

MOSAICS IN SCIENCE

Internship Program Report 2016



Environment
for the Americas



Greening Youth
FOUNDATION



Internship Program Report 2016

Mosaics in Science interns gained critical backcountry skills, that will benefit their science research careers.



EXECUTIVE SUMMARY

Participant demographics	6
Park locations	7
Number of projects.....	7

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Executive Summary Mosaics in Science

In 2016, **Greening Youth Foundation (GYF)** and **Environment for the Americas (EFTA)** began coordinating the **Mosaics in Science (MIS) Diversity Internship Program**. Our primary goal was to provide natural resource science internship opportunities in national parks for diverse youth. Both partners conducted broad outreach to universities, other non-governmental organizations, and our own networks of youth interested in gaining hands-on experiences in the sciences. Staff also participated in career fairs at colleges and universities, including Georgia, California, and Idaho and targeted program promotion at Historically Black Colleges and Universities and Hispanic Serving Institutions.

We accomplished this goal by increasing Latino participation in the program from 25% to 40% and African American participation from 4% to 37%. Representation by Caucasians dropped from 42% to 7% and Asian participation declined slightly from 13% to 10%. Representation

Mosaics in Science is supported by a dedicated team at the **National Park Service** and by the 2016 coordinating organizations, **Greening Youth Foundation** and **Environment for the Americas**. The selection of host sites, promotion of the program, recruitment and hiring of interns, site visits, organization of the culminating intern workshop, and programmatic reports required over one year of effort. The successes of this effort are due to the tremendous support for all aspects of Mosaics in Science. Greening Youth Foundation and Environment for the Americas appreciate their passion for the program and their leadership.



Alex Tremble
National Youth
Employment Programs
Coordinator



Lisa Norby
Chief, Energy and
Mineral Branch and
Mosaics in Science
and Geoscientists in
the Parks Program
Manager

George McDonald
Program Manager,
Youth Programs
Division



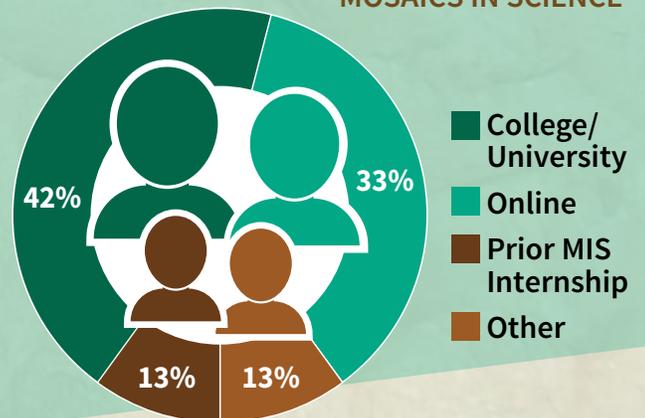
Limaris Soto
Geoscientists in the
Parks and Mosaics
in Science Program
Assistant



by gender also changed dramatically, and though we received 1,440 applications in 2016, only 4 males were part of MIS. Overall, both GYF and EFTA received fewer applications from males than females.

The types of projects selected in natural resource science fields increased from 2015 to 2016 to include not only air resources, biology, geology, hydrology, natural sounds & night skies, paleontology, and multi-disciplinary activities, but also cave/karst research and volcanology.

HOW STUDENTS LEARN ABOUT MOSAICS IN SCIENCE





National Park Service, Geologic Resources Division

The Geologic Resources Division assists the National Park Service and partners in the Service-wide coordination, support, and guidance necessary to understand and implement science-informed stewardship of geologic and associated park resources; reduce impacts from energy, mineral, and other development; and protect visitor values. GRD also manages two Service-wide internship programs — Mosaics in Science and Geoscientists-in-the-Parks.

For more information on the Mosaics in Science Program:

NPS internet website: www.nps.gov/subjects/youthprograms/mosaics.htm

NPS orientation and mentoring toolkit: www.nature.nps.gov/geology/gip/mentor.cfm

Mosaics in Science partner's program: www.mosaicsinscience.org



GREENING YOUTH FOUNDATION

Greening Youth Foundation (GYF) is a federal non-profit partner whose mission is to engage diverse youth and young adults in environmental and conservation programs and expose them to careers in conservation. With headquarters in Atlanta, GA, GYF operates many national programs across the country with the National Park Service, the US Fish and Wildlife Service, and the US Forest Service.

For more information on Greening Youth Foundation:

Websites: www.gyfoundation.org hbcui.gyfoundation.org; gyfatlantayouthcorps.com.

Facebook: @GreeningYouth

Twitter: /greeningyouth

Instagram: /greeningyouth



ENVIRONMENT FOR THE AMERICAS

Environment for the Americas (EFTA) is a non-profit organization that connects people to bird conservation across the Western Hemisphere and works to diversify the field of natural resources. EFTA coordinates the largest hemispheric celebration of birds, International Migratory Bird Day, and works with over 50 youth in bird-focused, science, preservation, and interpretive internships.

For more information about EFTA:

EFTA Website: www.environmentamericas.org

International Migratory Bird Day website: BirdDay.org and MigratoryBirdDay.org

Email: Info@EnvironmentAmericas.org

Phone: 303-499-1950

Latino Heritage Internship Program: latinoheritageintern.com

Facebook: Environment for the Americas

Twitter: EFTA_birdday

Instagram: EFTA_birdday



MOSAICS IN SCIENCE STATEMENT OF PURPOSE

The **Mosaics in Science Diversity Internship Program** provides minority youth that are under-represented in natural resource science career fields with on-the-ground, science-based, work experience in the National Park System. Established in 2013, this multidisciplinary program provides opportunities for undergraduate/graduate college students and recent graduates to work on inventorying and monitoring, research, GIS and other technologies, and interpretation and education projects. The program is administered by the NPS Geologic Resources and Youth Programs Divisions in partnership with Environment for the Americas and Greening Youth Foundation.

