Island National Seashore,  
New York



# PROJECT HIGHLIGHTS

Tania Parra joined the Glen Canyon National Recreation Area team to continue her work studying bats as a Master of Science student in Environmental Science and Technology at California State University, Fullerton. The park has been studying bats since 2016, when it joined the North American Bat Program to learn more about bat populations in the park. Tania spent long days in the backcountry deploying acoustic recorders and surveying habitats. She was responsible for analyzing the data gathered to build an occupancy model and to create a species distribution map. Armed with information about what bat species are in the park and where they are located, the park can work to protect their habitats.

Although Tania's research focused on bats, she took the opportunity to learn about the local flora during the long backcountry forays into the desert scrub, piñon-juniper woodlands, and semidesert scrublands. She aspires to work for the National Park Service as a conservationist and values the opportunity to work alongside park scientists.

“ I am interested in this program because it gives me the opportunity to work alongside NPS scientists. The Direct Hire Authority certificate will help me further my career with the Park Service. In addition, I believe this is a great opportunity to network with other scientists in the Mosaics in Science program. ”

**Tania Parra**  
Glen Canyon National  
Recreation Area,  
Arizona





# PROJECT HIGHLIGHTS

The Island Marble Butterfly (IMB) was listed as endangered by the US Fish and Wildlife Service (USFWS) in May 2020 after a lengthy push to give comprehensive protected status to the butterfly.

As a Mosaics in Science intern in the park, Caleb's job was to focus on raising butterflies by finding eggs and caterpillars in the wild and bringing them into the Lab. In a normal year, he would have fed them and provided suitable living space for them, ultimately releasing them into the wild as adults. Because of the COVID-19 pandemic, however, his job responsibilities were shifted to field activities that help to restore habitat for this butterfly and other species.

Caleb's projects included using global positioning service GPS devices to map invasive plants for removal. He collected native seed from wild plants and the park's nursery to propagate and reintroduce in spots where invasive plants have taken over. Invasive species can include other organisms besides plants. Caleb also participated in the removal of Asian giant hornets, which were recently introduced to North America and may disrupt ecosystems by killing pollinators, such as the Island Marble Butterfly. Monitoring and trapping the hornet helps to protect other species. Caleb's internship has given him a greater appreciation for the colorful and vastly different invertebrate species.

**Caleb Bolin**

San Juan Island National Historical  
Park, Washington



# PROJECT HIGHLIGHTS

Sydney's interest in botany, farming, and gardening is based on her passion for environmentalism and social justice. Her prior experience cultivating plants was enhanced by her internship experience, which took her to the Great Plains to restore and protect impacted habitats. She also used social media campaigns to promote the protection of specific vegetation and to discourage the public use of unauthorized trails.

Because of her prior experience in the eastern US, South Dakota's Badlands were an eye-opening experience. Steep slopes and considerable erosion raised her awareness of the impacts of human activity on the landscape and long-term implications of climate change.

Out in the field in Badlands National Park with her coworkers, Sydney learned how to set up vegetation plots and to gather data that will help the park understand plant composition. New skills included recording the GPS location of each plot, measuring the plant life within each one, and determining soil coverage.

Sydney's internship also included work at Mount Rushmore National Memorial. There, she focused her attention on the social trails that have been created by visitors. The park's complicated past fascinated her interest in social justice, and she explored the history of what was once called The Six Grandfathers by the Lakota Sioux. Her on-the-ground work, however, focused on the impact of social trails on the environment, and how the park can improve its communication with visitors. The goal is to reduce the creation of these trails and to examine ways to manage them.

Like other Mosaics in Science interns, Sydney appreciated that her project contributed to the goals and mission of the National Park Service. Even more, she felt that without her internship, her project would not have been accomplished this summer.

## Sydney Fuller

Northern Great Plains Inventory &  
Monitoring Network &  
Mount Rushmore National  
Memorial, South Dakota





# PROJECT HIGHLIGHTS

Vicksburg National Military Park is best known as a memorial to the American Civil War Battle of Vicksburg in 1863. Because of its size, over 1,700 acres, and its nutrient dense soils, it is also home to a variety of organisms.

