MOSAICS in Science



Mosaics in Science Diversity Internship Program

Fiscal Year 2015 Accomplishments Report

Natural Resources Stewardship and Science
Geologic Resources Division
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THE GEOLOGICAL SOCIETY OF AMERICA®

NATIONAL PARK SERVICE



ON THE COVER: MIS participants with the Director of the National Park Service during their career workshop in Washington, DC. (NPS photo)

THIS PAGE: MIS participants taking a “selfie” with Director Jarvis during their career workshop. (NPS Photo)

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An Introduction to the Mosaics in Science Diversity Internship Program

What is the Mosaics in Science Program?

The Mosaics in Science (MIS) Diversity Internship Program developed by the NPS Geologic Resources Division in 2013 provides college students and recent graduates 18-35 years old that are under-represented in STEM career fields with on-the-ground, science-based, work experience in the National Park System. The long-term goal of the program to develop the participant's technical and leadership skills in STEM (science, technology, engineering, and math) fields is expected to help to change the demographics of the NPS workforce over time to better reflect the diversity of the U.S. population.



Salvador Silahua collecting common camas at San Juan Island National Historical Park, Washington. (NPS Photo)

Mosaics in Science interns are provided work opportunities in inventory and monitoring, research, interpretation and education projects in national parks. The projects encompass a broad array of natural resource fields including air resources, biology, geology, natural sounds and nights skies, water resources, and other integrated science topics. In addition to practical on-the-ground work experience, the interns receive one-on-one mentoring to help them grow personally and professionally, and to gain leadership and presentation skills.

In 2015, 24 interns worked on STEM projects in parks in all of the regions across the Service. Since its inception, 58 college students and recent graduates have completed important science projects in NPS units during their Mosaics in Science internships (12 interns in 2013, 22 in 2014, and 24 in 2015). Each internship is comprised of working 11-weeks in a national park followed by a 4-day career workshop in Washington DC. At the workshop the participants present the results of their work, are exposed to different science careers, and develop skills to apply for, and obtain a federal job. The program is run in close collaboration with the NPS Youth Programs Division, all Natural Resource Stewardship and Science offices and divisions, NPS units hosting the MIS interns, and The Geological Society of America.

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.



Sam Kraft inventorying native grasses in an exotic plant survey at Point Reyes National Seashore, California. (NPS photo)

The Mosaics in Science mission of increasing diversity in STEM fields in our national parks relates to the goals in the U.S. Department of Interior's *STEM Education and Employment Pathways Strategic Plan for Fiscal Years 2013-2018*. The five-year goal is "that our youth and the American public become scientifically literate stewards of our natural and cultural heritage and that today's youth, especially those underrepresented in STEM fields of study, become inspired to choose career paths at DOI or related agencies and partners".

The MIS Program goals relate to the *DOI Youth in the Great Outdoor Initiative* by trying to connect youth, especially minorities, with the outdoors by inspiring them to play, learn, serve, and work on our public lands. One of the biggest trends we see today is that youth, especially minorities, are spending less time outdoors. By inspiring young people to enjoy nature and work and play outdoors, we will build future stewards of our natural and cultural resources.



Dipa Desai collecting GPS data at Florissant Fossil Beds National Monument, Colorado. (NPS photo)

MIS Program Summary for FY 15

Administration of the Mosaics in Science Program is done by NPS Geologic Resources Division staff in collaboration with the program partner, The Geological Society of America (GSA). The work is authorized under youth cooperative agreement #P13AC00336 and annual task agreements with GSA. Table 1 lists the parks, positions, and program participants for fiscal year 2015 and Table 2 lists the regions where the interns worked in 2015.

Table 1. Mosaics in Science internship positions

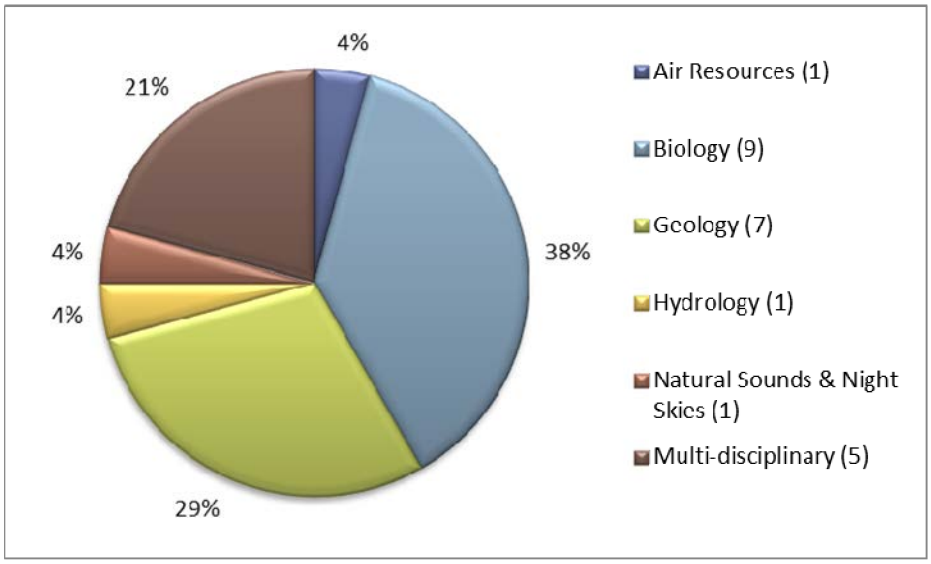
Park		Position
1.	Big Thicket National Preserve (Texas)	GIS and Longleaf Pine Project Assistant (James Ford)
2.	Bryce Canyon National Park (Utah)	Air Quality and Visibility Interpretive Assistant (Anton Yelk)
3.	Congaree National Park (South Carolina)	Integrated Education/Hydrology Assistant (Tarryn Lee)
4.	Cuyahoga Valley National Park (Ohio)	Water Quality Research Assistant (Montague (Monty) Brantley)
5.	Dinosaur National Monument (Colorado, Utah)	Dinosaur Quarry Mapping Assistant (Marie Jimenez)
6.	Fire Island National Seashore (New York), Sagamore Hill National Historic Site (New York), and Northeast Coastal and Barrier Network (Massachusetts)	Biology Technician (Reina Galvan)
7.	Florissant Fossil Beds National Monument (Colorado)	Paleontology Museum / Field Technician (Dipa Desai)
8.	Fort Matanzas National Monument (Florida)	Interpretation/Resource Management Assistant (Devyn Corrales)
9.	Glen Canyon National Recreation Area (Arizona, Utah)	Biological Science (Bats) Research Assistant (Michael Fuerte)
10.	Great Smoky Mountains National Park (North Carolina, Tennessee)	Natural History Museum Collection Assistant (Lauren Frankel)
11.	Guadalupe Mountains National Park (Texas)	Night Sky Monitoring and Preservation (Kathryn Leys)
12.	Gulf Islands National Seashore (Florida)	Sea Turtle and Shore Bird Outreach (Michael Bradley
13.	Homestead National Monument of America (Nebraska)	Connecting Kids to the Biodiversity of Homestead (Angel Iverson)
14.	Indiana Dunes National Lakeshore (Indiana)	Dragonfly and Damselfly Biodiversity Assistant (Yuri Lopez)
15.	Lava Beds National Monument (California)	Science Communication Assistant (Janette Perez-Jimenez)
16.	Manassas National Battlefield Park (Virginia)	Science Education & App Development Assistant (Jaudat Raza)
17.	Mount Rainier National Park (Washington)	Geomorphology Technician (Christina Andry)
18.	Olympic National Park (Washington)	Fisher Restoration Assistant (Maia Murphy-Williams)
19.	Petroglyph National Monument (New Mexico)	Trail Design and GIS Assistant (Suzanna Doak)
20.	Point Reyes National Seashore (California)	Wetlands Assistant (Sam Kraft)
21.	San Juan Island National Historical Park (Washington)	Prairie Restoration Assistant (Salvador Silahua)
22.	Shenandoah National Park (Virginia)	Geoscience Interpreter (Taylor Wilson-Primm)
23.	Smithsonian Museum of Natural History (Washington DC)	Paleontology Assistant (Megan Norr)
24.	Western Arctic National Parklands (Alaska)	Archaeological Research Assistant (Mariama Dryak)

