

Mojave Desert Network

Inventory & Monitoring Program



The Oasis

Spring 2015

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Mojave Desert Network



Inventory & Monitoring



Program Manager's Corner

Five years have now passed since my arrival. Since then, the MOJN I&M team has expanded both in number and expertise, and has developed into quite a strong unit. We have come together, committed to a common vision - to provide our network parks with data to ensure our parks are healthy, now and into the future. We are now strongly focusing our efforts on improving data management procedures, establishing stronger relationships with the parks, and placing heavy emphasis on intensifying monitoring efforts. At this time, monitoring has commenced at approximately 100 locations (lakes, streams, springs, and upland shrub communities) with many more locations in queue for the remainder of 2015, and the parks are now using long-promised inventories and maps of flora, fauna, and physical environments within their boundaries.

Over those five years, major changes within MOJN I&M, national I&M and network parks

have occurred, bringing new faces and voices to the program. I&M Leadership recently established a new goal for all I&M networks to complete the development of all protocols by the end of 2017. I welcome the announcement, as this initiative will focus our efforts and fuel our momentum. I have no doubt that we will rise to the challenge.

MOJN I&M will continue to collect both new and historic data (see article on MC Spring) to provide our parks with information in order to ensure the viability of their natural resources.

Wait, wait –there's more... We have welcomed and waved goodbye to a new Regional Program Manager, and several superintendents and park staff as well. MOJN I&M welcomes Lisa Garrett to PWR as the new I&M Program Manager and bids Andy Ferguson, past superintendent of Great Basin National Park, a heartfelt good-bye with his passing in May. We celebrate a new park, TUSK, which was added to the Mojave Desert Network in December 2014,

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PROGRAM MANAGER'S CORNER CONTINUED

bringing with it new questions to be considered (see articles on TUSK and paleontological resources in the MOJN parks).

Yes, we are busy – it often seems we hardly have the chance to finish one task before starting another. Luckily change is

good; it is what keeps us on our toes. Although hectic, these ever-changing times keep the projects and efforts we are working hard to accomplish interesting and exciting. And for that, we couldn't be more grateful!

- Nita Tallent



The full complement of both uniformed & non-uniformed MOJN I&M staff

What is MOJN I&M?

Mojave Desert Network Inventory and Monitoring (I&M) Program

is one of 32 networks of parks established under the National Park Service I&M Division to implement long-term ecological monitoring across multiple park units that share relatively similar ecological attributes. Data collected through this program will help inform park resource management decisions.

(click on [hyperlinks](#))

- DEVA: [Death Valley National Park](#)
- GRBA: [Great Basin National Park](#)
- JOTR: [Joshua Tree National Park](#)
- LAKE: [Lake Mead National Recreation Area](#)
- MANZ: [Manzanar National Historic Site](#)
- MOJA: [Mojave National Preserve](#)
- PARA: [Grand Canyon-Parashant National Monument](#)
- TUSK: [Tule Springs Fossil Beds National Monument](#)

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Vegetation Monitoring 2015

Field Season Success at JOTR



2015 IU Field Crew (from left to right): Alexander Randolph-Lowe, Stephany Davis, Kristin Forgrave, Ally Buccanero, Alex Whalen, Terry Christopher, Lyndsey Lascheck, Emily Cooper, Scott Massed, Momoka Maeda

The Integrated Upland (IU) vegetation and soils protocol macroplots were established and measured in Joshua Tree National Park (JOTR) safely and successfully, wrapping up on April 20th 2015 – several weeks sooner than planned. Two MOJN I&M field crews (totaling 7 crew members) staffed through an agreement with Great Basin Institute (GBI) established and measured 31 permanent plots in the Joshua Tree Woodland plant community of the park. Measurement was also completed on 4 previously established pilot plots, resulting in a total of 35 sites monitored in just 2.5 months. The crews even had enough time to establish and collect data at 3 LAKE sites that were not completed during the previous field season – now that’s teamwork!

While at JOTR, the crew hiked almost 70 miles and drove approximately 700 miles to and from the 35 sites, which are located across the northwest section of the park. These same sites will be revisited and re-measured

every 3 years in order to track changes in the Joshua Tree Woodland ecosystem in JOTR. Collecting vegetation data at these sites, at regular intervals and over an extended period of time, is necessary to help determine how factors such as climate change and development outside park boundaries are affecting park natural resources, and to attempt to manage these changes effectively.

The MOJN I&M would like to express much gratitude to the JOTR park staff for their outstanding and enthusiastic support and assistance throughout the effort, as well as GBI staff Terry Christopher (Associate Director) and Momoka Maeda (Field Crew Supervisor) for their hard work.

The spring 2015 field season could not have gone better and has been our most successful yet! MOJN I&M is looking forward to resuming the IU field effort with GBI in the fall 2015/winter 2016 at MOJA, DEVA, and MANZ.

