SNPLMA Conservation Initiative Round 16 Nomination

Title: Monitoring, Assessment, and Restoration of Groundwater Dependent Ecosystems in Southern Nevada

Nominating Organization: U.S. Forest Service

Participating Agencies: U.S. Fish and Wildlife Service, Bureau of Land Management, National Park Service

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Amount Requested: $2,915,736

Project Timeframe: 5 years

Project Location: All of Southern Nevada Agency Partnership agency lands in Clark County and portion of Desert Wildlife Refuge that falls in Lincoln County. Central location: N 36° 12’ 55”, W, 115° 0’ 49”

I. Purpose Statement

The Humboldt-Toiyabe National Forest, Spring Mountains National Recreation Area (SMNRA), the Bureau of Land Management (BLM), U. S. Fish and Wildlife Service (FWS), and the National Park Service (NPS) as part of the Southern Nevada Agency Partnership (SNAP) Science and Research Team propose to expand a Citizen's Science program, established by a partner, to recruit and train volunteers to locate, assess and monitor springs on Forest Service, FWS, and BLM lands, within Clark County. (NPS already has a monitoring program established for the National Park System). While a number of springs are well documented, many of the more inaccessible springs have not been assessed or monitored. Some springs are only known from a point on the National Heritage Database and based on our experience their exact location is suspect. It is our objective to have volunteers navigate to the listed springs, numbering over 500, verify the location and collect basic water, disturbance, and vegetation data following protocols developed by the US Forest Service and Springs Stewardship Institute

In addition, during the course of the survey work when new springs are found, those will also be recorded and basic measurements taken. Volunteers and crew leads will also be trained in the identification of spring snails. Numerous springs in Clark County are known to be home to endemic spring snails. If any new springs were found to have spring snails, collection of some snails will be conducted for genetic analysis, by crew leads or researchers. It is also planned for researchers to visit known springs that are home to springs snails and collect specimens for genetic analysis that will supplement the Fish and Wildlife Service status review of the spring snails.

A portion of a SNPLMA Round 10 project on the SMNRA, Spring Mountains Inventory and Monitoring Strategy Implementation, (Project FS-68, Priority 10-7) included the completion of detailed spring surveys. The project, which was also a national pilot project for the new Groundwater Dependent Ecosystem: Level II protocols, was designed to locate and survey all springs on the SMNRA over a six year period in two SNPLMA phases, with phase 2 occurring in SNPLMA rounds 12 or 13. Due to the poor economy, phase 2 was never funded resulting in 61 springs not being surveyed. Some of the springs in the round 10 project turned out to be dry or were a reemergence from another spring. In order to avoid spending time navigating to those springs, any of the 61 springs that are known to be intermittent or perennial will be preselected by the Forest Service to be intensively surveyed by a team of experts. These same intensive surveys will also be completed on springs pre-identified by the BLM and FWS. In addition, if springs on BLM and FWS lands are determined by the volunteer teams that they are ecologically significant, the same team of experts will also conduct a more detailed survey on those springs. Up to 120 springs may be intensively surveyed. When determining ecological significance teams will assess and consider the following elements:

- Topographic position
- Geology
- Climate
- Spring type
- Riparian area/feature size
- Surface flow
- Vegetation community
- Presence of Conservation Agreement species

All data will be entered onto a user-friendly online database developed to house nation-wide springs data. The general public will be able to access basic springs information for sites that are already publicly known (e.g. reported on topographic maps). In order to protect the locations of Conservation Agreement species, including spring snails, and cultural sites, access can be regulated by the respective government agencies.

Once the springs are all initially surveyed and ecologically rated, a long term monitoring schedule will be developed to revisit these springs by the volunteers after the project ends.

Another project objective is to identify and implement spring restoration activities. Using the data collected for the springs, a workshop will be held in year three or four for the agencies to identify and rank springs in need of restoration.

Some of the more well-known springs have been extensively surveyed. As a result, all four agencies have identified restoration needs for some of their springs. These projects include:

NPS:

- Blue Point Spring: Date palm control, Athel and tamarisk retreatment, leopard frog habitat improvement, native plant revegetation:
- Rogers Spring: Date palm and fan palm recruitment, tamarisk control and native plant revegetation, leopard frog habitat improvement:
- Valley of Fire/Fire Wash Spring: retreat and native plant revegetation.
- Meadow Spring: tamarisk retreatment and fence rehabilitation for wetland habitat protection and improvement.
- Roger Bay Spring: tamarisk retreatment, possible native plant revegetation.
- Scirpus Spring: tamarisk and invasive weed treatments, leopard frog habitat improvement
- Corral Spring: Leopard frog habitat improvement, tamarisk retreatment and fence rehabilitation for wetland habitat protection.

<u>Black Canyon Complex</u>:

- Black Canyon Spring: tamarisk retreatment and revegetation, leopard frog habitat improvement
- Salt Cedar Spring: Leopard frog habitat improvement, tamarisk control
- Big Horn Sheep Spring (Black Canyon): Tamarisk retreatment only, leopard frog habitat improvement
- Gold Strike Canyon Spring: Tamarisk retreatment only, leopard frog habitat improvement
- Aztec Spring: tamarisk retreatment only

Newberry Mountains Springs: (some of these are shared with BLM)

- Bridge Canyon, Dripping Springs, South Pipe Spring, North Pipe Spring, Sacatone Spring and Grapevine Spring: Fountain grass, tamarisk control and retreatments.

BLM:

Red Rock Canyon NCA:

- Red Spring: Weed removal and native plant restoration,
- Ash Spring: Russian Olive removal and native plant restoration,
- Bootleg Spring: Spring Snail Habitat restoration,
- Willow Spring: Exotic grass removal and native plant restoration,
- Oliver Spring: Weed removal and native plant restoration,
- Shoemaker and Grassy Springs: Exclosure fencing,

Las Vegas Field Office:

- Kaolin Spring: Tamarisk removal and Relict Leopard Frog habitat restoration;
- Jackass Spring: Tamarisk removal and native plant restoration.

FWS:

Desert National Wildlife Refuge:

- Wamp, Lower Deadman, and Quail Springs: Spring and wildlife guzzler rehabilitation

Moapa National Wildlife Refuge

- Plummer, Peterson, and Apcar springs: Palm tree removal and stream channel restoration

FS: Fencing, trough relocation, low water crossing to improve stream habitats.

- Mud Springs complex (3 springs): Fence rehabilitation, wildlife trough relocation.
- Willow Spring: Low water crossing to restore natural function of spring channel
- Buck Spring: Fence rehabilitation and spring habitat improvement.