Table 2. Mosaics in Science positions by park and region

Region	# Positions	Park
Alaska Region	1	WEAR
Intermountain Region	7	BITH, BRCA, DINO, FLFO, GLCA, GUMO, PETR
Midwest Region	3	CUVA, HOME, INDU
National Capital Region	1	MANA
Northeast Region	2	FIIS/SAHI/NCBN, SHEN
Pacific West Region	5	LABE, MORA, OLYM, PORE, SAJU
Southeast Region	4	CONG, FOMA, GRSM, GUIS
Washington	1	Smithsonian Museum of Natural History
TOTAL	24	

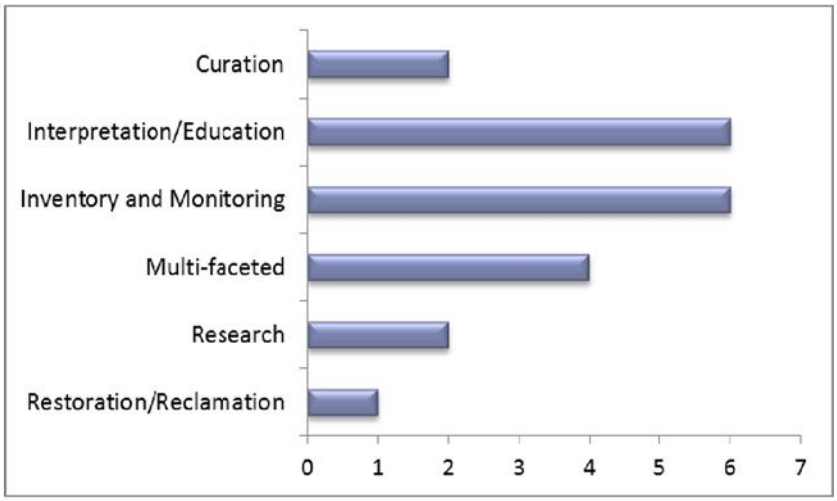
Mosaics in Science projects represented a broad range of natural resource science disciplines in FY15. The majority of the positions focused on biology (9 projects), followed by geology (7 projects), and multidisciplinary (5 projects). Figure 1 shows the distribution of MIS projects by natural resource science discipline for FY15.

Figure 1. Distribution of positions by natural resource science field



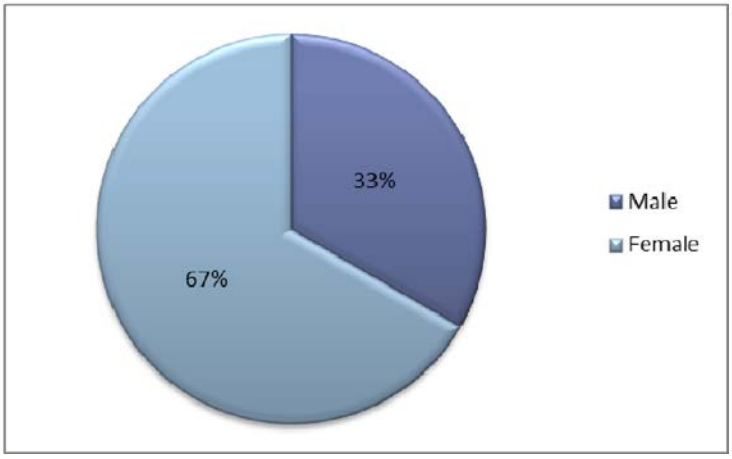
Half of the positions in FY15 focused on education/interpretation and inventory/monitoring projects. The remainder of the projects were comprised of research, curation of park resources, restoration/reclamation, and a combination of these project types. Figure 2 shows the types of projects the interns completed in 2015.

Figure 2. Number of positions by type of project



In 2015, two-thirds of the program participants were women (16) and one-third (8) were men (Figure 3).

Figure 3. Gender of program participants



The majority of the program participants were between the ages of 21 to 25 years (Figure 4), and were in college or had recently earned a bachelors degree (Figure 5).

Figure 4. Age distribution of program participants

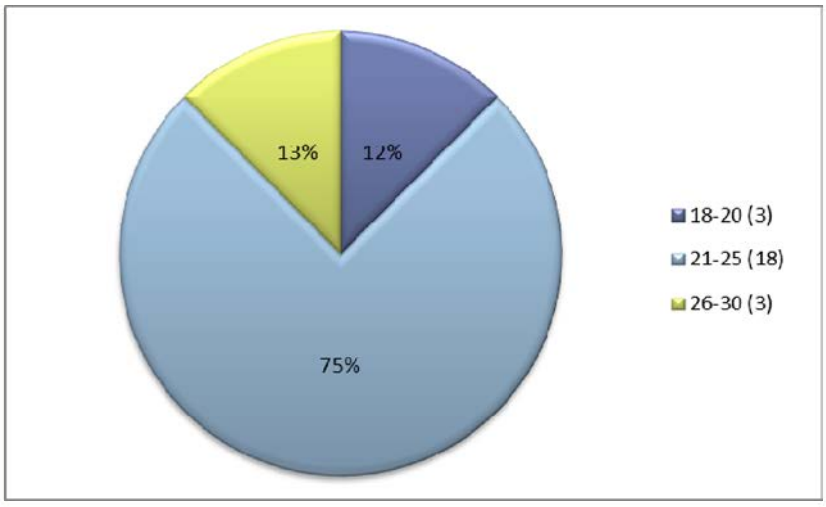
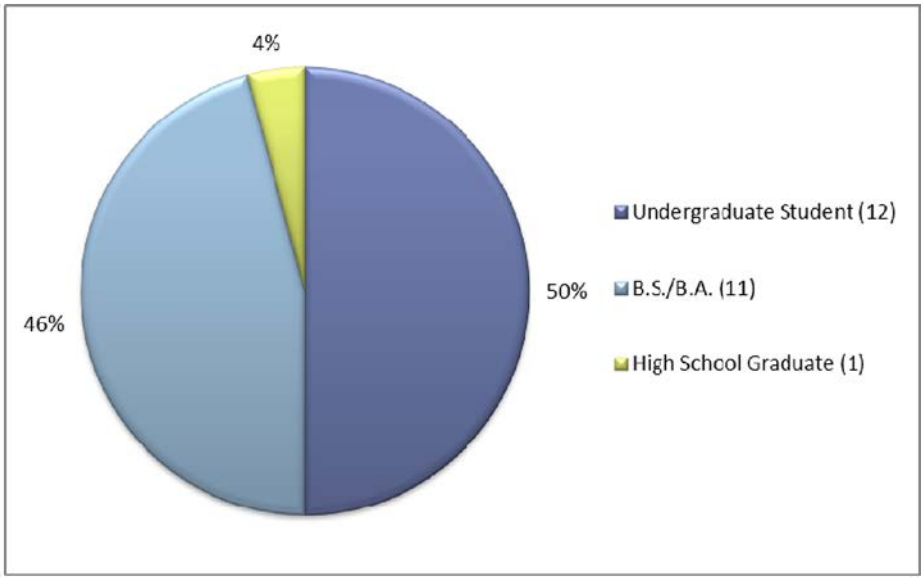


Figure 5. Education level of program participants



MIS Program Diversity

Increasing the racial and ethnic diversity continued to be a high priority for the MIS Program in FY15. The diversity of minority program participants in FY15 was 67% (see Figure 6). The program objective of 100% diversity was not achieved this year primarily because the applicant pool included persons that were not minorities and a number of parks selected interns that were not minorities. Participation by minority youth in the MIS Program is much better than the U.S. STEM workforce (6%) and the NPS STEM workforce (3%). Table 3 lists the racial/ethnic diversity of the NPS workforce and in STEM fields. The NPS data were compiled by James Wiggins, NPS Equal Employment Opportunity Specialist from 2014 NPS employment information.