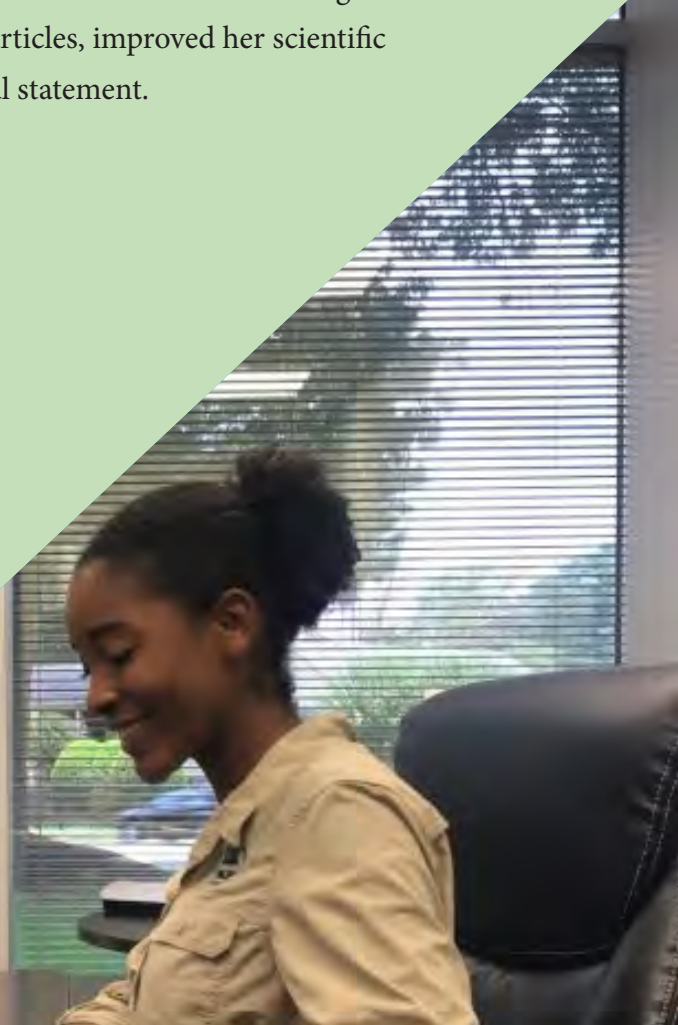
Alanna Bond worked at the site not to explore its history, but the rich diversity of euarthropods, a group of invertebrates that includes centipedes, millipedes, and chelicerates, such as mites and ticks. Euarthropods can help to pollinate plants, aerate the soil and provide natural pest control. At the same time, they may be vectors of disease, agricultural pests, and contribute to forest depletion. Alanna collaborated with the team at the park virtually to help examine the species of eurathrapada that are in the park, to learn how they are indicators of environmental health in the Mississippi Delta, and to engage the public in learning about them.

Though she was not able to travel to the park, Alanna could manage eurathrapada surveys remotely. She oversaw the documentation of eurathrapads in the park, and she used iNaturalist, a citizen science app, to track the species that have been recorded. She used the data from iNaturalist to develop a pamphlet that will serve as an insect guide for visitors. This brochure describes the different types of eurathrapada and provides information about how and why they should be protected.

In addition to learning about insects and public education, Alanna also appreciated the mentorship provided by supervisor and biologist Charles Beightol. He provided her with one-on-one training that has made her more comfortable reviewing scientific articles, improved her scientific writing, and helped her to prepare a personal statement.

**Alanna Bond**

Vicksburg National Military Park,  
Mississippi



# PROJECT HIGHLIGHTS

Working outdoors is a top priority for Cory. He appreciates the opportunity to see and experience something new every day. This desire is what led him to Mosaics in Science and to his interest in working for the National Park Service.

This is Cory's second internship with Mosaics in Science, and he returned to study the impacts of microplastics on freshwater ecosystems and bats. He began his work by conducting a literature review to examine prior research on microplastics in this ecosystem. He then connected this to records of bat distribution across the United States. Finally, he reviewed how microplastics can be transferred from freshwater ecosystems to bats, through field sampling of sediment, water, and aquatic invertebrates. By also studying guano, the study will help researchers understand if the insect populations on which bats forage are a source of plastics.

Cory identified some of the common bat species in the park, including Big Brown Bat, Hoary Bat, and the Eastern Red Bat. Water samples from various sources were analyzed to identify the quantity and types of microplastics present. This information will help biologists determine if microplastics from the water are moving through the food chain and into the bats' diets. If so, could these microplastics be impacting bat behavior, reproduction, foraging, and ultimately survival? The results of Cory's project will have implications not only for bats, but also for other insect eating wildlife.

