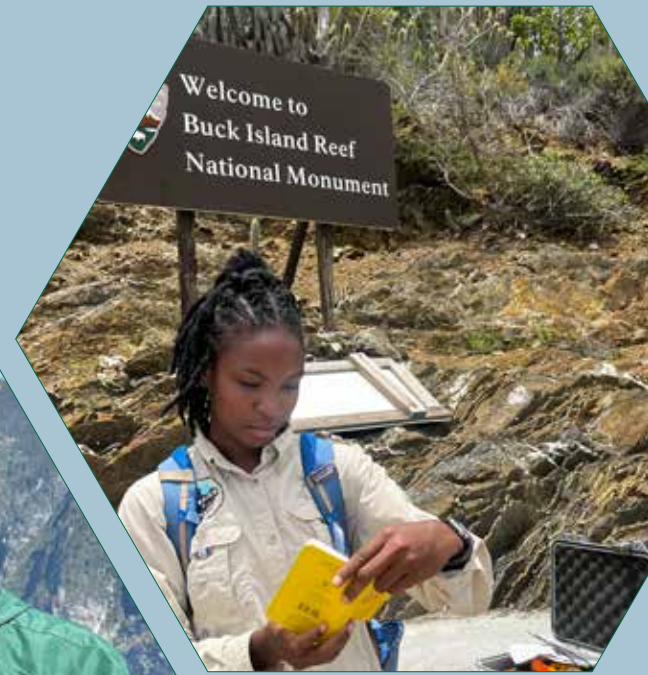
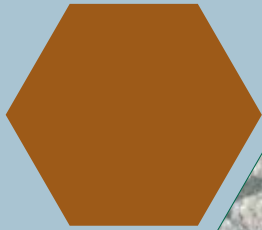


2023 Annual Report



MOSAICS IN SCIENCE
Diversity Internship Program



Table of Contents

4	About the Program
5	The MOSAICS Team
6	Executive Summary
7	Partner Organizations
8	Funding Overview
9	Federal Hires from MIS
11	Intern Demographics
12	Internship Duties
13	Webinars
14	Internship Host Sites
15	Mosaics in Science Peer Mentors
16	Career and Leadership Workshop
21	Workshop Surveys
23	Project Highlights - DHA
27	Intern Achievements
31	Words from Mentors/ Supervisors
32	Words from Interns
34	Site Visits
35	Social Media
37	Intern Media Highlights
39	Acknowledgements
41	Appendix I: Intern Profiles

Elise Chan, Glen Canyon National Recreation Area, AZ



National Park Service (NPS)

Kiersten Jarvis, Program Manager
Kiersten_Jarvis@nps.gov



Environment for the Americas (EFTA)

Sheylda Díaz-Méndez, Internship Manager
mosaics@environmentamericas.org

About the Program

MOSAICS in SCIENCE



The Mosaics in Science Diversity Internship Program provides youth underrepresented in natural resource science career fields (e.g., Latino, African American, Asian, Native American/Alaskan Native, and Pacific Islander/Native Hawaiian) with meaningful, on-the-ground work experience with the National Park Service.

Natural resource science disciplines covered in the Mosaics in Science Diversity Internship Program include air resources, biological resources, geologic resources, natural sounds, night skies, and water resources. For more information about Mosaics in Science, visit our websites, at go.nps.gov/MIS or mosaicinscience.org

Program Objectives

Mosaics in Science connects students and recent graduates to valuable opportunities to learn the science skills they need. From gathering and recording data to conducting analyses, each new tool helps interns become more confident and proficient. MIS accomplishes the following:

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

Our primary goals are to provide meaningful and relevant science-based internships for racially and ethnically diverse undergraduates, graduates, and recent graduates, and to support the NPS mission.



Maya Nivarthi, Agate Fossil Beds National Monument, NE

The MOSAICS Team



George McDonald
Senior Advisor-Youth Programs,
National Park Service



Ernestine White
National Youth Employment
Programs Coordinator,
National Park Service



Kiersten Jarvis
SIP Program Manager,
National Park Service



Chelsea Bitting
SIP Partnership Lead,
National Park Service



Sheylda Díaz-Méndez
Project Manager,
Environment for the Americas



Shanelle Thevarajah
Internship Programs Manager,
Environment for the Americas



Carina Ruiz
Associate Director,
Environment for the Americas



Paulina Gutierrez
Program Assistant,
Environment for the Americas



Executive Summary

The Mosaics in Science Diversity Internship Program attracts highly talented college students, recent graduates, graduate students, and participants up to age 35 who seek careers in the sciences. Their work contributes to a wide spectrum of projects taking place at national parks, including inventory and monitoring, science communications, and science education.

In 2023, we were proud to host twenty one interns who participated in the intensive 12-week program and contributed a staggering 276 weeks of service, translating to over 11,000 hours devoted to their work. We also achieved other milestones, such as visits to fifteen parks to meet with interns and their supervisors/mentors, with stops in Washington, Alaska, Colorado, Kentucky, Montana, Ohio, Oregon, Virginia, and California.

The pinnacle of the program's success is highlighted at the Career and Leadership Workshop, which serves to provide additional training, the opportunity for interns to meet National Park Service leaders, and to meet one another and learn about their work.

Environment for the Americas is proud to serve as a partner with the National Park Service in developing and hosting Mosaics in Science. Our thanks to the many people who contribute to its success, including the park supervisors/mentors who share their passion for science with their interns, and our staff who provide guidance and mentorship throughout the program.

Sincerely,



Executive Director



Partner Organizations

NPS Natural Resource Stewardship and Science Directorate (NRSS)

The NPS Natural Resource Stewardship and Science Directorate provides scientific, technical, and administrative support to national parks for the management of natural resources. NRSS has a strong commitment to providing science-based on-the-ground youth career development opportunities through the management of the Scientists in Parks Program, which includes the Mosaics in Science Diversity Internship Program.

NPS Youth Programs Division (YPD)

The NPS manages youth programs with diverse missions and responsibilities. These programs aim to enhance the connection between young people and the natural and cultural resources of the NPS, while also cultivating a strong work ethic among the youth of our nation.



Environment for the Americas (EFTA)

EFTA is a nonprofit organization dedicated to bridging the gap between underrepresented individuals and conservation through research, education, and outreach. Our mission is to connect diverse people to nature and birds. Through programs like Mosaics in Science, we help to preserve quality public lands and wildlife habitat for the generations to come.

One of our key initiatives is providing opportunities for youth to engage in science and natural resource careers. By empowering young minds, we are ensuring the longevity of our natural environment. We are also passionate about increasing participation in environmental education and promoting outdoor recreation among all demographics.

For over a decade, our internship programs, including MIS, have played a vital role in reducing barriers to participation in conservation efforts. Through these programs, we have been able to cultivate a diverse and talented workforce that is committed to preserving our natural resources.

environmentamericas.org



James Nagaoka, Blackstone River Valley National Historical Park, RI

MIS Diversity Internship Sites: 2013 - 2023

Mosaics in Science has had a tremendous impact on interns, the work of the National Park Service, and on the many parks that have participated.

243

Interns work across
the country

>121,280

Hours of Service

128

NPS Units
(8 new in 2023)

The Mosaics in Science Diversity Internship Program was created in 2013 as a collaboration between the NPS Natural Resource Stewardship and Science Directorate and the Youth Programs Division. During its inaugural year, the Youth Programs Division secured funding to place twelve interns in parks. The NPS partnered with the Geological Society of America during its first three years.

From 2016 to 2020, the program partnered with Environment for the Americas and Greening Youth Foundation. In 2021, EFTA became the sole program partner for the Mosaics in Science Internship. In 2023, we placed twenty-one interns in parks representing almost every region of the National Park Service.

Funding Overview

Funds available in 2023 included some support that was not expended due to COVID restrictions, as well as the current funding. The National Park Service committed \$455,700 to supporting intern recruitment, onboarding, and participation for program planning.

Federal Hires from MIS

Since 2013, 32 interns have been hired into permanent, seasonal or term federal positions. Twenty-three interns were hired by NPS, and four utilized the Direct Hire Authority-Resource Assistant they earned as a MIS.

The program provides professional training and tools for preparing a federal resume. EFTA maintains communication with MIS alumni to send them job opportunities with the National Park Service and other federal agencies and to hear about their career successes!

Name / Year of Internship	Position	Hire Term
Jay Stevenson Kim / 2013	Land, Chemicals, and Redevelopment Division with EPA	Permanent
Richard Duenas / 2015	US Census Bureau	Permanent
Liliana N. Calderon / 2016	Wildlife Biologist, USFWS Portland Regional Office	Permanent
Chelsea N Collins / 2016	Natural Resource Specialist, Bureau of Land Management	Permanent
Gabriela Dunn / 2016	Administrative Assistant, Golden Gate National Recreation Area	Permanent
Howasta (Howie) Tahiry / 2016	Biology Assistant, US Forest Service, Cibola National Forest	Permanent
Ricardo Escobar / 2017	Community Outreach Coordinator, Petrified Forest National Park*	Permanent
Kayla Fermin / 2017	Natural Resources & GIS Program Manager, Lewis and Clark National Historical Park	Permanent
Brenna Rodriguez / 2017	Biological Science Technician, White Sands National Monument	Permanent
Fabiane Barato-Speyrer / 2017	Biological Science Technician, Gulf Coast Inventory & Monitoring Network	Permanent
Sophia Bass-Werner / 2017	Cartographic technician, National Park Service at Boston Harbor Islands	Permanent
Sebastian Guillermo Alvarez Espinoza / 2018	Physical Scientist, FEMA	Permanent
Rhys Reynaldo Placido Joaquin / 2018	Park Ranger, Big Cypress National Park	Permanent
Jeanie Lai / 2018	Wildlife Biologist, U.S. Fish and Wildlife Service	Permanent
Dominique Sanchez / 2018	Park Guide, Mammoth Cave National Park	Permanent
Tania C Parra Ramirez / 2020	Biological Technician, Grand Canyon National Park	Permanent
Brooke Su / 2021	Wildlife Biologist, USFWS	Permanent

*** Hired with DHA**

Name / Year of Internship	Position	Hire Term
Marissa Reis / 2013	Lead Interpretive Ranger, Sequoia National Park	Seasonal
Salvador (Eddie) Silahua / 2015	Biological Science Technician, Olympic National Park	Seasonal
Laura Palma / 2017	Biological Science Technician, NPS at Biscayne National Park	Seasonal
Elizabeth Rico / 2017	Big South Fork National River & Recreation Area	Seasonal
Laura Palma / 2017	Biological Science Technician, NPS - Everglades National Park, FL	Seasonal
Maaz Fareedi / 2018	Geologist, Yellowstone National Park	Seasonal
Katherine (Kat) Ko / 2018	Biologist for the Air Resources Division, National Park Service	Seasonal
Jaylin Solberg / 2018	Biological Science Technician, Theodore Roosevelt National Park	Seasonal
Christian Knutson / 2019	Park Ranger, Badlands National Park	Seasonal
Caleb Ronald Bolin / 2020	Biotech Assistant, Montezuma Castle and Tuzigoot National Monument Parks	Seasonal
Cory Steven Zaller-Edmonds / 2020	Biology Assistant, Mount Rainier National Park	Seasonal
Edwin Ali Torres / 2021	Biological Technician, Golden Gate National Recreation Area	Seasonal
William (Will) Hansell Tsai / 2021	Interpretive Park Ranger, Yosemite National Park	Seasonal
Julia Dahlquist / 2022	Youth Engagement Coordinator, Mt. Baker Snoqualmie National Forest, USFS	Seasonal
Liza (Elizabeth) Hafner / 2022	Interpretive Ranger, Yosemite National Park	Seasonal

Federal Hires from MIS 2013-2023

Permanent: 17

Seasonal: 15

Intern Demographics

Age

19-25

95%

26-30

5%

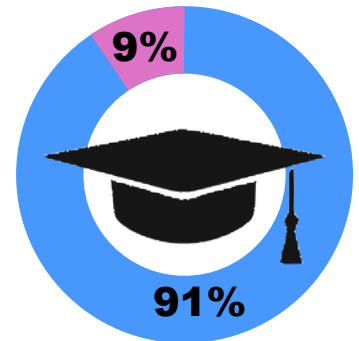
Gender

Female

Male



Education



● Bachelors
● Masters

Race / Ethnicity

Mixed Race

33.3%

- Asian, White: 28.6 % (2)
- Latino/a, White: 28.6 % (2)
- Black/African American, White: 14.3% (1)
- Latino/a, American Indian: 28.6% (2)

Asian

9.5%

Latino/a

33.3%

Black/
African American

19%

Middle Eastern

4.8%

NPS Regions

Region 1



Region 6



Region 2



Region 7



Region 3



Region 9



Region 4



Region 10



Region 5



Region 11



12 Interior Region Names Based on Watersheds



Internship Duties

Research

- Monitoring Great Grey Owl, vegetation inventory, science communication, and data analyses at Yosemite National Park in California.
- Species distributions, forest pathology, vegetation ecology, threatened species, and remote sensing at North Coast and Cascades Inventory & Monitoring Network in Washington.
- Assessing sea turtle populations, nocturnal field season with data collection and water conditions in Buck Island at Christiansted National Park.
- Set out trail cameras and collect data on beaver movements, design and run vegetation browse transects looking at impacts of wildlife on floodplain forest regeneration and potentially help monitor ASCC plantings at the Crosby Farm site along the Mississippi National river.

Inventory and Monitoring

- Assessing fisheries resources in light of recent changes in fishing regulations at Biscayne National Park in Florida.
- Coho and steelhead monitoring and a diet composition study at Point Reyes National Seashore in California.
- Collecting biological data in the field including plant monitoring, amphibian and waterbird monitoring in Skagway, Alaska
- Monitor pupae for emergence and release adult butterflies, collect eggs, monitoring of larvae in the lab, protect IMB habitat and participate in habitat enhancement/improvement projects, conduct transect surveys to track population trends for IMB, maintain native plant nursery, seed collection and data entry and analysis.
- Hiking to sites and setting up sound monitoring instruments in the field, analyzing the data, and writing up a protocol to include the monitoring in the Wilderness Character Monitoring Plan at Glacier National Park.
- Development and implementation of a woody debris monitoring protocol for the Cuyahoga River. survey, monitor, and ground-truth woody debris features identified by side-scan sonar surveys in 2020.
- Conservation of in situ remains of America's only known Columbian mammoth nursery herd. Labeling and recording new specimens for the Interior Collections Management System in Texas.