This project will fund those agencies for their restoration activities using volunteers or other local groups. Upon completion of the restoration project, an effectiveness monitoring program will be developed for these springs and will be merged with the other springs for the long term monitoring program. Also, the springs database will be updated to provide a means to document the springs rehabilitation projects and link them to the individual springs.

Selected springs will have monitoring cameras installed or upgraded to facilitate long term wildlife monitoring.

II. Background and Need

Springs in southern Nevada support a disproportionate number and diversity of species compared to the uplands. They occur from approximately 250 m to 3,300 m elevation in all landscape settings (e.g. mountains, gullies, valley floors, hillsides, etc.) A round 10 SNPLMA project that included detailed inventory of springs from 2010 to 2012 on the SMNRA found that "24 percent of the plant species known to exist within the SMNRA were found at the springs inventoried, which represented only 0.003 percent of the total land area." (USDA Forest Service, 2014). Based on other similar studies elsewhere, with similar results, this high percentage of species packing is likely to be consistent across Southern Nevada.

This project listed 149 mapped springs that were to be split equally into five mapping seasons. According to the Final Program Report for 2010-2012, the first three years produced 77 intensively surveyed springs, Groundwater Dependent Ecosystems (GDE) Level II. Of those 77, 12 springs were unknown or unmapped. In addition, no springs were found at 13 locations, 6 springs were dry, 2 were secondary emergences, and two were on private property. (FS report, 2013) With the exception of the private property these other sites were visited by not surveyed. Funding limitations prevented the completion of the surveys, totaling 61 mapped springs, in a subsequent SNPLMA round.

From 2005 to 2006, the Spring Mountains NRA pilot tested GDE Level I surveys on several springs throughout the NRA. The project resulted in a number of springs having basic water and site data recorded. This data has provided some baseline trend data for the same springs that were surveyed in 2010 – 2012. Data recorded was not as thorough as the Level II data. (USDA Forest Service, 2012)

There have been previous spring surveys across southern Nevada in the past 20 years but in most cases the focus of the surveys has resulted in specific data collection, not

comprehensive inventory data. In addition most of these data are in specific agencies' databases or still in hard copy form, limiting access to the information and discussion among neighbors within aquifer boundaries. Most of the pre-2000 surveys were focused on springs that were known to be ecologically significant and were accessible by vehicles.

Clark County's Multiple Species Habitat Conservation Program (MSHCP) lists 506 springs in Clark County. Several more springs are found in Lincoln County's portion of the Desert Wildlife Refuge. Some of the most well-known and ecologically significant springs are easily accessible and well-studied. Most of the rest of the springs are remote and difficult to access. Some occur in wilderness or roadless areas where access is only by hiking or horseback. Most of those springs have not been inventoried, so little is known about their current ecological integrity, changing status (if previous surveys had been done), or whether they host any Conservation Agreement species including spring snails. As mentioned above, the 2010 – 2012 survey resulted in the identification of 12 previously unmapped springs. More unmapped springs may be located as part of this project.

Some springs were found to be habitats for numerous species identified in the Spring Mountains Conservation Agreement (Conservation Agreement) as species of concern (SOC), of which some species are endemic. The Conservation Agreement lists 29 species that have habitat in part or life cycles dependent upon spring ecosystems. This list includes several species of spring snails and the Relict Leopard frog that exist only at specific springs in southern Nevada. These snails and the frog are currently under review by the Fish and Wildlife Service. Volunteers will be trained to identify spring snails and possibly benthic macroinvertebrates. Volunteers will also be trained to collect samples of springs snails for genetic analysis. It is important to have inventory data on all the springs in the region to provide a genetically accurate spring snail species account in support of FWS's information needs.

Volunteers will identify and measure past and present impacts from native and non-native species and whether their population densities change. These records can help land managers prioritize springs for any needed restoration and protection efforts.

During the course of their regular surveys, volunteers will identify and measure past and present impacts from native and non-native species and whether their population densities change. These records can help land managers prioritize springs for any future needed restoration and protection efforts. After three or four years of surveying springs, a workshop will be held for managers to learn to use the ecological significant ratings in prioritizing springs for restoration.

Nevada's extreme topography creates more opportunities for aquifers to surface at springs. The region's extremely dry climate makes any source of water a potential hotspot for biodiversity. Springs in the mountainous recharge zones, i.e., Spring and Sheep mountains,

are supported by mountain block aquifers which are generally small and perched These springs are dependent upon local precipitation to recharge the aquifers and not part of a larger regional groundwater flow system. They are subject to variability from short term changes in climate. Springs along the fringes of the mountains are fed by local aquifers and are less affected by drought. These systems can be more impacted by groundwater withdrawal and decreased groundwater recharge due to climate change. An examination of climate change models in the Southwest universally reveal that the area managed by the SNAP agencies will be warmer and dryer in the coming decades. It will be important to measure and track reliable data over time that will allow agencies to measure how springs are affected by climate change, gradient, slope, aspect, geology, groundwater pumping, temperature and precipitation.

Friends of Nevada Wilderness (Friends) created a volunteer spring stewardship program in June 2015 to monitor springs in the Spring Mountains National Recreation Area. Initial funding for this program was granted from funds collected through the Mt. Charleston License Plate Grant. These funds allowed Friends to recruit and train citizens in monitoring springs by collecting basic springs data. The interest generated during their recruiting determined that a volunteer base existed to conduct citizen science. With this limited funding, their project was highly successful, with over 50 participants collecting data at 48 springs. The license plate grant expires at the end of this year effectively ending this portion of the project. Additional funding will support expansion of this project, including more advanced training and equipment, a broader scope, and increased level of participation.

Friends' volunteer spring stewardship program was implemented to help the U.S. Forest Service document spring condition as a critical component to wildlife habitat and the overall health of the watershed. The Mt. Charleston area includes a wide range of environments from low lying desert to high elevation forests. In these extreme environments, the presence of water is of critical importance to the overall health of the ecosystem. Monitoring over time will help track the health of these habitats and provide an early warning system and basis for management action, including spring restoration if problems are detected. This program provides valuable information on the overall health of the watershed(s) that supply water to surrounding communities. With increasing recognition of the importance of groundwater-dependent ecosystems in supporting biological diversity and a host of cultural and economic needs, an important component of climate change adaptation is to identify and describe restoration-rehabilitation needs and implement cost-effective and scientifically supported rehabilitation and restoration practices on these socio ecologically influential sites.