**Cory Zaller-Edmonds**  
Mount Rainier National  
Park, Washington





# INTERN REFLECTIONS



**Alanna Bond**

**Vicksburg National Military Park, MS**

*“Through the Mosaics in Science Diversity Internship, I have found a new understanding of what it means to work in the National Park Service and what careers are potentially out there for me. This internship has helped me dive deeper into my own passions and allowed me to explore all of the options in the NPS that I was unaware of! I am so grateful to have received this opportunity and a special thanks to all of the amazing team to make this happen!”*



**Amani Canada**

**Padre Island National Seashore, TX**

*“When I went outside, it wasn’t for the fun of the outdoors, but rather to do something fun that happened to require me to be outside. I understood the importance of nature and being in nature, but it was more of an objective understanding than a personal understanding. In a complete 180, I have found myself relishing being on the beach in the early morning, enjoying the early morning breeze around me, despite having to wake up at 4am for it. The hatchlings crawl across the beach and I find it all to be a great escape from the chaos of the world today.”*



**Caleb Bolin**

**San Juan Island National Historical Park, WA**

*“Through the webinars and trainings they have put on and other interactions I have had with them, I’ve learned so much and started to figure out where I’d like to go in my life. I am so grateful to have been given this opportunity, and I am honored to be a part of such a great program and team.”*



**Yair Torres**  
**Southeast Arizona Group, AZ**

*“My favorite aspect of this internship is that rather than being limited to working within one park, I get the opportunity to visit three different parks and perform a variety of tasks outside of my designated project with the Unstable Slope Management Program (USMP). Not only does this build my skill set, but it also allows me to actively partake in the various projects and objectives of the individual parks.”*



**Maaz Fareedi**  
**Mammoth Cave National Park, KY**

*“I’m not a huge history buff, but I can appreciate being immersed in Mammoth Cave lore. From the artifacts left behind by the paleo-indigenous people, to the mining history, slave-led tourism, famous cave explorers, the national park movement, and to today. Heck, even my house is a CCC-built single-family ranger cabin from the 1930’s. It’s on the National Register of Historic Places for crying out loud.”*



**Saida Burns-Moore**  
**Wind Cave National Park, SD**

*“I am thrilled to say that the park is everything I thought it’d be and more. With cascading hills topped with mixed prairie grass and ponderosa pines, I am happy to know that this is where I’ll be staying for the next couple of weeks. My department is taking the necessary precautions needed due to COVID-19, and I am to self-quarantine. Despite these limitations, I have already wandered around the grasslands -as social distancing is very doable- and captured some of the beauty this park has to offer. As soon as my quarantine is lifted, I hope to get plenty of snapshots of the cave.”*





**Alexandra Verdeja**  
Biscayne National Park, FL

*"I was born and raised in Guaynabo, Puerto Rico where I have been exposed to the ocean since the day my parents could put a life jacket on me so we could go out on our boat (so about 2 years old). As I grew up, I found new ways to explore the oceans and quickly fishing on the boat turned into snorkeling over coral reefs, which turned to scuba diving within the beautiful reefs of Puerto Rico. As if that wasn't enough water in my life, I started swimming in fourth grade and then later joined synchronized swimming where I ended up in the National Team of Puerto Rico and got to compete all over the Americas with my team."*

*Looking back, it's clear why I ended wanting to be a marine biologist with a concentration in coral reef conservation and restoration. Eventually, I want to come back to Puerto Rico to preserve the coral reefs that brought me so much joy as a child, so future generations have the opportunity to feel that same joy."*





## QUOTES FROM PARK/OFFICE STAFF



**Rene Ohms** / Mt. Rushmore National Memorial

*"This experience has been a variety of experiences with the pandemic, but Sydney managed to complete the project and make a significant contribution to the management of trails in our park"*



**Tara Chestnut, PhD** / Mount Rainier National Park

*"I was really impressed with Cory's flexibility and adaptability this season. I hope he feels as proud of the work we did this season as I do!"*



**Isabel Ashton** / Northern Great Plains Inventory & Monitoring Network

*"I really appreciated the process this year, the handbook and communication. It made a big difference!"*



**Lindsey Ries** / Fire Island National Seashore

*"The Mosaics in Science (MIS) Diversity Internship Program is such an important program to engage, recruit and mentor diverse students in science-based projects and opportunities throughout sites in the National Park Service. I was really impressed with the emphasis on mentoring through weekly sessions. Not only did Justin gain in-depth experience and mentoring at our park, but he was able to feel connected to other interns, projects and NPS sites beyond our small group at Fire Island National Seashore."*