GIS and other technologies

- Field data collection with photogrammetry data, assisting with archeological site monitoring. ArcGIS, high-precision geographic location and document topographic changes.
- Monitor bristlecone pine for signs of beetle attack, survey for and map the southern extent of bristlecone pine in the park using ArcGIS Field Maps, and collect bristlecone pine seeds for long-term storage in California.
- Conducting non-motorized boat and wading surveys of 3 park lakes mapping the depths/elevations and contours to provide detailed current conditions of the lake beds Utilize GIS to produce lakebed maps and profiles in Virginia.

Education / Interpretation

- Working as a science communication assistant with a component of field work, developing science/media communications and videography/photography at Golden Gate/John Muir/Pinnacles/Point Reyes in California
- Developing and refining science communication materials, scientific media development, presentations/interpretive programs for visitors and occasionally working with field scientists at Olympic National Park in Washington.
- Draft new curricula for Slater Mill environmental education programming, including two hands-on programs focused on 4th grade students for "Every Kid Outdoors" programming that meets Rhode Island science learning standards.
- Update and renovate the herbarium display by gathering new specimens, updating the existing text, and researching and writing ethnobotany information about Native American use of the plants of the items on display at Agate Fossil Beds National Monument.

Multi-faceted

- Cave inventory within park caves, GIS mapping, locating karst springs within the park, collection, identification, cataloging and housing of fossil specimens, create a digital museum record for the specimen and house the specimen in the collection storage area of Mammoth Cave in Tennessee.
- Collect, organize, analyze, and report on visitor use data related to the visitor use management planning at Great Sand Dunes. Using GIS equipment and applications; analyzing visitor use and social science data using statistical packages and ArcGIS to create descriptive and inferential statistics to evaluate the managed access system; communicate analyses via written reports.
- Assist in natural resource monitoring, bat acoustic identification, GIS & GPS inventory and mapping, database management and report writing. Assist in ongoing projects like night skies, hydrology monitoring, invasive weeds monitoring, climate change phenology, cave monitoring, trail maintenance, equipment maintenance, and historic preservation in Oregon.

Webinars

Environment for the Americas provides training to interns via webinars, which serve as one of our primary means of face-to-face communication. These webinars allow us to reach a broader audience of interns and their supervisors directly. Webinars offer interns convenient and cost-effective professional development without the need to physically travel to a specific location. They also provide EFTA staff with the ability to measure attendance and promptly address questions in real time. We continually refine our webinars using the insights from previous cohorts, ensuring an improved experience for future interns. We make sure that our webinars feature speakers who are relatable to our interns and can share their relevant experiences, making them a highly popular activity among Mosaics interns.

Date	Time	Topic
Zoom link: https://us06web.zoom.us/meeting/register/tZAtf-utqDoiHtfRoBCLF9q3lUgkh4DQ973a		
May 11	11 am MT / 1 pm ET	Workplace Harassment
May 18	11 am MT / 1 pm ET	Direct Hire Authority-Resource Assistant
May 25	11 am MT / 1 pm ET	Public Lands Corps Hiring Authority
Zoom link: https://us06web.zoom.us/meeting/register/tZ0pf-qprTgjHtcgAE7g1WnxKlpW7zG9MH49		
June 8	12 pm MT / 2 pm ET	Federal Resumes
June 15	12 pm MT / 2 pm ET	Networking; advocating for your professional growth
June 22	12 pm MT / 2 pm ET	How to Prepare Oral and Poster Presentations
June 29	12 pm MT / 2 pm ET	Preparing for the Career and Leadership Workshop
July 21-28	By appointment	Presentation Practice Sessions
July 20	12 pm MT / 2 pm ET	Review of DC logistics and intern presentations practice
July 27	12 pm MT / 2 pm ET	Intern practice presentation with peers



Veronica Guevara, Biscayne National Park, FL

Internship Host Sites



Map not to scale



PLC

- Agate Fossil Beds National Monument, NE
- Blackstone River Valley National Historical Park, RI
- Buck Island Reef National Monument, USVI
- Cuyahoga Valley National Park, OH
- Death Valley National Park, CA
- Glacier National Park, MT
- Glen Canyon National Recreation Area, AZ
- Golden Gate National Recreation Area, CA
- Great Sand Dunes National Park & Preserve, CO
- Mammoth Cave National Park, KY
- Olympic National Park, WA
- Oregon Caves National Monument, OR
- Golden Gate National Recreation Area,
Point Reyes National Seashore, CA
- Prince William Forest Park, VA
- San Juan Island National Historical Park, WA
- Waco Mammoth National Monument , TX
- Yosemite National Park, CA



DHA-RA

- Biscayne National Park, FL
- Klondike Gold Rush National Historical Park, AK
- Mississippi National River and Recreation Areas, MN
- North Coast and Cascades Inventory & Monitoring Network, WA

Mosaics in Science Peer Mentors

The Peer Mentor Program provides current Mosaics interns with insight and support from a former program participant. Peer mentors assist MIS interns as they navigate their park experience and conduct check-in calls. For some interns, the experience of being part of an ethnically diverse group in parks that may not have a diverse staff can be overwhelming. Having a peer to connect with can make a meaningful difference. Many thanks to the Mosaics in Science Peer Mentors for their continued contributions to the program!

2023 Mentors



Angela Fiorito



Anjali Velamala



Ben Fujita



James Puentes



Jailyn Hoskins



Julia Dahlquist



Kai Victor



Keily Pineda



Liza Hafner



Mahika Rao



Nicholas Durgadeen



Will Tsai

Career and Leadership Workshop



Environment
for the Americas



- Monday, July 31 - Thursday, August 3
- Stewart Lee Udall Department of the Interior Building
1849 C Street, N.W. Washington, DC 20240

Environment for the Americas had the privilege of hosting more than 60 interns in Washington, D.C. for the annual in-person career and leadership workshop. These talented students and early-career professionals worked alongside National Park Service leadership, gaining valuable experience and contributing to critical projects. At the workshop, the interns presented the results of their work and networked to prepare themselves for the next steps in their careers.



Guest Speakers



George McDonald
Office of the Assistant Secretary,
Policy, Management and Budget
Senior Advisor, National Park Service



Jamie Crispin
Youth Programs Manager,
National Park Service



Michael Martinez
Deputy Assistant Secretary,
Department of the Interior



Tracy Baetz
Chief Curator, U.S. Department
of the Interior Museum



Robyn Rees
Director of HR Strategic Initiatives,
Office of Human Capital,
Department of the Interior



Sara Newman
Director, Office of Public
Health, National Park Service



Merlene Mazyck
Workforce Development Partnerships
Team Lead, US Forest Service



Eleanour Snow
Youth and Education Programs
Manager, Geologist,
US Geological Survey



Melissa Sims
Chief, HR Policy and Strategic
Initiatives Workforce and Inclusion
Directorate, National Park Service



Doug Hale
Human Resources Specialist
(Direct Hire Authority Resources
Assistant), National Park Service



Lisa Collins / Evaluator
President, Education Through
Engagement, LLC



Kathryn Troutman
President, Education Through
Engagement, LLC



Daniel R. Wildcat
Author, Speaker, Scholar



Isabel Gonzalez
Interpretive Ranger and
Public Historian at Fort
Raleigh National Historic Site



Kristian Enbysk
Museum Technician at the
Midwest Archeological Center



Estrella Sainburg
M.S. Community and Regional
Planning, Outdoor Recreation
Planner at Juan Bautista de Anza
National Historic Trail



Charles F. Sams III
Director, National Park Service



Michael Rizo
Program Specialist,
US Forest Service

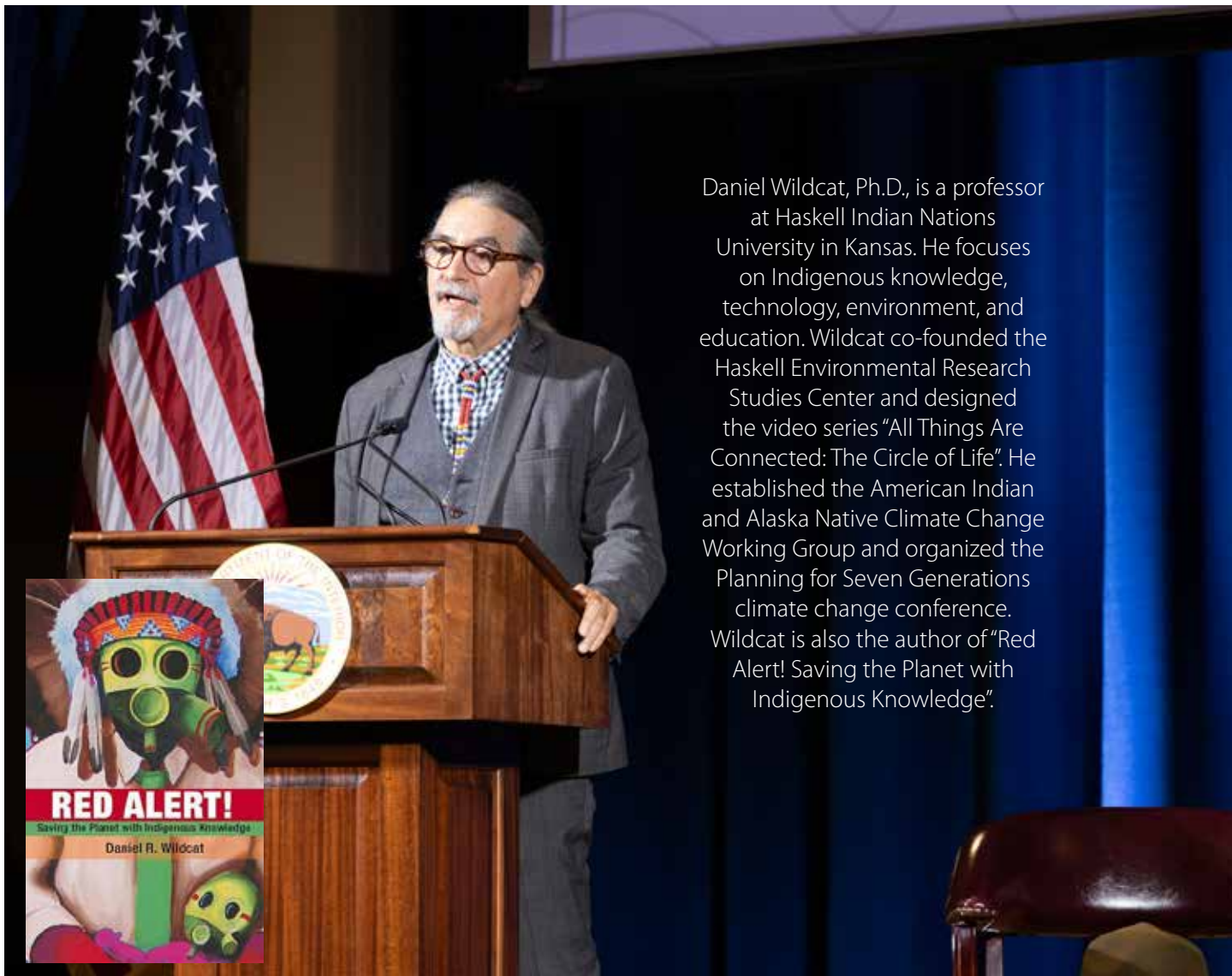


Sangita Chari
Program Manager, Relevancy,
Diversity and Inclusion, NPS



Edwin Torres
Veterans Outreach
Coordinator, Central
Washington University

Keynote Speaker: Daniel Wildcat



Daniel Wildcat, Ph.D., is a professor at Haskell Indian Nations University in Kansas. He focuses on Indigenous knowledge, technology, environment, and education. Wildcat co-founded the Haskell Environmental Research Studies Center and designed the video series "All Things Are Connected: The Circle of Life". He established the American Indian and Alaska Native Climate Change Working Group and organized the Planning for Seven Generations climate change conference. Wildcat is also the author of "Red Alert! Saving the Planet with Indigenous Knowledge".

Daniel Wildcat's most recent book, *Red Alert: Saving the Planet with Indigenous Knowledge*, suggests current global climate change issues will require the exercise of indigenous ingenuity and wisdom if humankind is to reduce the ecological damage well underway. During the MIS workshop, his keynote address sparked a dynamic discussion between him and the interns and was livestreamed to the general public.



Intern Presentations

Mosaics in Science interns share their work at the Career and Leadership Workshop through either an oral or poster presentation. This gives the interns experience communicating their research and results as they would at a professional conference. It is also an opportunity for them to demonstrate their skills, personality, and ambition to Department of the Interior leadership and employees.

Oral presentations

As a part of the hiring authority, DHA-RA Interns are required to give oral presentations. Four interns showcased their summer research at the Yates Auditorium discussing topics including climate change effects in vegetation and beavers, bird population changes in Alaskan ecosystem, vegetation management in the Pacific northwest and fisheries management in the Atlantic Ocean. Presentations were live streamed and recorded.



Poster presentations

Mosaics interns with Public Lands Corps hiring authority created posters and shared the findings of their summer positions at the Bison Bistro. Topics varied from vegetation monitoring in Death Valley and Yosemite to education and outreach at Golden Gate and Olympic.



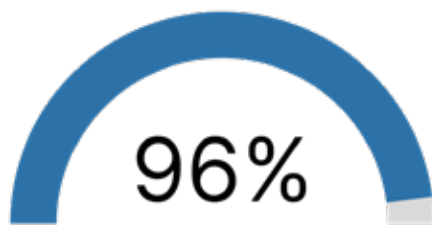


Ameen Asbahi, Mount Rainier National Park, WA

Workshop Surveys

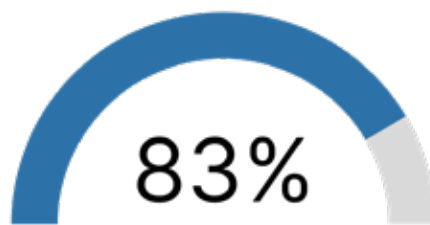
Environment for the Americas evaluates MIS to collect and analyze information about the interns' experiences with the program's activities, from the logistics to the Career and Leadership Workshop. We use their responses, to improve its effectiveness and to inform programming decisions. The adaptations we make address the changing needs of each cohort by identifying areas for improvement. Data are also used to track information about our participants, such as their awareness of federal careers, demographics, experience in their field of study, and the quality of presentations at the workshop.

How important was learning about other interns' work through their presentations?