Figure 6. Racial/ethnic diversity of Mosaics in Science participants

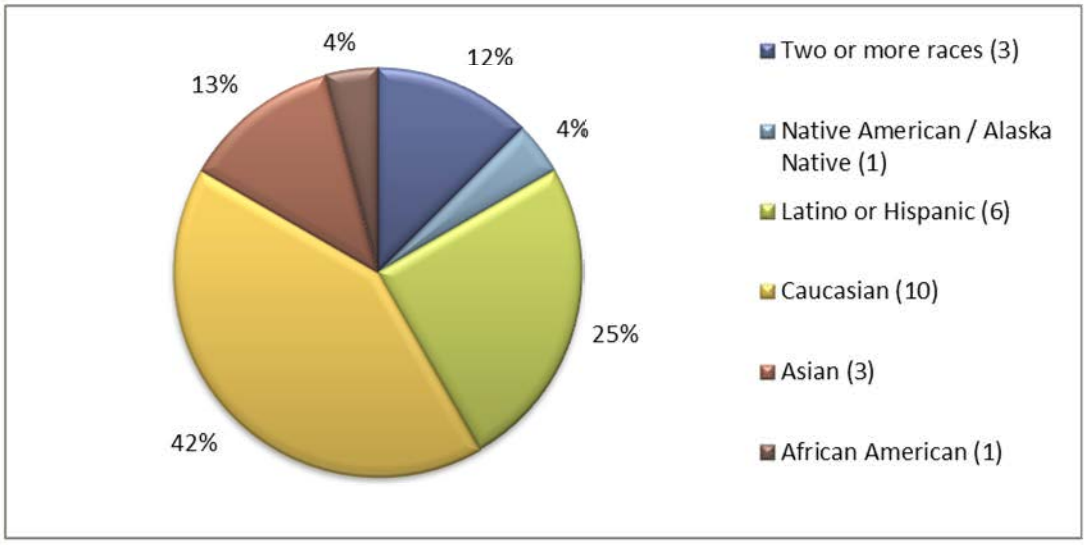


Table 3. Diversity of the overall NPS workforce and in STEM fields (2014 NPS data)

Category	# Employees	%
NPS Employees	23,529	100%
NPS Racial/Ethnic Diversity (excluding Caucasian) of NPS Workforce	4,183	18%
NPS workforce - Caucasian	19,346	82%
NPS Workforce – STEM fields	5,054	21%
NPS Workforce – Racial /Ethnic Diversity in STEM Fields	698	14% of NPS STEM employees, 3% of total NPS workforce



Monty Brantley at Cuyahoga Valley National Park, Ohio collecting water samples from site Lock 29 on the Cuyahoga River. (NPS photo)

In order to attract minority applicants, GSA and the NPS advertised with organizations and universities that serve persons under-represented in natural resource science fields (e.g., SACNAS – Society for the Advancement of Chicanos and Native Americans in Science, NABG – National Association of Black Geoscientists, HBCU - Historically Black Colleges and Universities, HACU – Hispanic Association of Colleges and Universities, HSI – Hispanic Serving Institutions, TCU – Tribal Colleges and Universities, AIHEC – American Indian Higher Education Consortium, and others). In addition, staff in the Geologic Resources Division reached out to NPS Youth Programs Division, NPS EEO offices, NPS colleagues, and others to seek applicants under-represented in STEM career fields.



Devyn Corrales leading an interpretive program at Fort Matanzas National Monument, Florida. (NPS photo)

MIS Project Highlights

A few of the outstanding projects completed by this year's Mosaics in Science participants are described below. The following are examples of the great work that the Mosaics in Science interns are doing in national parks.

Jaudat Raza, Science Education & App Development Assistant, Manassas National Battlefield Park, Virginia



Jaudat Raza working on his smart phone application at Manassas National Battlefield, Virginia. (NPS photo)

While working as a Mosaics in Science intern at Manassas National Battlefield Park, Jaudat learned how to develop a smart phone application. The app he created can be used by persons interested in learning about the park and its resources. The app provides information about the park's natural history, resources, and includes tours and trails in the park. The app can be used by the public to learn about the park before coming to visit and while in the park. The app is currently available for download at Google Play and Apple store under the name of Manassas Junior Ranger at:https://apps.appmachine.com/manassasjuniorranger. The benefit to having an app for park visitors is that it attracts people who like to use mobile devices, saves paper and printing costs, and can be easily edited to add new content.

Maia Murphy-Williams, Fisher Restoration Assistant, Olympic National Park, Washington.



Maia Murphy-Williams at Olympic National Park, Washington. (NPS photo)

Maia's internship as a Wildlife Biology Field Technician at Olympic National Park focused on monitoring the fisher, a wildlife species that was likely extirpated from the park in the early 1900's due to over-trapping. The species was reintroduced in to the park nearly a decade ago, and the park is now in its 7th year of monitoring to determine presence of the re-introduced species. Maia spent the summer setting up fisher stations and wildlife cameras in the backcountry of the park and then returned to the stations to see what had been recorded. Maia was fortunate to see the incredible beauty of the park including many large mammals (bears and mountain lions) while contributing to a very important park project. During her internship, Maia gained first-hand experience about the type of work a field biologist does for the National Park Service. Due to Maia's excellent work, her internship was extended for the remainder of the year.

Reina Galvan, Biology Technician, Fire Island National Seashore/Sagamore Hill National Historic Site, New York and Northeast Coastal and Barrier Network, Massachusetts



Reina Galvan using a refractometer to measure salinity levels of water in pools and tidal ditches at Fire Island National Seashore, New York. (NPS photo)

During the summer of 2015, Reina worked with the Northeast Coastal and Barrier Network staff to monitor salt marshes at Fire Island National Seashore and Sagamore Hill National Historic Site. During her internship, Reina collected data on the variety, abundance, and habitat characteristics of free swimming fish, shrimp, and crustaceans in the park's salt marshes. Reina and the rest of the team also monitored vegetation and surface elevations to help scientists and park managers learn about the trends and changes in the salt march costal ecosystem. These monitoring activities are very useful for park managers to track impacts from storms such as Superstorm Sandy and help NPS staff make management decisions that can enhance the resiliency of coastal natural resources.

Michael Fuerte, Biological Science Research Assistant, Glen Canyon National Recreation Area, Arizona and Utah



Michael Fuerte at Glen Canyon National Recreation Area, Arizona and Utah. (NPS photo)

Michael's internship was designed to develop methods to detect bats in the park, a project that had never been done before. Michael began his internship learning about western bat anatomy, ecology, echolocation, and other methods used to detect bats from leading bat experts in the U.S. He used his educational background to design and implement a methodology using bio-acoustics technology to determine bat species present in the park. He also performed mist netting to collect and identify bat species. Unlike bio-acoustics, mist netting provided the opportunity to verify data acquired from the automated sound detectors by letting researchers identify bat species in the sampling area and collect additional data such as age, reproductive status, and weight. In addition to surveying the park for bats, Michael connected park visitors with the park's science, including working as an interpreter for Glen Canyon NRA's bat monitoring project that took high school students on an 8-day rafting trip down the San Juan River.