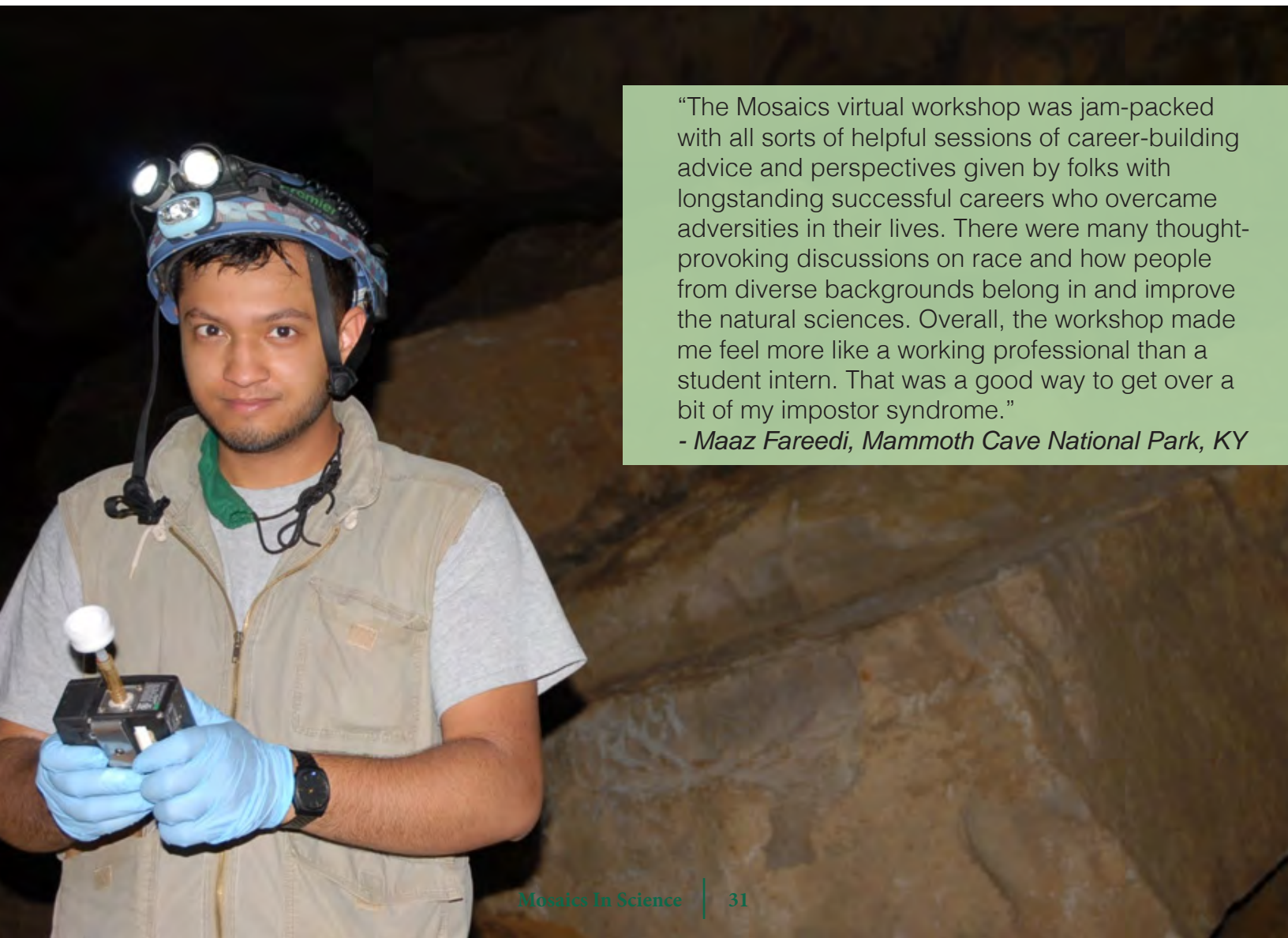


# CONCLUSION

The 2020 Mosaics in Science (MIS) Diversity Internship Program successfully completed its seventh year. The program recruited 15 talented youth who worked across the country to complete high priority natural resource projects on inventory and monitoring, research, GIS and other technologies, and science interpretation and education. Since the program's inception, 161 interns have completed 72,950 hours of critical work in 83 national parks. The MIS interns gained valuable on-the-ground training, personal and professional development skills, and an increased awareness of conservation and environmental stewardship.

Environment for the Americas contributed innovative ideas during this challenging year due to the COVID-19 pandemic. The MIS Program was able to reinvent the career workshop and transition it into an all virtual event. Although we were not able to host an in person event, we provided a very successful experience to the interns.

The unique attributes of MIS enable the NPS to successfully achieve its goals of relevancy, diversity, and inclusion. With twenty MIS interns hired into federal agencies, and thirteen into the NPS, we continue to make progress to diversify the federal workforce. We look forward to continuing this successful initiative in 2021.