- Alex Whalen, MOJN Field Logistics Lead



Above: Crew members (Lyndsey L. and Alexander R-L.) take a series of images of the macroplot. A minimum of 5 Repeat Photos are taken at each: photos capturing the length of each of the three transects, at least one photo documenting soil erosion found at the plot, and a macroplot overview photo taken after all three transects have been established and measured.

Below: Crew members were trained on all IU Standard Operating Procedures (SOPs) and conducted field sampling dry runs prior to the collection of any actual plot data. Callibrations between crew members were also done to ensure accurate and consistent data collection throughout the season.



The Spotlight is On...



Grand Canyon-Parashant National Monument Superintendent



Rosie Pepito

Rosie has been the Superintendent of PARA since early 2011, first serving as the acting Superintendent for six months. She is no stranger to the Mojave Desert, as she has held positions at LAKE, JOTR, and DEVA in the past. Rosie has extensive background in and knowledge of cultural resources and has 18 years of experience working with partners such as the Bureau of Reclamation, Bureau of Land Management (BLM), and the Southern Nevada Agency Partnership to effectively manage our public lands.

Parashant was established in 2000 and is the second national monument to be managed jointly by the Bureau of Land Management and the National Park Service. When asked about the unique challenges that PARA faces, Rosie stated that data availability and storage are difficult for PARA, mainly because of the dual-management system of the Park. Often, monitoring data are housed in partner systems or are managed by BLM, so they are not readily accessible, easily acquired, or in a format useful for park management. There is also the slower than desired transition to the 'digital age.' "Like many parks, much of our data is housed in specialists' offices and is in written (not digital) form - this results in information being 'hidden,'" Rosie said.

PARA's very small staff and a very large landbase are also concerns. Having a vast amount of land and a limited workforce to assist in management and protection increases the likelihood that resources become stretched. This can delay management initiatives due to competing priorities and new national mandates.

For Rosie, one benefit of the network structure is that it allows parks to see how other parks with similar natural resources and management concerns are dealing with important issues.

Rosie is pleased that partnerships and collaboration developed initially by MOJN have expanded into working groups on new topics of shared interest that go across the network, beyond individual parks. Because the network parks have some overlap in terms of management needs and concerns, she feels that MOJN's existence fosters consensus building amongst parks with similar monitoring needs.

"In addition, work on I&M protocols is providing information on resources and locations that we cannot regularly monitor," Rosie said. "MOJN provides consistent protocols and standards that we can use for ongoing I&M efforts and also provides staff for on the ground implementation of protocols and expertise that is not covered by our park." As an example, MOJN I&M monitors Pakoon Spring and Tassi

Spring, both identified by PARA to be of importance or management concern. Parashant will also be included in the regular rotation of long-term monitoring vegetation plots through the IU protocol. Upon completion of the Desert Springs Protocol, MOJN staff will begin to monitor several important smaller springs as well. In addition, MOJN has recently installed, and will continue to maintain, a weather station at Nevershine and a snow gauge at Mt. Logan.

MOJN's long term datasets will aid in parks' understanding of status and trends in their natural resources. "Randomly determined sequences of observations or changes that occur within the park are usually reported or monitored by Monument staff already and do not represent the gradual changes encountered in the Monument due to natural growth cycles and slower processes such as climate change and geologic uplift," Rosie said. This is where the importance of a long-term monitoring perspective comes in. "Long-term data collection, with consistent protocols, provides the only reliable information for elucidating trends. Natural phenomena (vegetation change, spring flow, etc.) rarely display changes over the short term (i.e. 10 years or less) that are statistically significant," she said. In these instances, longer time frames are needed to determine how park resources change in response to natural or human caused processes and stressors.



Nampaweap, Parashant International Night Sky Province. Photo credit: James Allen Orr



The Past Buried in Your Park: Paleontological Resources within the MOJN Parks

Vincent Santucci is the Senior Paleontologist for the National Park Service Geologic Resources Division, and has been with the Park Service since 1985. Vince also served as the acting Superintendent for MOJN's newest park unit, TUSK, until the end of July (see [page 7](#) to learn more). I recently had the opportunity to speak with him about paleontological resources and their importance and was surprised to learn that 260 out of 408 total NPS units have paleontological resources (fossils such as petrified wood, dinosaur bone, or ancient footprints to name a few examples) and that *all* of the MOJN parks are included in that count!