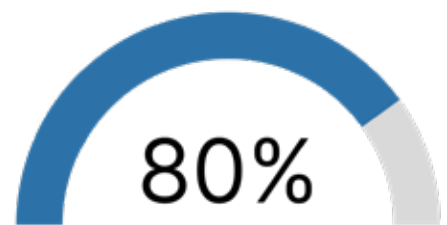
Important to very important

How important were the DHA and PLC presentations?



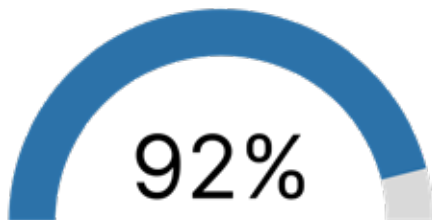
Helpful to very helpful

Did you benefit from hearing from park leadership?



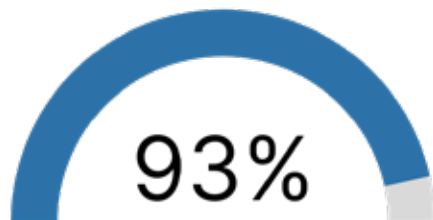
Yes!

Overall content of Day 1



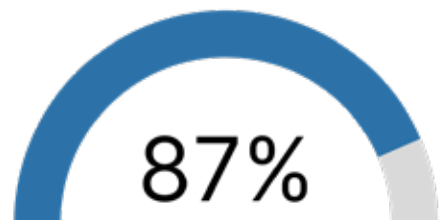
Good to very good

Overall content of Day 2



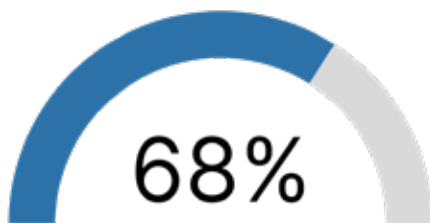
Good to very good

Rate the presentation by Daniel Wildcat



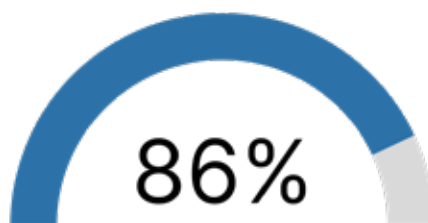
Good to excellent

Rate your experience at the zoo



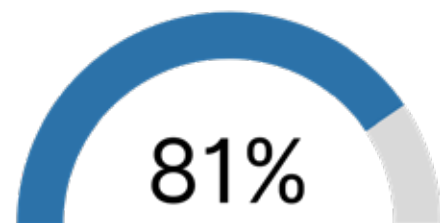
Good to very good

How helpful was the navigating federal careers panel?



Helpful to very helpful

Please rate the importance of hearing from the Director of the National Park Service.



Important to very important

Recognition of Excellence

Recognition of Excellence in Intern Mentorship



**Nominated
by their intern**

Beth Fallon

North Coast and
Cascades Inventory & Monitoring Network



**Excellent
long-term
supervisor**

Sarah Dolan

San Juan Islands
National Historic Park

My manager Beth Fallon has been an amazing mentor and the most valuable part of my internship has been learning from my coworkers. Mt. Rainier is a super positive work environment so I would definitely consider Rainier as an internship destination!

- *Ameen Asbahi, Mount Rainier National Park*

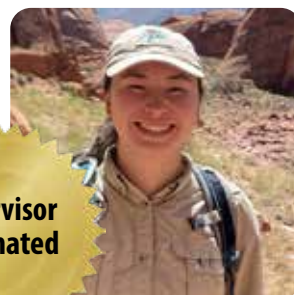
Intern Recognition



**Best
all-round**

Veronica Guevara

Biscayne National Park



**Supervisor
nominated**

Elise Chan

Glen Canyon National
Recreation Area



**Best
Blogger**

Maya Nivarthi

Agate Fossil Beds
National Monument

Best Blogger: Maya Nivarthi

"Keeping it real!"

An award for a heartfelt blog that took us through their personal and professional journey



**PLANT OF THE WEEK: RUMEX
VENOSUS!**

PLANT OF THE WEEK! I thought I'd start a new segment on this blog called PLANT OF THE WEEK! Basically this will consist of me choosing one of the plants I have seen or collected at Agate Fossil Beds, providing some information about this plant, and...

11 June, 2023 / 0 Comments



**AN ATTEMPT AT CAPTURING AGATE'S
IMPRESSIONS: PLANT BIODIVERSITY**

MY PROJECT Here at Agate Fossil Beds, there are many different types of plants that grow, ranging from cactuses to insects, and grasses to lichens. This summer I am working on updating and developing an herbarium collection of the impressive plant biodiversity Agate Fossil Beds has...

11 June, 2023 / 0 Comments



**CAMPING, COUNTING, CREATURES,
AND STAR CLUSTERS: EVERYTHING IS
AWESOME!!!**

COUNTING PLANTS AND THE STENOMYLUS QUARRY It's times like these when the 'Everything is AWESOME!!' song from The Lego Movie is stuck in my head, because like the title says, everything is awesome. I feel incredibly lucky and grateful that I get to be having all...

28 June, 2023 / 0 Comments



**ALL OBSERVATIONS ARE GOOD
OBSERVATIONS AND A PROTOTYPE**

The past few weeks have been very exciting for me. I put together a prototype for one of the herbarium display cases to help envision what the different plant specimens would eventually look like and to test out different fonts and ways of displaying and...

09 July, 2023 / 0 Comments

Visit Maya's blog online at <https://www.mosaicsinscience.org/author/Mnivarthi/>

Project Highlights - DHA

Ameen Asbahi

Biology Assistant

Mount Rainier National Park, North Coast and Cascades Network

Ameen shared that Mount Rainier National Park is one of the most beautiful places he has ever been. Visible as a backdrop to many cities in the region, the mountain is renowned for its drastic landscapes and stunning biodiversity. Sprawling subalpine wildflower meadows are an iconic feature of Mount Rainier during the summertime and a major draw for the millions of visitors the park receives. These meadows include an incredible amount of native botanic biodiversity with vibrant flowers such as magenta paintbrush, broadleaf lupine, and tiger lily. However, these subalpine meadow ecosystems may be subject to change as the climate shifts. The North Coast and Cascades Inventory and Monitoring Network (NCCN) is responsible for long term monitoring projects in seven parks across the Pacific Northwest.

One of Ameen's projects focused on collecting data on subalpine vegetation in the park, including identifying the prevalence and species richness of subalpine meadows. Ameen and his team ventured out miles into the backcountry to conduct research at established long term monitoring sites, camping along the way. This year is only the second or third time visiting many of the plots, and many more years of research are needed before conclusions can be drawn about how the meadows are changing. Future results from this long term research may help inform management decisions across the entire NCCN network on how best to preserve meadows for future generations.



The land administered as Mount Rainier National Park is the Ancestral homeland of the Cowlitz, Muckleshoot, Nisqually, Puyallup, Squaxin Island, Yakama, and Coast Salish people.



Project Highlights - DHA

Michael del Castillo

Natural Resource Management Assistant
Mississippi National River and Recreation Areas

Miko's project aimed at assessing how much of an impact beavers have on cottonwood regeneration. Cottonwood trees are an important tree for the canopy of a floodplain forest and allow many birds of prey safe nesting sites. Recently, cottonwood regeneration in the area has declined. There simply aren't as many cottonwood saplings compared to other species like boxelder and silver maple. With hopes to collect more data on how much beaver and other herbivores are responsible for this strong decline in regeneration, the park launched a research project. Conducting cache surveys, vegetation transects, and camera trapping will add to the Mississippi National River and Recreation Areas' knowledge of beaver impacts and result in a better idea of the overall connection between beaver and how their herbivory affects cottonwood regeneration. In the past, there have been a few examples of how beaver can affect eastern cottonwood restoration. At a site in North Mississippi regional park, for example, beaver breached the fencing during high flood season and removed all fifty cottonwood saplings that were planted. Recording these activities will help park managers identify challenges to restoring habitat and help target areas and methods for more successful efforts.



Flagging the route



Methodology: Crosby farm transect points



Field supplies



Prism sampling



Regeneration surveys



Results

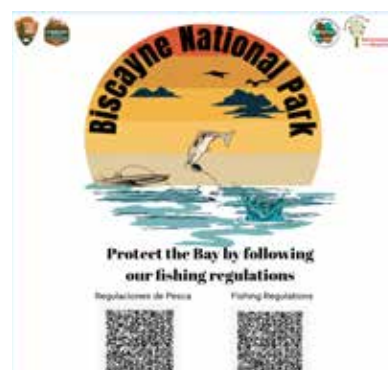
Project Highlights - DHA

Veronica Guevara

Natural Resource Management Assistant
Biscayne National Park

Biscayne National Park in southern Florida, is one of the largest marine parks in the National Park System. The park is 95% water and within its 173,000 acres, there are four different marine ecosystems. It encompasses mangrove forests, shallow estuarine systems with diverse bottom communities such as seagrasses and keys made of coral limestone, and offshore reefs, which are part of the third largest coral reef system in the world. The park is located inside Biscayne Bay, a hot spot for commercial and recreational fishing. But due to unsustainable practices directly associated with fishing, the area has suffered a decrease in biodiversity and resilience.

Veronica's primary focus was to conduct creel surveys and to contribute to data collection and entry on sea turtle nesting, participating in mooring buoys use surveys, and recording water quality measurements. She collected data by interviewing visitors about their fishing experience at the different marinas near the park. She noticed that most had no idea that they were fishing in a national park and/or that the fishing regulations are different inside the park's boundary. Her project mainly focused on analyzing data from 2015 to 2023, which includes information about the species of fish caught, their sizes, and the areas where they were caught. The results will help to identify fishing preferences, how people use the park for fishing both inside and outside the park, and how uses correlate to fishing violations. Through her research, she detected a repeating pattern in the species of fish caught at specific areas. Using the results, she developed a poster that describes the fish most frequently caught and the associated fishing regulations. The poster is now present at marinas and offers more information with a link to a website to help visitors learn about the diversity of fish species and how they are protected.



Regulaciones de Pesca



Fishing Regulations

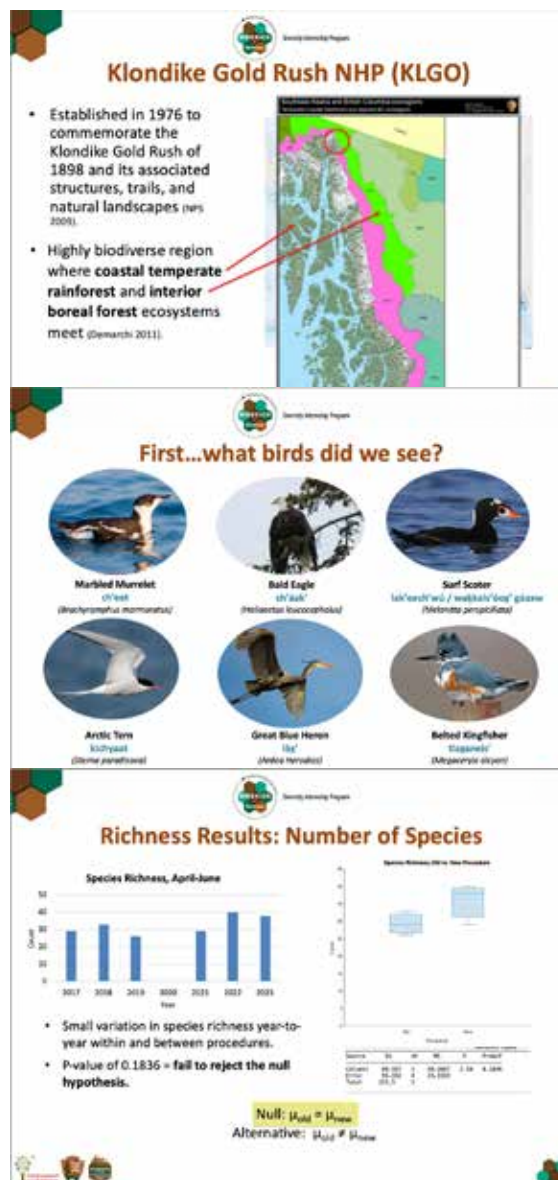


Project Highlights - DHA

Isabella Yallapragada

Natural Resource Management Assistant
Klondike Gold Rush National Historical Park

Klondike Gold Rush National Historical Park is located in Skagway, Alaska at the northern terminus of the Lynn Canal. Established in 1976 to commemorate the Klondike Gold Rush of 1898-99, the park also contains an impressive diversity of flora and fauna because of its unique positioning in a transition zone between coastal temperate rainforest and interior boreal forest. Each spring, millions of migratory birds from the United States, Canada, and Central and South America make southeast Alaska a stopover site before completing their perilous, long-distance journeys to summer breeding and rearing locations. Klondike's Coastal Waterbird Survey (CWS) was designed to comprehensively monitor the occurrence, distribution, abundance, and habitat associations of bird communities, with particular attention paid to such migratory birds in the Taiya Inlet. As ornithologists across the world have noted, however, migratory birds have generally advanced their spring migrations in recent decades in response to climate change. Isabella led a team of volunteer birders in analyzing data collected according to CWS protocols to determine if spring migration has changed over time. Results from the analysis will be used to inform future CWS procedure and the park's avifauna management and monitoring plans.



Intern Achievements

Elsy Martinez

Natural Resource Management Assistant
Oregon Caves National Monument

Nestled in the Siskiyou Mountains in Southeast Oregon, Oregon Caves National Monument and Preserve is best known for its natural beauty in the expansive granite caves throughout the park. It is also home to a diverse set of plant and animal species, which brought Elsy Martinez to the park for her Mosaics in Science internship. As an intern in the Resource Management Division, Elsy learned to implement natural resource monitoring systems, specifically bat acoustic identification. Once recorded, she analyzed the bat calls using the SonoBat software and uploaded them to NaBat, the national bat database. She also worked closely with GIS and GPS inventory and mapping and other resource monitoring involving hydrology, invasive weeds, climate change, caves, trail and equipment maintenance, and historic preservation of the park. Through honing her monitoring tactics and recording these creatures, ten species of bats were found and documented near the entrances of caves at the monument.