Program Objectives

- Encourage diverse youth to study and pursue careers in STEM fields,
- Provide meaningful and relevant science-based internships in parks for minorities 18-35 years old,
- Introduce program participants to science careers in the National Park Service, and
- Increase relevance, diversity, and inclusion in the NPS workplace.

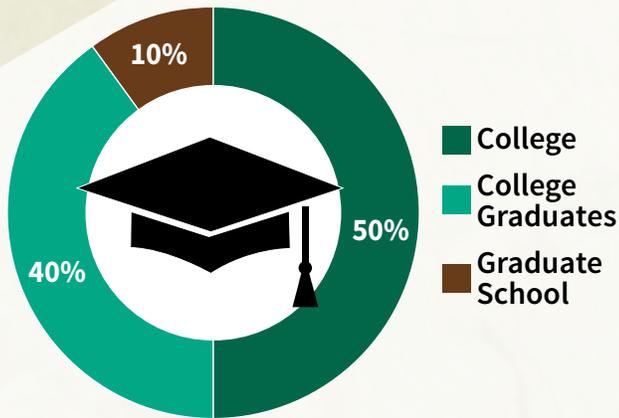
Funding Amounts

The total budget for 2016 Mosaics in Science Internship was \$300,000 from the National Park Service, Youth Programs Division to support 26 interns. The Alcoa Foundation contributed \$44,000 to support four additional interns. Modification budgets added \$19,113 to extend 3 interns at sites in California, Colorado, and Alaska; and to cover costs for speakers at the career workshop. The partner cost share for this year's program was \$103,840.

Total Budget: \$363,113

Demographic Information

EDUCATION STATUS



Prior to applying for Mosaics, have you ever applied for a position with National Park Service?

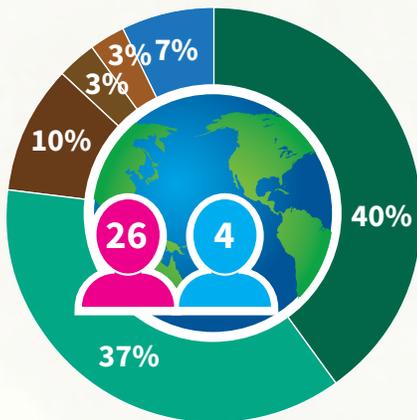


19.23%



80.77%

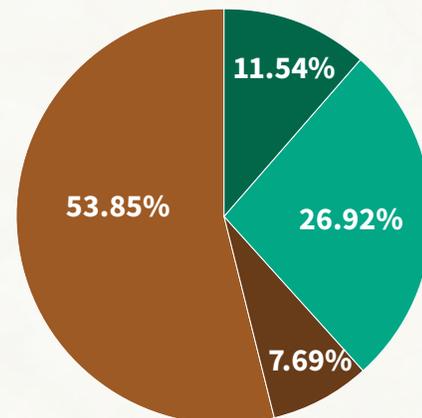
ETHNICITY & GENDER



- Latino: 40%
- African American: 37%
- Asian: 10%
- Native American/Latino: 3%
- Afghan: 3%
- Anglo: 7%
- Female: 26
- Male: 4

Prior to this internship, how often did you visit national parks?

- Never
- Rarely
a few occasions over the years
- Occasionally
once per year
- Frequently
more than once per year



EXAMPLES OF COMPLETED PROJECTS

- ✓ Hummingbird monitoring
- ✓ Shorebird monitoring and protection of Threatened and Endangered species
- ✓ Bat research and interpretation
- ✓ Interpretation
- ✓ Development of a cave management plan
- ✓ Protection of geological resources
- ✓ Wildlife technician
- ✓ Natural resources interpreter
- ✓ Examine the impacts of light pollution on night skies
- ✓ Air quality studies
- ✓ Research on fossil collections

NPS Mosaics in Science Program Summary



POSITIONS BY REGION FOR FY 2016

REGION	# POSITIONS	PARK
ALASKA REGION	2	DENA, KLGO
INTER-MOUNTAIN REGION	8	BRCA, CAVO, DINO, FLFO, GLCA, GRCA, GRYN, GUMO
MIDWEST REGION	2	HOSP, SLBE
NATIONAL CAPITAL REGION	2	NACE, ROCR
PACIFIC WEST REGION	10	CRMO, LABE, MORA, NEPE, NOCA, SAJH, SAMO, SEKI, WAPA, YOSE
SOUTHEAST REGION	6	CALO, EVER, GRSM (2), GULN, MACA

PROGRAM POSITIONS IN FY 2016 (TOTAL: 30 POSITIONS)