The Spring Stewardship Institute (SSI) developed Springs Online, a database to easily and securely house springs data and create integrated relational reporting on springs surveys. The springs data previously collected by the SSI and Northern Arizona University (NAU)

and the data currently being collected by volunteers is all currently housed there, at (http://springsdata.org/index.php). This database offers a user-friendly interface to enter, retrieve, and analyze inventory data, making it accessible for landowners and managing agencies as well as researchers to improve the quality and integration of information about springs. In the fall of 2015, the USFS created a MOU with SSI, designating this database as the repository for all Forest Service springs on a nationwide basis. Upon project completion, all springs data from southern Nevada will be housed in this database. SSI and agency staff can restrict access certain springs they feel may be sensitive to public access. Our goals are to locate and survey all the springs, record the data into the database, evaluate the data for restoration planning, and establish a multi-year sampling schedule, as well as tracking restoration project success. Relying on volunteers as the primary work force will make this economically achievable and build community relationships with public lands agencies.

Expansion and enhancement of the volunteer spring stewardship program as proposed will allow collection of data from hundreds of springs over 5 years. It will also provide data for studying the hydrological effects of climate change. An essential component of spring data collection is revisiting spring sites possibly multiple times per year, over many years to accurately measure the effects of climate change, weather, and disturbances. Annual precipitation, drawdown and recharge on the water table and other factors affect springs differently. More data collection over longer time frames paint a more complete picture of how springs ecosystems change in relation to variation in weather and climate. Due to the cost of such monitoring, great advantage can be had by engaging citizen scientist volunteers to collect monitoring data into a well-designed, easy-to-use, and secure information management system. These same volunteers will also have the opportunity to participate in restoration activities and post restoration monitoring resulting in developing a sense of ownership and pride in the management of those springs. By establishing a citizen science Groundwater Dependent Ecosystem (GDE), or springs, monitoring program land managers can more efficiently manage and conserve these resources in Southern Nevada.

The Three Values

This project is a collaborative effort by the four agencies of the SNAP Science and Research team. It is also being supported by the SNAP Wilderness, Restoration Team, and Volunteer teams. The teams agree that this project is sustainable, has connectivity, and provides a sense of community. This project fully meets all three EC values.

Sustainability

Springs in Southern Nevada have a long history of use. Native Americans have long used springs for water, habitation, agriculture, and religious purposes. With the advent of European settlement, springs were a source of water necessary for the survival of the early

settlers. Most springs provided water for homesteads, railroad, lumber mills, and grazing. Wildlife are particularly dependent on springs and few more so than southern Nevada's endemic spring snails and the Relict Leopard frog. Non-native species like horses, burros, livestock, and elk can and have wrought havoc on natural spring systems and their native dependent species. Invasive weeds, loss of native vegetation, dewatering as a result of water diversions, and other anthropogenic and natural disturbances have resulted in most springs in some form of degraded state. Efforts by all agencies have begun to rehabilitate or restore the most culturally and ecologically significant springs. While some of the most well-known springs have had restoration work conducted on them and are greatly improved, even those springs and most lesser known springs are still being infested with non-native vegetation, and damaged by wild horses, burros, elk, and recreating public. Through monitoring and restoration the cultural significance of these springs will be retained.

Limited appropriated funding limits post restoration effectiveness monitoring to one or two visits. This project will initiate a long term effectiveness monitoring program using our volunteers. We will first implement restoration or rehabilitation projects identified by the agencies. If needed volunteers will be available to assist in those projects. After the project are completed, we will use the volunteers to monitor the effectiveness of the projects and note any changes in the spring function. The volunteers will be able to note and positive or negative response to the treatments and make timely reports to managers in case further treatments are necessary. The Springs Online database will be amended so that restoration activities can be recorded and stored with the other springs data.

Expansion and enhancement of the volunteer spring stewardship program as proposed will allow collection of data from hundreds of springs over 5 years. It will also provide data for studying the hydrological effects of climate change. An essential component of spring data collection is revisiting spring sites possibly multiple times per year, over many years to accurately measure the effects of climate change, weather, and disturbances. Annual precipitation, drawdown and recharge on the water table and other factors affect springs differently. More data collection over longer time frames paint a more complete picture of how springs ecosystems change in relation to variation in weather and climate. Due to the cost of such monitoring, great advantage can be had by engaging citizen scientist volunteers to collect monitoring data into a well-designed, easy-to-use, and secure information management system. These same volunteers will also have the opportunity to participate in restoration activities and post restoration monitoring resulting in developing a sense of ownership and pride in the management of those springs. By establishing a citizen science Groundwater Dependent Ecosystem (GDE), or springs, monitoring program land managers can more efficiently manage and conserve these resources in Southern Nevada.

'After five years in establishing the volunteer program, additional external funding will no longer be needed. A monitoring schedule will have been established and cadre of citizen

scientists will be available to continue the program in perpetuity with the occasional assistance of nonprofit entities.

Connectivity

There is a strong desire by our public get involved in our public lands. Organizations like Get Outdoors Nevada, and working with our SNAP wilderness and volunteer teams has had a large and positive response from the public in participating in outdoor events throughout Clark County. Friends of Nevada Wilderness has received a large response from volunteers in the short time that the spring monitoring program on the SMNRA has operated. Our public and private schools are increasing their natural science programs as a result of our agencies getting involved with science fairs at their schools.

The spring monitoring program is an ideal project to get people involved in being stewards of the lands in their backyards. Restoration projects can be a means for schools to bring students out and learn about spring stewardship, hydrology, groundwater, aquatic plants and insects as part of their science programs. It may result in students becoming interested in natural resources as a career. Adults who participate in the monitoring program will be able to develop a sense of ownership of the springs they visit and help rehabilitate or restore. Upon successful completion of this project, public interest will continue to grow long after this project is over.

Restored or rehabilitated springs will facilitate in the natural reintroduction of native species, protect existing species, maintain and/or improve the ecological site condition, protect cultural resources, and improve the recreational experience for the public while protecting sensitive springs from uncontrolled visitor use.

Community

Similar to Connectivity. Networking, promoting, and showcasing this project through the media and public events will generate a lot of interest in the groundwater systems across southern Nevada. A majority of our residents are aware that Clark County contains nearly 500 springs. Public and educational programs in the community explaining our program should generate increased recreational and scientific opportunities.

This program may provide an opportunity to strengthen our relations with the tribes who have strong cultural ties to the spring systems.

III. Project Timeframe

The project will be in place for 5 years.

IV. Location of Project

Spring monitoring and restoration project implementation, education and outreach, will occur at springs throughout Clark County and the DNWR that extends into Lincoln County (see Figure 1). The central location of this project is at:
N 36° 12' 55", W, 115° 0' 49"

Specific priority spring survey sites on public lands have been identified by agency managers, including:

- **FS**: Clark County lands within the SMNRA
- **BLM**: Las Vegas Field Office and Red Rock Canyon NCA
- **FWS**: Desert National Wildlife Refuge

The National Park Service already has a spring monitoring program for all their national parks. They have expressed interest in having their springs data housed within the online database identified in this project.