Maya Nivarthi

Science Communication Assistant
Agate Fossil Beds National Monument

Agate Fossil Beds National Monument, located near the small town of Harrison, Nebraska, is one of the most pristine displays of Miocene-era fossils worldwide. Not only is it home to these brilliant, historical fossils but also an immensely diverse collection of plants that inhabit the area in today's era. These plants are what brought Maya Nivarthi to the national monument as Science Communication Assistant. She was tasked with identifying and geolocating plant species with GPS coordinates to determine the habitat span of particular plant species throughout the monument. Maya also learned the skills required to collect, clean, and prepare specimens for scientific study. In conjunction with this fieldwork, Maya developed a herbarium collection to document Agate's plant biodiversity, including five distinct plant communities: riparian, cottonwood, lowland prairie, upland prairie, and rocky bluffs. In doing this, she collected over 40 species, creating several collections paired with scientific ethnobotany write-ups. She is most proud of her contributions to the iNaturalist AFGO project, where she identified and uploaded 111 unique species within the park.



Intern Achievements

Whitney Wyche

Natural Resource Management Assistant
Glacier National Park

Glacier National Park, saddling the continental divide, is one of the most visited parks (with 100 million visitors to date) and home to the largest glaciers in the lower 48 states. What brought Whitney Wyche to Glacier as a Natural Resource Management Assistant wasn't just the extraordinary nature you can see in the park- but the symphony of sounds you can hear. While working in resource management, Whitney was tasked with setting up an array of sound monitoring systems across the park, collecting this data, and building a new baseline for the soundscape of Glacier National Park. This effort was all to help determine the effects of natural and human-caused sounds on the visitor experience within the park. Stationed in West Glacier, MT, Whitney noticed the need for more diversity in the park, both employees and visitors. She emphasized the importance of programs like MIS to bring diverse interns into national parks where they are typically sparse. In addition, Whitney gained invaluable experience and technical knowledge of sound monitoring systems and data synthesis and comparison. All of this data is useful to compare prior sound pollution data collected over the last few decades and decades to come.

Isabel Sonora

Paleontology Assistant
Mammoth Caves National Park,

Mammoth Caves National Park is one of just ten national parks in the United States that is also a listed UNESCO World Heritage site. Containing more than 400 miles of cave passageways, discoveries of prehistoric fossils are perpetual. Most recently, in 2019, a large number of Chondrichthyan (shark) fossil specimens were discovered deep within the cave systems, which is what brought Isabel Sonora to MACA as a Paleontology Assistant through Mosaics in Science. Through this internship, Isabel was tasked with collecting, cataloging, identifying, and housing these fossil specimens for further research. Through this opportunity, Isabel gained necessary skills in caving, museum curation, and subterranean biota survey. As a result, she collected, cataloged, and housed over 600 specimens from the site encompassing over 70 species of shark-like creatures dating from 325-340 million years old. Additionally, Isabel got involved in various bird and bat monitoring projects, as well as ancient cave art and cave passage surveying initiatives throughout the park.



Intern Achievements

Briana Alyce Salcido

Paleontology Assistant
Waco Mammoth National Monument

Waco Mammoth National Monument, established in 2015, hosts the largest concentration of Mammoth fossils from a single incident globally. It is hypothesized that the 24 mammoths that lie here were victims of a flash flood, preserving their skeletons within layers of earth for thousands of years. Prior interns observed that the conservation and maintenance of these fossils were being mishandled. In order to combat this issue, new interns were brought in as part of an effort to properly handle and conserve these specimens for future study and observation. Part of this initiative included Alyce Salcido who joined as the Paleontology Assistant. During her time at the park, Alyce was tasked with cleaning, preparing, preserving, and carefully handling fossil specimens collected over the last 30+ years. Methods used included jacket preparation to remove excess sediment, screen washing to observe smaller specimens and conservation for display and scientific purposes. Her efforts contributed to the reconstruction of fossils for all of these uses and a STEM outreach day to display replica assembled fossils and educate visitors on the micro-fossils found in the park. This event attracted over 1,155 people.

Saani Borge

Biology Assistant
San Juan Island National Historical Park

San Juan Island National Historical Park is a place rich in history and home to extraordinary wildlife. The park is home to the fascinating story of the Pig War, a little-known battle between Washington State and British forces over the island's ownership. But the park offers more than just history - it's also a sanctuary for rare species. One such species is the Island Marble Butterfly (IMB), thought to be extinct until its rediscovery in 1998. These beautiful butterflies are now endangered, with their last remaining habitat being the American Camp Unit within the park. However, the park faces another threat - the invasive Canadian Thistle, which is disrupting the natural dune movement and putting the Sand Verbena Moth (SVM) at risk. Enter Saani Borge, a Biology Assistant working at the park through the Mosaics in Science Internship Program. Saani's important role involved trapping, identifying, and surveying insects, with a focus on the SVM. Their research revealed a decline in moth populations as the invasive species encroached on their natural habitat. They skillfully collected and analyzed data, acquiring valuable knowledge and skills along the way.



Intern Achievements

James Nagaoka

Education Assistant
Blackstone River Valley National Historical Park

Established in 2014, Blackstone River Valley National Historical Park was created to preserve the local history in the area, mainly the first successful textile mills in the United States. Located between Rhode Island and Massachusetts, this park is best known for its rich, post-colonial history. Dating back to the late 18th century, this area was the heart of the first industrial revolution in the States. What often goes forgotten about BLRV is its immense natural history and beauty. Blackstone has much to offer with abundant fish, wildlife, and diverse species- but no science-based education existed in the park. This need is where James Nagoka contributed to the upstart of a K-12 science-based curriculum for the park as an Education Assistant. Working closely with the Interpretive Park Rangers there, James helped develop a diverse set of educational talks and awareness presentations regarding the health of the Blackstone River and its tributaries. He sought to inform the public of the detriments to the river, including water pollution. He also ran pop-up activities for visitors, educating them on the historic mills' effects on the river and the problems they still cause today.

Julio Campis Diaz

Biology Assistant
Yosemite National Park

Yosemite National Park in California attracts more than four million visitors every year. Renowned for its geological wonders and scenic landscapes, the park is also home to a diverse range of species that inhabit its glacial valley. Among these species is the endangered Great Gray Owl. Taking up the role of Biology Assistant, Julio Campis Diaz was drawn to Yosemite to contribute to the conservation efforts for these majestic owls. His primary tasks during the internship included gathering location data on the owls, observing their nesting sites, and studying the vegetation they rely on. Using sophisticated techniques such as radio telemetry and vegetation monitoring protocols, Julio established 202 vegetation plots, generating valuable data that will aid in reducing the mortality rates of the Great Gray Owls in the future. The project focuses on nests near roads, monitors the owls, investigates the causes and effects of collisions with vehicles, and develops strategies to mitigate risks in high-risk zones. Throughout this internship, Julio honed his skills in various aspects such as bird banding, utilizing forestry instruments, data collection and analysis, and conducting bird surveys. Julio is eager to leverage the expertise gained from this experience and apply it towards serving the NPS.



Words From Mentors / Supervisors



Kristen Ewen / Buck Island Reef National Monument, Christiansted National Historic Site

This is an excellent internship and we have hired locally, providing students with an experience that will help them be part of our park in the future.

Vanessa McDonough / Biscayne National Park

Tomorrow is officially the last day of the internships of my AMAZING LHIP and MIS interns. Wow, they were truly fantastic. We celebrated their success today with a beautiful day out in the field visiting the reefs, then indulged in some homemade key lime pie ice cream that I made for them once we made it back to headquarters. I'm going to miss them!



Carolyn Mills / Death Valley National Park

We have worked great because Caitlyn and I have learned a lot and worked on clear communication. This way, we have fulfilled our work plan and the intern took leadership in their role. This is my first experience hosting a Mosaics intern and it has been wonderful!

Nancy Duncan / Mississippi National River and Recreation Areas

Our intern just gave his presentation for us and it is pretty stellar. I was impressed! He has been working on it very hard! You can see he got help from his crew mates and hopefully he's learning a great lesson in teamwork thanks to Mosaics!



Words From Interns



Julio Campis Diaz / Yosemite National Park

I thank Environment for the Americas and Mosaics in Science for providing an opportunity for underrepresented minorities such as myself who wish to make a difference in the fields of STEM and conservation. Internships like these demonstrate the importance of diversity not only in wildlife but in our teams and organizations. I hope my passion and dedication serves in two ways: 1. to provide a good example and facilitate the employment of future stem minorities and 2. To be an honorary example to all minorities who wish to protect our wildlife and wild places.

Savannah Domenech / Prince William Forest Park

I really enjoyed working at Prince William Forest Park this summer. And, as a result, it is hard to narrow down my summer to one or even two favorite parts. However, some of my favorite unique moments were seeing bats in person, seeing a baby turtle and other creatures up close, and holding alive fish (they were caught in the macroinvertebrate net) in my hands.



Whitney Wyche / Glacier National Park

Thank you to my supervisor, Jillian McKenna, for your support, mentorship, and guidance. Big thank you to Damon Joyce from the National Park Service Natural Sounds and Night Skies Division, who taught me how to use the sound monitoring equipment and analysis software. Special thank you to Raven Devaney for doing fieldwork with me. Huge thank you to the Environment for the Americas staff and the Mosaics in Science program who made this incredible internship opportunity possible.

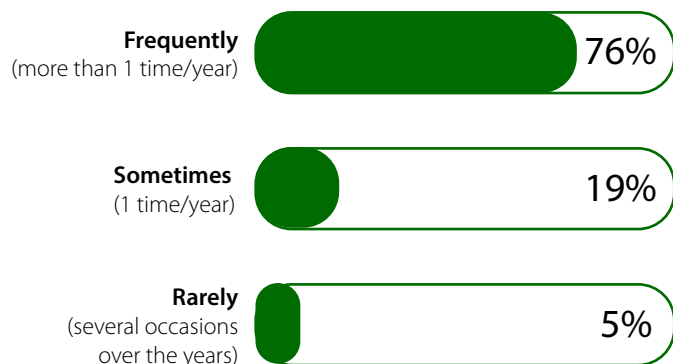


Michael Castillo / Mississippi National River and Recreation Areas

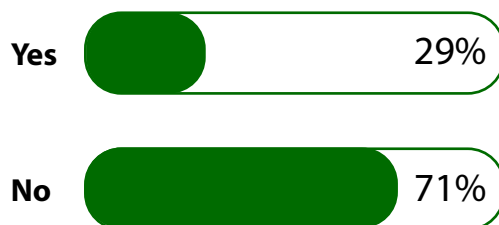
This training has provided a lot of crucial knowledge about the ecosystem around me and I feel adequately prepared for my role here on the river. I had so much fun on this project. I collaborated with some awesome folks who helped further my understanding of field methods and plant ID tremendously! I feel very grateful for the opportunity to participate.



Prior to this internship, have you ever visited a national park, national forest, national wildlife refuge or other public land?



Prior to applying for this program, have you ever applied for a position with your host organization (National Park Service, U.S. Forest Service, U.S. Fish & Wildlife Service)?



2023 Wordcloud

These words were the most commonly used by interns to describe their current views on stewardship, conservation, and/or preservation.



Site Visits

Enhancing Internship Experience and Understanding

Site visits to national parks provide opportunities for Environment for the Americas staff to meet face-to-face with interns to learn about their activities, successes, and challenges during their internships. We also have the opportunity to meet with supervisors/mentors and learn about the park. Each site visit provides us with information that we use to improve the experience for future interns.

Connecting with Interns Across National Parks

In 2023, Environment for the Americas and NPS staff completed a total of fifteen in person site visits. These included Klondike Gold Rush National Historical Park, Golden Gate National Recreation Area, Point Reyes National Seashore; Golden Gate National Recreation Area, John Muir National Historic Site, Muir Woods National Monument, Pinnacles National Park, Point Reyes National Seashore, Great Sand Dunes National Park and Preserve, Biscayne National Park, Mammoth Cave National Park, Glacier National Park, Agate Fossil Beds National Monument, Cuyahoga Valley National Park, Oregon Caves National Monument, Blackstone River Valley National Historical Park, Buck Island Reef National Monument/Christiansted National Historic Site, Prince William Forest Park, Mount Rainier National Park, North Coast and Cascades Network and Olympic National Park.

Addressing Challenges

We identified a variety of issues during site visits that were manage that ranged from logistical challenges to concerns about expenses and work. For example, interns at Olympic and Yosemite faced a communications challenge with the lack of Wi-Fi in many areas. Environment for the Americas addressed the situation by providing the interns with a stipend to purchase a hot spot they could use to complete their work and communicate with their family and friends.

The costs of working at parks also varies widely. In Alaska, for example, food is expensive. During a site visit, supported the intern by purchasing some additional food to help alleviate the cost to the intern.

Meeting interns and their supervisors also helps us to build relationships, demonstrate our support for the interns, and to strengthen the program for future participants.



Olivia Montoya, Great Sand Dunes National Park & Preserve, CO

Social Media

Follow Us on Social Media



Facebook: [MosaicsInScienceInternship](#)



Instagram: [@mosaicsinscience_nps](#)



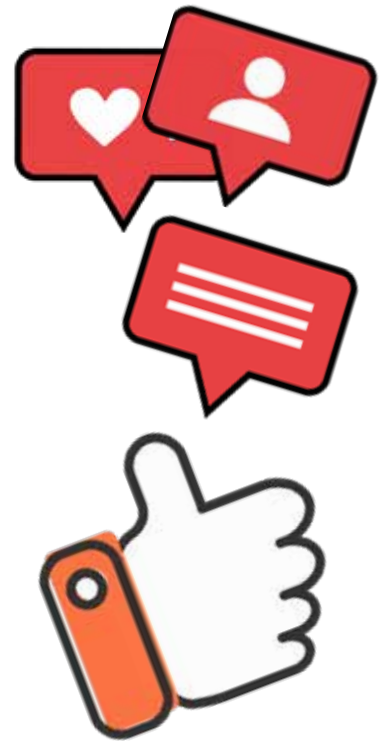
Twitter: [@Mosaics_NPS](#)



Website: [mosaicsinscience.org](#)



NPS website: [go.nps.gov/mis](#)



In 2023, the efforts of MIS yielded a greater amount of varied and professional media content, all directed at advancing the program's objectives, engaging past and present interns, and involving program partners. The growth, reach, visits, and interactions on MIS's social media platforms witnessed a noticeable rise as compared to the previous year.