PROJECT CATEGORY	PROJECT DISCIPLINE	SCIENTIST	PROJECT CATEGORY	PROJECT DISCIPLINE	SCIENTIST
ALASKA REGION (2 Positions)			PACIFIC WEST REGION (Total: 10 Positions)		
Denali National Park			Craters of the Moon National Monument & Preserve		
Inventory and Monitoring	Soundscapes	Griselda Landa-Posas	Interpretation/Education	Volcanology	Kristabel Madera
Klondike Gold Rush National Historical Park			Lava Beds National Monument		
Restoration/Reclamation	Climate Change	Kriss Harper	Multi-faceted	Biology - General	Chelsea Collins
INTER-MOUNTAIN REGION (8 Positions)			Mount Rainier National Park		
Bryce Canyon National Park			Interpretation/Education		
Multi-faceted	Air Resources	Sarah Roberson	Interpretation/Education	Geology - General	Tarryn Lee
Capulin Volcano National Monument			Nez Perce National Historical Park		
Interpretation/Education	Multi-disciplinary	Liliana Calderon	Interpretation/Education	Biology - General	Elena Sisneros
Dinosaur National Monument			North Cascades National Park		
Curation	Paleontology	Howasta Tahiry	Multi-faceted	Biology - General	Michelle Wong
Florissant Fossil Beds National Monument			San Juan Island National Historical Park		
Curation	Paleontology	Ariana Miranda	Multi-faceted	Biology - General	Juita Martinez
Glen Canyon National Recreation Area			Santa Monica Mountains National Recreation Area		
Inventory and Monitoring	Biology - General	Kayla Quintero	GIS and other technologies	Multi-disciplinary	Melissa Dominguez
Grand Canyon National Park			Sequoia and Kings Canyon National Parks		
GIS and other technologies	Multi-disciplinary	Lily Huang	Interpretation/Education	Multi-disciplinary	Ellen Esling
Greater Yellowstone Inventory and Monitoring Network			War in the Pacific National Historical Park		
Multi-faceted	Hydrology - General	Natilya Blades	Inventory and Monitoring	Hydrology - Marine	Richard Duenas
Guadalupe Mountains National Park			Yosemite National Park		
Restoration/Reclamation	Biology - General	Stephanie Rosas	Inventory and Monitoring	Biology - General	Gabriela Dunn
MIDWEST REGION (2 Positions)			SOUTHEAST REGION (6 Positions)		
Hot Springs National Park			Cape Lookout National Seashore		
Multi-faceted	Biology - General	Linque Martin	Inventory and Monitoring	Biology - General	Aimee Aquino
Sleeping Bear Dunes National Lakeshore			Everglades National Park		
Interpretation/Education	Night Skies	Caprice Phillips	Interpretation/Education	Biology - General	Benjamin Falker
NATIONAL CAPITAL REGION (2 Positions)			Great Smoky Mountains National Park		
National Capital Parks-East			Inventory and Monitoring		
Multi-faceted	Biology - General	Akua Amponsah	Multi-faceted	Biology - General	Matthew Craig
Rock Creek Park			Gulf Coast Network		
Interpretation/Education	Night Skies	Chenise Caison	GIS and other technologies	Geology - General	Fabiane Barato
			Mammoth Cave National Park		
			GIS and other technologies		
			Cave / Karst		
			Turner Burns		

PROJECT CATEGORY SUMMARY (TOTAL: 30 PROJECTS)

PROJECT CATEGORY	NUMBER
Curation	2
GIS and other Technologies	4
Interpretation/Education	8
Inventory and Monitoring	6
Multi-faceted	8
Restoration/Reclamation	2

PROJECT DISCIPLINE SUMMARY (TOTAL: 30 PROJECTS)

PROJECT DISCIPLINE	NUMBER OF	PROJECT DISCIPLINE	NUMBER OF
Air Resources	1	Hydrology - Marine	1
Biology - General	13	Multi-disciplinary	4
Cave / Karst	1	Night Skies	2
Climate Change	1	Paleontology	2
Geology - General	2	Soundscapes	1
Hydrology - General	1	Volcanology	1

Project Highlights

Craters of the Moon National Monument and Preserve is located in Idaho, has over 400 documented caves and more discovered each year. For ten weeks, intern **Kristabel Madera** explored some of the Monument's lava tubes which were formed by active lava flows, to determine if they provide suitable habitat for some of the park's eleven species of bats. Kristabel examined data from 2013 to 2016 and learned that there was a shift in the species of bats that were found 2013-2014 and 2015-2016. While species of *Myotis* bats were more common in the earlier years, numbers of the Pacific western big-eared bat increased in the latter.



Kristabel Madera studied bat populations and explored the lava tubes they use.

Howasta Tahiry describes her research at **Dinosaur National Monument** as “Sherlock” work. She was tasked with tracking down the current locations of some of the many fossils that have been excavated and relocated from the Monument. Her sleuthing took her to the early journals and collections of researchers and museums, including the Denver Museum of Nature and Science in Colorado and the Smithsonian Institute in Washington, D.C. She solved over 150 mysteries during her internship by pinpointing the locations of some of the many fossils that have been taken from the park. Among her biggest accomplishments was the opportunity to work at the Carnegie Quarry — Jurassic dinosaur fossil bed often called “the wall of bones”.



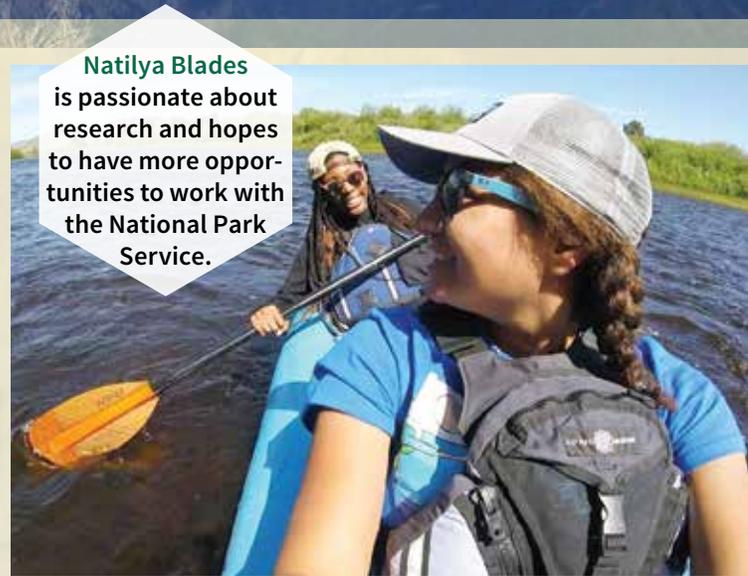
Howasta Tahiry pinpointed the locations of some of the many fossils that have been taken from the park.