Initially, you may not think of fossilized bones, teeth, and footprints of creatures that existed in the past as "resources" that need to be inventoried or monitored, but they actually provide a lot of information and depth to a park's overall story. Vince advocates that these fragile, important resources serve as a great example of natural resources that have existed in the past. Fossils can provide better understanding of biological responses to changing climatic conditions by giving us a historical perspective based on information/data about past climates. "Understanding the scope, significance, and distribution of fossils will assist park managers in making scientifically informed decisions in response to environmental impacts (human-caused or otherwise) across a broader time frame. Thorough park-specific and I&M network-based inventories and subsequent periodic monitoring of these resources will allow us to tell a story about each park that spans geologic time," he says.

Monitoring of resources that are to remain in the ground would involve evaluation of the item's stability at their location at regularly determined intervals over a long period of time. "The challenge is that nobody has really 'monitored' paleo resources before," he says. So where do we start? Vince believes that site-specific condition assessments of fossil-rich areas are the best way to determine the process of long-term monitoring. "Unlike managing renewable resources, fossils are non-renewable; once they are gone they are gone forever. This elevates our need to monitor paleontological resources. Dynamic processes such as weathering and erosion will eventually result in the deterioration and loss of fossils exposed at the surface - or these processes can expose new fossils that were previously hidden below the surface. Monitoring on a regular basis to look for changes or new emergences at these fossil-rich sites is the only way to 'catch' these ancient remains of life before they are damaged or destroyed."

All eight parks within the Mojave Desert Network have documented paleontological resources, and four out of the 17 NPS areas service-wide with specific legislation for the protection of these resources belong to the Mojave Desert Network (DEVA, JOTR, PARA, and TUSK)! "The Mojave Desert is a paleontological gem. The open desert provides large areas of exposed bedrock, where fossils can be accessible for discovery. The fossils also have a higher degree of preservation in the desert, as erosion rates are lower in arid environments," he says. However, these desert parks are large (some of the largest units within the NPS are in this network) and often remote, making access to fossil sites a substantial challenge.

- Janel Brackin, MOJN Science Communications Lead

The earliest known paleontological collections from JOTR were obtained from the Pinto Basin area during the mid-1930s. These fossils include extinct horse and camel bones dating to the Pleistocene. Below: Pinto Wash Pleistocene camel vertebra.



LAKE contains some of the oldest rocks in this geographic region, some dating as far back as the early Cambrian (about 490-540 million years ago). Marine mudstone deposits include fossils of sponges, trilobites, and even creatures that still exist today such as snails, slugs, and clam shrimp. In one formation, the remains of 200 million year old petrified wood is exposed. Right: Petrified wood at LAKE.



The oldest known fossil localities in GRBA are approximately 540-490 million years old, which preserve several fossil species of mollusks and trilobites (extinct marine arthropods). A massive fossil coral reef is documented at GRBA, dating back to about 415-365 million years ago. A 1938 excavation of Lehman Caves uncovered 29 human and 219 animal bones including those of bighorn sheep, wolves, foxes, bobcats, and a variety of unidentified mammals. Below: Trilobite found in GRBA.



There are lots of fossils documented in strata and caves in PARA. Fossil sponges, corals, starfish, bony plates of freshwater fish, mollusks, and other ancient animals indicate a period of time when the area was covered by an ocean. Above: Trace fossil (burrow canals) found in the Bright Angel Shale in PARA.



DEVA has one of the most complete geologic records of fossils in the NPS, as well as being one of the richest fossil mammal track localities in the world. DEVA fossils extend back over a billion year period and include fossilized plants, animals, and even trace fossils. Above: Small fossilized cat track from DEVA.

Although there has been limited paleontological research conducted within MOJA park boundaries, fossils are documented from many of the ranges within or near the Preserve. Shallow marine deposits contain carbonate remains of organisms of Paleozoic origin (540-260 million years ago). A sequence of Cambrian fossils was also found to contain various species of extinct trilobites and shelly animals. Below: Dark gray balls of algae found in MOJA limestone deposits.



A formal paleontological investigation has not been completed at MANZ. This park has 800 acres of rock gardens, utility systems, foundation blocks and other site remnants preserved by the NPS. Recently, a long cylindrical fossil specimen was found. It is believed to be a mollusk fossil at least 65 million years old. Below: Fossil found at MANZ during an archeological survey.



To find out more about the Networks' newest park, check out the article about TUSK [here](#). Left: Ice Age camel jaw found in TUSK.

Using Historic Photos to Determine Water Level Changes at MC Spring in MOJA

MC Spring is a small spring on the edge of Mojave National Preserve with huge importance! This spring is one of the few habitats left for the Mohave tui chub (*Siphateles bicolor mohavensis*), an endangered fish in the minnow family. The Mohave tui chub used to be widespread throughout the Mojave River basin, but the introduction of non-native fish and the diversion of river water reduced its range dramatically and nearly drove the fish to extinction. Although the fish disappeared from the Mojave River, a small population managed to survive in MC Spring.