Yuri Lopez, Dragonfly and Damselfly Biodiversity Assistant , Indiana Dunes National Lakeshore, Indiana



Yuri Lopez analyzing eDNA samples at Indiana Dunes National Lakeshore, Indiana. (NPS photo)

Yuri's internship focused on surveying dragonfly species in the park using different scientific methods. The presence of dragonflies is important because these species are an indicator of good water quality. During her internship, Yuri developed a user-friendly dichotomous key for identifying dragonflies that can be used by park visitors and researchers on a cellphone or tablet. The dichotomous key Yuri developed will be developed for other parks in the region. Yuri also did eDNA studies by collecting and analyzing dragonfly larvae. An exciting outcome of Yuri's summer internship is that she would continue to work with one of her Mosaics in Science mentors doing dragonfly research in graduate school.

Program Costs

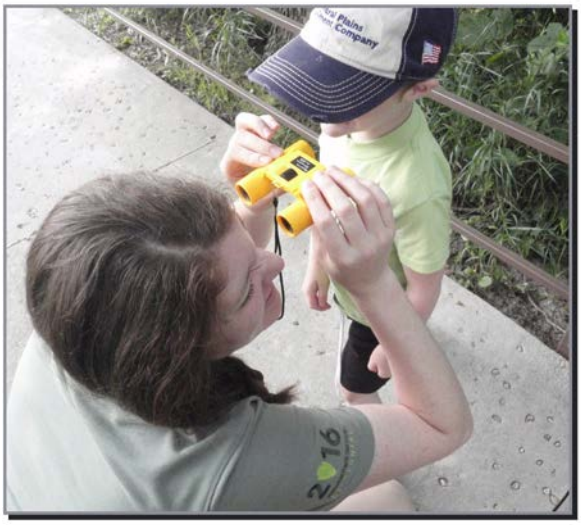
Table 4. Costs for FY15 Mosaics in Science Program

Item	Total cost
Stipends	$96,266
Administrative costs	$53,050
Housing costs (where not provided by park)	$7,868
Travel Cost (includes travel costs from home to park, to Washington DC, and back home or to the Park)	$28,600
Career Workshop costs (hotel – per diem, group meals, partner and NPS travel cost, and other miscellaneous expenses)	$26,310
Uniforms and supplies	$993
Scholarships for interns to attend scientific conferences	$1,000
Program intern (half of year long internship)	$18,420
TOTAL	**$232,507**

*The costs for FY15 included costs for 24 interns and for partial costs one intern that left early.

Focus Areas for Fiscal Year 2016

The following changes will be made in FY16 to enhance the Mosaics in Science Internship Program:

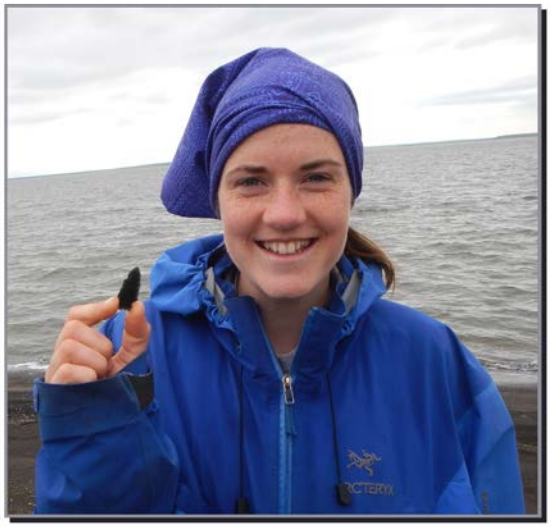


Angel Inverson looks through binoculars with new bird enthusiast at Homestead National Monument of America, Nebraska. (NPS photo)

- administer the program in partnership with Greening Youth Foundation and Environment for the Americas,
- work towards having 100% minority participation in the program,
- fully engage NPS Natural Resource Stewardship and Science staff in the selection of projects and mentoring of participants (includes staff from air resources, biological resources, geologic resources, natural sounds and night skies, water resources, and education and interpretation divisions/offices),
- select only rigorous science projects and require the park technical coordinator to prepare a detailed work plan for each intern,
- improve mentoring and training for participants, including working with the Youth Programs Division to finalize and distribute a mentoring handbook for park mentors and interns, and
- seek the Public Land Corps Direct Hire Authority (PLC) for the program.

Long-term Program Goals

- Continue to improve and run a high quality, sustainable, and well respected diversity internship program that develops the participant's technical and leadership skills so that they can be hired in to careers with the NPS or other federal agency.
- Hire a number of program participants through the PLC Direct Hiring authority in to term or permanent NPS positions each program year.



Mariama Dryak worked on archeology projects at Western Arctic National Parklands, Alaska. (NPS photo)

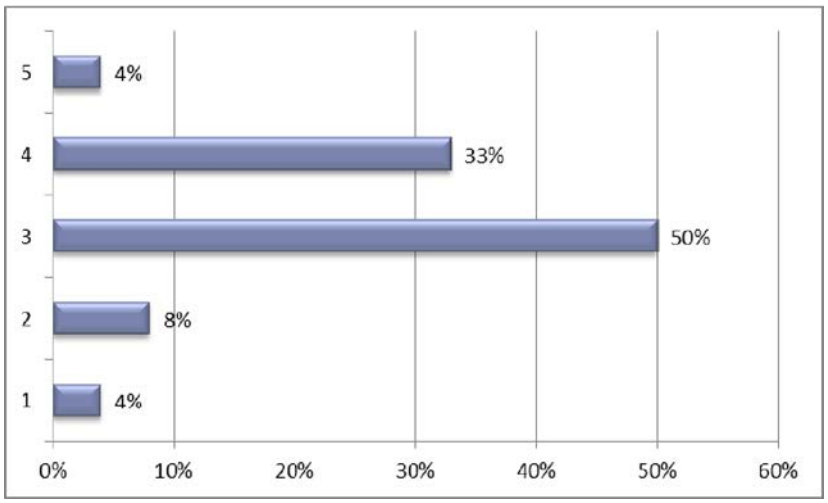
Program Evaluations

All Mosaics in Science interns are asked to fill out program evaluations. These data are used to obtain additional information about the participants and their experiences and are used to improve the overall program. Each question in the evaluation had a scale of 1 to 5 with 1 = no knowledge, 2 = basic knowledge, 3 = adequate knowledge, 4 = intermediate knowledge, and 5 = advanced knowledge.

Job opportunities and career paths

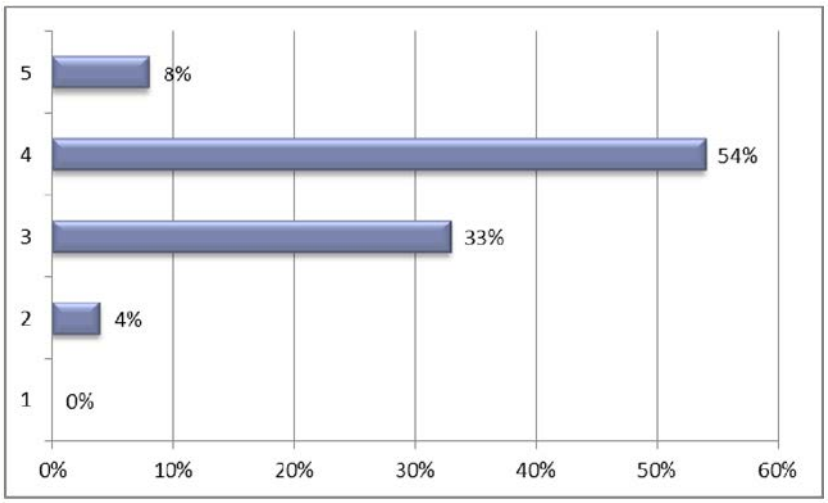
Overall, the majority of the MIS participants had some knowledge of different types of career fields. Thirty-seven percent of the participants described having an intermediate or better knowledge of available careers in private industry (Figure 7).