Driven by his desire to take his experiences from the field to his high school students in the classroom, **Richard Duenas** worked as a **Biological Technician at War in the Pacific National Historical Park**. With the guidance of **Integrated Resource Manager Mike Gawel**, Richard used his summer to bring light to the history and diverse marine ecosystem found on the island of Guam. When he wasn't planning and facilitating the park's educational outreach to local youth, he was learning about geographic information systems and collecting data on native marine organisms while snorkeling in the Pacific Ocean. Richard plans to continue his efforts in environmental stewardship and research.



Richard Duenas worked with Reef Rangers to raise awareness of the importance of coral reefs.

Under the guidance of Field Ecologist Erin Shanahan and Program Manager Kristin Legg, **Natilya Blades** worked as a Biological Technician and Hydrology Assistant at the **Greater Yellowstone Inventory and Monitoring Network**. Majoring in Environmental Science and Geology at Georgia State University, Natilya came to Mosaics in Science with a passion for research, advocacy, and bringing environmental education to minority communities. This summer, she focused on amphibian and whitebark pine monitoring. Her research also gave her the opportunity to learn about the vegetation and history at Grand Tetons, collect water samples at the Shoshone River, explore Big Horn Canyon, research the White Bark Pine Tree, and see her first herd of bison and antelopes.



Natilya Blades is passionate about research and hopes to have more opportunities to work with the National Park Service.

Led by his passion of ecology, zoology, and biology, **Ben Falker** worked at **Everglades National Park** as an Education and Interpretation Intern. With south Florida as his backyard, Ben explored BioTECH at Richmond Heights, the Coral Gables Museum, Little Havana, Big Cypress National Preserve, and Dry Tortugas. He used his time in different communities and at national treasures to gather information about the resources and habitats in and around the Everglades. Ben and other interns developed a curriculum for K-12 students on biodiversity and STEM programming at the park.



Ben Falker plans to use his service with the National Park Service and gain more experience in field research.

During the summer, **Capulin Volcano National Monument** in New Mexico hosted **Lily Calderón** as a Hummingbird Research Assistant. While participating in this summer project, Lily learned how to capture, handle, identify, and band hummingbirds under the guidance of her project supervisor Zach Cartmell. Lily considers herself to be a big bird enthusiast and during her internship, she learned a great deal about hummingbirds and other birds of CAVO. In the past couple of years, Lily has been both a volunteer and intern for various projects focused on avian conservation.



Lily Calderón now works at EFTA, where she helps to coordinate the Western Hummingbird Partnership.

The **Mosaics in Science** interns contribute to a program Blog throughout their internships.

The purpose of the Blog is to share the successes of the program with its partners and supporters. It is also a place where interns can highlight their work, both the challenges and highlights, learn about the broad suite of projects in which other interns are engaged, and create a full picture of their work and experiences in national parks. The Blog also serves to expose interns to preparing a document each week and to considering the cumulative impacts of their work. Some interns reference their blogs on their resumes, and the writings are a record, in part, of the knowledge and skills they gain. Each participant submitted as many as 10 posts, and by program's end, interns had submitted 296 posts.

Akua Amponsah
National Capital Parks
~ Washington, D.C.



Griselda Landa-Posas
Denali National Park
and Preserve ~ Alaska



Fabiane Barato
Gulf Coast Network
~ Louisiana



Juita Martinez
San Juan Island National
Historic Park ~ Washington



Juita Martinez
San Juan Island National Historical Park

“Little by little, my networking through the community of wildlife biologists at the Park brought me to new opportunities.”

Melissa Dominguez
Santa Monica Mountains National Recreation Area

“I am filled with excitement, happiness and nervousness. Anxious what I will encounter within the next 12 weeks. I take a deep breath, feel the wind touch my skin, and look at all the mountain and trees. I can't help but think that I am home!”

Tarryn Lee
Mount Rainier National Park

“With this being my second internship with the Park Service, I can say with certainty that this is where I would like to build my career.”

Gabriela Dunn (First Week Living in Yosemite)
Yosemite National Park

“Each person I met carried the same sense of passion for ecological conservation and learning about nature that I carry. We all couldn't stop craning our necks towards the landscapes revealed at every turn of the “Green Dragon.”

Richard Duenas
War in the Pacific National Historical Park

“Have I mentioned how unbelievably adorable the Reef Rangers are?! At the end of camp, the kids perform eco-skits – short plays that teaching about pressing environmental concerns and issues we face on our island – for their parents. The Preservation Rangers work closely with our Reef Rangers preparing scripts, designing props, and working on their acting chops, and they always deliver. This is easily my favorite part of the camp!”



Intern Blog:
www.mosaicsinscience.org

Linque Martin Hot Springs National Park

“It’s within my nature to remain in my comfort zone. I feel safest and happiest in a place where I can learn easily and it does not seem strenuous, but I decided to break away from my usual routine in search of something different. I’ve never gone out of my way to hike or to study a threatened species. I’ve never really worked with people who have more experience than me and have the ability to treat me as an equal team member. It’s empowering in a way to be the only black woman here. I feel as though I’m setting an example for young women like me in the future who wish to pursue careers in science, but aren’t too sure about getting away from where their comfort lies. This has been such a rewarding experience so far, and I’m excited to see what else this summer holds for me.”

Lily Huang
Grand Canyon
National Park ~ Arizona



Stephanie Rosas
Guadalupe Mountains
National Park ~ Texas

Aimee Aquino Cape Lookout National Seashore (North Carolina)

“I am extremely grateful to have been part of the Mosaics program at Cape Lookout National Seashore (CALO) this summer. I cannot stress enough how lucky I’ve felt to be a face of the program and bring diversity to our Parks where every single person should feel welcomed into and be a part of. I will always treasure CALO with providing me the opportunity to work with and protect our shorebirds and sea turtles. Our biodiversity is so very important and working with our endangered and threatened species allowed me to have a hands on part of maintaining it.”