Specific spring restoration projects have also been identified by each agency. See Purpose and Need above for specific activities.

- **FS:** Willow Spring, Buck Spring, and Mud Springs complex.
- **BLM**: Red Spring, Ash Spring, Bootleg Spring, Willow Spring, Oliver Spring, Grassy Spring, Shoemaker Spring, Kaolin Spring, and Jackass Spring.
- **FWS**: Wamp, Lower Deadman, and Quail springs within the Desert National Wildlife Refuge. Plummer, Pederson, and Apcar Springs within the Moapa National Wildlife Refuge
- **NPS**: Approximately 15 springs in the Lake Mead National Recreation Area.

Project areas are located within Nevada Congressional Districts 1, 3, and 4.

V. Project Deliverables

A. Primary Deliverables

- Developing a long term sustainable monitoring plan and schedule that continues once this project is completed.
- Provide an accurate count and georeferenced locations of all springs in project area.
- Conduct basic surveys with volunteers for approximately 500 springs on public lands within Clark County and the entire DNWR.
- Basic data collected would include: pH balance, total dissolved solids, water temperature, flow rate, type of spring, a photo, native or invasive species in the riparian area, presence of spring snails, accurate location, isotope analysis, determination of restoration needed.

- Conduct extensive surveys for up to 120 springs that were either identified in advance by the agency leads or were recommended by the volunteer teams.
- Restoration or rehabilitation of 36 springs resulting in spring habitat enhance through fence improvements, invasive plants treatments, relocation of man-made water features.
- Set up an effectiveness monitoring schedule upon completion of implementation.
- Import all spring's data from each agency and place onto the online database that will be available to agency personnel.

B. Anticipated Deliverables

- Identify springs with spring snail populations and collect samples for genetic analysis as necessary.
- Collect water samples at key springs and send to lab for stable isotope (18O and 2) analysis to determine "age" of water to determine recharge rate and effects of drawdown.
- Volunteers will grow an increased sense of ownership of natural resources on public lands.
- Identification of invasive species, wild horse and burro and other spring disturbances.
- Improved understanding of groundwater contribution areas of springs and responses to climate fluctuations.
- Improved relationships through collaboration with conservation groups in Southern Nevada.
- Potential collaboration with the Nevada Department of Wildlife in recruiting staff to collect spring data at their spring source water developments. If collaboration is successful, their staff will only collect level basic survey data as part of their other duties.
- Collaboration with sportsmen groups like Wildlife Habitat Improvement in Nevada (WHIN) and the Fraternity of the Desert Bighorn.

C. Standard Deliverables

- Survey, documentation and monitoring of spring sites for baseline data and determination of restoration needs on public lands, i.e. enclosure installation, enclosure removal, etc.
- Reports of spring condition made available to the managing agency in the SSI database.
- Coordinate the necessary training for volunteers and program leaders. Training and support of program leaders will be provided by experts. Training of volunteers will be provided by program leaders.

- Writing and implementing cost share agreements with partners.

VI. Relevant Performance Measures

SNPLMA Goal 1: Sustain the quality of the outdoor environment by conserving, preserving, and restoring natural and cultural resources.

Outcome: Conserve and restore natural resources – Maintain or increase the quality of natural resources and protect their ecological integrity and sustainability.

Output: Survey, inventory, restore priority spring sites on public lands within Clark County and the entire DNWR.

- **Performance Measure H6** – (Number of acres of wetland/riparian system enhanced) up to 100 acres
- **Performance Measure H7** – (Number of acres of wetland/riparian system surveyed) spring sizes vary. They range from less than a quarter of an acres to several acres. With approximately 500 springs it will average out to about 500 acres, one acre per spring.
- **Performance Measure H8 –** (Number of Water Developments Constructed or Improved for Wildlife) 2-5 + A few of the restoration projects will include improving, repairing, or relocating existing developments that will benefit both the wildlife and the springs ecosystem. Vegetation treatments will also indirectly benefit the wildlife.
- **Performance Measure H9 – (**Acres of invasive Plant Species Treated or restored.) 24 springs have been identified for invasive treatments as part of the restoration portion of project. 24+ acres.
- **Performance Measure H10 -** (Acres of Invasive Plant Species Surveyed, Inventoried, Monitored) Effectiveness monitoring will be conducted on the 24 treated springs. 24+ acres.
- **Performance Measure H15** – (Number of conservation actions for a species not listed under the Endangered Species Act) spring snails are sensitive species not listed under the Endangered Species Act. Surveys would include determining presence or absence of spring snails and subsequent follow up surveys would include species identification and collecting samples for genetic identification.
- **Performance Measure O5** – (Number of Outreach contacts made) A restoration workshop will be conducted in year three or four for all agencies.
- **Performance Measure O9** – (Number of GIS databases and/or Map Layers Produced.) 1+. The online database will be updated with the latest springs information. A new tab will be developed to house restoration activities.

The Map layer will be updated to show all the surveyed springs in the project area.

- **Performance Measure O10** – (Number of Volunteers Used) - 60 volunteers initially with an increase of 10% per year.

Outcome: Promote education – Provide opportunities to improve the public's connection with natural and cultural resources through education.

Output: Conduct educational programs for schools and interest groups, and the community to increase awareness of spring systems and their importance.

- **Performance Measure O7** – (Number of interpretive or educational presentations given and/or community events participated in or hosted). It is anticipated that the lead agency and maybe others will conduct at least one presentation per year at education or public events either separately or in conjunction with the partners.
- **Performance Measure O10** – (Number of Volunteers Used) 60 volunteers initially with an increase of 10% per year.

Output: Participate in community events to provide educational material and presentations to the public.

- **Performance Measure O7** – (Number of interpretive or educational presentations given and/or community events participated in or hosted). It is anticipated that the lead agency and maybe others will conduct at least one presentation per year at education or public events either separately or in conjunction with the partners.

SNPLMA Goal 2: Improve the quality of life for all publics in urban and rural communities by enhancing recreational opportunities that connect people with the outdoor environment.

Outcome: Enhance recreational opportunities – Provide recreational opportunities and improve access to those opportunities on federal, local and regional government lands, increasing the availability and quality of public recreation.

Output: Protect or improve the integrity of environmental…resources to enhance the quality of the human experience.

- **Performance Measure H6** – (Number of acres of wetland/riparian system enhanced) Agencies will recruit volunteers and utilize other groups in the

implementation of restoration projects covering up to 100 acres in Clark County.