In 2013, MOJN hydrologists installed a new staff gage to monitor water levels in the spring. Over the following months, we noticed that the water level in MC Spring was consistently increasing. Because we did not have very much data about the spring, we were not sure if the water levels and trend were normal, or if we should be concerned. At the same time we installed the new staff gage, we removed an old staff gage that had been in the spring for years. This old staff gage was a bit of a mystery, since no one seemed to have any information on precisely who installed it or when. Could this seemingly useless piece of PVC pipe still provide valuable data about the spring?

MOJN staff later noticed that the old staff gage appeared in photos dating back to 1990. We knew what the water level was when the staff gage was removed, and we knew how this level corresponded to where the water line hit the markings on the PVC pipe. By examining historical photos and comparing the water lines to those markings, we could reconstruct a record of water levels for the past two dozen years (Figure 1).

In hope of gathering more clues, we started requesting photos from those who had studied the spring since the late 1980s. Many people contributed, including individuals from Mojave National Preserve, Bureau of Land Management, California Department of Fish and Wildlife, California State University Fullerton, and California State University San Bernardino.



Mohave tui chub (*S. bicolor mohavensis*)
Photo credit: Longwood University

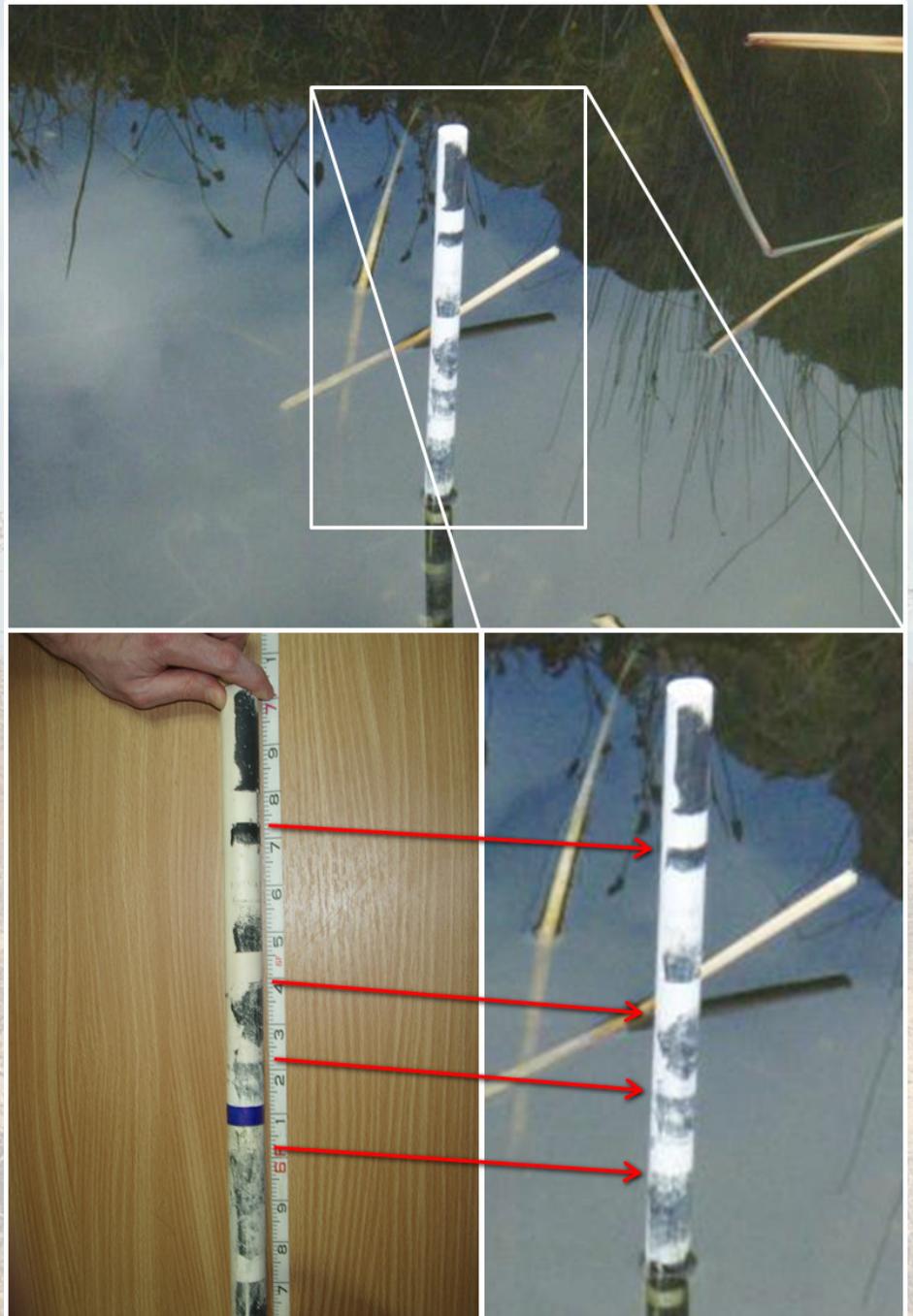


Figure 1. Top: MC Spring in November 2010, Photo credit: Steve Parmenter
Bottom Left: Old ¾-inch PVC pipe staff gage next to measuring tape displaying the equivalent readings on the new MOJN I&M staff gage
Bottom Right: Close-up of the 2010 photograph compared to the old staff gage.