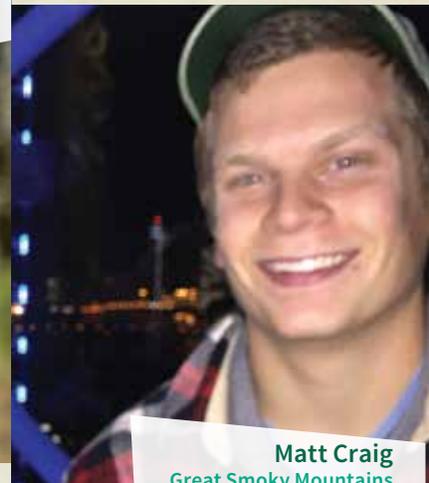
Akua Amponsah National Capital Parks ~ East

“The second week was when I started to get a better understanding on my tasks for this internship. I helped park rangers with school programs with students ranging from 4 years old to 14. I loved seeing the glimmer in their eyes when they discovered wildlife on the trail. This was their first time visiting a national park, and I was honored to experience it with them..”

Turner Burns
Mammoth Cave
National Park ~ Kentucky



Matt Craig
Great Smoky Mountains
National Park ~ Tennessee



Kayla Quintero Glen Canyon National Recreation Area

“As we were all finishing last minute prep work for Bat Fest, I was getting nervous. I didn’t know how many people would be listening to my presentation, and it had been advertised for quite some time now. I was nervous, all the way up to walking out in front of the group of visitors. We had a great turnout. Once I was on stage all the nervousness went away. I had prepared for this all week. I was ready. It went really well! I received many compliments and it was a relief that people enjoyed my talk. Our teamwork was needed to make this summer a success. We were more than just a bat crew; we became friends, and for that I’m truly grateful. It only makes my idea of this line of work that much better.”

Maintaining regular communication with interns was a top priority for GYF, EFTA, and NPS. Our communication included site visits to 9 parks to meet directly with interns and their supervisors, weekly webinars that provided additional training, and a post-internship workshop in Washington, D.C.

WEBINARS GYF, EFTA, and NPS hosted webinars on the following topics:

- > **MIS Orientation**
- > **Writing and Publishing a Blog**
- > **Arriving at Your Host Site**
- > **Components of a Research Project**
- > **Pathways to the Park**
Guest Speaker, Fernando Villalba
- > **Non-Federal Resumes**
Guest Speaker, Gale Coffey
- > **How Climate Change will Reshape the Parks**
Guest Speaker, NASA
- > **How to Pay off College Debt**
Guest Speaker, Sara Delgadillo
- > **Preparing Oral and Poster Presentations**
- > **Heading to Washington, D.C.**
What to Expect
- > **Heading to Washington, D.C.**
Final Questions
- > **Webinars recommended by interns for 2017**
How to apply to graduate school, Safety in the field, and Diversity in the NPS

POST-INTERNSHIP WORKSHOP

There was much bonding of interns during the post-internship workshop! Over four days, they learned about one another's work at national parks and shared both successes and challenges. Guest presenters provided details about applying for federal jobs, working for the federal government, and even how to budget for the future. One very intense and meaningful session was led by Steffen Moss where the participants discussed their thoughts on diversity and inclusion and the NPS and their experiences during their internships. In addition the interns were able to meet with many high level NPS and DOI managers including Director Jarvis and were fortunate to visit a number of NPS sites in Washington and the Smithsonian Museum of Natural History.

The success of the workshop was evident in intern comments:

"Something I learned about in this workshop is never sell yourself short and do not get intimidated with the job qualifications."

"The panel discussion was very informative."

"So far the workshop has been a stellar experience, and I cannot wait for what's next."

"I learned that networking is key to finding work, and establishing contacts is vital to getting research opportunities."

"I learned it's okay if you don't know exactly what field you want to get into. It's okay to change your mind. Find your passion!"



Aimee Aquino ~ Cape Lookout National Seashore / NC

Aimee Aquino is majoring in environmental science at the William Paterson University of New Jersey. She is very interested in conservation and has previously conducted biology research as an intern at Cape Lookout National Seashore in North Carolina. Her Mosaics in Science project this year will involve nesting shorebirds.



Liliana Calderon ~ Capulin Volcano National Monument / NM

Liliana Calderon has a passion for birds and wildlife conservation. Last year, she completed a six-month internship at the Tualatin River National Wildlife Refuge through EFTA and the U.S. Fish and Wildlife Service. This summer, Lily will be banding hummingbirds and interpreting the natural environment.



Chelsea Collins ~ Lava Beds National Monument / CA

Chelsea Collins completed her degree in environmental science at Western Washington University in the fall of 2015. She is interested in conducting fieldwork and research, as well as advocating for conservation on the political and policy side. She will be assisting with bat research and interpretation.



Melissa Dominguez ~ Cape Lookout National Seashore / NC (Alcoa funded)

Melissa Dominguez is working on her graduate degree in geography at California State University Northridge. She hopes to incorporate applied GIS into conservation practice in her professional career. This summer, she will assist in mapping encroachments onto parkland.



Gabriela Dunn ~ Yosemite National Park / CA (Alcoa funded)

Gabriela Dunn completed her degree in biological sciences at the University of California Santa Barbara in 2013. Deeply interested in the lands and species of California, she has been closely involved with research and conservation efforts throughout the state. This summer, Gabriela will be assisting with amphibian research.



Leslie Fuentes ~ Great Smoky Mountains National Park / TN

Leslie is a graduate of Hawaii Pacific University where she studied marine biology. She has experience in research and education and has worked with Hawaiian fish, aquaculture, and natural history. She was Latino Heritage Program intern in 2015, and will work as a Mosaics in Science intern at Great Smoky Mountains National Park this summer.