Figure 7. Knowledge regarding job opportunities in private industry (for-profit)



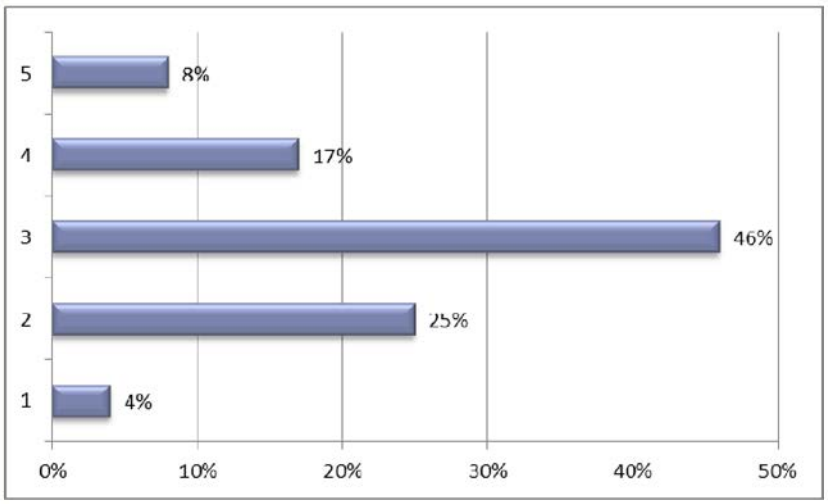
Nearly all of the participants (95%) stated they had adequate knowledge about job opportunities in academia with 62% having an intermediate or better knowledge about these career fields (Figure 8). These responses are predictable given that the majority of the participants were either college students or recent graduates.

Figure 8. Knowledge regarding job opportunities with academia (research & teaching)



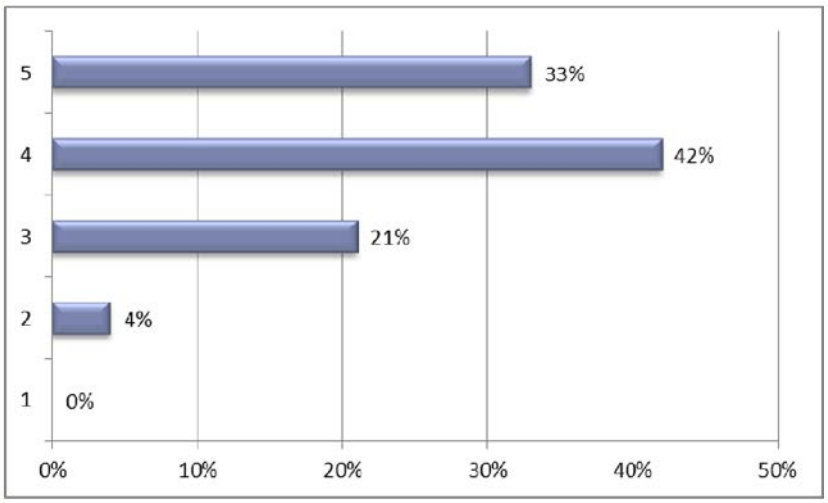
The participants were least familiar with job opportunities with non-profit or charity organizations, with one quarter having an intermediate or better knowledge about these types of careers (Figure 9).

Figure 9. Knowledge regarding job opportunities with non-profit/charity organizations



Three-fourths of the participants responded that they had adequate to advanced knowledge of job opportunities with federal and state public land management agencies (Figure 10).

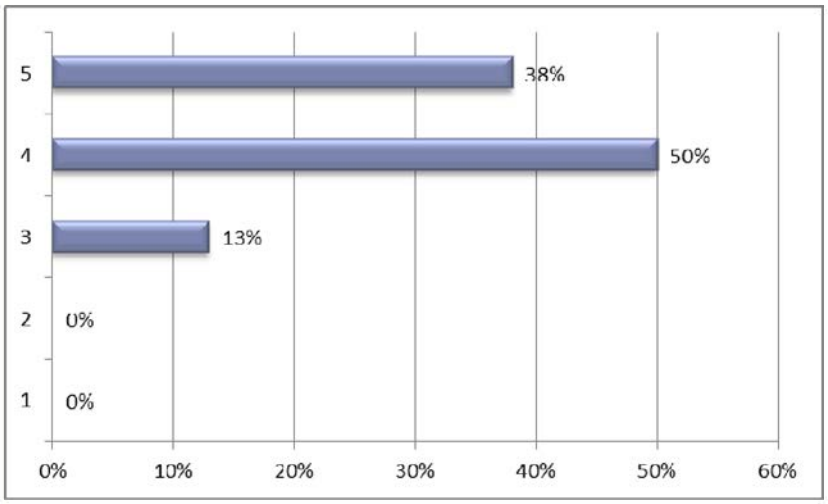
Figure 10. Knowledge regarding job opportunities with federal or state public land management agencies



Knowledge of national parks

All of the program participants had some knowledge about the National Park Service (Figure 11).

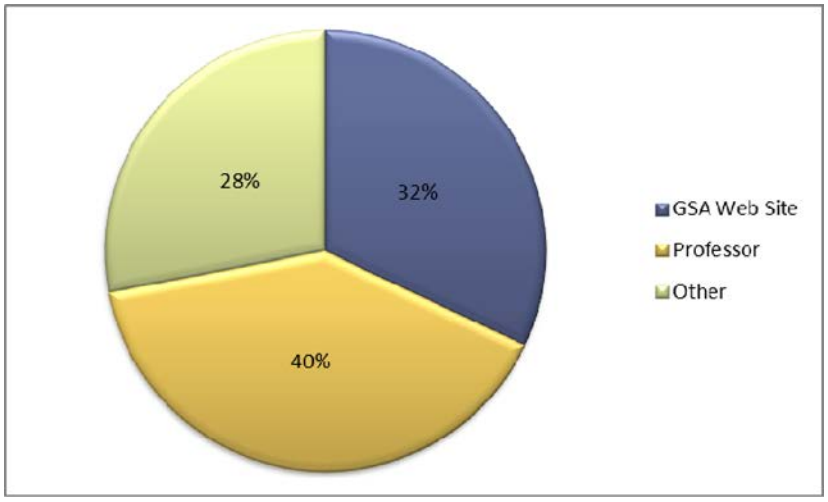
Figure 11. Knowledge regarding the National Park Service



Dissemination of information about the program

Forty percent of the participants heard about the program from their professors, followed by thirty-two percent through our partner's website. The remainder heard about the program from a variety of other sources (Figure 12).

Figure 12. How participants heard about the Mosaics in Science Program



Views on stewardship, conservation, or preservation

The participants were asked to briefly describe their current views on stewardship, conservation, and preservation. Below are a sampling of their answers:



Megan Norr working on National Fossil Day materials at the Smithsonian National Museum of Natural History, Washington DC. (NPS photo)

"I feel very strongly that it is our duty as citizens of the planet to protect our natural resources, to view our planet not as a commodity but as a home for all species." - *Maia Murphy-Williams, Olympic National Park*

"I believe that stewardship and conservation are extremely important. Without these, we would not be able to keep land and monuments safe and intact for future generations to enjoy and protect." - Devy Corrales, Fort Matanzas National Monument