- **Performance Measure H7** – (Number of acres of wetland/riparian system surveyed) Volunteers will perform most monitoring surveys covering over 500 acres in Clark County.
- **Performance Measure H9 – (**Acres of invasive Plant Species Treated or restored.) 24 springs have been identified for invasive treatments as part of the restoration portion of project. 24+ acres.
- **Performance Measure H10 -** (Acres of Invasive Plant Species Surveyed, Inventoried, Monitored) Effectiveness monitoring will be conducted on the 24 treated springs. 24+ acres.
- **Performance Measure H15** – (Number of conservation actions for a species not listed under the Endangered Species Act). Volunteers will be trained to look for and report any evidence of spring snails.

Outcome: Promote education – Provide opportunities to improve the public's connection with natural, cultural and recreational resources through education.

Output: Conduct educational programs for schools and interest groups, and the community to increase awareness of spring systems and their importance.

- **Performance Measure O7** – (Number of interpretive or educational presentations given and/or community events participated in or hosted It is anticipated that the lead agency and maybe others will conduct at least one presentation per year at education or public events either separately or in conjunction with the partners.

Output: Participate in community events to provide educational material and presentations to the public.

- **Performance Measure O7** – (Number of interpretive or educational presentations given and/or community events participated in or hosted). It is anticipated that the lead agency and maybe others will conduct at least one presentation per year at education or public events either separately or in conjunction with the partners.

Outcome: Utilize volunteers in surveying, reporting and restoring spring sites.

Output: Provide training to volunteers in spring monitoring protocols, data entry and restoration techniques.

- **Performance Measure H9 – (**Acres of invasive Plant Species Treated or restored.) 24 springs have been identified for invasive treatments as part of the restoration portion of project. 24+ acres.

- **Performance Measure H10 -** (Acres of Invasive Plant Species Surveyed, Inventoried, Monitored) Effectiveness monitoring will be conducted on the 24 treated springs. 24+ acres.
- **Performance Measure O10** – (Number of volunteers used) - 60 volunteers initially with an increase of 10% per year.

VII. Project Implementation Process

Year 1:

- Write and execute cost-share agreements with partners.
- Advanced spring training and spring snail identification will be provided for the program leaders. Program leaders will coordinate training opportunities for volunteers.
- Identify sensitive springs for more detailed surveys conducted by a team of experts. .
- Partner will hire Americorps Interns to assist with surveying extremely difficult to access springs.
- Purchase data collection field supplies for volunteer use.
- Agencies will begin purchasing materials for their respective restoration projects.
- Purchase, install cameras and establish photo monitoring at selected springs.
- Coordinate volunteer outings and data collection.
- Start implementation of spring restoration projects. If planning has not been done previously initiate NEPA on needed projects
- Import data collected by NPS into Springs Online database.
- Outreach to the community to recruit volunteers through educational programs, presentations and community events.
- BLM will use a Nevada Conservation Corps crew to conduct spring restoration treatments on at least two springs within the LVFO/RRC NCA.

Year 2:

- Continue training from specialists for program leaders and subsequently volunteers.
- Continue to coordinate volunteers to conduct the majority of spring surveys. This data will be used to identify any additional sensitive springs for more detailed surveys performed by experts.
- Begin restoration activities of priority spring sites. FWS will complete restoration activities on at least one spring, possibly two.
- Enter data collected by NPS into SSI database.
- Partner will hire Americorps Interns to assist with surveying extremely difficult to access springs.

- Purchase additional higher quality data collection field supplies for volunteer use. Equipment purchases are tiered for each year to accommodate the annual increase of volunteers.
- Continue to outreach to the community to recruit volunteers through educational programs, presentations and community events.
- BLM will use a Nevada Conservation Corps crew to conduct spring restoration treatments on at least two springs within the LVFO/RRC NCA.

Year 3:

- Continue training from specialists for program leaders and subsequently volunteers.
- Continue to coordinate volunteers to conduct the majority of spring surveys. These data will be used to identify any additional sensitive springs for more detailed surveys performed by experts.
- Continue restoration activities of priority spring sites. FWS will complete restoration on the two remaining springs on the DWR.
- Identify indicator springs to be monitored on a schedule set by agency personnel.
- Partner will hire Americorps Interns to assist with surveying extremely difficult to access springs.
- Purchase additional higher quality data collection field supplies for volunteer use.
- Continue to outreach to the community to recruit volunteers through educational programs, presentations and community events.
- BLM will use a Nevada Conservation Corps crew to conduct spring restoration treatments on at least two springs within the LVFO/RRC NCA.

Year 4:

- Continue training from specialists for program leaders and subsequently volunteers.
- Hold an agency restoration training (may occur in year 3), when new data becomes available from data collection in years 1 – 3. The workshop will focus on identifying and prioritizing criteria to evaluate springs restoration potential and plan development.
- Continue to coordinate volunteers to conduct the majority of spring surveys. This data will be used to identify any additional sensitive springs for more detailed surveys performed by experts.
- Complete restoration activities of priority spring sites.
- Initiate effectiveness monitoring plan on restored springs.
- Identify indicator springs to be monitored on a schedule set by agency personnel.
- Partner will hire Americorps Interns to assist with surveying extremely difficult to access springs.
- Purchase additional higher quality data collection field supplies for volunteer use.
- Continue to outreach to the community to recruit volunteers through educational programs, presentations and community events.

- BLM will use a Nevada Conservation Corps crew to conduct spring restoration treatments on at least two springs within the LVFO/RRC NCA.

Year 5:

- Continue training from specialists for program leaders and subsequently volunteers.
- Continue to coordinate volunteers to conduct the majority of spring surveys. This data will be used to identify any additional sensitive springs for more detailed surveys performed by experts.
- Identify indicator springs to be monitored on a schedule set by agency personnel.
- Partner will hire Americorps Interns to assist with surveying extremely difficult to access springs.
- Purchase additional higher quality data collection field supplies for volunteer use.
- BLM will use a Nevada Conservation Corps crew to conduct spring restoration treatments on at least two springs within the LVFO/RRC NCA.
- Continue to outreach to the community to recruit volunteers through educational programs, presentations and community events.
- Closeout project.

VIII. Level of Readiness for Implementation

Expansion of the existing Volunteer Spring Monitoring being conducted by the Friends of Nevada Wilderness would reduce the initial resources and time necessary to begin implementing an entirely new program. This program was initiated at a smaller scale in the Spring Mountains National Recreation Area by Friends of Nevada Wilderness in June 2015. Initial funding for this program was granted from funds collected through the Mt. Charleston License Plate Grant. The community is hugely supportive of the program which is apparent in the diversity and number of volunteers attracted to the program. Round 16 funds would expand this existing and strong program to public lands throughout Clark County and the entire DNWR.

The Volunteer Spring Monitoring Program that Friends has initiated is an ideal model to expand to a wider land base. The techniques and protocols used in this program are easily translatable to other agencies' lands. Some agencies are already collecting some of this data through seasonal crews and temporary employees. Coordination of volunteers is essential and would require one full-time staff person and two full-time Americorps Interns. However, funds could be extended with the use of volunteers as the primary work force.