Griselda Landa-Posas ~ Denali National Park & Preserve / AK

Griselda is committed to conservation and environmental issues and is pursuing a B.S. in fish, wildlife, and conservation biology at Colorado State University. She is a member of many community and conservation organizations, including Engineers Without Borders, The Wildlife Society, and the Society for Conservation Biology. Her previous experience with the NPS Natural Sounds and Night Skies Division led to her position capturing sounds at Denali National Park & Preserve.



Tarryn Lee ~ Mount Rainier National Park / DC

Tarryn Lee was inspired to pursue a career in natural resources and interpretation after a memorable guided hike through Bandelier National Monument in New Mexico. She will graduate from Towson University with a degree in earth-space science and geology at the end of 2016, and hopes to conduct

graduate research with the National Park Service and eventually work for the agency. As a second year Mosaics in Science intern, Tarryn will make use of her earth science skills by developing programs interpreting the noteworthy geology.



Kristabel Madera ~ Craters of the Moon National Monument & Preserve / ID

Kristabel Madera is pursuing a degree in biology at Delaware Technical Community College. She has previously conducted research on big brown bats and will be assisting with bat research and the revision of the cave management plan. Kristabel's work has led her into bat caves and a greater awareness of the conservation needs of bats.



Juita Martinez ~ San Juan Island National Historical Park / DC

Juita Martinez recently completed her degree in zoology from Humboldt State University. She has always been interested in nature and is thrilled to intern with the National Park Service. This summer, she will assist with interpretation and marble island butterfly research.



Ariana Miranda ~ Florissant Fossil Beds National Monument / CO

Ariana Miranda grew up and fell in love with the outdoors in northern New Jersey. She completed a B.S. in geology at Temple University in the spring of 2016. Ariana's internship will involve geology fieldwork and data entry.



Stephanie Rosas ~ Guadalupe Mountains National Park / TX

Stephanie Rosas is majoring in environmental earth science at the University of California Santa Cruz. She hopes to gain significant knowledge and professional skills through the Mosaics in Science internship. Stephanie will be creating a seed collection guidebook for the native species restoration effort.



Elena Sisneros ~ Nez Perce National Historical Park / ID

Elena Sisneros is a senior at Humboldt State University, majoring in environmental science. She has participated in restoration efforts in California and Ecuador. This summer, Elena will assist with native plant protection and propagation efforts.



Howasta Tahiry ~ Dinosaur National Monument / CO & UT Border

Howasta Tahiry completed her environmental science degree at the University of Massachusetts Boston in May, and plans to conduct graduate research in geology. Howasta has significant fieldwork, lab, and software experience and hopes to learn more about geosciences in the National Park Service through this internship.



Michelle Wong ~ North Cascades National Park / DC

Michelle Wong is a rising senior at Cal Poly San Luis Obispo, majoring in wildlife biology. She is interested in focusing on human dimensions of conservation in her graduate studies. Michelle will assist with butterfly research and interpretation.



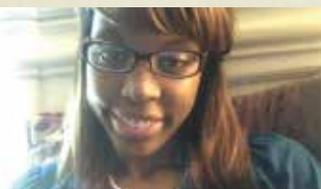
Akua Amponsah ~ National Capital Parks – East / DC (Alcoa funded)

Akua Amponsah is a rising junior at the University of Maryland Baltimore County. Double majoring in Biology and Global Studies, she has an interest in urban agriculture, and eradicating food deserts in inner-city communities. In the past she has done research on frogs in southern Florida, and data collection with sea turtles. As a Biology Technician she hopes to use the research skills and tools she has acquired in her academic career.



Fabiane Barato ~ Gulf Coast Network / LA

Fabiane Barato is pursuing a Master of Science in Geology at the University of Louisiana at Lafayette. She is interested in restoration, stream banks, coastal reforestation, and water quality monitoring. She has done research at the Institute for Coastal and Water Research and at the University of Louisiana at Lafayette with NPS. Working as a GIS Specialist, her goal for the internship is to learn about coastal morphology and to learn how remote sensing can be used to identify coastal change.



Natilya Blades ~ Greater Yellowstone Inventory and Monitoring Network / WY

Natilya Blades is currently a student at Georgia State University, majoring in Environmental Science and Geology. With a goal of furthering her research and gaining valuable skills, she is working as a Biological Technician and Hydrology Assistant.



Turner Burns ~ Mammoth Cave National Park / KY

Turner Burns is a rising senior at the University of Kentucky. Majoring in Chemical Engineering, he has an interest in environmental engineering and conservation as it relates to water and air quality. Working as a Research and GIS assistant, he wants to gain a better understanding of scientific research at a national park.



Chenise Caison ~ Rock Creek Park / DC

Chenise Caison is pursuing an Associates in General Science at Northern Virginia Community College. As an Astronomy Interpretation Assistant, she hopes to develop valuable skills, and gain insight on what it means to be a member of the National Park Service.



Matthew Craig ~ Great Smoky Mountains National Park / TN

Matthew Craig is a senior at University of North Carolina at Charlotte. As an Earth and Environmental Science major, he has an interest in sustainability and preservation. Working as a Biological Technician Intern in Fisheries, his goal is to gain experience and skills in research, field work and data management.



Richard Duenas ~ War in the Pacific National Historical Park / Guam

Richard Duenas is a graduate of the University of Guam with a degree in Science and Secondary Education. He is a high school Biology and Chemistry teacher and very interested in connecting youth to environmental stewardship and conservation. Through his work as a Biological Technician, his goal is to develop research and field skills and build connections with various environmental stewardship and conservation programs on the island.



Ellen Esling ~ Sequoia and Kings Canyon National Parks / CA

Ellen Esling is currently pursuing a Master of Fine Arts in Interdisciplinary Media Arts at Southern Illinois University. She is interested in science communication, film making, and sustainability. This summer, she is conducting interviews and preparing materials to help the park share information about its research. Ellen hopes to improve her science communication skills and to generate interest in conducting research with the National Park Service.