"The Mosaics virtual workshop was jam-packed with all sorts of helpful sessions of career-building advice and perspectives given by folks with longstanding successful careers who overcame adversities in their lives. There were many thought-provoking discussions on race and how people from diverse backgrounds belong in and improve the natural sciences. Overall, the workshop made me feel more like a working professional than a student intern. That was a good way to get over a bit of my impostor syndrome."

- Maaz Fareedi, Mammoth Cave National Park, KY

# ACKNOWLEDGEMENTS

The National Park Service Youth Programs and the Geological Resources Division would like to express their sincere gratitude to their partner Environment for the Americas for their invaluable work and guidance to the interns throughout the course of the MIS program. We would especially like to thank the interns for the critical science they contributed to parks and the education and outreach they provided for the public.

We would also like to thank the supervisors for mentoring and motivating the interns throughout their experiences and in their project and the colleges and universities that support these outstanding participants.

## National Park Sites

- Biscayne National Park, Florida
- Central Alaska Inventory & Monitoring Network, Alaska
- Fire Island National Seashore, New York
- Glen Canyon National Recreation Area, Arizona
- Great Smoky Mountains National Park, Tennessee
- Hawai'i Volcanoes National Park, Hawai'i
- Mammoth Cave National Park, Kentucky
- Mount Rainier National Park, Washington
- Northern Great Plains Inventory & Monitoring Network & Mount Rushmore National Memorial, South Dakota
- Padre Island National Seashore, Texas
- Saguaro National Park, Arizona
- San Juan Island National Historical Park, Washington
- Southeast Arizona Group, Arizona
- Vicksburg National Military Park, Mississippi
- Wind Cave National Park, South Dakota

## School Attended by MIS Interns

- Abraham Baldwin Agricultural College
- Brigham Young University
- Grinnell College
- Hiram College
- Mississippi State University
- Northeastern Illinois University
- Purdue University
- Texas A&M University
- Trinity University, San Antonio
- Truman State University
- University of Alaska Fairbanks
- University of Arizona
- University of California, Santa Cruz
- Trinity University, San Antonio



René Ohms explains what “social trails” are and how Sydney is mapping them to help Mt Rushmore in the management of official and new official trails.



# APPENDIX I: INTERN BIOS



**Caleb Bolin • Truman State University**

***San Juan Island National Historical Park, Washington***

I am currently a junior attending Truman State University in Kirksville, Missouri where I am majoring in Agricultural Science with an emphasis in Agricultural Business and minoring in Photography. I have worked at the Truman State University Greenhouse since 2018. I cared for experimental, tropical, and main room plants and soil plot displays as well as propagating herbaceous and non-herbaceous plants by division and cuttings (leaf and stem) and creating and maintaining propagation bins. An interesting feature of my job included photographing and cataloguing plants and collection specimens. My experience with photography stems from working at the Truman Media Network/The Index Newspaper Photographer as a photographer and as a recognized News Editor and Political Columnist by winning the All-Missouri Feature Writing Award in 2016. After I finish my undergraduate studies, I would like to do field work as a conservation photographer and also work in wildlife and natural resources management. I have always been touched by photographs of beautiful places and creatures, and it is my hope that through my own photographs, I can help more people become passionate about nature and its conservation.



**Alanna Bond • Mississippi State University**

***Vicksburg National Military Park, Mississippi***

I graduated from the Mississippi State University with a Bachelor in Biological Sciences and a minor in Spanish. As a Research Assistant in the Department of Biological Sciences, I recorded the effects of sound pollution on grasshoppers and monitored the relationship between aphids and lady beetles. I also recorded and analyzed carbon dioxide respirometer data, surveyed the number of aphids on bean plants from experiments, and grew fava bean plants for experiments. I have also worked as a Research Assistant in the Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology in the genomic research of Tawny Crazy Ants. Insects are a great indicator of how an environmental system is working, and I believe that it is important to explore and research these organisms to understand the various factors that can affect our local ecosystems and to propose solutions to environmental problems. I will be attending a biological master's program in the fall, where I hope to obtain a Master's degree. I look forward to contributing to my field, not just in North America, but also in South America or the Caribbean.



**Matthew Butzin • Abraham Baldwin Agricultural College**

***Great Smoky Mountains National Park, Tennessee***

I am currently a senior at Abraham Baldwin Agricultural College (ABAC) in Tifton, Georgia, pursuing a Bachelor's degree in Natural Resource Management with a degree concentration in wildlife. Through my education at ABAC, I have gained a working knowledge of many aspects of and techniques in wildlife management, including various sampling procedures, identification of hundreds of species of native flora and fauna, as well as an understanding of implementation of forestry principles, including prescribed fires. My primary interest in the Mosaics in Science program is a desire for hands-on career experience, which will ease my transition from college to a meaningful career in wildlife management. Although my degree is in wildlife management, my ideal career is specifically within the field of fisheries management. I have always had a love for the conservation of wildlife and natural resources; for this reason, I hope to use my abilities and experiences to further the conservation and wise use of our fisheries and aquatic resources, so that these resources are available for future generations to enjoy and conserve.