Additionally, the database and record keeping techniques are already in place. The SSI has been developing a public access database to house springs data for land managers to inform rehabilitation, monitoring and stewardship of spring systems. This database currently contains over 90,000 springs locations in the western United States, and over 20,000

individual surveys. The spring data previously collected by the SSI and NAU from 2010-2012 and the data being collected by Friends volunteers is all currently housed there. Data collection protocols were informed by SSI and NAU. The SSI provided an initial training in 2015 and Friends staff have offered field and database trainings to interested volunteers. Trainings are necessary for volunteers to learn the technique, avoid potential problems and to practice. Friends staff monitored all data entering the database to ensure quality.

Each volunteer will be required to attend a field training where they are provided; 1) a Job Hazard Analysis and briefed on the safety concerns associated with collecting spring data, 2) a communications plan outlining the safety protocol for this program and clear direction should they ever need assistance, and 3) data sheets to record spring data. Data collected includes: location, site condition, a representative image, flow rate, species (flora, fauna and spring snails), air temperature, water temperature, specific conductance, total dissolved solids, pH. Each volunteer will be trained to use the equipment correctly and properly record data.

Participating agencies have already identified priority springs for restoration and detailed surveys to be performed. Planning and executing restoration of priority springs can be achieved through existing relationships and supplemental resources. With the development of a restoration element as part of the on-line databases, land managers will be able to better manage and monitor the health of the springs that have been restored or rehabilitated.

Upon project completion, data on all the springs within Clark County and the entire DNWR will be housed on the SSI database. Spring data will be available to agency personnel and the public.

IX. Relationship to Previous Phases and Anticipated Future Phases

From 2010 to 2012, as part of Round 10 SNPLMA Project; “Spring Mountains Inventory and Monitoring Strategy Implementation Phase I”, 77 springs were surveyed in the Spring Mountains by SSI and NAU. These surveys discovered 13 previously unknown springs. A onetime visit of springs as a baseline study only serves as a snapshot and does not tell the story of what is happening to the spring or watershed. Monitoring over time will indicate trends of springs.
From 2005 - 2006, Level 1 GDE surveys were conducted on several springs as part of a MSHCP project. This spring data provides additional data to establish trends on our springs.

X. Proposed Project Budget

The projected four agency combined budget for this project is $2,915,736. A Cost Estimate Summary sheet for all agencies is included in Appendix A of this nomination. The break-down of yearly expanded budgets is included in the nominations package for this project.

In-kind Contributions

Most in-kind contributions will come from the volunteers and Americorp personnel who will be conducting and assisting with the spring surveys and restoration projects. We are anticipating 1500 hours of in-kind volunteer labor the first year with an annual increase of 10 percent totaling 2196 hours in year five. Based on the Department of Interior's volunteer labor valuations of $21.36 per hour we anticipate in-kind contributions of our citizen science volunteers of $195,594.

- Volunteer hours = $195,594
- Volunteer in-kind mileage = $2,500
- In-kind Americorps service = $172,651
- NPS in-kind for equipment = $17,500
- Total in-kind contributions = $388,245

Best-Value Option

Training a cadre of volunteers to continuously monitor the springs in southern Nevada will provide us with the best-value in ensuring our springs are managed efficiently. The current budgets do not allow the agencies to permanently hire a large staff devoted solely to monitoring the springs. Utilizing teams of volunteers to periodically monitor springs, getting involved in restoration and rehabilitation projects results in significant cost savings for the government.

Volunteers are eager to explore new areas and be of service. Access to the more remote spring sites is not a concern for most volunteers; instead, it is a welcomed challenge. Using a primarily volunteer work-force to collect data is cost-effective and successfully engages the community in protection of spring resources. Getting recreationists involved in managing natural resources gives them a sense of ownership and stewardship of the land.

See attached expanded budget worksheets.

XI. References Cited

Solem, S.J.; Pendleton, B.K.; Giffen, C.; Coles-Ritchie, M.; Ledbetter, J.; McKelvey, K.S.; Berg, J.; Menlove, J.; Woodlief, C.; Boehnke, L.A. 2013. Monitoring and Evaluation for Conserving Biological Resources of the Spring Mountains National Recreation Area – Final Program Report 2010-2012. El Paso, TX: Management and Engineering

Technologies International, Inc (METI); Albuquerque, NM: US Department of Agriculture, Forest Service, Rocky Mountain Research Station. 178 pages.

USDA Forest Service, 2012. Groundwater-Dependent Ecosystems: Level I Inventory Field Guide, General Technical Report, WO-86a

USDA Forest Service, 2012. Groundwater-Dependent Ecosystems: Level II Inventory Field Guide, General Technical Report, WO-86b.

USDA Forest Service, 2013. The Southern Nevada Agency Partnership Science and Research Synthesis: Science to Support Land management in Southern Nevada. General Technical Report, RMRS-GTR-303

USDA Forest Service, 2014. Framework for Springs Stewardship Program and Proposed Action Development: Spring Mountains National Recreation Area, Humboldt-Toiyabe National Forest, General Technical Report, RMRS-GTR-330.

XII. Conservation Initiatives Ranking Criteria (applicable priorities **bolded**)

Ranking Criteria: Priorities identified in the Strategic Plan or Implementation Agreement or developed by the Subgroup	**TOTAL POINTS POSSIBLE**
1. **Project supports one of three priority types of projects**: *(Points should be awarded on a scale of 0-10.)* a. **Habitat enhancement –** Monitors health of watershed, ecosystem and identifies springs that are in need of restoration. Some spring will be actively restored b. Cultural Resources **Safety and Public Health -** Monitoring will determine the amount of recreational use at springs and land managers can take appropriate action to limit damage.	10
2. **Project includes outreach/education as a component** - examples could include, but are not limited to: **Volunteer/Partnership Coordination**, **Youth Initiatives - Teach the Teachers**, Mobile Models, Make the Classroom/Lessons Accessible, Off Highway Vehicle Impacts, **Water Conservation**, **projects that facilitate getting youth into the environment** - i.e., Hands on the Land, or projects that incorporate modern outreach efforts and techniques using social media platforms. The partners will be non-profit organizations with a proven record that engages the community through volunteerism. Through this program they will work with university clubs, teachers and other volunteers to collect data. Outreach to *(Points should be awarded on a scale of 0-5.)*	5
3. **Project supports 1 of the 20 priority sub-types of projects**: *(Factors a-b are mutually exclusive. If the project supports more than one priority sub-type, award points based on the primary priority sub-type. This list is not all inclusive, but gives priority to projects that leave a legacy on the landscape and those that are important to program partners.)* a. Project supports any of the priority sub-types – 10 pts 1. Cultural – Protection/Site Stewards 2. **Habitat Enhancement – Endangered Species –** Identifies habitat for Endangered Species, endemic plants, and spring snails, and Relict Leopard frog. 3. Safety and Public Health – AML Reclamation with habitat restoration component 4. Habitat Enhancement – Proactive Steps to Prevent Listing – Identifies spring snail population to monitor the need for listing 5. **Habitat Enhancement – Invasive Species Treatment and/or Control (Plant or Animal)** 6. **Habitat Enhancement – Restoration of Habitat for Sensitive Species at the watershed or landscape level --** Springs that have already been identified for restoration will be completed. Monitoring will also identify springs that need further analysis to determine if	10

