



Mojave Desert Network Science Symposium

November 2–3, 2022

ABSTRACTS



Corkscrew Spring, Death Valley National Park

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Presentation and Poster Summaries

Mojave Desert Network 2022 Science Symposium

Lower Colorado Region, Bureau of Reclamation
Training and Conference Center (LCTC)
500 Date Street, Boulder City, NV 89005

DAY 1: Wednesday, November 2nd, 1 pm – 5 pm

(1) Introduction and insight on where Inventory & Monitoring is headed

Meg White, PhD, Program Lead, National Park Service Natural Resources Stewardship and Science, Inventory & Monitoring Division

Meg White is giving an informal talk on her perspectives and insights on the NPS Inventory & Monitoring Program after her first six months as its new Lead. She is interested in hearing from the audience and encourages attendees to ask questions and share comments during this time, or later at breaks.

(2) Joshua Tree Climate Change Response Program

Nick Graver, Botany and Vegetation Monitoring Program Lead, Joshua Tree National Park, with co-authors Jane Rodgers, Chief of Science and Resource Stewardship, and Jay Goodwin, Vegetation Branch Lead, Joshua Tree National Park.

Resist-Accept-Direct (RAD) decision making for climate resilience requires managers to identify trajectories of ecological change and determine desired future outcomes. Both published and internal future habitat models for Joshua Tree National Park (JOTR) show significant habitat loss for key Mojave Desert species, including Joshua trees (86–99% loss) and single-leaf pinyon pine (86–98% loss). Joshua tree woodlands and pinyon pine woodlands both provide key ecological services, support rich biodiverse communities, and provide aesthetic value to park visitors. JOTR management is committed to *resisting* change and managing for historical conditions in Pinyon pine and Joshua tree refugia. Meanwhile, models project range expansions for many Colorado Desert species, including large woody species like ocotillo. We will explore whether expanded habitat for ocotillo and Mojave yucca are possibilities to fill the ecological niche left by range contraction of Joshua Trees, and whether managers could *direct* that change.

(3) Desert Springs Monitoring

Jennifer Bailard, Physical Scientist, National Park Service Inventory & Monitoring Division, Mojave Desert Network

The Mojave Desert Network Inventory and Monitoring Program (MOJN I&M) is one of 32 ecoregional networks established by the National Park Service to monitor the status and trends of natural resource conditions. As one of its efforts, MOJN I&M monitors a rotating panel of nearly 240 springs across five national park units in southern Nevada, southern California, and northwestern Arizona. Monitoring focuses on the availability and seasonality of surface water at these springs, as well as water quality where surface water is present. This presentation covers the design and implementation of a long-term springs monitoring protocol. It discusses some preliminary data collected during the first six years of monitoring, coinciding with recent drought, as well as data collected during the initial inventory in the mid-2000s, coinciding with much wetter conditions. It also touches on other site condition information collected at desert springs and lessons learned from the first few years of monitoring.

(4) Long-term Analysis of Rogers and Blue Point Springs Streamflow Records in Lake Mead National Recreation Area

Chris Morris, PhD, Hydrologist (Surface Water Specialist), U.S. Geological Survey, Nevada Water Science Center

Rogers Spring and Blue Point Spring are in the Lake Mead National Recreation Area and have long term continuous records of spring discharge measured by the U.S. Geological Survey and the National Park Service Mojave Desert Inventory and Monitoring Network. Groundwater discharging from the springs is sourced primarily from the regional carbonate aquifer. Declining discharges from the springs have been observed and could be related to increased groundwater pumping, declining recharge from precipitation, or increased evapotranspiration by plants. As part of a larger study of the possible causes of the spring declines, the continuous discharge records for the springs were re-examined and statistical analysis performed. The results of the analysis found that the discharges of both springs have been declining at similar rates for the past 20 years, however, they are not well correlated with each other. Additional work is needed to understand regional groundwater trends and the causes of the spring discharge declines.