**Saida Burns-Moore • University of Memphis**

***Wind Cave National Park, South Dakota***

I graduated from the University of Memphis from the Department of Earth Sciences with a concentration in Geology. In 2019, I was the recipient of the Chi Beta Phi Science Excellence in Geology Award, the Geological Society of America Minority Student Scholarship Award, and recipient of the Geological Society of America Field Camp Scholar Award. My geology background was forged by field experiences where I measured the stratigraphic section of Black Hills in South Dakota and collected and identified samples of Precambrian granite, pegmatite, and metamorphic rocks. I've also conducted hydrological projects measuring dissolved oxygen, nitrate and phosphate content. This project also incorporated measuring discharge of Spearfish Creek using a current velocity meter and recording the depth, width, and velocity of the stream. I have collaborated on various geological mapping projects in Black Hills, South Dakota; Bighorn Mountains, Wyoming; and Pryor Mountains, Montana. In the future, I plan to use my education and experience to provide classes and programs that will pique the interests of minority youth in urban environments, where they may often not have access to these resources.



**Lynneva Carrol • University of Alaska Fairbanks**

***Central Alaska Inventory & Monitoring Network, Alaska***

I am an undergraduate college freshman at the University of Alaska, Fairbanks, working toward a degree in Biological Sciences. Having lived in Alaska my entire life, I have grown up aware of the impacts of climate change on the state and I am interested in studying these effects to help develop plans to counter their impacts. In 2019 I was an intern at the Murie Science and Learning Center in Denali National Park and Preserve. There, I processed bird eggs for determining embryonic stage and tested for heavy metal and organic contaminants. The National Park Service has offered me opportunities as a small mammal volunteer and in the snowshoe hare ecology project. It is where I learned to wrangle and pit tag voles caught in the live traps and to backpack and complete small mammal population surveys. I have camped at the beautiful Marion Creek Campground and visited sites around Coldfoot, Alaska. In the future, I would like to conduct research in biology and ecology addressing the impacts of climate change on humans, wildlife and the environment. In addition to providing me with experience working in the field, the Mosaics in Science internship will also expand my ability in field work and processing data, as well as hone my public communication skills.



**Maaz Fareedi • Northeastern Illinois University**

***Mammoth Cave National Park, Kentucky***

I earned my Bachelor of Science in Earth Science in December 2019 from Northeastern Illinois University. I plan to attend graduate school within the next 5-10 years, but, before I do so, I'd like to gain experience through field-related work in order to determine what I want to specialize in. My Mosaics in Science internship in 2018 opened my eyes to the variety of important tasks the National Park Service and other land management agencies perform to preserve and showcase public lands and resources. During the MIS internship, I developed a knowledge for determining the structures and geochronology in a karst landscape. In addition, I was taught how to cave, monitor bats, decontaminate for White-nose Syndrome, control invasive species, educate park guests, and more. In 2019 I was an intern for the USDA National Soil Erosion Research Laboratory where I performed independent studies on atrazine and heavy metal adsorption using bio-char. I know I can contribute to science in many ways and in any of the four languages I speak (English, Spanish, German and Urdu). I am focused on having a career where I can develop valuable networking opportunities and the pride in serving our nation and our people. I'm looking forward to a spectacular summer with the Mosaics in Science program. Here's to round two!





**Sydney Fuller • Grinnell College**

***Northern Great Plains Inventory & Monitoring Network & Mount Rushmore National Memorial, South Dakota***

I graduated in December 2018 with a Bachelor of Arts in Environmental Sustainability from the University of Michigan and a degree in Art from Grinnell College. My professional goals include working intimately with plants, either through agriculture, land stewardship, or food activism. While in school at the University of Michigan, I worked on several small organic farms. Coming from a suburban childhood and a family that is not traditionally “outdoorsy,” this work gave me a new respect for the land and for those who take care of it. The versatility of my skills correlate with my job experiences; from a store associate teaching candle-making workshops, a Social Media & Student Farm Manager planning events and leading tours, to a Doris Duke Conservation Scholars recipient who facilitated conversations about diversity, equity, and inclusion within the conservation movement, while creating a scientific poster using research from multiple projects. I am passionate about environmental justice, about helping people and the planet. For me, environmental issues are inextricably tied with social issues and working at a National Park seems like a perfect opportunity to learn about these interactions in a close way. I was also excited to work with a group of environmentalists and scientists who appreciate the value of diversity, equity, and inclusion in their work.