Ben Falker ~ **Everglades National Park / FL**

Ben Falker is a graduate of Tuskegee University. Majoring in Biology, he is interested in environmental protection, public awareness, food supply and security, and the preservation of natural resources. Working as an Education Intern, his goal is to assist teachers in the Miami Dade school system in building a curriculum based on the unique ecosystem of the Everglades and Florida Bay. Ben hopes to gain more field research experience, and expand his knowledge of the Everglades National Park's biological diversity.



Kriss Jackson-Harper ~ **Klondike Gold Rush National Historical Park / AK**

Kriss Jackson-Harper is a graduate of the University of Washington. With a degree in Sociology and a graduate certificate in Environmental Education, she hopes to improve her identification of animal and plant species, data collection, and expand her knowledge in restoration and trail building through her work as a Restoration Technician.



Lily Huang ~ **Grand Canyon National Park / AZ**

Lily Huang is a graduate of the University of California, San Diego. Majoring in Molecular Biology, Lily is interested in genetics and genomics. Working as a Citizen-Science Programs & Mobile Application Development Intern, her goal this summer is to get park visitors interested in science with the National Park Service.



Caprice Phillips ~ **Sleeping Bear Dunes National Lakeshore / MI (Alcoa funded)**

Caprice Phillips is a graduate of University of Arkansas at Little Rock, and will begin her PhD work in astronomy this fall at the University of Texas at Austin. She has explored practical methods for identifying potential meteorites as well as Earth as a transiting exoplanet. With a goal of learning about night skies and the impact light pollution has on it, she is working as a Night Skies Assistant.



Linque Martin ~ **Hot Springs National Park / AR**

Linque Martin is a rising junior at Tuskegee University. As an Animal Science major she has conducted research on cancer treatments, and worked to eliminate feral swine issues in Alabama. Working as a Wildlife Technician and Natural Resources Interpreter, Linque wants to continue her work with animals, and hopes to gain more experience in field research as it relates to wildlife, habitat preservation, and endangered species.



Kayla Quintero ~ **Glen Canyon National Recreation Area / UT**

Kayla Quintero is a rising senior at New Mexico Tech. As a biology major she has an interest in marine and terrestrial wildlife conservation. Working as a Biological Science Research Assistant, she is interested in doing field work, working with the National Park Service, and improving her skills in data analysis and reporting.



Sarah Roberson ~ **Bryce Canyon National Park / UT**

Sarah Roberson is a rising senior, majoring in Earth and Environmental Sciences at the University of New Orleans. She is interested in resource and environmental conservation, and has previously conducted research at Lake Pontchartrain Beach and Nicoya Peninsula. With a goal of gaining more knowledge about the National Park's Resource Management, she is working as an Air Quality Specialist.

Kristabel Madera surveyed lava tubes that might provide habitat for bats in Craters of the Moon National Monument and Preserve.



HAVE YOU LEARNED SOMETHING YOU DIDN'T KNOW BEFORE?

- ✓ How to check for pipping on piping plover eggs through an enclosure.
- ✓ Yes, I have learned a lot about NPS operations, conservation biology (field work/decision making).
- ✓ I'm learning about bats and cave geology.
- ✓ I learned sooo much! Such as the type of invasive species there are in SAMO.
- ✓ Most employees in NPS work as seasonal employees for at least 5 years before they can find a Term position.

WHAT HAS BEEN MOST INTERESTING TO YOU?

- ✓ The amount of work and planning that needs to go into restoration of a habitat
- ✓ The most interesting thing to me was doing field work with the visiting researcher and learning about the grassland restoration plans they are coming up with for the park. I have also really enjoyed learning about the desert plants found here, which are much different than where I live.
- ✓ Learning about the birds of the area and working specifically on creating and improving banding material and bird based interp material
- ✓ The backgrounds of all the interns and employees in the Park: career path to arrive here, how they could afford or acquired their field gear, how they prepared for work in the Park.
- ✓ Living on an active volcano! Learning about how the landforms were shaped here in contrast to home on the east coast.

WHAT KIND OF SKILLS DO YOU THINK YOU HAVE DEVELOPED OR ACQUIRED?

- ✓ Field skills, organization, professional development
- ✓ I have gained skills related to field work...and also have learned to become a more independent worker. I believe I am now better at independent research and finding solutions or answers to unknowns.
- ✓ Flexibility, sportsmanship, and independence. Essentially every day was a surprise and I had to be ready to either work as a team or on my own.
- ✓ GPS
- ✓ I have enhanced my interpretive skills
- ✓ Networking skills
- ✓ Skills I developed are how to use GPS, frog surveying, and tracking encroachment using Arc Collector app.

IS THERE ANYTHING YOU WOULD LIKE TO SEE GO DIFFERENTLY THE REST OF THE SUMMER?

- ✓ More time to explore more caves and participate in the winter hibernacula survey.
- ✓ I would have liked to spend more time in the field, but the weather and terrain conditions don't allow it.
- ✓ Not particularly, it's going rather well.
- ✓ Working with more fossils.
- ✓ More focus on the purpose of the Mosaics in Science program. It seemed to me like many of my co-workers were not informed or interested in the diversity aspect of this program.

WHAT DO YOU WANT SENIOR OFFICIALS IN THE NATIONAL PARK SERVICE TO KNOW ABOUT OUR EXPERIENCE?

- ✓ Resource management is valuable and an important piece.
- ✓ It was an amazing experience and will play a role in many aspects in my future career.
- ✓ That I am a hard worker, passionate on sustaining our environment, work well with others, and I know how to multi-task.
- ✓ This is a great program that introduces the National Park Service to many young and eager people who probably never thought would have such an opportunity so early in their life.
- ✓ This has furthered my desire to find a career with NPS.
- ✓ Because of this opportunity opened by the internship, I understand the structure of NPS and work that goes on within the park. I hope to continue contributing to the mission of NPS after this summer.