Users by gender

Female

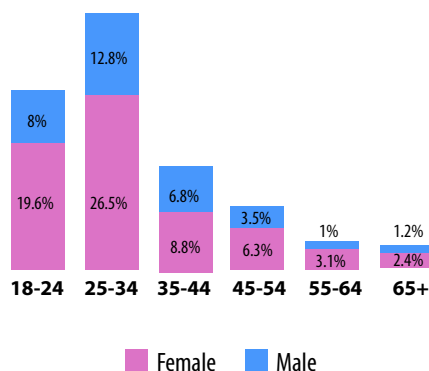
Male



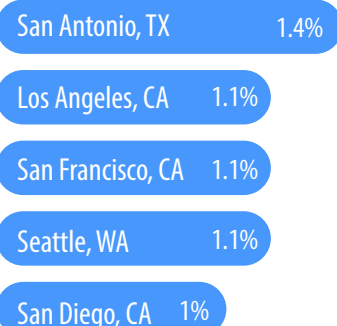
67%

33%

Main age range



Top cities engaged



Social Media Statistics

Facebook



Followers

30.51%
Increase



Page reach

92,432



Page visits

3%
Increase



Page likes

78%
Increase

Instagram



Followers

21.49%
Increase



Page reach

156.4%
Increase



Post likes, comments
and shares

14.4%
Increase



Popular post

199
likes



Intern Media Highlights

Articles



▪ **Let Me Count the Ways: How Citizen Scientists Helped a Park Measure Visitor Impacts**

Rocky Mountain National Park

Wildly popular Rocky Mountain National Park wanted to assess the extent of resource damage from all that love. It needed the help of some ardent supporters.



▪ **My Park Story: Sylvia Touchstone**

Chattahoochee River National Recreation Area, Cuyahoga Valley National Park, Kennesaw Mountain National Battlefield Park



▪ **Conserving the Island Marble, One Poke in the Rear at a Time**

San Juan Island National Historical Park

"One Sunday morning (in the lab) the warm sun came up and – pop! – out of the egg came a tiny and very hungry caterpillar..."



▪ **Intern Spotlight: Kai Victor**

Mount Rainier National Park, North Cascades National Park, Olympic National Park



▪ **My Park Story: Elise Chan**

Glen Canyon National Recreation Area, Rainbow Bridge National Monument



▪ **Environmental Factors**

Blackstone River Valley

This park, nestled along the river's edge, is part of a unique riparian habitat—a dynamic zone where land and water meet.

Outreach and Digital
Communications Specialist
Youth Programs Division
National Park Service



Lucy Hurlbut



Social Media Content Quotes

Instagram

Golden Gate National Recreation Area, John Muir National Historic Site, Muir Woods National Monument, Pinnacles National Park, Point Reyes National Seashore

https://www.instagram.com/p/Cu15FyDLi_p/?img_index=1

"Avani Fachon tells us all about her MIS internship experience as a science communications assistant!"

Buck Island Reef National Monument, Christiansted National Historic Site

https://www.instagram.com/p/CtzjAgdJtY-/?img_index=1

"Larissa Sweeney, your island-loving adventurer from the vibrant shores of St. Croix, US Virgin Islands! Working from the comfort of her home, she is ready to embark on a journey of conservation and exploration."

Klondike Gold Rush National Historical Park

https://www.instagram.com/p/CuDDUKtp2Kz/?img_index=1

"Birding, for Isabella, is a practice of patience and meditation. While she is resting on a rocky outcrop, she realizes that nature follows its own timeless rhythm."

Blackstone River Valley National Historical Park

"James is determined to make a difference as an environmental education intern this summer at Blackstone River Valley National Historic Site. His mission is to raise awareness about the river's environmental and ecological well-being."

Mammoth Cave National Park

<https://www.facebook.com/MosaicsInScienceInternship>

"#YourParkStory: Arriving at Mammoth Cave. Isabel Sonora, aka Izzie, is a Paleontology Assistant at Mammoth Cave National Park (MACA), located in Kentucky. As she arrived at MACA, she couldn't help but be amazed at the park's rich history and the fact that it was established as recently as 1941."

Facebook

Mississippi National River and Recreation Areas

<https://www.facebook.com/MosaicsInScienceInternship>

MY PARK STORY: LOOKING BACK AT THE BEAVER PROJECT

Miko Delcastillo's personal project for his time at Mississippi National River and Recreation Areas as a Natural Resource Management Assistant was to study the foraging ecology of beavers.

Mount Rainier National Park

<https://www.facebook.com/MosaicsInScienceInternship>

Meet 2023 Mosaics intern Ameen Asbahi, a Biology Assistant at Mount Rainier National Park, North Coast and Cascades Network.

Blackstone River Valley National Historical Park

https://www.instagram.com/p/CuhPt5zrUG6/?img_index=1

"James is determined to make a difference as an environmental education intern this summer at Blackstone River Valley National Historic Site. His mission is to raise awareness about the river's environmental and ecological well-being."

Acknowledgements

This program could not have happened without the vision and dedication of our many partners.
We gratefully acknowledge the work and support of the following:

Recruiting Partners

- Barnard College Columbia University
- Colorado State University, Fort Collins
- Franklin & Marshall College
- Indiana University
- Indiana University, Bloomington
- Kennesaw State University
- Lamar University *
- Middlebury College in Vermont
- Northland College
- Nova Southeastern University in South Florida *
- Ohio State University
- Ohio Wesleyan University
- University of California Merced *
- University of California
- University of California, Berkeley **
- University of Colorado, Boulder
- University of Miami *
- University of Michigan, Ann Arbor
- University of Minnesota
- University of Puerto Rico*
- University of Texas at El Paso *
- Williams College

**Hispanic Serving Institution **Minority serving institution*

MIS Host Sites

- Agate Fossil Beds National Monument
- Biscayne National Park
- Blackstone River Valley National Historical Park
- Buck Island Reef National Monument, Christiansted National Historic Site
- Cuyahoga Valley National Park
- Death Valley National Park
- Glen Canyon National Recreation Area
- Glacier National Park
- Golden Gate National Recreation Area, Point Reyes National Seashore
- Golden Gate National Recreation Area, John Muir National Historic Site, Muir Woods National Monument, Pinnacles National Park, Point Reyes National Seashore
- Great Sand Dunes National Park and Preserve
- Klondike Gold Rush National Historical Park
- Mammoth Cave National Park
- Mississippi National River and Recreation Areas
- Mount Rainier National Park, North Coast and Cascades Network
- Olympic National Park
- Oregon Caves National Monument
- Prince William Forest Park
- San Juan Island National Historical Park
- Waco Mammoth National Monument
- Yosemite National Park



Julio Campis Diaz, Yosemite National Park, CA

Appendix I: Intern Profiles



Ameen Asbahi, University of Michigan

Biology Assistant, Mount Rainier National Park, North Coast and Cascades Network

Ameen Asbahi is a junior at the University of Michigan, Ann Arbor, studying the Program in the Environment with a major specialization in conservation biology. Ameen has been obsessed with wildlife since he could read. After college, he plans to pursue a Masters of Science in either vertebrate or restoration ecology, with the goal of helping to reform our relationship with land in the United States. Through habitat restoration and community-based conservation, he hopes to plant forests on forgotten land and create a future where diverse ecosystems can be easily experienced at a local level. Growing up in the western suburbs of Chicago, he did not have easy access to outdoor experiences. In his community, there is minimal knowledge of conservation and ecosystem services, as people do not recognize the impact of nature on their daily lives. He is eager to meet other passionate BIPOC students who are drawn to nature. This summer, he is so excited to work with the North Coast & Cascades Inventory Monitoring Network, based in Mount Rainier National Park. His position involves science communication and sub-alpine vegetation monitoring. He is eager to further his skills in science communication and one day educate his community at home about the value of conservation and ecosystem services. He also cannot wait to experience the Pacific Northwest for the first time and is grateful for the opportunity to live in such a beautiful area.



Saani Borge, Barnard College

Biology Assistant, San Juan Island National Historical Park

Saani Borge is a California native with a degree in Evolutionary and Ecological Biology from Barnard College, Columbia University. What started with beekeeping in high school evolved into a full-blown passion for wildlife and biodiversity by the time she started college. As part of Columbia's neuroscience and psychology departments, she conducted research studies on a variety of subjects, including rhesus macaques, numbats, squirrel monkeys, and other college students. After a short stint in medical biotechnology with the groundbreaking startup Cresilon following graduation, she realized her passions lie in wildlife and natural resource management, community forestry, and the conservation of ecosystems. She most recently spent the summer season stationed at the Indiana Dunes National Park as part of the Wisconsin Conservation Corp, where she conducted invasive species removal and promoted the growth of native insect populations that regularly migrate through the forest. She is thrilled at the opportunity to work with the only remaining population of the federally endangered Island Marble Butterfly through her internship at San Juan Island National Historical Park. She is especially looking forward to raising and releasing newborn butterflies back into the wild for repopulation. After participating in the Mosaics in Science program, she aims to continue working in resource management in either the private or public sector.



Julio Campis Diaz, Universidad de Puerto Rico, Río Piedras

Biology Assistant, Yosemite National Park

Julio Campis Díaz is an undergraduate biology student at the University of Puerto Rico, Río Piedras Campus. Julio is looking forward to the opportunity to work with biologists while also representing Latino scientists motivated in environmental sciences. He is certain that his site and study, the Great Gray Owl research in Yosemite National Park, will serve as a stepping stone to achieve his professional goals of being an ecologist for the National Park Service. He wishes to help protect our national parks and the magic each park holds. He will do this by pursuing ecology and conservation efforts in Puerto Rico and around the world as he grows into a scientist and educator. He is interested in population dynamics and how animals react to anthropogenic factors. Julio fell in love with birds through the Fish and Feathers Internship and wishes to continue onto a Ph.D. in ornithology. During Julio's free time, he enjoys playing the guitar, hiking, birdwatching, and exploring the freshwater bodies around his island.



Elise Chan, Middlebury College

Geomorphology Assistant, Glen Canyon National Recreation Area

Elise Chan is a junior at Middlebury College in Vermont pursuing a major in geology and a minor in geography. In these fields, she is most interested in geomorphology and the interconnection between both the human and geologic processes shaping the Earth's surface. She is also interested in applying GIS and remote sensing tools to study the impacts of these processes. While volunteering as a search-and-rescue responder in her home state of Washington, she realized how important it is to serve her community in her career. Combining this with her academic interests has led her to plan to pursue a career with a state or federal land-management agency. She was drawn to Mosaics in Science for the opportunity to experience working with a federal land-management agency and meet people who are working in roles that she could see her future self in.



Michael del Castillo, University of Minnesota-Twin Cities

Natural Resource Management Assistant, Mississippi National River and Recreation Areas

Miko del Castillo is a third-year student at the University of Minnesota, majoring in Fisheries, Wildlife, and Conservation biology. He grew up in an area that bordered the St. Croix River, which heavily influenced his passion for wildlife and nature. When he is not in school, he is hiking, rock climbing, or fossil hunting. Being able to have an opportunity to participate in the Mosaics in Science program makes him feel very grateful. As a Minnesotan, he loves that he will be working on the Mississippi floodplains surrounding St. Paul. It provides a unique experience that will add greatly to his perception of the local ecosystems. Throughout this internship, he hopes to develop a better understanding of the impacts that animals, specifically beavers, have on forest regeneration. He is interested in learning more about the ecology of the Mississippi River and using his knowledge for the betterment of the area. He loves the idea of a career based outdoors with real-world applications that lead somewhere.



Savannah Domenech, Ohio Wesleyan University

Hydrology Assistant, Prince William Forest Park

Savannah Domenech is a student at Ohio Wesleyan University and a double major in Environmental Studies and Geography. Her primary duty as a Hydrology Assistant is to use GPS to gather data in a lake. This focus excites her as she is passionate about water and Geographic Information Systems. In particular, she is interested in the intersection of GIS with hydrology to better understand water resources. Furthermore, she looks forward to being both in the field and office, and working with a government agency (NPS) excites her as she has only worked with non-profit organizations previously and this will allow her a new experience. She is looking forward to meeting and interacting with a variety of people who share an interest in science and learning about their sites. Professionally, she is interested in water management, particularly relating to water quality and availability, GIS, waste management, and regenerative agriculture. In addition, she is interested in how waste, especially single-use plastics and industrial manufacturing waste, affect water quality. To better understand waste and where it comes from, reading about how GIS can be used to trace and manage point and nonpoint sources of pollution and their effects intrigues her. The amount of embedded/hidden water that is used in the creation of commodities also fascinates Savannah. Spending a summer on a regenerative farm revealed how much animal and plant waste is created and water is consumed even when farming is done sustainably. For these reasons, one of her professional goals is to support crop and livestock farmers and various (especially manufacturing) industries in pursuit of more water friendly and conscious actions.



Avani Fachon, University of Colorado, Boulder

Science Communication Assistant, Golden Gate National Recreation Area, John Muir National Historic Site, Muir Woods National Monument, Pinnacles National Park, Point Reyes National Seashore

Avani Fachon graduated from the University of Colorado, Boulder, in 2021 with a B.A. in Ecology and Evolutionary Biology and a minor in Media Production. As the recipient of a National Science Foundation Post-Baccalaureate Fellowship, Avani studied barn swallows and their movement behavior, breeding biology, and habitat use with the CU Safran Lab. She is interested in the intersection of ecological research and media-making and is involved with several art-science projects that aim to inspire action toward a more inclusive and sustainable future. She is excited to participate in the Mosaics in Science Program as a Science Communication Assistant, as it provides a unique opportunity to build her multimedia-making skills around a topic which she is very passionate about — climate change and how it is impacting biodiversity and ecosystem processes. She is inspired by the way in which narratives can encourage critical thinking and awareness about environmental issues through audience-relevant, creative, and effect-driven approaches, and is looking forward to creating outreach materials that share compelling stories from the San Francisco Bay Area Network's vital signs monitoring programs. She aspires to design resources that can serve as accessible entry points for communities underrepresented in STEM to develop a greater sense of belonging in nature and science, and is grateful for the opportunity to work toward this goal with the support of Mosaics in Science and the SFAN science communication team.