**Daniel Hubner • Brigham Young University**

***Hawai'i Volcanoes National Park, Hawaii***

I graduated from Brigham Young University with a Bachelor's Degree in Media Arts Studies in December of 2017. After graduation, I moved to the “Big Island” of Hawaii to be near family. I also started volunteering at Hawaii Volcanoes National Park as a park interpreter. Initially, I helped orient visitors and led ranger programs in various parts of the park. However, the eruption of Kilauea Volcano in 2018 presented me with an opportunity to put my educational training and experience to work by creating interpretive media that helped clarify the complex geological events that were happening inside and outside the park. Since then, I have created multiple videos that have been featured in the park visitor center and on the park's website. Each project has made me feel a greater sense of understanding of the world around me, and I want to share this feeling with others. I would love to help develop an educational curriculum that would be a great resource for visitors, educators, and the local community. I also hope that this position will lead to a future career with the park service at this park and beyond.



**Alexandra Isabel Verdeja Pérez • Purdue University**

***Biscayne National Park, Florida***

I am originally from Puerto Rico and graduated from Purdue University in Fisheries and Aquatic Sciences with a minor in Wildlife Sciences in 2020. I have focused on obtaining experiences like studying abroad at the University of Canterbury, Christchurch, New Zealand where I learned about Marine Biology, Animal Physiology and Geology. At the Aquatic Ecology Research Laboratory, I developed data collecting skills by performing necropsies on channel catfish (*Ictalurus punctatus*) and classified the aquatic and terrestrial invertebrates found in the catfish stomachs using a stereoscope. I was also an intern at the Sensory Ecology Laboratory in Statesboro, Georgia where I expanded my knowledge of saltwater husbandry by maintaining feeding schedules and water chemistry for whitespotted bamboo sharks. While a student in The School for Field Studies, Center for Sustainable Development in Costa Rica, I applied sustainable research techniques and strategies through field work in the Monteverde Cloud Forest and investigated the feeding habits of hummingbirds in tourist prone areas for species conservation purposes. My long-term career plan is to become a coral reef ecologist and work in conservation and restoration work.



**Celeste Meyer • University of Arizona**

***Saguaro National Park, Arizona***

I have a Bachelor's in Conservation Biology from the University of Arizona. I recently took an insect biology class that opened an undiscovered world of amazing creatures. This led me to volunteer at Saguaro National Park in 2019. While volunteering at Saguaro, I met many people who share my passion for the desert environment. It is inspiring to work alongside others who have a deep understanding and knowledge of the environment and its wildlife. I would like to further develop my skills in field work, teaching about wildlife, data collection, leadership, and the ability to adapt to different environments. In the future, I plan on continuing my education and to be a biologist who can make a difference. I am sure that working with Saguaro National Park and Environment for the Americas, I can continue learning about impacts on the environment and wildlife.



**Yair Torres • Texas A&M University**

***Southeast Arizona Group, Arizona***

I am currently a graduate student at Texas A&M University (TAMU) pursuing a Master of Science degree in Geography. I also conducted my undergraduate studies at TAMU and earned a Bachelor of Science degree in Environmental Science and a minor in Geographic Information Science & Technology. For the last three years, I have been a member of the Fluvial Landscapes and Dynamics Research Group at TAMU, in which I have conducted geomorphology related research projects in and around Texas. In 2017, I was an intern at the Bridge to Research in Marine Science, where I authored a report and conducted a seminar presentation: *Developing a cost-effective, short-term, high-spatial-resolution, surface-flow recorder for a tidally influenced riverine-estuarine system*. As part of the Aggie Research Scholars Program, I participated in team-based research of field-based channel surveys of a coastal-plain river in Texas and presented findings at the American Association of Geographers' 2018 Annual Meeting. Given my background in fluvial geomorphology, my M.S. thesis seeks to study the changing morphodynamics of Arctic rivers and relates to changes in hydrology and permafrost thaw. After the completion of my M.S. in Geography, I plan to work as an environmental scientist performing field-based research or consulting. Additionally, if a funding opportunity arises, I would like to pursue a PhD in an environmental science related sub-field, such as geomorphology, hydrology, or geology.