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Mojave Desert Network's newest park unit: Tule Springs Fossil Beds National Monument

MOJN is pleased to announce its' newest park unit, Tule Springs Fossil Beds National Monument (TUSK)! To learn more about TUSK, MOJN sat down for a short Q&A session with Vince Santucci who served as the acting Superintendent until the end of July.

TUSK is located just north of Las Vegas in the Upper Las Vegas Wash and shares its northern boundary with the Desert National Wildlife Refuge. It is less than 20 miles from the Las Vegas Strip and spans 22,650 acres (approximately 35 square miles). A major excavation of the Tule Springs area was carried out in 1962-1963 (coined the Big Dig). It was also one of the first sites to test radiocarbon dating (a brand new technology at that time) to determine the age of fossil findings. To date, tens of thousands of fossils have been discovered within TUSK boundaries and that doesn't include portions of the monument yet to be surveyed! With the addition of TUSK to the NPS, preservation of world renowned fossil resources, protection of desert tortoise habitats, and of threatened, endangered and rare plant species present in this area are possible. It is the only park service unit set aside specifically to preserve, study, and interpret the Ice Age history of this area.



Scientists with the Nevada State Museum excavating a mammoth jaw from a massive trench during the "Big Dig" (1962).

Q: Since the park is brand new, what are some of the first 'orders of business'?

A: Since this land was previously managed by the BLM, one of the first steps we need to focus on is the transition from BLM to NPS-managed land. In the coming months, TUSK will seek information from stakeholders such as the Protectors of Tule Springs, community leaders from the cities of Las Vegas and North Las Vegas, and local tribal leaders in order to understand the concerns and issues TUSK faces. This will allow us to capture existing data about endangered species, natural resources, and geologic information which will allow park management to assess the range of Monument issues and move forward in planning. Other future tasks involve the stabilization of the 'Big Dig' site located here, public cleanups to remove trash and debris, and the installation of fencing to mark the Monument boundaries. We are also working to engage school groups within the local community and develop exhibits for interpretive purposes. We will also focus on developing the most effective strategies for monitoring the Monument's resources. Protocols and methodologies for monitoring and protection will be developed that take into consideration issues and concerns that are specific to TUSK.

Q: What fossils were found in this area & what kind of background information do we have on them?

A: The Big Dig and other excavations uncovered fossils of large animals such as the Columbian mammoth, ground sloths, horses, camels, bison, and the North American lion. Fossil evidence of birds such as the condor were also found. Radiocarbon dating determined that many of the fossils found in this area date back to the Pleistocene Ice Age, ranging between 250,000 years ago to 12,000 years ago. Clear indication of the presence of humans is still yet to be found. At this time, the Las Vegas Valley was a lush desert wetland environment with cooler temperatures and higher rainfall. Drainage from the surrounding mountains created springs that provided sources of water for these animals, sometimes even in dry periods. Pollen analysis suggests this area had denser and more diverse vegetation. This area also served as a large travel corridor for animals to follow during changes of season, and could sustain a large and diverse population of megafauna. However, over the past 10,000 – 12,000 years, conditions changed enough to no longer be able to support these animals and they became extinct. The opportunities we now have to further study the fossils and geology at TUSK will shed more light on what happened at the end of the Ice Age to cause such an extinction event.

Right: At TUSK, Ice Age fossils like this mammoth tooth are entombed in ancient wetlands within sight of the Las Vegas Strip.



Right: Vince swears in the Monument's first ever Junior Paleontologists during an April 11th volunteer cleanup.



MC SPRING HISTORICAL PHOTOS ARTICLE CONTINUED

After receiving 21 photos, we plotted their corresponding water levels on a graph (Figure 2). The reconstructed water level record for MC Spring varied about 1.25 feet over the past 25 years. This result provided important context for the current monitoring data—the recent water levels and the observed rate of increase are within historical norms. However, if water levels fluctuate outside of what we have seen in the past few decades, then we can alert park managers and staff to monitor the situation or even take action to make sure the fish continue to have a healthy and stable habitat. In this way, we can help to protect a unique resource and part of our Mojave Desert heritage for generations to come!