(5) CESUs: Increasing Science Capacity and Building Scientific Partnerships

Ben Becker, Science Adviser and California CESU Research Coordinator, and
Alison Ainsworth, Science Adviser and Co-Lead, Northwest and Great Basin CESU

From managing museum collections and creating cultural histories, to reintroducing extirpated species, restoring ecosystems, and mitigating climate change, the NPS relies on the latest scientific research to meet its mission. While the NPS employs a world-class scientific and technical workforce, science and technical services are not always available or most efficiently obtained in-house. Cooperative Ecosystem Studies Units (CESU) are multi-agency, university-based collaborations providing scientific research, technical assistance, and education to partner federal agencies. CESU Science Advisors, will demonstrate underutilized tools and novel outreach mechanisms relevant to the Mojave Desert. For example, the Californian CESU is piloting a data science partnership with UC Berkeley that pairs teams of students who have

advanced programming and statistical modeling skills with NPS scientists. Example pilot projects include automating large wildlife counts using satellite imagery, exploring complex fish population trends with minimal data, and characterizing alpine lakes in the Sierra Nevada.

(6) Vegetation Monitoring at Select Large Springs—Protocol Updates and Baseline Data

Jeff Galvin, *Vegetation Ecologist, Mojave Desert Network*

As part of the NPS I&M program, the Mojave Desert Network (MOJN) monitors "vital signs" throughout the Mojave and Great Basin Deserts using various field protocols. One of these protocols, Spring Vegetation, is focused on characterizing and monitoring vegetation at select large spring throughout our network. Implementation of this protocol began in 2020 at Lake Mead NRA and continued at Death Valley NP in 2021. Beginning with the 2022 season, we incorporated major sampling design and field method changes to increase the utility and consistency of collected data. This presentation serves to highlight those changes and our initial results from the 2022 sampling effort at Grand Canyon-Parashant National Monument.

(7) What's up with the Devils Hole Pupfish?

Kevin P. Wilson, *PhD, Aquatic Ecologist*, **Amber L. Chaudoin**, *Fisheries Biological Technician*, and **Jeff A. Goldstein**, *Fish Biologist, Death Valley National Park*

The Devils Hole pupfish (*Cyprinodon diabolis*) population has fluctuated greatly over the past two decades. Climbing back from the brink of extinction and a record low of 35 fish in the spring of 2013, to the highest population estimates in nearly two decades in 2022. Visual surveys, using standard methodology (SCUBA and surface counts), recorded an estimated 175 fish in spring 2022, the largest spring count since 2000 when the population was an estimated 190 fish. Fall 2022 surveys recorded 263 fish, an increase of 51% over the fall 2021 count which recorded 174 fish. This latest estimate represents the largest fall count since 2003 when the population was an estimated 297 fish, and the first time in 19 years the count has been greater than 200. Collaborative research and management currently focus on research gaps and implementation of the recently completed Devils Hole Pupfish Strategic Plan: Phase II.

(8) Riparian Habitat Improvements at the Warm Springs Natural Area in Moapa, Nevada

Von K. Winkel, *PhD, Restoration Ecologist, Southern Nevada Water Authority (SNWA), Las Vegas, Nevada*

The Warm Springs Natural Area (WSNA), located 8 miles northwest of Moapa, Nevada, is owned and operated by the Southern Nevada Water Authority (SNWA). The SNWA is committed to restoring disturbed lands on this property. The North and South Forks of the Muddy River located on the WSNA are deeply entrenched because of past modifications for agriculture, and intense flooding in the 1880s. Before entrenchment, they meandered through the floodplain, and the water table was high and supported marshes, meadows, mesquite woodlands, and riparian corridors. As entrenchment progressed, the water table dropped, and

the riparian species dependent on the high-water table died. These stream channels were also widened by livestock trampling and springs that softened the stream banks making them more vulnerable to erosion, especially during flash floods. Channel widening decreased the velocity of the stream, which decreased the value of the streams as habitat for the endangered Moapa dace (*Moapa coriacea*). From 2016 to 2021, approximately 1200 feet of streambank was widened by excavating approximately 4400 cubic yards of soil. This increased riparian habitat ten-fold. During 2016, 200 feet of stream was narrowed along the South Fork. This added over 2400 square feet of riparian habitat. During 2020, an additional 100 feet of stream channel was narrowed along the North Fork. Four hundred and fifty native ash trees (*Fraxinus velutina*), hundreds of coyote willow (*Salix exigua*) cuttings and over a thousand understory plants were installed in this new habitat. Survival of trees exceeds 80%. In addition to the propagated plants, over one hundred volunteer cottonwood trees (*Populus fremontii*) have become established along this section of the Muddy River. During fall 2022 and winter 2023, an additional 2200 feet of streambank will be excavated, and 500 more ash trees and hundreds of understory plants will be installed. These improvements should benefit the endangered Moapa dace as well as provide valuable habitat for native birds such as the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and threatened yellow-billed cuckoo (*Coccyzus americanus*).