WHAT WERE THE HIGHLIGHTS OF YOUR INTERNSHIP EXPERIENCE?

- ✓ Everything!!!! From the awesome NPS staff, my supervisor, all the cool insect biology and prairie restoration ins and outs it was all fun, amazing and most of all a great learning experience.
- ✓ The highlights of my internship included learning how to navigate with a compass and map in remote wilderness settings, becoming familiar with the backpacking lifestyle, experiencing the solitude of the landscape of backcountry Yosemite, and meeting scientists from all around the country.
- ✓ Working outside every day.

WHAT WERE THE MOST CHALLENGING PARTS OF YOUR INTERNSHIP?

- ✓ The most challenging parts of my internship were having enough money to purchase the gear (I had to open a credit line), learning what gear I needed to have in order to work and live for 8 days in rugged wilderness where we would hike up to 100 miles per week, and overcoming the physical challenges that came with the field work.
- ✓ Probably the heat! I felt like I had never worked everyday all day outdoors in such an intense heat !! Took some getting used to.
- ✓ I wasn't uncomfortable with any task. I was told on numerous times by my advisors and others that I never had to do anything I didn't want to. So, if I thought something was too much — I would let it be known.

IF YOU COULD MAKE ONE RECOMMENDATION TO THE DIRECTOR OF THE NATIONAL PARK SERVICE ON HOW THE NPS CAN BETTER CONNECT WITH YOUNG PEOPLE/ADULTS AND DIVERSE COMMUNITIES, WHAT WOULD YOU SAY?

- ✓ I think such an important thing is to listen to what they have to say. Take the time to hear our viewpoints and communicate and be open to using the ideas. The generation that makes of most of NPS and the new generation are from two very different times and ideas are different.
- ✓ NPS can offer/advertise more internships like this one. The barrier to get one's foot in the door is high, due to economic hardship and competitive nature of USAjobs.com, and internships like Mosaics give the diverse demographic a boost in making it over that barrier.
- ✓ Be open to overall of inefficiencies. Young people have the vision and the drive to work for environmental orgs but will not go to the government due the inflexible nature of it. I have worked for state governments that do not have this problem
- ✓ It would be nice to see more employees, interns, or even volunteers from the local community. There should be more relationships with the surrounding communities.

- ✓ Consider voiding collection fees for those with low income. The cost of the parks was the biggest deterrent for my family trips when I was a child.
- ✓ Seasonal positions is not a "Job" I say this because it constantly causes stress in not only having to look for a job on an already hard to navigate job pool/application but moving every six months is just extremely stressful. Permanent positions should be more widespread & available!

DO YOU FEEL AS IF YOUR WORK MADE A CONTRIBUTION TOWARDS THE MISSION OF THE NATIONAL PARK SERVICE? HOW OR WHY NOT?

- ✓ Yes as an interp ranger I educated people on how the park preserves and protects and encourage them to do the same
- ✓ Yes, each time I went out into the field I felt that I was directly contributing to the preservation and restoration of a unique natural place that is and will be enjoyed by people from all around the world.
- ✓ Yes, I think my research will give better improvements to the I&M project at Florissant and a long term study was much needed.
- ✓ During my internship not really, but once we all gathered together in DC, I did feel that my work made a contribution. I realized that it is a slow gradual process, and thats ok. Some progress is better than nothing at all
- ✓ I definitely feel my intern work has made a contribution towards the mission of NPS. Collecting sparse data of specimens from our locale could be imperative for future researchers or hobbyists.

DID YOU GAIN SKILLS AND EXPERIENCES DURING THIS INTERNSHIP THAT MAY HELP YOU ATTAIN YOUR LONG-TERM GOALS?

- ✓ Yes, the skills and experiences that I gained during this internship will help me pursue a career as a conservation biologist because they are diverse — from networking skills to practical field experience. I have experience with training other coworkers, as well as conducting field surveys on a massive scale in sensitive habitat and handling endangered species.
- ✓ Yes, I also gained experience in data entry, writing, education outreach and Photoshop.
- ✓ Captive rearing skills including field collection and taking care of caterpillars, field botany skills in plant identification / collections, and planting. Noxious and invasive plant removal.
- ✓ Yes, I received first aid training to help people in need. Now I can become an EMT. I also gain valuable knowledge I can use on the landscape of Idaho.

Conclusions and Recommendations

Mosaics in Science 2016 brought together more diverse youth than ever in equally diverse positions at national parks across the United States. After coordinating the program for the first time, **GYF** and **FFTA** hope to have the opportunity to work together again.

Our goals in 2017 include efforts to increase participation by men and to work with host sites prior to the internships to learn more about the focus of the projects, provide mentoring and cultural competency training for the park supervisors and mentors, implement the **NEW Direct Hire** authority component of the program and to prepare supervisors to assist with the development of intern projects. Because many interns are in the field, sometimes in remote conditions, we would also like to prepare them for these experiences and enhance their hiking, backpacking, and camping experiences.

Before their Mosaics in Science internships, over 90% of participants indicated their interest in applying for jobs with the National Park Service. This interest remained strong after the internships, and over 90% indicated that they felt better prepared to apply for federal jobs.

Did your experience this summer influence your career goals in any way?

- “Yes, it reaffirmed my goal of working in NPS.”
- “Possibly. It opened NPS as a future career path.”
- “Yes, I would like to try out interpretation at some point in my career now that I got a look inside the job positions at NPS.”
- “I am better qualified to be hired by federal agencies.”
- “Yes! It solidified my desire to conduct avian research.”
- “It further solidified my desire to work with National Park Service.”