restoration is needed and or begin the restoration planning process. 7. **Cultural – Restoration/Stabilization –** Disturbances to the springs that contain cultural sites will be identified and be incorporated into the ecological rating when prioritizing restoration needs. Volunteers will have an opportunity to be involved in the restoration activity. 8. Safety and Public Health – Litter/Dumping Clean-up 9. **Cultural –** Project includes tribal involvement and/or consultation – Tribal involvement and consultation will occur as part of the restoration planning and implementation 10. **Habitat Enhancement – project addresses climate change –** Monitoring water and vegetation in riparian areas over time will indicate the trend in changes made by climate change 11. **Habitat Enhancement – Water Quality and Quantity Monitoring –** Monitoring will determine the quality of water, age and amount affected by drawdown 12. Habitat Enhancement – Cave Management 13. **Habitat Enhancement – Restoration of Springs/Streams/Rivers –** Springs will be identified for restoration needs including but not limited to the exclusion of non-native horses and burros 14. Habitat Enhancement – Road decommissioning and rehabilitation 15. Habitat Enhancement – Reintroduction of Extirpated Species to restore overall ecosystem b. Project supports any of the priority sub-types – 5 pts 16. **Cultural – Surveys –** Prominent cultural features will be noted during site surveys. 17. Cultural – National Register Nominations 18. Safety and Public Health – Information Kiosks and Signs 19. **Safety and Public Health – project addresses and mitigates adverse impacts to resources caused by the volume of people using the resource -** Monitoring will determine the amount of recreational use at springs and managers can take appropriate actions to limit damage. 20. **Safety and Public Health** – resolving trespass/encroachment/illegal use of public lands (i.e. marijuana grow sites)/boundary surveys. Spring monitoring will record human disturbances, including illegal uses, which can be responded to by the land managers, increasing public safety at the springs.	
4. **Project enhances partnerships in promotion of cooperation and collaboration** – 5 pts *(Points should be awarded between 0-5 based on the following factors:)* a. **Involves individual citizen groups or organizations in the development and accomplishment of resource management goals and other activities during project implementation** – 2 pts Volunteers will be used to collect most of the data coordinated by Friends b. **Addresses the needs of more than one Federal agency** – 1 pt	5

Monitoring will occur on all lands in Clark County, managed by all four agencies c. **Involves non-Federal public partners** – 2 pts Friends and SSI will implement most of the work to be completed	
5. Project has identified committed non-SNPLMA sources of funding or in-kind contributions in the development and/or implementation of the project – 3 pts a. **Volunteer labor** – valuation to be computed at the rate used by the Department of Interior, which is currently $21.36/hour Volunteers will contribute a large in-kind donation through labor and donated travel b. Salaried employees – actual hourly rate plus the value of any fringe benefits received c. Actual costs for material, equipment and supplies should be used *Overhead costs may not be included in determining in-kind contributions.	3
Ranking Criteria: Executive Committee Values	
6. **Project promotes sustainability** by providing benefits in the near and long term by emphasizing healthy and resilient landscapes as well as durability, relevancy, and shared support – 10 pts *(Points should be awarded on a scale of 1-10 based on the following factors. Projects can be given a score of 0 to 2 for each factor, depending on how well they address the factor.)* a. **Conserves resources to ensure availability to future generations** – 2 pts - Monitoring springs provides land managers accurate data to take appropriate actions to preserve springs and riparian areas. b. **Restores or maintains natural processes as demonstrated by implementation monitoring within the project timelines** – 2 pts- Springs restored and springs identified for restoration will ensure the natural processes of springs and monitor endemic and invasive species. c. **Will remain relevant and continue to provide a benefit beyond the existence of SNPLMA** – 2 pts - The use of trained volunteers will allow for program sustainability and monitoring to continue to track trending of springs. d. **Includes a stewardship component to broaden support and share responsibility for operating or maintaining the project** – 2 pts - Restoration of sensitive springs sites and taking action when needed develops strong spring stewards and a sense of ownership. e. **Reduces long-term costs and minimizes the human impact on the environment** – 2 pts - A primarily volunteer workforce reduces the costs both initially and over time as more volunteers gain expertise.	10
7. **Project promotes connectivity** by linking people to nature and recreational opportunities, and by uniting important places across the landscape – 5 pts *(Points should be awarded on a scale of 0-5 based on how well the project supports the following factors:)* **a. Encourages people to meaningfully connect with their natural environment and helps them appreciate and care for the environment** – training volunteers to collect data will create a sense of ownership of	5

natural resources AND/OR b. Connects habitats, migratory corridors, or protected areas	
8. **Project promotes community** by improving the quality of life for the human community and protecting the integrity of biological communities – 15 pts *(Points should be awarded on a scale of 0-15 based on the following factors. Projects can be given a score of 0-5 for each factor depending on how well they address each factor.)* a. **Conserves or restores the functionality, resiliency and integrity of biological communities** – 5 pts – Continuous monitoring of sensitive springs sites will give manager's the best chance to ensure resiliency of springs and the species dependent on them. b. **Encourages partnerships and helps build a sense of community** – 5 pts –Nonprofit partners and volunteers being involved directly builds the program from the grassroots community level. c. **Improving quality of life for the human community by preserving the past (cultural or historic sites) for present or future generations** – 5 pts All springs in southern Nevada are linked to our native American heritage. Native Americans have used these springs for thousands of years. They place a significant cultural importance on them. Restoring and monitoring these springs will insure that the cultural ties are maintained.	15
TOTAL POINTS AWARDED *(63 pts possible)*	