(9) A Snapshot of the Aquatic Macroinvertebrate Communities in Two Large Mojave Springs

Marisa Monroe, *Physical Science Technician, Mojave Desert Network*

The Mojave Desert Inventory & Monitoring Program samples benthic macroinvertebrates (BMI) biennially as part of its Selected Large Springs protocol. This presentation will explore how these data can be used to visualize the community structure of BMI, using recent lab results from two large springs in Joshua Tree National Park and Grand Canyon-Parashant National Monument.

DAY 2: Thursday, November 3rd, 8 am – 12 pm

(10) Optimizing the Potential for Mojave Desert Tortoise Focal Area Success

Kerry Holcomb, *Biologist, U.S. Fish and Wildlife Service, Palm Springs, California*

The challenge species managers face is how best to craft action plans to result in a population expansion rate (λ) >1, using only practicably-attainable survival rates. Recovery of a Mojave desert tortoise population exhibiting an annual adult (>15-year-old) survival probability of 0.950 is, for example, achievable with combinations of hatchling, juvenile, and sub-adult survival probabilities with a mean that is ≥ 0.839 . An annual survival rate estimate for either the pre-reproductive or adult tortoises, therefore, enables an accurate estimation of the minimum corresponding survival rate threshold that results in a λ greater than one, which provides the empirical evidence necessary to make defensible determinations as to whether a threshold is practicable or whether increasing the survival of all stages of maturity is practicable for a given population. While data-intensive, a population dynamics approach such as this uniquely empowers managers to accurately identify the areas and tools essential to desert tortoise recovery.

(11) Desert Tortoise Habitat Modeling

Debra Hughson, *Chief of Science and Resource Stewardship, Mojave National Preserve*

Paved roads in Mojave National Preserve pass through desert tortoise (*Gopherus agassizii*) critical habitat and are used as a shortcut to Las Vegas. Tortoise roadkill occurs at a rate that could lead to local extinction of the species if not mitigated. In preparation for project funding to improve traffic safety, we developed, validated, and compared spatially distributed tortoise habitat models to guide the construction of tortoise barrier fencing. In addition to the environmental covariates: elevation, slope, aspect, roughness, STATSGO2 soil, surficial geology, and PRISM 30-year normal maximum temperature, minimum temperature, and precipitation, we included the new I&M vegetation layer. We compared three approaches: Generalized Linear Models, Maxent, and Random Forest with the continuous Boyce index for presence only data. We trained the models on USFWS line distance sampling data and tested the models using our anecdotal observations. The random forest method produced the model that best explained anecdotal observations.

(12) Status of Relict Leopard Frog Management

Jef Jaeger, *PhD, Associate Professor in Residence, and Rebeca Rivera*, *Research Assistant, School of Life Sciences, University of Nevada, Las Vegas*

For the past two decades, the relict leopard frog (*Rana onca*) has been managed by a multiagency team, and since 2005, this arrangement has been formalized under two consecutive conservation agreements, assessments, and strategies. Headstarting and

translocation is a major strategy for increasing the number of sites occupied and overall population size. Systematic population monitoring is used to evaluate the overall status of the species and efficacy of management actions. The relict leopard frog program has been successful, with overall increases in population size and sites occupied, but not without difficulties and occasional setbacks. The overall success of the program results from the collaborative efforts among a broad assortment of regional, state, and federal personnel.

(13) Management and Analysis of Trail Camera Data

Neal W. Darby¹, *Wildlife Biologist*, **Aren N. Calton²**, **Misumi B. Ogawa²**, **Mike Burchett¹**, *Biological Science Technician*, and **Debra Hughson¹**, *Division Chief*

¹*Science and Resource Stewardship, Mojave National Preserve, Barstow, CA,*

²*Research Associates, Great Basin Institute, Reno, NV*

The use of trail cameras is widespread across natural resource agencies. It provides a reliable, inexpensive, non-invasive means to monitor wildlife, human activities, and vegetation phenology. However, data file management and analysis are burdensome and difficult due to the large numbers of photos. Despite the availability of software and programs, even Artificial Intelligence programs, users are still required to review and document thousands of photo files. We developed a macro enabled Excel program that allows users to quickly review and document photos. Attribute information for each photo is stored as a record in an Excel spreadsheet for easy transfer to analysis programs such as R. It also performs simple analysis such as total camera operation hours, species counts, means to convert multiple photos of the same individual animals into a single occurrence, and visualization of daily and seasonal activity patterns. We encourage others to share their photo management strategies.