Veronica Guevara, University of Miami

Natural Resource Management Assistant, Biscayne National Park

Veronica Guevara is an undergraduate student at the University of Miami majoring in Ecosystem Science and Policy and minoring in Sociology, Geography, and Marine Science. Veronica will apply to the Master of Professional Science program next fall at the Rosenstiel School of Marine, Atmospheric and Earth Science at the University of Miami, concentrating in Fisheries Management and Conservation. When she graduates, she wants to specialize in human activities that directly influence coastal areas specifically in Florida, but also sensitive, delicate, and endangered environments due to anthropogenic changes in different coastal areas around the globe. This program offers an opportunity for her to better understand and practice concepts that she sees frequently in class studies, such as conservation, management of the commons, compliance, integrative knowledge, and meaningful participation. The program will also allow her to learn about human complexity and first-hand experience how people react and have reacted not only to the environment but regulations. She believes understanding people and creating ways through which they can connect and identify with the environment around them and with how important it is to protect it, is an essential part of changing the narrative and bringing about change. She wants to learn as much as she can to be able to improve and collaborate with the systems-thinking cycle in which the political, economic, and social arenas move, perceive, and approach the environment.



Caitlyn Klemm, University of California, Merced

Natural Resource Management Assistant, Death Valley National Park

Caitlyn Klemm graduated from the University of California, Merced, in 2022 with a B.A. in English. She intends to continue her education in the future and pursue a degree in biology or ecology. Her prior internships with the National Park Service have not only influenced but also rekindled her love for conservation work both in science communication and field work. As a humanities graduate with an interest in the sciences, she firmly believes in the interconnectedness of conservation. Caitlyn hopes to add to the effort by continuing her work with the National Park Service; her upcoming position in Death Valley monitoring and digitizing will not only add to this, but also engage her interest in modern botany, an interest that had been spurred by her fieldwork in Yosemite. Caitlyn dreamed of working in nature as a child — one that she thought she had forfeited in college to engage with literature analysis instead. However, her various opportunities with the Park Service have shown her that this dream is not only possible but also within grasp.



Elsy Martinez, Lamar University

Natural Resource Management Assistant, Oregon Caves National Monument

Elsy Martínez was born in Honduras and moved to the U.S. at the age of 11. She majored in Biology with a minor in Chemistry at Lamar University. Her interests are in aquatic ecology and conservation. She has worked with bivalve mollusks, echinoderms, and benthic organisms during her college years. She took an interest in the Mosaics in Science program because it would bring diversity within the parks and inspire young women in the STEM field. She is excited and looking forward to working this summer at Oregon Caves National Monument & Preserve as a Natural Resource Management Assistant. This opportunity will allow her to expand her skills and knowledge in cave and hydrology monitoring, which are necessary to help grow as a professional.



Olivia Montoya, Colorado State University

Visitor Use Management Assistant, Great Sand Dunes National Park and Preserve

Olivia Montoya is indigenous to the Ute tribe of Southern Colorado and Taos Pueblo of Northern New Mexico. She currently attends Colorado State University, in Fort Collins, where she is studying Geological Sciences with a concentration in hydrology, and minoring in Geospatial Information Science and Geography. Olivia's professional goal is to become a National Park Geologist or Ranger, become an educator and mentor, and study geology and the outdoors. Her professional interests include rock identification, data collection, and cartography. She enjoys Native American literature and history books, as well as nature and landscape photography. She is honored to have been selected to work in the San Luis Valley, the place she calls home, and looks forward to working closely with the Great Sand Dunes National Park Natural Resource Department. She is looking forward to collecting data, working outdoors, and connecting with park mentors and employees. She acknowledges and honors the Diné, Jicarilla Apache, Cheyenne, and Ute tribes of the land upon which the Great Sand Dunes National Park stands, and expresses gratitude to the stewardship of all the Indigenous peoples, both past and present, to whom this land belongs.



James Nagaoka, The Ohio State University

Education Assistant, Blackstone River Valley National Historical Park

James Nagaoka graduated from The Ohio State University in May 2022 Summa Cum Laude with a B.S. in Evolution and Ecology. He really enjoys learning about the natural world and how many of the environments and organisms came to be and interact with each other. He applied to the Mosaics in Science Internship because he really likes the emphasis on diversity in STEM and believes that the field would be better by bringing more people with different backgrounds to the table. He is excited about the opportunities for professional development through MIS that align with his professional goals. Specifically, he chose the Education Assistant Internship to become further prepared to enter the education field following his internship. This program will provide him with the opportunity to gain valuable experience in the education field. He loves nature and teaching. Being able to teach about nature while in nature is a dream for James. Last, he is very excited to be living in Rhode Island, a region of the country that is new to him as he has lived in California, Ohio, and North Carolina.



Maya Nivarthi, Indiana University

Science Communication Assistant, Agate Fossil Beds National Monument

Maya Nivarthi is a junior at Indiana University pursuing a Bachelor of Science in Biotechnology and a minor in Law and Public Policy. Maya's interests include conservation efforts and natural resource management. Maya is looking forward to focusing on botany, ethnobotanical implications of native species, and the rich historical background of the Agate Fossil Beds National Monument. Her role will assist in improving the accessibility of the herbarium and scientific information to all groups of people, which aligns with her interest in science outreach to children and people who may not have much exposure to the sciences. She is also excited to work in the remote region of western Nebraska, a region of the country she has not yet explored. In the future, she wants to pursue a career where she has the ability to improve the lives of others through science while being environmentally responsible. Some of her professional interests and goals include working as a research scientist for the National Park Service, working toward solutions to improve food security globally, and generally making and leaving a positive impact on the world. She is looking forward to gaining many new and valuable experiences through her internship, as well as meeting the awesome people that work at the site and exploring her new home. Aside from her professional and academic interests in this opportunity, she also loves nature, being outdoors, and exploring new places.



Briana Salcido, University of Texas at El Paso

Paleontology Assistant, Waco Mammoth National Monument

Briana Alyce Salcido is currently in her last semester as a Master's student in Environmental Science at the University of Texas at El Paso. As she prepares to embark on the next stage of her career, she is excited to join a program that shares her commitment to diversity and inclusion. As a woman of color in a field that is still dominated by men, she is all too aware of the challenges that can arise from feeling like an outsider. That's why she was immediately drawn to this program, which emphasizes the importance of creating a supportive community for underrepresented groups in STEM fields. She believes that by working together and sharing our unique perspectives, we can achieve real progress toward a more just and sustainable world. Looking ahead, she is eager to explore a range of professional opportunities in the environmental science field. Whether it's conducting research, advocating for policy change, or working with communities to develop sustainable practices, she is excited to use her skills and knowledge to make a positive impact. Ultimately, her goal is to help create a world where people and nature can thrive together, and she is excited to be part of a program that shares that vision. She is excited about the opportunities that lie ahead and looks forward to making a meaningful impact in the field of earth sciences.



Maya Scanlon, University of California, Berkeley

Point Reyes National Seashore, Biology Assistant, Golden Gate National Recreation Area

Maya Scanlon is a rising junior at the University of California, Berkeley, studying Natural Resources with an emphasis in watershed and waterways. Additionally, she is pursuing a minor in Geospatial Information Systems and Technology. She has various professional and extracurricular experiences that have helped her develop her critical thinking and problem-solving skills in team settings. Her academic and personal career goals relating to conservation stem from her childhood growing up in Arcata, California, surrounded by the giant redwoods that provide habitat to the unique fauna that thrive within the Six Rivers National Forest. Her professional goals relate to natural resource management and conservation of public lands, specifically in Humboldt County. She hopes to work in wildland fire ecology, watershed conservation, and sustainable fishery management methods within a changing climate. Being away from Arcata has made her recognize not only how special it is, but also how much room for change there is. Before she moves back, she wants to gain as much experience as she can in different biomes and various fields. Participating in this program will be an excellent opportunity for Maya to further her experience conducting fieldwork while also learning about the research process that underlies conservation efforts needed to restore and maintain diverse ecosystems. Through this program, Maya will be able to use her passion for environmental resource management to better local communities and create an equitable, sustainable future.



Isabel Sonora, Northland College

Paleontology Assistant, Mammoth Cave National Park

Isabel Sonora is currently a senior at Northland College, where she works as a teaching assistant for an evolution course and as a research assistant for the Plant & Ecology Research Lab. Through this lab, she has had the opportunity to work with various great scientists on many vegetation-monitoring projects. She has also produced her senior capstone through the lab, which encapsulates temporal change in understory community composition of mesic, hardwood forests in northern Wisconsin. As a biology major, Isabel has studied a variety of disciplines, including botany, mammalogy, and wetland ecology, and finds herself gravitating toward paleontology. Since she was young, she has been intrigued by paleontology. The opportunity to work with a specimen collection from the late Paleozoic and gain insight into field techniques at Mammoth Cave National Park seemed unbelievable. Gaining experience in the field of paleontology will help Isabel reach her educational goal to attend graduate school, with a focus on paleontology. Isabel realizes, as she enters her fourth year of undergraduate study, that she is providing a pivotal example to her younger self, proving that it is possible to accomplish her dreams. She hopes to show people of underrepresented communities considering any field in science that the fight is worth the gained comprehension, experience, and confidence. Most of all, she strives to be a role model to younger generations hoping to pursue a college education and career in a scientific field.



Larissa Sweeney, Nova Southeastern University

Natural Resource Management Assistant, Buck Island Reef National Monument, Christiansted National Historic Site

Larissa Sweeney was born and raised on the island of St. Croix in the U.S. Virgin Islands. She is currently a junior at Nova Southeastern University in South Florida, pursuing a degree in Psychology. She has always loved being outside and exploring the national parks on St. Croix from her youth through early adulthood. Larissa had the experience of working with resource management and getting involved in multiple projects including the native ground lizard re-introduction, mangrove propagation, coral treatments, and sea turtle research. Assisting on this project allowed her to learn new skills in the office and assist with field work. This experience brought her attention to a different aspect of science outside of her major. Environment for the Americas allows her to explore interests and passions that arose later in her undergraduate career. Although the Mosaics in Science program is not directly focused on bird conservation, she is interested in exploring this area of work during the internship and beyond. Larissa finds it comforting to do research and learn more about the environments she has grown up around all her life, and she is excited that this internship can lead to more opportunities on her professional path.



Sylvia Touchstone, Kennesaw State University

Natural Resource Management Assistant, Cuyahoga Valley National Park

Sylvia Touchstone attends Kennesaw State University, where she is majoring in Geography with a minor in Environmental Studies and a certification in Geospatial Science. While at Kennesaw State, she has had the opportunity to explore various fields within Geography, such as cultural geography and human-environment interactions to cartography and geospatial analysis. These courses have provided her with a strong foundation in the fundamentals of geography and have also equipped her with skills in using GIS software and statistical analysis to solve real-world problems. Sylvia has a passion for understanding the interconnectedness between people and their environment. She is excited about the prospect of applying her knowledge in geospatial science and environmental studies to collaborate with like-minded professionals in Cuyahoga National Park this summer as a Mosaics in Science intern. As our planet faces numerous environmental challenges, including climate change, loss of biodiversity, and resource depletion, Sylvia finds it essential for us to work toward finding innovative solutions that balance environmental protection, environmental functionality, and sustaining its beauty. Her ultimate career goal is to leverage her background and skills to contribute to environmental protection. She is excited about the possibility of pursuing a career in environmental conservation and sustainability.



Rick Usami, Williams College

Science Communication Assistant, Olympic National Park

Rick Usami studied History and Environmental Studies at Williams College in Massachusetts. Rick is looking forward to the opportunity this summer to be in nature and explore the outdoors, as he believes there is no substitute for the tranquility nature can offer. Rick seeks to pursue a career in wildlife conservation or communication for the promotion of renewable technology and sustainable lifestyles. He believes that Mosaics in Science offers a unique opportunity where he can spend time outdoors and gain valuable experience with people with backgrounds in those fields. He is very excited to join the Olympic National Park team and learn as much as he can over the next several months.



Whitney Wyche, Franklin & Marshall College

Natural Resource Management Assistant, Glacier National Park

Whitney Wyche graduated from Franklin & Marshall College with a degree in Environmental Science in May 2023. She greatly looks forward to starting her Mosaics in Science internship at Glacier National Park this summer. This position aligns with her passion for the environment and natural resources. Being from Montana, she is familiar with the ecosystems in the West and enjoys hiking and camping. She became interested in an internship with Mosaics in Science because of their partnership with the National Park Service and their commitment to interns both in their continued support throughout the program and in their goal to make science a more diverse field. These qualities were important to her so that she could have a smooth transition from undergrad into her career post-graduation. Working as a Mosaics in Science intern at a National Park will support her short-term goal of preparing for graduate school by gaining experience working outdoors on a research project. Her project this summer is part of a larger research effort to monitor changes in the wilderness through the park's natural soundscape due to the increase in visitors over time at Glacier National Park. Following this program, her long-term goals are to manage natural resources for a sustainable future and become an ecologist. Besides being outdoors and enjoying nature, in her free time, she likes to learn new crafts, meditate, and take lots of photos.



Isabella Yallapragada, Indiana University Bloomington

Natural Resource Management Assistant, Klondike Gold Rush National Historical Park

Isabella Yallapragada is a public affairs and environmental science graduate student at Indiana University, Bloomington. Isabella is excited to gain greater hands-on experience with natural resource management through her Mosaics internship, as well as develop her abilities to communicate and cultivate relationships with the public. She is also excited about the opportunity to grow her technical writing and communication skills. Her perspective on conservation is greatly shaped by a deep appreciation for the natural world that sustained her mother's family for generations as coffee farmers in Honduras. While she understood that much of her family's survival depended on the responsible stewardship of natural resources, this value was more simply and emotionally embedded through the knowledge of her grandfather's spiritual use of native plants. Her desire to work in conservation is driven by the knowledge that our natural resources not only sustained her family physically and financially, but that it had sustained them emotionally and spiritually as well. Ultimately, her goal is to work alongside indigenous organizations to integrate emerging climate science with an indigenous land ethic to create climate change mitigation/adaptation frameworks that draw upon the unique power of community and culture.

Appendix II: Internship Surveys

Pre-Internship Survey

Please rate your understanding of job opportunities available in the following career paths

Private Industry

19% No Understanding
9% Not very
29% Neutral
33% Somewhat Understanding
10% Strong Understanding

Academics

5% No Understanding
14% Not very
19% Neutral
38% Somewhat Understanding
24% Strong Understanding

Non-Profit/Charity

24% No Understanding
29% Not very
29% Neutral
9% Somewhat Understanding
9% Strong Understanding

Federal Agencies

5% No Understanding
24% Not very
14% Neutral
48% Somewhat Understanding
9% Strong Understanding

State & Local Government Agencies

5% No Understanding
24% Not very
19% Neutral
43% Somewhat Understanding
9% Strong Understanding

How did you hear about this internship program?