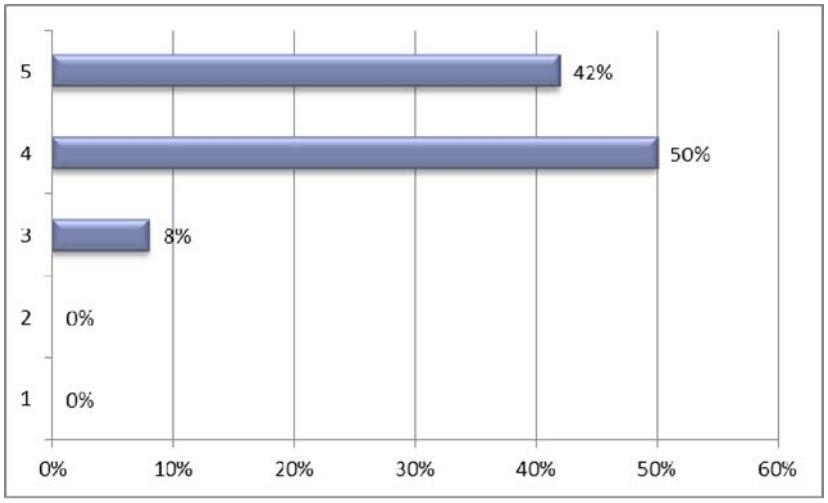
"Stewardship and conservation are incredibly important when it comes to natural, paleontological, and cultural resources. Without managing and preserving these resources long term sustainability of them would be impossible." - *Megan Norr, Smithsonian National Museum of Natural History*

"Education is the key to created communities that are able to make informed decisions about conservation and restoration of the land. The disconnect between everyday people and their surroundings prevents them from becoming stewards for their region. This is why I truly believe that scientists should make an effort to have their knowledge become common knowledge if not for themselves, for the benefit of every creature that inhabits the planet." - *Janette Perez-Jimenez, Lava Beds National Monument*

Contributions towards the mission of the National Park Service

All of program participants believe that their work contributed to the mission of the NPS with 92% stating that their work made a significant contribution to the NPS mission (Figure 13).

Figure 13. Participant's contribution to the NPS mission



MIS Program Experience

All of the program participants responded that they would recommend the Mosaics in Science Program to others. The intern's satisfaction with the program will likely help to promote the program, NPS mission, and serve as another means of recruiting for future interns and creating supporters of the NPS and its mission.

Recommendations to the Director of the National Park Service



Tarryn Lee collecting soil samples at Congaree National Park, South Carolina (NPS photo)

The participants were asked to provide one recommendation to the Director of the National Park Service on how to better engage young people/adults and diverse communities. Below are some of their recommendations:

"My recommendation is to provide transportation to our National Parks. I think that the sooner young people make that connection with nature the more likely they are to become stewards of the land. I personally first got exposed to the National Park Service through a school field trip. Otherwise, I would have never known about it. Coming from a Mexican family, I was never exposed to camping, hiking, or the outdoors. I found that through friends and clubs. Also parks usually charge fees and most low income many families just can't afford to go to the parks. But I think that most Hispanic low income families are just unaware of the parks that are around them. So I think that the park service can do a better job of making the public aware of what is out there for them to experience."
– *Reina Galvan, Fire Island National Seashore*

"I think NPS is doing an amazing job at engaging diverse committees from what I've seen with the RDI initiative, it is now our responsibility to further reach into our communities. I do believe that public ad campaigns could help expand our reach as an agency." – *Tarryn Lee, Congaree National Park*

"One recommendation I would suggest is creating more programs and volunteer opportunities that target diverse groups. Getting employees of diverse ethnic groups involved in local activities can engage the public to learn more about the parks." – *Montague Brantley, Cuyahoga Valley National Park*

"There needs to be more incentive for the engagement of young people and diverse communities. Connecting with locals, doing outreach programs for schools, and possibly waiving fees for low income households are all things that need to be built upon." – *Marie Jimenez, Dinosaur National Monument*

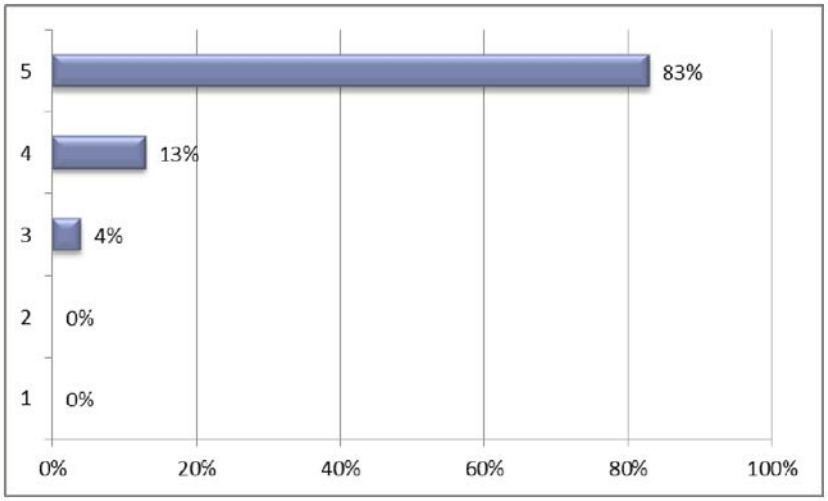


Christina Andry using a Total Station at Mount Rainier National Park, Washington. (NPS photo)

Career Workshop

All of the participants responded that they had a positive experience at the career workshop with the majority (83%) stating it was an excellent experience (Figure 14).

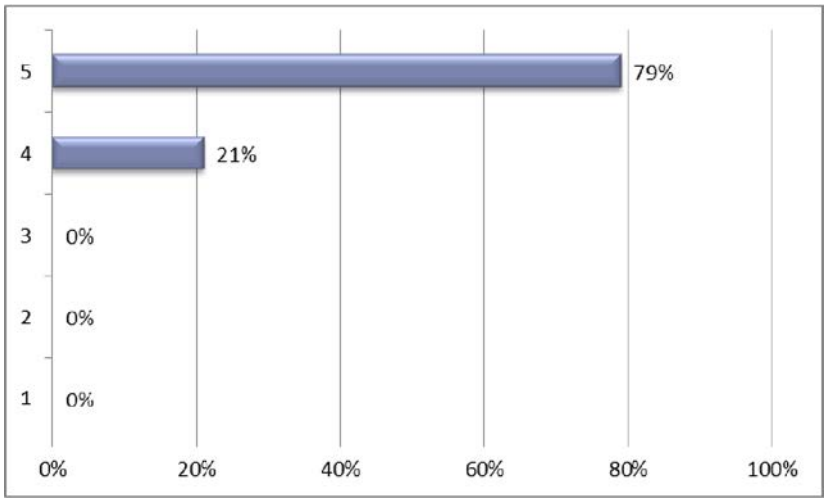
Figure 14. Mosaics in Science career workshop experience



Overall experience

All of the participants stated that their Mosaics in Science internship experience was worthwhile, with 21% rating it as excellent and 79% rating it as outstanding (Figure 15)

Figure 15. Overall experience in the Mosaics in Science Program



Comments on the overall experience

"I was absolutely blown away by my experience and work at the park. I feel like I was not seen as "just" an intern but an integral part of the park and its workings. I was encouraged to volunteer my time in participating in search and rescues for the park and conducting astronomy programs. I was thoroughly supported in my projects' mission by all park staff." – *Anton Yelk, Bryce Canyon National Park*

"I had a great time. This summer has been full of new experiences and challenges, and was at times overwhelming -- in a good way. thank you so much!" – *Samuel Kraft, Point Reyes National Seashore*

"My favorite aspect of my experience was definitely the sense of community. Meeting people with similar interests but from different backgrounds makes for an amazing connection with the outside world." – *Mariama Dryak, Western Artic National Parklands*



Janette Perez-Jimenez conducting field work at Lava Beds National Monument, California. (NPS photo)

"Mosaics in Science is a very unique program in that there is an entire team of committed individuals who act as a support group. After looking into many possible internship opportunities I can confidently say that Mosaics in Science is the only program where program coordinators want to connect with participants to ensure that their experience is enjoyable." – *Janette Perez-Jimenez, Lava Beds National Monument*

Program Partner

The Geological Society of America

- Three year partnership with the Mosaics in Science Program;
- Youth Cooperative Agreement with The Geological Society of America was finalized in July 2013;
- GSA maintains an online system for posting position descriptions and applications, recruits qualified applicants for each position, and provides day-to-day program administration;
- GSA maintained a Facebook page and Twitter feed to help foster communication among program participants, persons interested in the program, and to convey important information about science job opportunities.