(14) Elevated Levels of Mercury in Dragonfly Larvae from the Mojave Desert Network

Colleen Flanagan Pritz, *Ecologist, NPS Natural Resource Stewardship and Science, Air Resources Division, Lakewood, Colorado*

The Dragonfly Mercury Project (DMP) uses dragonfly larvae as biosentinels for a nationwide assessment of mercury bioaccumulation in national parks. Mercury is a potent neurotoxin that can harm human and wildlife health. Arid regions may be particularly sensitive to mercury contamination due to the unique hydrology and carbon cycling processes. Three Mojave Desert Network parks have participated in the DMP since 2014: Death Valley, Great Basin, and Joshua Tree NPs. Findings show that almost 75 percent of the site-year data from the Mojave Desert fall in the moderate impairment category, suggesting fish may exceed human consumption thresholds and wildlife may be at risk from elevated mercury. The DMP engages the public in providing actionable information about mercury in freshwater ecosystems to reduce risk to public health, inform policy and resource management, and advance science and public understanding of mercury pollution.

(15) An Overview of the TUSK Wildlife Program—Types of Surveys Being conducted, Future Projects, and Opportunities for Volunteers

John Simmons, *Wildlife Technician, Tule Springs Fossil Beds National Monument*

Tule Springs Fossil Beds National Monument is a relatively new NPS park unit, having been established in 2014. To address the need for baseline wildlife data, the TUSK wildlife program has been initiated in the form various types of surveys including but not limited to: LeConte's Thrashers and general bird surveys, Mojave Desert Tortoises and other reptiles, and avian and bat bioacoustic monitoring. Using various methods such as area searches, transect surveys, driving surveys, bioacoustics, and game camera monitoring, we have made substantial progress in documenting the unique and sensitive species that reside at TUSK. The wildlife program seeks to continue as well as establish long-term monitoring projects and also offers opportunities for volunteers to assist on surveys, getting first-hand experience with sensitive species, and gain valuable training in the process.

(16) Fire Management and Great Basin National Park

Bryan Hamilton, *PhD, Integrated Resource Manager, Great Basin National Park*

Fire exclusion has devastated ecosystems in the west. We've known this for over 50 years but restoring fire to park ecosystems remains maddingly difficult. Why? Our NPS policy of fire exclusion, rooted in colonialism and fear, is deeply entrenched in our bureaucracy. Native Americans "good" fire use was minimized and mocked. The long term benefits of fire are outweighed by short term risks at every step in fire policy. Saying no is simply too easy. These perverse incentives perpetuate a cycle, where every fire suppressed, increases risk to future generations. I propose three steps to restore fire at Great Basin. (1) Fire Management Plan; (2) Start small, build success and trust, scale up; (3) Constant encouragement, aggressive outreach, and relentless communication. With this approach, we hope to restore good fire on over 20,000 acres, engage with tribal and local communities, and build public and agency trust.

(17) IPMT Invasive Plant Management Updates within the Mojave Desert Network

Curt Deuser, *LAKE IPMT Supervisory Ecologist/Liaison, Lake Mead National Recreation Area*

The Lake Mead Inter-Regional Invasive Plant Management Team (LAKE IPMT) was established in 1996 serving as the prototype model for what eventually developed into the National Park Service (NPS) IPMT program. In 1999 Congress passed the Natural Resource Conservation Challenge Initiative which included the establishment of the Inventory & Monitoring Program, Resource Learning Centers and the IPMT programs. The LAKE IPMT serves approximately 20 NPS Units in two regions and has many inter-agency partnership agreements with the BLM, USFWS, USFS, BOR, and State and Counties. LAKE IPMT's three primary goals are to 1) provide expertise in the control of invasive plants in priority areas to preserve, restore, and maintain native plant communities, 2) professionalize invasive plant management within the NPS and partner organizations by developing staff expertise, and 3) improve government

efficiencies through interagency cooperation by developing partnerships to effectively manage invasive plant species on a landscape scale. Partnerships are integral to the team's success, annually leveraging each NPS base dollar with three additional dollars. These partnerships facilitate invasive plant management across agency boundaries and increase the LAKE IPMT's capacity to serve NPS units. All of these funds combined total over a million dollars annually and support up to a 20 person crew implementing projects throughout the year. The LAKE IPMT's geographic locality and many partnerships in the regional area enable year-round operation that maximizes efficiency and the ability to control a diversity of invasive plant species. This presentation will provide project updates occurring at numerous MOJN Park Units.