- * Government Agency Website (National Park Service, U.S. Forest Service, etc.)
- * Environment for the Americas (EFTA) website
- * From a past intern
- * Job board
- * Email
- * Professor or Mentor
- * Social Media

Please rate your level of interest in pursuing a career with state or federal public land agencies

57% Very interested

38% Somewhat interested

5% Neutral

Are you a first generation college student/graduate?

5%

YES

95%

NO

How do you rate EFTA's communication with you prior to beginning your internship?



What do you anticipate will be the biggest challenges of your internship?

Being one of the only POC people in the park.

I anticipate that, initially, it may take some time to become accustomed to my new schedule and routine, which may vary greatly from day to day. Because of this, I will need to be especially mindful about planning and time management.

The physical aspect of it -- I've worked outdoors, but not for such a long period of time in drastic weather.

I believe my biggest challenge might be keeping a detailed log of the task and activities I will be exposed to. I anticipate it will be a pretty drastic changes at the start of the internship.

Learning to the pace of the environment.

Physical fitness and internet service to stay in touch!

I anticipate being a very remote area being a large change, and possibly a challenge, as well as moving to a place where I don't know anyone, but this also excites me.

I anticipate my biggest challenge will be staying organized with work and online classes.

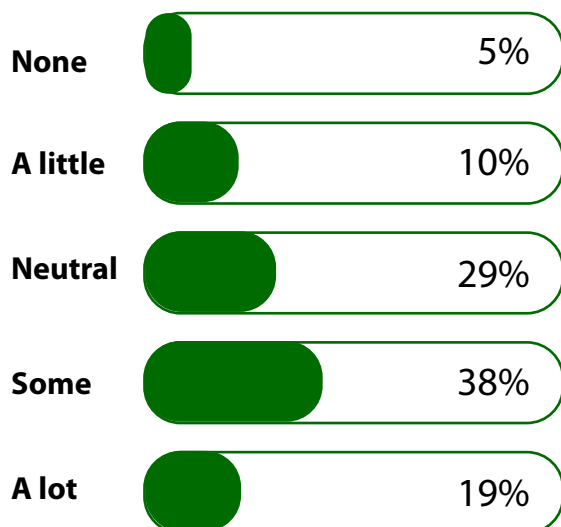
Although I've done outdoor work I anticipate the physical work to be the most challenging because it can be tiring.

I believe the biggest challenge can be getting familiar with how the whole system works and specific wording and protocol. But I am excited to learn new things and I look forward to learning as fast and as much as I can.

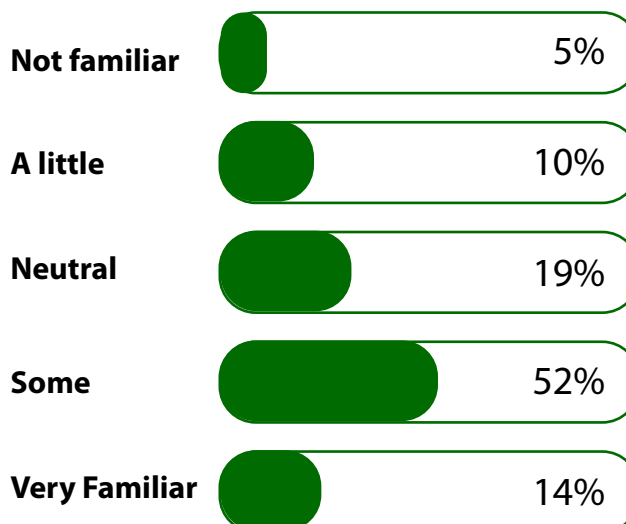
Quickly adapting to the high elevation, granite mountains that are valleys left by the glaciers of the Sierra Nevada. Quickly adapting to the birds of western United States compared to tropical Puerto Rico will be challenging but I know I can adapt quickly by birding.

Based on the job description, my work does sound somewhat repetitive so if that is the case a challenge will be not getting too bored with it. Learning how the federal government works could also be a challenge as there are a lot of rules and procedures and I am worried about messing them up. My supervisor might also be a challenge at first because this is the first time she has ever had an intern.

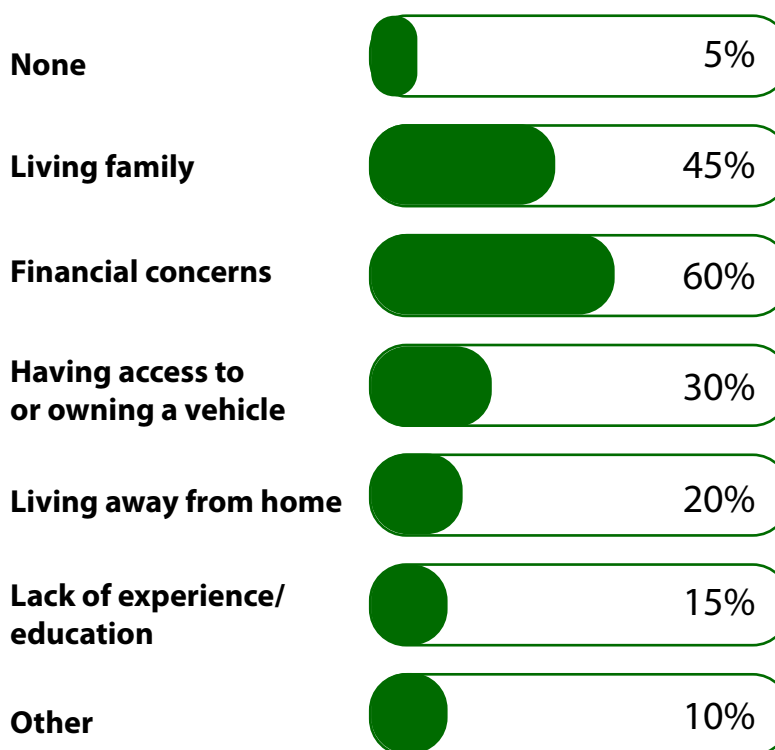
How much practical, hands-on experience have you had in your field of study?



How familiar are you with the work of your host organization (National Park Service, U.S. Forest Service, U.S. Fish & Wildlife Service)?



What barriers, if any, did you face prior to applying for this internship program?
Check all that apply. - Selected Choice



Please describe what you hope to gain from your internship

Information about what it's like to work for the NPS as an ecologist.

I hope to gain skills which are valuable for creating impactful science communication outreach materials, as well as insight into what it is like to work on a science communication team. I also hope to gain meaningful connections with mentors and peers, who could be a community of support as I continue along my career path. Additionally, I would like to learn as much as I can about the ecosystems and rich biodiversity which I will be surrounded with.

I'm looking forward to experience what it is like to work for a federal land management agency. I hope to gain problem solving and professional development skills in a job-setting.

I hope to learn how to tag organisms and keep track of them, how to prevent White Nose Syndrome from spreading, learn about the biology of caves, and overall gain more field work experience on anything that is assigned to me. I would also like to be able to meet new people from different backgrounds and share tips and knowledge, but also make great friendships and connections.

Skills in an area I am looking to develop and connections made in the NPS.

More fieldwork experience.

Professionalism in presentation of work, new techniques in paleontology, networking, new field experience, deeper understanding of geologic conditions at mammoth cave.

Professional experience in the environmental education field.

Research experience and the knowledge to make an informed decision around career choices.

I hope to gain more experience within research and tasks done by the resource management team. This will allow me to make an informed decision about my future.

I hope to learn a lot more about conservation and the role I can have in it, as well as working towards developing a new herbarium collection at the park. I also hope to grow in my documentation and communication skills and explore a new part of the U.S. that I have never been to before!

The Mosaics in Science Internship is meant to connect diverse students and professionals to nature and bird conservation. As a future ecologist and conservation leader, I wish to gain invaluable field skills and experiences that will only propel me towards my dream job. My position as a Biology Assistant will help me learn what the day to day life is of an ecologist. By the end of this internship, I'm sure I will have grown as a professional and have made great connections to continue a career in National Parks and wildlife conservation.

Prior to applying for this program, have you ever applied for a position with your host organization (National Park Service, U.S. Forest Service, U.S. Fish & Wildlife Service)

Yes



29%

No



71%

Prior to this internship, have you ever visited a national park, national forest, national wildlife refuge or other public land?

Frequently
(more than 1
time/year)



76%

Rarely
(several occasions
over the years)



5%

Sometimes
(1 time/year)



19%

Have you visited the site where you will be working?

Yes



29%

No



71%

Would you like to share any more comments, concerns, or thoughts you have had prior to beginning your internship?

I really appreciated the pre-internship webinars—they answered many of my questions and concerns which I had about starting my position.

I still can't believe I'll be able to explore the wonders of Yosemite National Park while also participating in scientific research and helping wildlife conservation efforts. This summer will give me the most unforgettable field experience as I grow into a better professional. I am sure that I will leave this Mosaics In Science Diversity Internship with an improved relationship with nature, avian ecology, and a better understanding of a possible career with the National Park Service.

Professionalism in presentation of work, new techniques in paleontology, networking, new field experience, deeper understanding of geologic conditions at mammoth cave.

I am very happy with the communication and resources in place for this internship for people of color since past work has not addressed or directly worked on diversity inclusion.

Mid-Internship Survey

Please rate how your internship is going so far.

It has been very insightful and I've loved learning from other departments as well as mine in natural resources.

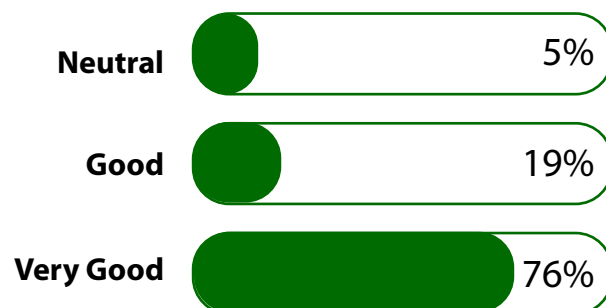
I have been received by a warm welcome from the Terrestrial Wildlife Branch of Yosemite National Park. Ever since my first day of training I have learned innumerable skills and knowledge about conservation and the National Park Service. I am currently completing all goals and exceeding above all expectations in completing my field work and leading a firm project. Park employees have treated me amazingly, especially Dustin Garrison (park mentor) and Will Tsai (MIS mentor). Mosaic's in Science Diversity Internship managing team have been very attentive of all interns, trying to help us in any way possible or making us more comfortable with any needs. I believe this internship has exceeded all my expectations of what this summer could be, with a perfect combination of learning, working, and enjoying the park in my free time.

I gave a 'very good' rating because I have been enjoying my time here a lot so far. My work has been exciting and I have been learning a lot about plant species, conservation, and the importance of interpretation and education at National Park sites. Not only have I learned a lot through my own project, but I've also been able to accompany other groups during their field work to gain insight on future careers that I may be interested in. I have also enjoyed getting to work with people with different backgrounds and learning about what they find exciting in the NPS and their own jobs.

Personally and professionally the internship experience is everything I was expecting and more. People at Biscayne National Park are great professionals - kind and helpful. Every person from the resource management team has taught me something different and new with enthusiasm and patience. Every week is different at the park, so I have gotten to learn lots of things and improve and learn different skills.

I really enjoy everyone I work with and the projects I'm getting to help out with. But with the main project seems geared towards operating in the late summer and early fall. This has led to more stress involved with making sure I have enough content for presenting.

Everyone has been really open and friendly. My supervisors also answer any questions I have either about the work, park, or in general, so I'm learning a lot as well. There are no complaints on my end besides the weather getting in the way of field work!



“

So far, my internship is going great! I have been having a very enriching experience and have learned a lot.

What do you think about your internship so far? How is everything going?

I've been really enjoying my internship! I have had the opportunity to spend time with many different field teams to learn about their work and collect media materials. I have been building lots of skills (both hard and soft) needed to successfully create engaging outreach materials, such as my ArcGIS StoryMap (my main project). Learning about science communication from my mentor, Jessica, has been an invaluable experience.

My internship is going really well. I've been doing a lot of field work with NABat recording units and learning how to process bat calls so that these can be uploaded to NABat. I am also co-leading a cave critter survey that is done every two weeks and then upload the data. I have been doing lots of caving that include algae removal from the cave and replacing flagging from the off trail tour. Lots of learning going on! Also I am fully vaccinated for rabies, so within 2 weeks we will be mist netting bats at Bigalow Lake

So far so good. My supervisors are great. Mark Mello is awesome. Everyone at BLRV is awesome. The housing situation is decent. The neighborhood isn't the greatest, but is not the hood by any means.

Everything is going well! My work is fun, and what keeps it exciting is that new plant species are popping up as time goes on, and I have other botany-related projects I am initiating which means I have a lot of different things I can work on. I feel like I am making good progress and learning a lot.

I think my internship is good. My supervisor appreciates me. I like what I do and I like the odd jobs I get too as they are something different. I cannot believe I only got a month left.

This internship is highly multifaceted because every week I get to learn new things, and/or actively improve the ones I have already learned. I am highly motivated because the job activities are a perfect combination of theory and practice. So, this motivates me to continuously educate myself off and on the schedule hours to be able to better perform. It is incredible to me, the amount of new knowledge and skills I am learning, skills that are going to be highly useful in my future career path and as a student. People here, especially my supervisor, Vanessa, are great with me, always helping, integrative, and thoughtful. One thing I love is that she trusts me enough, to let me do fieldwork at the marina (creel surveys) on the second week! Which highly motivates me to keep giving my 100%!

It's going very well in terms of the work environment and preparing for field work/training. I feel slightly behind for the schedule, which might be because my internship started later.

The internship is great. I love being next to the city and solving the challenging problems with recreation users from the dense population and keeping the park clean and safe.

Everything is going great, I just wish it was longer.

Please rate the level of contact you are receiving from Environment for the Americas.



I am so grateful for Environment for the Americas. They have been so helpful throughout the entire process and are always super prompt when responding !

EFTA has been great with communication! Any fault lies on my end, initially because some work was required before my internship began and now only because I keep misreading the invitation times. Thank you all for your patience!

I feel supported by the amount of communication which I have received from Environment the Americas. I have a biweekly phone call with Sheylda (and send a text update on the other weeks), and the Monday emails are very helpful for staying on track with Mosaics duties.

The Monday reminders are very helpful for staying in the loop on the Mosaics side of my internship.

Please rate the level of new information/skills learned since beginning the internship.