Mentors

Each Mosaics in Science intern is paired with two mentors - a mentor in the park and one from the Natural Resource Stewardship and Science Directorate or other central NPS office. The onsite (park) mentor is responsible for helping orient the intern to the park, local area, and project, and to provide personal and career development advice and direction during their internships. A mentor from the NPS central office is paired with the intern because their expertise aligns with that of the interns project. The off-site mentor is available to answer specific technical questions related to the project and to discuss science careers and professional development.



MIS participants (left to right) Salvador Silahua, Jaudat Raza, and Anton Yelk in front of the White House, Washington DC (NPS photo).

Acknowledgements

The NPS would like to gratefully acknowledge the outstanding efforts and contributions of its 24 program participants. Every Mosaics in Science intern contributed valuable work, perspectives, and completed important natural resource science work that furthers the goals and objectives of the National Park Service. The program participants are listed in Table 1 and their biographies are included at the end of this report.

NPS supervisors and mentors also provided excellent support for the program by identifying projects, overseeing the participant's work, ensuring project success, and providing input and guidance to help the with the intern's personal and professional development. The NPS would like to thank the following persons for taking the time to oversee and mentor this year's Mosaics in Science intern's experience:

Park Mentors:

Bryan Gorsira
Dan Chure
David Shelley
Debby Smith
Dianne Flaugh
Geoff Clark
Herb Meyer
Jesse Bolli
Jim McNitt
Joy Marburger
Katrina Smith
Ken Hyde
Lonnie Pilkington
Marie Denn
Meg Plona
Michael Holt
Mike Medrano
Kurt Foote
Patti Happe
Raena Parsons
Randall Kremer
Sara Stevens
Scott Beason
Susan Teel

Central Office Mentors:

Bill Monahan
Barkley Sive
James Howard
Jennifer Sieracki
Vincent Santucci
Nick Fisichelli
Karl Brown
Pat Mangan
Dave Trevino
Greg McDonald
Bob Meadows
Jessica Resnik
Kirsten Gallo
Gregor Schuurman
Melanie Peters
David Restivo
Carl (Nic) Medley
Sam Fox
Eric Bilderback
Kevin Noon
Terri Hogan
Sally Plumb
Jason Kenworthy
Dan Odess

The National Park Service Youth Program's Division fully funded the Mosaics in Science Program in FY15, provided valuable input and guidance to help improve the program, and assisted with planning and carrying out the career workshop. A special acknowledgement and thank you goes to George McDonald and Alex Tremble in the NPS Youth Programs Division.

The Geological Society of America provided a tremendous amount of administrative support for the program in 2015 from advertising positions, to hiring interns, to working closely with program participants to ensure success for the individuals and parks. The NPS Mosaics in Science Program would like to thank Matt Dawson, Allison Kerns, and many others at GSA for their dedication and support of the Mosaics in Science Program.

Thank you all for an incredibly successful year!

Participant Biographies



James Ford

Big Thicket National Preserve, Texas
GIS and Longleaf Pine Assistant

James Ford is an undergraduate at St. Mary's University in San Antonio Texas where he is studying environmental science. His experiences growing up close to Mt. Shasta California led to his interest in forest geology. James plans to pursue a masters degree in a related field and hopes to someday work for a federal agency. He is a veteran of the U.S. Army, has two Purple Hearts, and is a participant of Veterans Expeditions. In his free time, he enjoys mountain biking, jogging and any kind of floating activity.



Anton Yelk

Bryce Canyon National Park, Utah
Air Quality and Visibility Interpretive Assistant

Anton Yelk is a recent graduate from the University of Wisconsin-River Falls with a Bachelor's degree in geology and a minor in hydrogeology. Prior to his graduation, Anton volunteered as a teacher's assistant for geology labs, and as an exam supervisor for Science Olympiad events. This is Anton's second year with the Mosaics Program—he participated last year at Grand Teton National Park. His scientific interests include geology, volcanology, glaciology, and hydrology. In his spare time Anton enjoys hiking, rock climbing, and other outdoor activities.



Tarryn Lee

Congaree National Park, South Carolina
Integrated Education / Hydrology Assistant

Tarryn Lee is currently a senior at Towson University where with a major in Earth/space science and a minor in geology and meteorology. Her scientific interests include ecology and atmospheric science. After graduation she plans to go in to the field of natural resource management or science education. Prior to her Mosaic's internship, Tarryn worked as a park naturalist at Patuxent River Park in Maryland. Her training and teaching focused on the health of the Chesapeake Bay and its tributaries, specifically, the Patuxent River. In her free time, Tarryn enjoys hiking, paddling, reading, and spending time with family



Monty Brantley

Cuyahoga Valley National Park, Ohio
Water Quality Research Assistant

Montague "Monty" Brantley recently graduated from Purdue University with a degree in interdisciplinary science and a minor in Spanish. He was an Evans Scholar Recipient and a member of the Purdue Bands and Orchestras and Crater Cafe for undergraduates. Montague has performed basic lab work in mathematics, physical sciences, and biology while attending college. For the last two summers, Monty has worked at the Fort Wayne Urban League as a science and math tutor. He plans to pursue a graduate degree in a multidisciplinary science field and work at NASA, USGS, science institution, or university. His hobbies include basketball, football, swimming, writing, walking, and exploring new places.



Marie Jimenez

Dinosaur National Monument, Colorado

Dinosaur Quarry Mapping Assistant

Marie Jimenez moved to the United States from the Dominican Republic when she was a young girl. While growing up she was unaware of all the opportunities that were available to her that were simply impossible in her homeland. In middle school she moved from a low-income neighborhood with a poor school system to a better neighborhood and school and her possibilities grew. She became involved with the Science Olympiad and realized that she wanted to pursue a career in science. She is studying geology at the University of Rhode Island. Marie has a passion for science and outreach and hopes that one day she can make a difference in the lives of kids with



Reina Galvan

Fire Island National Seashore, Sagamore Hill National Historic Site, and Northeast Coastal and Barrier Network, New York and Massachusetts

Biology Technician

Reina Galvan is a senior majoring in wildlife biology at Colorado State University. She is involved in two long-term research projects at her university, and is an environmental educator at the Environmental Learning Center. Reina is currently working on her senior thesis researching how the increase in anthropogenic noise at Alcatraz Island is affecting the behavior of the Double-Crested Cormorant. After graduation she wants to work as a field wildlife biologist for a government agency.



Dipa Desai

Florissant Fossil Beds National Monument, Colorado

Paleontology Museum/Field Technician

Dipa Desai graduated from the University of North Carolina (UNC) with a Bachelor of Science degree in biology, and minors in geological sciences and archeology. Dipa has worked on projects studying: growth bands of Astarte and Patella shells with UNC Paleoclimatology lab, pre-Incan archaeology during an excavation Cerro la Virgen with MOCHE, Inc., clinical and diagnostic molecular oncology testing with LabCorp of America, and with media science at UNC Libraries. Dipa is a member of Theta Nu Xi Multicultural Sorority, Inc. Her hobbies include cooking, painting, tinkering, and exploring outdoors.



Devyn Corrales

Fort Matanzas National Monument, Florida

Interpretation/Resource Management Assistant

Devyn Corrales is attending Flagler College in St. Augustine, Florida and is pursuing a bachelor's degree in coastal environmental science. Her career goals include helping animals by working on a rescue crew or as a veterinary physician. She has performed research at Guana River State Park. Her interests include hiking, camping, horseback riding, kayaking, and spending time with her family, friends, and pets.