(18) Restoration Efforts at Lake Mead National Recreation Area

Carrie Norman, *Vegetation Biologist, Lake Mead National Recreation Area*

There are different types of restoration efforts applied at Lake Mead National Recreation Area within the vegetation branch. Salvaging plants and collecting seed within construction sites to be planted once construction is finished, growing locally genetic plants at Song Dog Nursery, removing graffiti and illegal off-road use, or weed removal to encourage passive restoration are types that are used on a regular basis. Restoration can be accomplished many ways, but in the end the result is the same: To protect the ecosystem and enhance visitor experience. This presentation showcases the advantages, disadvantages, and challenges to restoration efforts at Lake Mead National Recreation Area.

(19) Social Science Update: Managing for 3 Million at Joshua Tree National Park

Jane Rodgers, *Chief of Science and Resource Stewardship, Joshua Tree National Park*

MOJN park units continue to experience increasing popularity and associated recreational impacts. The National Park Service supports visitor use management in a variety of ways; tapping into these resources is key, especially when units lack expertise in recreation planning and use monitoring. Joshua Tree National Park continues to experiment with managing for increased use. While a shuttle system failed, lessons learned indicate public transit is still a viable option to reduce congestion, however it would require considerable infrastructure and partnering with local communities. This presentation will share updates on managing backcountry use, fixed anchors, congestion, and increased private development along park boundaries.

(20) Unraveling Past Life of the Mojave Desert: Building Mojave National Preserve's Paleontological Inventory

Sofia Andeskie, *Physical Scientist, Mojave National Preserve*, and co-authors **Emily Johnson**, **Vince Santucci**, **Justin Tweet**, **Debra Hughson**

Mojave National Preserve (MOJA) has a temporally and spatially extensive fossil record ranging from the late Proterozoic to the Holocene. Here, the development of the first comprehensive park-wide paleontology resource inventory report is presented. This report includes summaries of paleontological work at MOJA, identifies potentially fossil-bearing geologic formations present in the preserve, lists fossils collected from MOJA in the past, describes known fossil localities, and more. Field work is currently underway identifying more fossil localities. Extensive fieldwork was completed at a fossil locality of a well-documented looting incident. This locality hosts a continuous early Cambrian sedimentary sequence, including fossil tracks and burrows, olenellid trilobites, and *Girvanella*. This locality is now annually monitored to identify new looting or erosion. The establishment of this inventory contributes to the scientific understanding of the preserve's paleontology, lays the groundwork for a comprehensive paleontological resource management and monitoring plan, and protects non-renewable fossil resources.

(21) Implementing a Long-Term Bat Monitoring Plan in National Parks within the Mojave Desert Region

Allen W. Calvert, *Program Manager*, and **Kimber N. Godfrey**, *Biological Science Technician*,
Mojave Desert Network

The Mojave Desert Inventory and Monitoring Network (MOJN) conducts long-term research of natural resources within nine National Park units that span the Mojave and Great Basin deserts of Nevada, Arizona, and California. Due to the decline of bat populations across the country; primarily from White-Nose Syndrome (WNS) and wind energy development, a need for tracking populations across the network was identified. In 2017, a bat monitoring protocol was developed to collect baseline population data before the arrival of WNS in the region. Winter and summer acoustic data are collected following a modified version of the North American Bat Monitoring Program (NABat). A combination of priority and non-priority sampling cells were selected. A total of 32 NABat monitoring cells have been established across six park units. A total of 20 species have been detected across all parks. Long term analysis will look to detect trends in species composition over time at each park. Capture surveys are conducted in the same six park units during spring to swab bats for the presence of the fungus that causes WNS. Lastly, large scale capture and acoustic efforts, known as bat blitzes, are conducted in one of the six park units on a yearly rotation in collaboration with several state and federal agencies. Collaboration between park and MOJN staff have been integral in implementing long-term monitoring in the network.