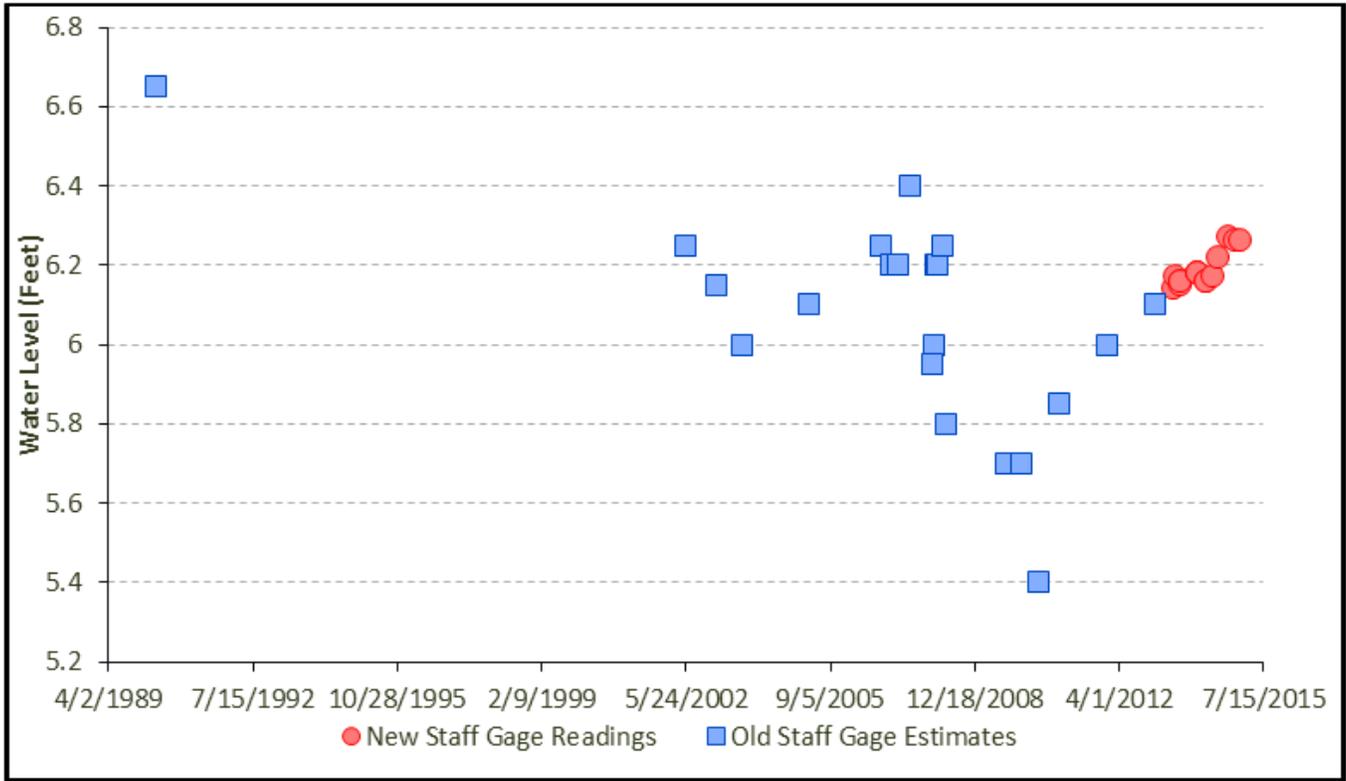


Figure 2. MC Spring water level record from historical photos of the old staff gage (blue squares) and readings of the new MOJN staff gage (red circles).

In April, the annual Desert Symposium was held at the Desert Studies Center in Mojave National Preserve. Jennifer Bailard, MOJN hydrologic technician, represented the NPS by presenting our findings about MC Spring to the attendees. She led the audience on a short field trip to the spring to give them a first-hand experience with the resource.



Jennifer discusses MC Spring and its ecology with Desert Symposium attendees.



Left to right: Geoff Moret, Alex Whalen, David Gundlach, and Jennifer Bailard.

Later in May, four MOJN staff assisted MOJA natural resource managers and the LAKE EMPT crew in improving another Mohave tui chub refugium within the preserve. We removed cattails and tamarisk from the shoreline and planted native sedges to improve the habitat for this rare fish. After analyzing water levels for so long, we were eager to provide hands-on labor to help the Mohave tui chub survive!

- Jennifer Bailard, MOJN Hydrologic Technician

In Memoriam...

Andy Ferguson

Andy Ferguson, former Superintendent of Great Basin National Park from 2008 to 2013, passed away in May after a long battle with cancer.

Andy had a long and successful federal career, working first for the BLM in recreation planning and concession management, and later as an NPS Ranger for several national parks and recreation areas. He had also served in the Peace Corps in Nicaragua after completion of his master's degree in Wildland Recreation Management.

The MOJN I&M would like to extend its sincere condolences to Andy's friends and family.