**Justin Wilson • Purdue University**

***Fire Island National Seashore, New York***

I graduated with my Bachelor of Science in Natural Resources and Environmental Science from Purdue University in May 2019. My current professional interests are geared toward graduate school, most likely for a Ph.D. in psychology. I have always found personal relief being in nature, and I believe that other people can find similar feelings, perhaps with some guidance and empathy. One of my passions has always been understanding people and what drives them, which helps people understand themselves and each other. My academic and personal trials so far have been in accomplishing these same things for myself: figuring out who I want to be, what compels me to reach my goals, and how I'll reach those goals. Now that I have a better understanding of who and what I am, the Mosaics in Science program will be the first step in shaping my career and life.



## DIRECT HIRE AUTHORITY – RESEARCH ASSISTANT INTERNS

The DHA Resource Assistant internship (DHA-RA) is a unique internship opportunity within the Department of the Interior (DOI), with the objective of providing meaningful internship experiences. When the undergraduate or graduate student earns their academic degree, they are eligible for career employment in the DOI. DHA-RA interns will have the opportunity to apply natural resource science expertise to public land management in the NPS and build a network with federal employees throughout the internship. These rigorous internships require specialized expertise and typically are available to upper level undergraduate or graduate students. The internships are designed to develop the participant's technical and creative thinking abilities, leadership skills, and problem-solving capabilities. DHA-RA interns are eligible to be hired directly into a permanent federal position after fulfilling the requirements of the internship.



### **Amani Canada • Trinity University in San Antonio**

#### ***Padre Island National Seashore, Texas***

I graduated from Trinity University in San Antonio, Texas where I obtained a double major in Environmental Studies and Earth Systems Science. Learning and interacting with different spheres and interests has led me from researching garnet geochemistry to creating maps and demonstration gardens to sea turtles and social media. In the fall of 2018, I was in Santa Catalina Island where I researched the geologic history of California. After doing the data analysis, I designed the layout of the research poster in order to be visually appealing and easy to read by any public. I presented this work at the American Geophysical Union 2018 Conference as lead investigator. I believe that science is at its most effective when the public can understand and interact with it. My areas of knowledge include cartography, geologic field research, photo and copy editing, graphic and layout design and digital photography. Additionally, I want to diversify and build upon skills and knowledge in other fields related to natural resource management, conservation, and resilience to climate change. In the fall of 2020, I will start a Master's degree in Geography at Texas A&M University at College Station, Texas. I will be conducting research in human-environment interactions, flood risk, and climate resiliency.



### **Tania C Parra Ramírez • University of California, Santa Cruz**

#### ***Glen Canyon National Recreation Area, Arizona***

I have a Bachelor of Science degree in Ecology and Evolutionary Biology from the University of California, Santa Cruz. I am currently working on my Master of Science in Environmental Science and Technology at California State University, Fullerton. I am interested in pursuing a career in conservation with the National Park Service. This summer I will be conducting research at Glen Canyon National Recreation Area where I will look at patterns of habitat use by bats. This will be my second year at Glen Canyon National Recreation Area, and I will continue the work that was started in 2016 by the Park. Once completed, I will analyze five years' worth of acoustic monitoring data within the Park's boundary. I am excited to return to Glen Canyon where, last year, I had the opportunity to learn valuable bat monitoring skills and was able to share this information during the annual Bat Festival. In addition, I participated in citizen science events where I talked to teenagers about conservation and bat ecology. I look forward to doing this again this summer. I am interested in this program because it gives me the opportunity to work alongside NPS scientists. The Direct Hire Authority certificate will help me further my career with the Park Service.



**Cory Zaller-Edmonds • Hiram college**  
**Mount Rainier National Park, Washington**

I graduated from Hiram College with a BA in Environmental Studies. After four years of college, I realized that spending time outside and working outdoor is what I want to do for the rest of my life. I was a Mosaics intern in 2019 at Mount Rainier National Park where I learned how to monitor bat colonies and test for White-nose Syndrome. As a returning intern, I would like to further my knowledge by testing for microplastics and how they affect the food chain in water supplies at the park. I would also like to put into practice my experience as a Wildlife Diversity and Conservation intern (2018) as a bird bander and from the Stream Restoration Monitoring project at my university. This opportunity gave me field experience studying the effects of an experimental stream blockage of a restored stream and assessing stream health by performing electrofishing studies, algae counts, and by measuring stream width, velocity and turbidity of multiple sites. In the future, I want to work in a field-based job with the National Park Service where I can work outdoors and continue to contribute to conservation science.



“When I visit Cynthia’s office, I know we’ll get some serious planning done.  
I credit her great mentoring and the sea turtle decorations!”  
- Amani Canada, Padre Island National Seashore, TX





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