Poster Session

Nevada Water: A Trusted Network for Addressing Nevada's Water Issues

Jennifer Edmonds, *Associate Professor, Nevada State College*

Stemming from a 1-year National Science Foundation (NSF) funded proposal, “Nevada Water” will develop a partnership of water suppliers, users, policy-makers, non-governmental organizations, and academics whose primary goal is to create a dynamic research, societal, and education network focusing on critical urban-rural issues affecting water across Nevada. In this one-year project, our Nevada Water team will work together to a) identify crucial urban-rural water sustainability issues; b) discuss and frame different ways of thinking about water sustainability solutions; c) identify information, knowledge and resource gaps that need to be filled; d) develop shared visions for desirable, equitable, and sustainable water futures; and e) determine the best network structure to address Nevada’s urban-rural water sustainability challenges. It is anticipated that a successful Nevada Water network will be able to collect and analyze new water-relevant data, develop new methods and watershed-scale models to understand the complex interactions of water across natural, human-built, and social systems; and collaboratively transform Nevada’s interconnected urban-rural water systems to equitably advance the sustainability of our water systems.

Using “Bat Blitzes” to Document Bat Species Occurrence within Six National Park Units of the Mojave Desert Region

Kimber N. Godfrey, *Biological Science Technician*, and **Allen W. Calvert**, *Program Manager*,
National Park Service Inventory & Monitoring Division, Mojave Desert Network

The Mojave Desert Inventory and Monitoring Network conducts long-term monitoring of natural resources within nine National Park units that span the Mojave and Great Basin deserts of Nevada, Arizona, and California. Due to the decline of bat populations across the country; primarily from White-Nose Syndrome and wind energy development, a need for tracking populations across the network was identified. As part of a larger bat monitoring plan, bat blitzes were initiated to document species occurrences with the network parks. A bat blitz is designed to gather a large number of biologists together to survey multiple locations within a geographic area within a short amount of time. A secondary objective of these blitzes is to provide park biologists with training in bat survey techniques. Between 25–40 participants are split up into 3-5 smaller crews to concurrently sample different sites each night for 3–4 nights in a row. Capture surveys are utilized with a bat detector deployed during the capture survey period. The first network bat blitz was hosted by Grand Canyon-Parashant National Monument in 2017 where 15 species were detected. In 2018, Joshua Tree National Park hosted the blitz where 13 bat species were detected. Great Basin National Park hosted a blitz in 2019 where 10 species were detected. The success of these blitzes has increased interest across the region with biologists participating from nine park units along with state agencies and other partners as well.

Rattlesnake Demographics

Bryan Hamilton, PhD, *Integrated Resource Manager, Great Basin National Park*

Rattlesnakes are uniquely American animals and are ecologically important. But rattlesnakes are venomous and capable of killing humans. Unfortunately, humans overestimate the danger posed by rattlesnakes. Misplaced fear leads to humans killing rattlesnakes, even driving them to extinction. I've studied Great Basin rattlesnakes for over two decades, the longest ongoing capture mark recapture study on the species. Annual survival was 0.81. Young of year survival was lower (0.32) than juveniles and adults (0.81). Temporal variation in survival was strongly supported. Annual recruitment was 0.123, varying by year from 0.01–0.33. Mean population growth was 1.00, indicating a stable population across the study. Population growth by site varied from 0.93–1.08. The oldest individuals were at least 20 years old. Survival overwhelmingly contributed to the value of population growth relative to recruitment (84% versus 21%). Long term studies of population growth such as this are critical to understand conservation of long-lived animals like rattlesnakes.

A Natural Resource Inventory of the Dingell Lands, Death Valley National Park, Inyo & San Bernardino Counties, California

Carolyn Mills, *Natural Resources Specialist, Great Basin Institute/Death Valley National Park*

On March 12, 2019, the John D. Dingell, Jr. Conservation, Management, and Recreation Act (Dingell Act) was signed into law, expanding the boundaries of Death Valley National Park (DEVA) to include an additional 35,292 acres of land. In 2020, this study was initiated by park managers to inventory the flora of these lands. This inventory documented a total of 224 minimum-rank vascular plant taxa, representing 48 families, as well as an additional 32 minimum-rank taxa, including an additional 2 families, that were observed but could not be collected due to the exceptional drought conditions of 2020–2021. Less than 3% of the documented flora was comprised of non-native species. This inventory detected new populations of potential species of management concern, such as the western Joshua tree (*Yucca brevifolia*), and alerted park managers to the landscape-scale changes occurring as a result of feral burro grazing and trampling on these lands, which particularly threatens sensitive desert springs and their associated flora.