He will be greatly missed.

MOJN I&M Working with the parks



- Sarah Wright assisted with Devil's Hole substrate survey (DEVA)
- Geoff Moret & Nita Tallent assisted GRBA with Natural Resource Condition Assessment reviews
- Jennifer Bailard, David Gundlach, & Ryan Hodge assisted in paleontological monitoring at Copper Canyon (DEVA)
- David & Nita presented poster at George Wright Society Meeting: "Groundtruthing the Travel Time Cost Surface Model"
- Jennifer & David attended trash cleanup event at TUSK
- Ryan provided technical assistance on ArcGIS, MS Access, and R to GRBA and LAKE as needed
- Jennifer presented findings from MC Spring historic photo collection effort at the Desert Symposium (MOJA)
- Nita provided administrative review of JOTR Climate Change Vulnerability Report
- Barb Nelson assisted Special Permits Unit with traffic control for BBSC Rage Triathlon (LAKE)
- Geoff and Sarah compiled 40 years of well data from Oasis of Mara collected by JOTR Resource Management
- Janel Brackin co-facilitated Operational Leadership for Supervisor's course (LAKE)
- Geoff and Jennifer attended a multidisciplinary site visit to Tassi Spring to assess flood damage and assist in planning future actions (PARA)
- Mark Lehman, Geoff, Nita, Janel & David attended JOTR State of the Parks Report workshop
- Jennifer and Geoff assisted DEVA in migrating well monitoring data to the national Aquarius database