So far, I have developed and acquired skills in the following areas:

- Utilizing content management systems
- Article writing & design
- Image management (file naming, adding metadata, etc)
- Photography
- Post-production editing (Adobe products)
- Making content accessible & 508 compliant
- Utilizing ArcGIS StoryMaps
- Comprehension of field protocols
- Pre-production & planning of science communication outreach materials

I've gained new skills in the R computer software as well as plant identification and general ecology skills.

1. Working with volunteers and leading surveys independently. With the exception of a couple of survey days at the beginning of the internship, I've been leading coastal waterbird surveys with two or three other volunteers without supervision.
2. I've been developing my data analysis and report writing skills through my analysis of spring migration data. I would not say this is a new skill, however.

I have learned two new computer programs that I use daily. I have also learned about archeological and paleo surveys/assessments.

Have you learned something you didn't know before?

Yes, I have learned several things which I didn't know before, including how to use the NPS content management system. I also feel that I now have a better understanding of how NPS science communication teams are structured, as well as how they function and work together.

Almost everything I've learned here is new to me! I've always had an interest in botany and learned some of the common names for the angiosperms in the Sierra Nevada region, but never on this level. Now, I am learning all the details of the flowers and hope to be able to identify flower families by the end of the internship (one of my many goals).

100%. All of the wildlife surveying, working with fossils & working in museum collections, are new to me. A lot of the survey equipment that is used is also new to me, such as night vision goggles and recording data on a tablet while in the field.

I have learned a lot that I did not know or even heard about before. This internship has exposed a world of research that has transformed my knowledge.

Yes! Plant identifications, leaf and flower morphology key characteristics, the ethnobotanical significance of different native plants, and more. I have also learned a lot about invasive species and types of plot monitoring and its importance for conservation efforts, by being able to join different teams around the park on different plant monitoring projects. I have also learned many interesting things about the AGFO park in general, with my favorite being the story about Chief Red Cloud and James Cook's friendship, and the stenomylus animals that were ancestors of modern-day camels.

What has been most interesting to you?

I have most enjoyed having the opportunity to spend time in the field with NPS biologists and collecting media materials about their work.

Since I knew some flowers from Yosemite, it was really interesting finding variations here in Death Valley where the environment is so different and alien in comparison. It was really cool to compare, for example, the gooseberry bush of Yosemite to the one here in the desert--the ones in Yosemite grow much larger fruits whereas the ones in the desert grow much smaller ones. This logic seems to apply to everything else too, such as how the monkey flowers were noticeably smaller.

The most interesting thing to me is witnessing projects and research intended for the conservation of an endangered species, the Great Gray Owl. Research on endemic organisms has always been an interest and seeing how places like Yosemite National Park are helping in protecting them fascinates me. We have projects with Sierra Nevada Bighorn Sheep, Sierra Nevada Red Fox, Pacific Fishers, and the Great Gray Owl, all animals that are currently facing an up-hill struggle for their survival. Being part of a team that wishes to aid in their population growth is what I want.

Working with lots of government entities.

Please comment on your webinar rankings.

I feel we only had a few webinars. Despite this, the webinars we did have were extremely helpful.

They all have been extremely helpful. I'm glad we have them.

Many of the webinars further down on the list have not been held yet. I also have not watched the recording for the DC presentations yet, but will soon. I particularly enjoyed the networking, DHA, and federal resumes webinars-they were extremely, informative!

Some of the "lower-ranked" webinars I have watched before at prior workspaces, though they were still helpful! The most helpful ones, of course, were the ones pertaining to this program specifically or ones that went into more detail about subjects I wasn't as familiar with (namely the resume-writing one stood out and answered many questions I had since my first NPS position).

The Mosaics logistics, PLC, and federal resume webinars were the most helpful. The federal resume one was very helpful but hard to follow at times because people were asking questions throughout the webinar instead of waiting until the end.

I appreciate the diversity of webinars offered and believe they are an integral part of the internship to help interns become professionals.

I thought the federal resume workshop was quite helpful because I had no idea that they are supposed to be so long, since in college, it is always stressed to us how resumes should only be one page. It was also helpful to go through different examples of what to write for different positions and items. I thought the DC presentation webinar was also helpful to go through some examples. I thought the networking webinar was interesting, but didn't exactly fit the idea I had for what we would discuss during a networking discussion, but was still important topics to touch upon.

All the webinars have been complete, touching every subject I have had questions about. At the end of every webinar, they have always encouraged people to make any questions we may have, and wait a measurable time for all of us to ask which I think is important and necessary. I also appreciate that my program sends every webinar to our emails, since it is recorded, which is great if I forget something, which I have done and I have replay the webinar to remember. Also, this is really helpful because most webinars have been on the field, and being able to watch them is a plus.

I think sexual harassment webinar felt short but I loved the resume webinar.

The federal resume one was too long and I feel like the presenter did not know some things she should have known and it was very scattered; I only got a couple good pointers out of it. The networking resume was odd, the first 3/4 was about the shifting workplace and thinking patterns we should develop. The welcome webinars were informative. The PLC webinar was very informative. The presentation one should have been probably been split into PLC and DHA. Workplace harassment was boring but understandingly necessary.

Is there anything you would like to see go differently for the rest of your internship?

For the rest of my internship, I would like to keep on track with how things are going now!

I would like to spend more time out in the field, but that is entirely dependent on the weather as it cannot be too hot, windy, or stormy (these conditions tend to become more frequent as we enter the incoming monsoon season). Besides that, my internship has been very flexible with office time to work on MIS responsibilities and choose what tasks I want to dedicate my energy to and when, which has been great!

Better communication between my supervisors with the entire crew with a better, more thought-out schedule.

I would like to see the GPS work better and to have more rainy day activities. I am pretty much forced to get soaked because there is nothing else to do besides lake survey (and plus I have to keep mapping the lake; I don't think I was given enough time).

I would like to check in more often, because I have only reached out twice, so I will reach out more often.

I want to have a better idea of my main project.

What do you want senior officials in your agency to know about your experience?

For the rest of my internship, I would like to keep on track with how things are going now!

This park has amazing staff who have all been extremely supportive and kind throughout the entire summer. I know I'm in the right environment to learn new skills while completing my main project.

I would like them to know that I would have never thought of working with the true flying mammals, bats! And I wouldn't have thought that working in a cave could be so fun. My time here has been so rewarding and there isn't a day that I haven't learned something from Ivan and Sierra. I originally work in aquatic ecosystems but I truly enjoy working here. I am so passionate about my work that I wanted to go out of my way after work to do readings about cave geology and bats.

What has always made my experiences at these new places and (occasionally) in these new positions has been the emphasis on open communication. As someone who used to be very intimidated by new workplaces, my mentors with NPS, for example, have been very clear on the fact that they would answer any questions and welcome open discussion whenever prompted. This has eased the transition into these new spaces for me every time and has made the work environment not only more productive for me personally, but much more enjoyable as well.

This park has amazing staff who have all been extremely supportive and kind throughout the entire summer. I know I'm in the right environment to learn new skills while completing my main project.

Post-Internship Survey

If you could make one recommendation on how your agency (National Park Service, U.S. Forest Service, etc.) can better connect with young people/adults what would you say?

I think outreach is especially important--namely in colleges. Many people I know who desire to work for the Park Service or do work for the Park Service had heard of these opportunities via their campus (myself included). Making entry positions available with priority given to these students allow them to get more invested in the work during a turning point in their life.

Hearing our new ideas out and engaging with social media

Clearly offer volunteer opportunities or interpretative programs aimed at young people.

I think creating more spaces in which opportunities are offered and questions are answered. Also, improving their network of communication, making it more accessible and easy to find.

Using their social media platform more effectively.

What other jobs/career fields would you be interested in learning more about?

My primary interest with the Park Service still lies with resource management as well as interpretation--anything regarding the surveying of resources or leading volunteer groups and being responsible for educating the public is of interest to me!

I am very interested in ecology, environmental research and education, and wildlife conservation.

Water quality and availability (hydrology); industrial engineering

I am interested in learning more about graduate and phd programs with the federal government and how that works.

Do you feel as if your work made a contribution towards the mission of your host agency (National Park Service, U.S. Forest Service, etc.) How or why not?

Yes. The work I did can be used inform future work that will help preserve the park I was at natural and cultural resources.

I do feel I made a contribution. I work as hard as I could. I identified a problem and created a solution for it.

Yes-not only did I make data collected over the past several years useable, but I have gotten feedback from both my park and partners on how my work is important for monitoring efforts on a greater scale.

I feel that it's made a contribution because my project is about safety while kayaking with woody debris, however, Im concerned about who will continue the on going project.

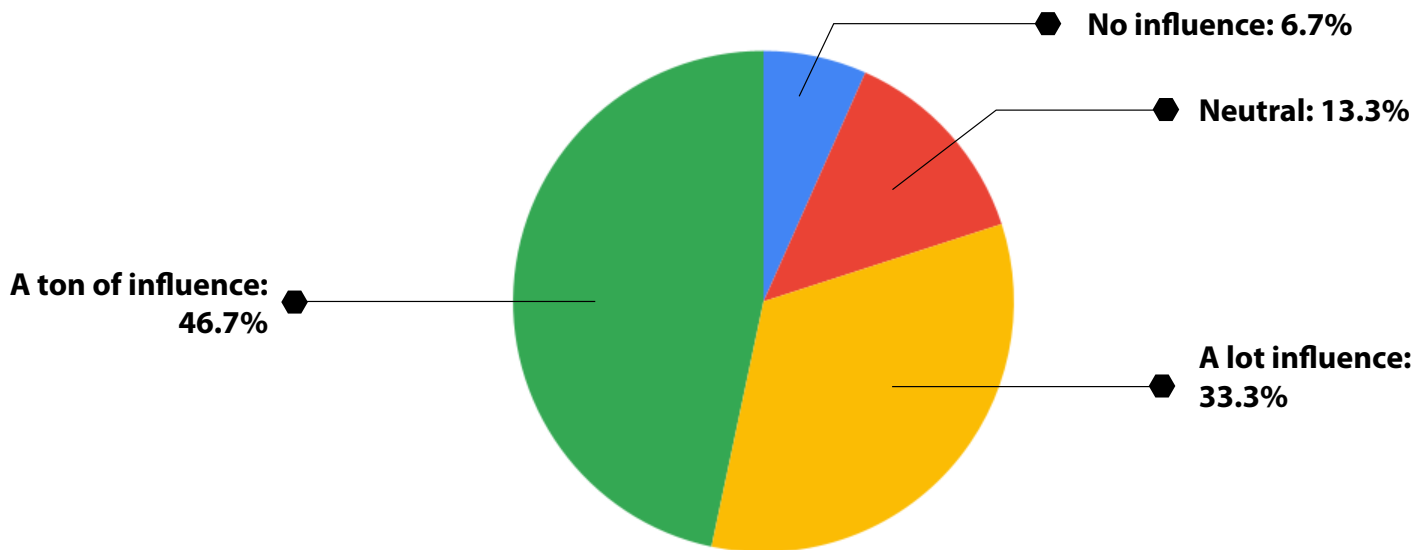
Why are national forests and other federally protected lands important to you, or not important to you?

All lands are important to me. I believe nature is intertwined with humanity and empathy in a way that can't be taught by any other means than to exist in it. Our species has pushed worldwide conditions to a point where we are now destroying our natural habitats, removing our ability to connect with nature as well as the homes and cycles of living environments that have preserved before our existence. Nature is part of history and humanity, and though it will continue to survive (with or without us), it would be our greatest shame not to protect what is left of it.

Federally protected lands are important to me because they are unique spaces in which every member of the public, ideally, can escape to appreciate the landscapes, natural resources, and outdoor recreation of very incredibly varied and beautiful ecosystems. Visiting federally protected lands also encourages the public to care about and form connections to the land and life that desperately needs conservation.

I love recreating on public lands and I think it's important that everyone has access to outdoor spaces. I think that federal protections are also important for conservation.

How much influence did your internship have on your last answer?



Did your internship experience influence your career goals in any way? How?

Yes it did. It built a path for me, before this internship I was very clueless and now I'm a lot less clueless! I now am going to pursue biology maybe in a mastery or phd program once I get even more experience, to choose what I want to specialize in.

Very much so! The program helped me discover what I want to do for the rest of my life.

This internship gave me more direction on where I want to go or do after school. I also learned the different ways people contribute to preserving and protecting based on their unique skill.

Please provide any additional feedback about the program or your experience.

I enjoyed the program. Communication was great and timely but I would say that it became confusing at times. Scheduling mix ups are bound to happen but things like other duties could be more direct/concise.

The Mosaics in Science Internship program has provided me the best summer of my life. Everything, from work time to personal time exploring the park has given me the best memories that will last forever. I finished this internship as a more mature and professional student than I began as. I cannot begin to express how grateful I am for the EFTA and NPS team that made this possible and for providing this opportunity for minorities that wish to grow in National Parks and forests. Thanks to this internship I will continue to immerse myself in national parks and the conservation of wildlife around the world.

I wish we had a chance to meet other interns in person before the program started! Even regional meet ups would've been good.

I am so grateful for my Mosaics internship— it has been an invaluable experience which has provided me with rich memories and experiences which have all positively shaped my career trajectory as a science communicator. Thank you to the Environment for the Americas team for their continual support, for believing in me, and for giving me the opportunity to complete my dream internship.

I highly encourage Mosaics to have potential supervisors detail the specific duties interns are expected to complete and the time they can expect to be dedicated to those tasks. I know that the parks submit position descriptions, but my experience was that the description did not match up with the actual position; it's easy for supervisors to hide behind a summary that may have been written seasons ago.

What are your plans for after this internship?

I will continue to look for seasonal work with federal agencies (National Park Service and Forest Service) after returning home to take care of private matters. I hope to find work in either resource management or interpretation.

I am going back to school. But I graduate in December, so I got another internship that will last 3 months through the Scientists in Parks program in January also at Biscayne National Park doing water quality research. After that, I will either apply to master programs or I aim also in getting a job in a national park.

After my Mosaics term is completed in October, my internship will be extended with SFAN for six more weeks into mid-November. The Point Reyes National Seashore Association and Golden Gate National Park are also considering extending my internship for 3-6 months longer (after mid-November) to help with outreach projects, including assisting with a project that they are working on to document soundscapes of the restored Giacomini Wetlands.

Finish my last two semesters of schooling and coming back to work for my park. If that doesn't pan out then I will continue to do short term internships and travel, with different species.



Isabella Yallapragada, Klondike Gold
Rush National Historical Park, AK



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