Michael Fuerte

Glen Canyon National Recreation Area, Utah
Biological Science (Bats) Research Assistant

Michael Fuerte is attending the University of Wisconsin - La Crosse and is working towards a bachelor's degree in biology with an environmental sciences concentration. Michael has performed wetland species research for the University of Wisconsin in collaboration with USGS. Michael hopes to take the experience and knowledge he gained from this Mosaics internship with him as he continues to study environmental



Lauren Frankel

Great Smoky Mountains National Park, North Carolina and Tennessee
Natural History Museum Collections Assistant

Lauren Frankel is studying at Grinnell College with a major in biology and a concentration on environmental studies. For the past year, she has been an intern with the Mammalogy Department at the American Museum of Natural History doing collections management and researching the evolutionary history of bats in the Caribbean. In her free time, Lauren enjoys teaching yoga, hiking, and reading.



Kathryn Leys

Guadalupe Mountains National Park, Texas
Night Sky Monitoring and Preservation Assistant

Kathryn Leys is a recent graduate in Environmental Studies from Carleton College in Minnesota. She has worked in the Geographic Information System (GIS) laboratory at Carleton College and gained experience in its broad range of uses. Kathryn is interested in understanding how and why people interact with the land. Her goals are to pursue a career that combines GIS, anthropology, and urban planning. Being a native of Minnesota, Kathryn has had the opportunity to take several trips into the Boundary Waters Canoe Area. She enjoys primitive camping, canoeing, the need to be self-reliant, and the peaceful solace of a clear starlit night.



Michael Bradley

Gulf Islands National Seashore, Florida & Mississippi
Sea Turtle and Shore Bird Outreach Assistant

Michael Bradley graduated from the University of Tennessee at Chattanooga with a major in Environmental Science with a concentration in geology, and a minor in geography. Michael developed an interest in geology while going to school in Hilo, Hawaii. His interests include conserving freshwater ecosystems, rock climbing, camping, and playing disc golf.



Angel Iverson

Homestead National Monument of America, Nebraska
Biodiversity Assistant

Angel Iverson is a recent graduate of the Environmental Studies Program at the University of Nebraska-Lincoln (UNL). She has worked with the USDA-Agricultural Research Service in Lincoln, Nebraska and has participated in the Garden Club for elementary schools and Environmentors program for high-school students at the UNL. Angel believes that everything is connected and that environmental education is crucial to teach our future generations the importance of our resources and hopes to have a positive impact on our children's outlook on the environment.



Yuri Lopez

Indiana Dunes National Lakeshore, Indiana
Dragonfly and Damselfly Biodiversity Assistant

Yuri Lopez received her Bachelors of Science degree in biology with a minor in chemistry from Governors State University. She wants to pursue a master's degree in either environmental biology or ecology. Her senior research project involved understanding the water chemistry along Thorn Creek in University Park, Illinois. Yuri enjoys walking and hiking with her golden retriever named Sammi.



Janette Perez-Jimenez

Lava Beds National Monument, California
Science Communication Assistant

Janette Perez-Jimenez is a recent graduate of the University of California, Davis. She received her Bachelors of Science in wildlife with an emphasis in conservation biology. She was the President of the Davis Student Chapter of The Wildlife Society and was actively involved with MANRRS (Minorities in Agriculture, Natural Resources and Related Sciences) throughout her undergraduate career. Janette is passionate about wildlife conservation and hopes to serve as an intermediary between the scientific community and the public. During her free time, she enjoys hiking, kayaking, and trying new foods.



Jaudat Raza

Manassas National Battlefield Park, Virginia
Science Education & App Development Assistant

Jaudat Raza is a junior at California State University – Long Beach where he is studying computer engineering. His goals are to minor in computer science in order to enhance his programing knowledge. Jaudat's internship at Manassas National Battlefield Park provided him the opportunity to learn about and develop a computer application, which will help him in his future career as a computer engineer.



Christina Andry

Mount Rainier National Park, Washington
Geomorphology Technician

Christina Andry is a recent graduate from the University of Texas at Austin, where she earned her Bachelor of Science degree in geology. She gets inspired and energized by the outdoors and is particularly interested in geologic hazard assessments and mitigation. Some of her interests include yoga, food sustainability, foraging, traveling, and of course, all things outside: climbing, camping, hiking, biking, and swimming.



Maia Murphy-Williams

Olympic National Park, Washington
Fisher Restoration Assistant

Maia Murphy-Williams recently graduated from Colorado College where she majored in biology with a concentration in ecology and conservation. She grew up in the Pacific Northwest, but has lived in Colorado for the past five years. Maia has a passion for the outdoors and a love for the natural world.



Suzanna Doak

Petroglyph National Monument, New Mexico
Trail Design & GIS Assistant

Suzanna Doak is a junior majoring in geology with a minor in English at Oberlin College. She was introduced to the field after taking a geology class in her freshman year. Suzanna has worked on several different geomorphology projects as well as GIS projects collecting water quality data and doing image reclassification. She is excited to be able to expand those skills to assist a wider population with an appreciation for nature. Suzanna's interests include hiking, camping, art, and playing lacrosse.



Samuel Kraft

Point Reyes National Seashore , California
Wetlands Assistant

Samuel Kraft recently graduated from the University of Maryland – Baltimore with a Bachelor's of Science degree in geography and a GIS certificate. Last summer, he worked in Costa Rica interviewing stakeholders on the effects of conservation policies and working on a coffee plantation creating a map of its surrounding trails. Sam loves exploring new places, understanding how an environmental system works, and how people affect and interact with it. His interests include running, backpacking, and sailing.



Salvador Silahua

San Juan Island National Historical Park, Washington

Prairie Restoration Assistant

Salvador Silahua is currently a senior at Humboldt State University where he is studying ecological restoration and botany. After graduation, he wants to help people through education and managing natural resources. Salvador hopes to volunteer for the Peace Corps in South America. He is currently tutoring math, science, and Spanish for a non-profit organization called Upward Bound, which serves high school students from low-income families. He has worked with the natural resources club at his university helping to restore areas around Humboldt County and also volunteers as a teacher's aide in elementary schools around Arcata, CA.



Taylor Wilson-Primm

Shenandoah National Park, Virginia

Geoscience Interpreter

Taylor Wilson-Primm will be graduating in December 2015 with a Bachelor's of Science degree in geology and a minor in history at the University of Tennessee. Throughout her college career, her love of traveling and the outdoors has allowed Taylor to complete three geoscience travel studies to Puerto Rico, Pacific Northwest, and Colorado; go caving in Puerto Rico and Tennessee; and climb to the summit of Mt. St. Helens. In 2013, she did an internship at the Hammer Museum in Haines, Alaska, where she interpreted the history of one of humans first tools in tours and exhibits. Taylor hopes to connect her career as a science interpreter with some of her favorite hobbies including horseback riding, caving, sea kayaking, and living history farms/settlements.



Megan Norr

Smithsonian National Museum of Natural History, Washington, DC

Smithsonian Paleontology Assistant

Megan Norr graduated with a Bachelor's of Science degree in geology from Slippery Rock University. She worked with the only paleontology professor at her university collecting rock samples and performing lab research using chemical procedures and optical analyses. As a child, she was fortunate to visit various national parks which sparked her interest in geology. She would like to further her education in paleontology by getting her master's degree and hopes to one day be able to work for the National Park Service or a partner organization. In her spare time, Megan enjoys hiking.



Mariama Dryak

Western Arctic National Parklands, Alaska

Archaeological Research Assistant

Mariama Dryak is an undergraduate at Durham University in the United Kingdom, studying physical geography and archaeology. She developed a fascination with archaeology while growing up on a farm in Wisconsin where she became aware of the negative impact that human activities could have on the environment. Mariama loves adventure and travel, and when not outdoors or running on muddy trails, she can generally be found reading books or advocating for the environment.

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-based stewardship of geologic and associated park resources; reduce impacts from energy, mineral, and other development, and protect visitor values; and provides natural resource science internship opportunities for America's youth.

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For more information on the Mosaics in Science Program, see:

http://go.nps.gov/mosaics

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