**We would love to assist with projects at your park...
Let us know how we can help!**

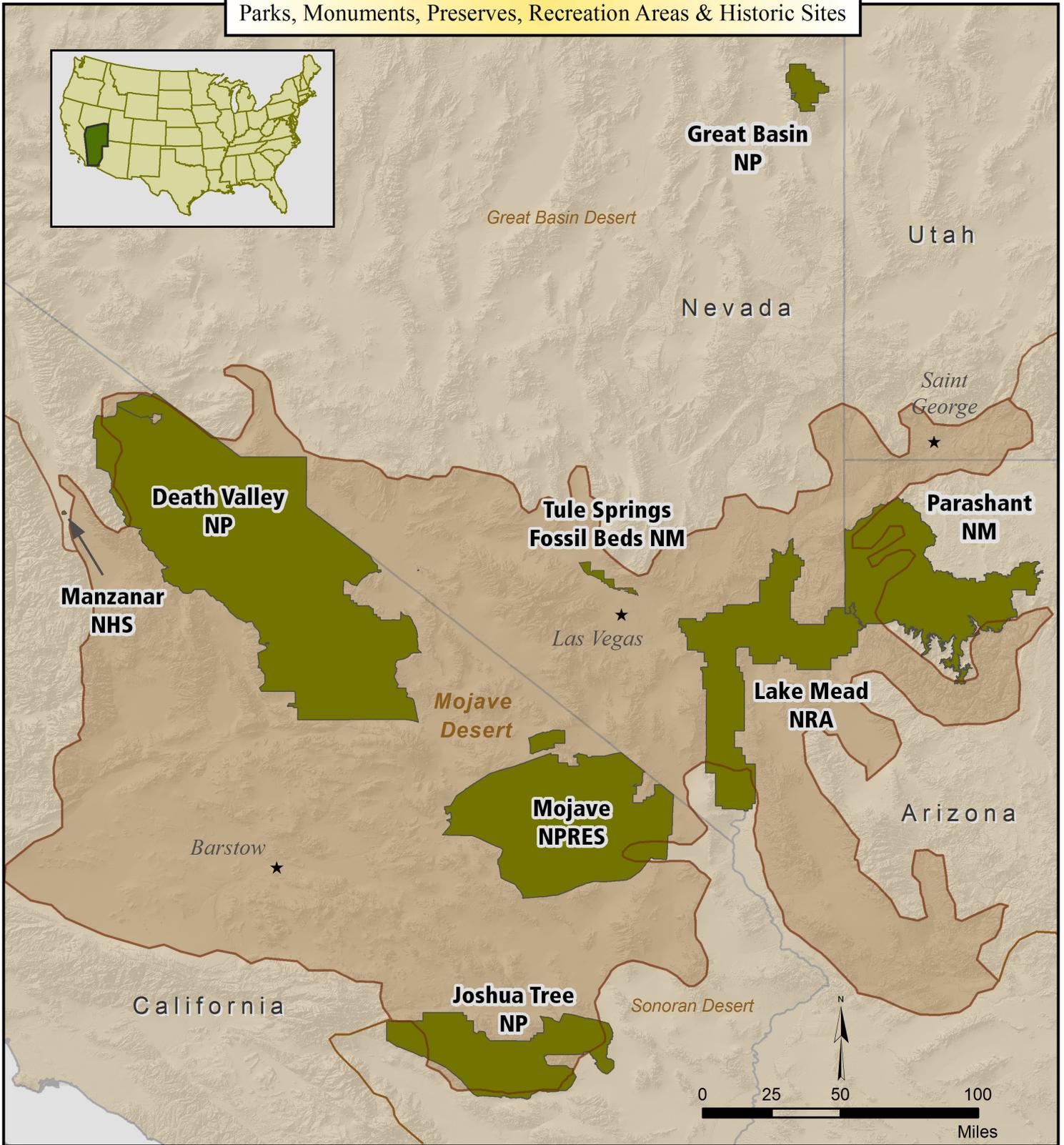
Fall 2015 Field Activity Schedule

	June	July	Aug	Sept	Oct	Nov	Dec
Integrated Uplands Vegetation monitoring					MOJA (plot measurement) DEVA (site reconnaissance)		
Streams & Lakes monitoring	GRBA						
Desert Springs monitoring					Methods testing Parks TBD		Protocol submission
Selected Large Springs quarterly monitoring	JOTR LAKE MOJA			JOTR LAKE MOJA			JOTR LAKE MOJA
Weather station installation	GRBA						

New Network Park Map

Now that an eighth park has been recently added to the network, we felt it was an appropriate time to update the Network Map! Below is the new map, courtesy of MOJN I&M GIS Specialist, David Gundlach.

Mojave Desert Network Parks, Monuments, Preserves, Recreation Areas & Historic Sites



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#FindYourPark in the Mojave Desert Network

DEVA

Death Valley History Conference

When: November 6 – 8, 2015
 This conference is an opportunity for desert aficionados to come together and listen to historians tell the stories of those who came before us. Camping and hotel accommodations are available.
 How: [Registration is \\$125 per person; register here](#)

GRBA's Astronomy Festival

GRBA

When: Sept. 10 -12, 2015
 Great Basin is one of the darkest places in the country and a world-class place to star gaze. Festival events include telescope observing each night, fun kid-friendly activities and presentations, a night sky photography workshop, and an astronomy themed talent show put on by GRBA park rangers!
 How: Visit www.BestNightSky.com for details



MOJA

Mojave Youth Quail Hunt

When: October 3 – 4
 The only NPS event of its kind, the Youth Quail Hunt pairs young hunters with experienced guides on a quail hunt before the official quail season begins. The youth and their families camp for the weekend, and learn about park resources and proper hunting etiquette. This event is only available to registered youth and family. Space is limited to the first 50 youth to register.
 How: [Click here for requirements and registration information](#)



JOTR's First Night Sky Festival

JOTR

When: October 16-18
 This is Joshua Tree's first ever Night Sky Festival! This event will feature guest presentations about astronomy and dark skies, solar viewing, kids' activities, and night sky viewing at several locations within the park. Joshua Tree National Park is a great location because it's only a few hours from several major cities, but isolated enough to experience wonderful dark night skies. Come join us in the celebration!
 How: For more information visit www.nps.gov/jotr

LAKE

There are an tons of fun events and recreational opportunities to explore at Lake Mead National Recreation Area, including ranger chats, full moon hikes, and more. Whether it's hiking, biking, camping, boating, or various other water sports, Lake Mead has it all in one place. You can even explore the once submerged ghost town of St. Thomas or check out Black Canyon National Water Trail.
 How: Check the [LAKE website](#) for more info

MANZ

New Barracks Exhibits at MANZ

When: Anytime (open 9:00 to 5:15 daily)
 History matters - learn more about the personal experiences of individuals, families, and communities incarcerated at Manzanar through new permanent exhibits installed in two reconstructed barracks. The exhibits feature extensive photos, documents, and quotes illustrating the challenges and changes people faced at Manzanar. Six audio stations and one video station feature a total of 42 oral history clips.
 How: Visit www.nps.gov/manz to learn more



PARA

Grand Canyon-Parashant National Monument remains one of the most remote areas in the contiguous United States, and is now an International Dark Sky Province. Natural darkness and dark night skies are important resources and recognized monument objects of PARA.
 When: The Monument is open 24 hours a day, 365 days a year, but there are no facilities or visitor contact areas within the boundaries.
 How: Check the [PARA website](#) for more information

6th Annual National Fossil Day

TUSK

When: October 14
 National Fossil Day is a celebration organized by the NPS to promote public awareness and stewardship of fossils, as well as to foster appreciation of their scientific and educational values. Fossils discovered on public lands preserve ancient life from all major eras of Earth's history. TUSK will be hosting a National Fossil Day event, details TBD.
 How: Check the [National Fossil Day](#) and [TUSK webpages](#) for updates



FIND YOUR PARK



Mojave Desert Network: Inventory & Monitoring Program