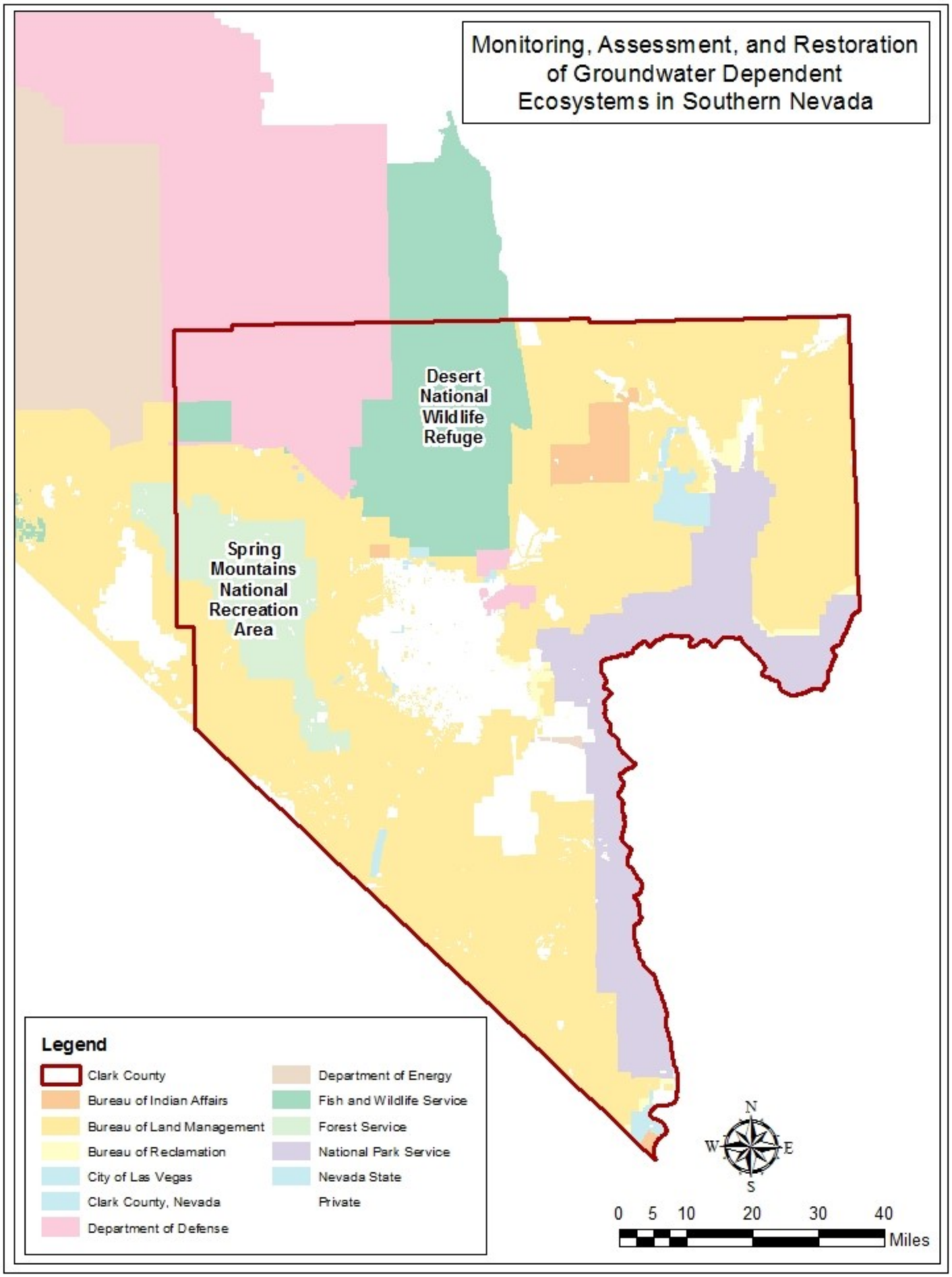
Schedule B						
CONSERVATION INITIATIVE						
ESTIMATED NECESSARY EXPENSES						
Project Name:	Monitoring, Assessment, and Restortaion of Groundwater Dependent Ecosystems in Southern Nevada					
Project #:		**Priority #:**		**Agencies:**	USFS, BLM, FWS, NPS	
Prepared by:	Jim Hurja					
Phone:	702-515-5407				**Initial**	x
Date:	4/22/2016				**Updated**	
1. Planning & Environmental Documentation					$ 76,000.00	3%
(Surveys/ reports for cultural, natural, biological, archaeological resources, NEPA documentation, etc)						
2. FWS Consultation - Endangered Species Act					$ 6,000.00	0%
(direct expenses for FWS if consultation is required)						
3. Direct Federal Labor to Implement Project (Payroll)					$ 402,086.00	14%
(Federal labor costs for completing the project)						
4. Project Equipment and/or Supplies/ Materials					$ 162,032.00	6%
(include specialized equipment, supplies and materials not included in contracts/ agreements)						
5. Travel & Per Diem for Implementation					$ 46,500.00	2%
6. Official Vehicle Use					$ 49,100.00	2%
(Based on agencies procedures for use, fuel, equipment, and mileage charges)						
7. Contracts/Grants/Agreements to complete the project					$ 1,857,153.00	64%
8. Required Training to Implement Project					$ 4,000.00	0%
(includes initial and annual training for LEOs and training necessary to implement the project)						
9. Other Necessary Expenses - See Expanded Budget					$ 312,865.00	11%
				TOTAL	$ 2,915,736.00	100%
COMMENTS						

Detailed Cost Estimate Other Necessary Expense Worksheet

Project Title: Monitoring, Assessment, and Restoration of Groundwater Dependent Ecosystems in Southern Nevada

DETAILED COST ESTIMATE			
1. Planning and Environmental Assessment Costs			
USFS		$	60,000.00
BLM		$	5,000.00
FWS		$	6,000.00
NPS		$	5,000.00
	Subtotal	$	76,000.00
2. FWS Consultation - Endangered Species Act	**Subtotal**	$	6,000.00
3. Direct Labor/Payroll to Perform the Project (use fully loaded labor rate)			
USFS		$	193,786.00
BLM		$	-
FWS		$	58,800.00
NPS		$	149,500.00
	Subtotal	$	402,086.00
4. Project Equipment			
USFS		$	20,000.00
BLM		$	25,000.00
FWS		$	19,800.00
NPS		$	-
	Subtotal	$	64,800.00
5. Project Materials and Supplies			
USFS		$	30,500.00
BLM		$	40,000.00
FWS		$	20,732.00
NPS		$	6,000.00
	Subtotal	$	97,232.00
6. Travel (airfare, car rental, per diem, etc)			
USFS		$	34,000.00
BLM		$	-
FWS		$	8,000.00
NPS		$	4,500.00
	Subtotal	$	46,500.00
7. Official Vehicle Use			
USFS		$	32,000.00
BLM		$	7,500.00
FWS		$	3,600.00
NPS		$	6,000.00

Subtotal	$	49,100.00
8. Required Training for Project Implementation (list purpose)		
USFS	$	-
BLM	$	4,000.00
FWS	$	-
NPS	$	-
Subtotal	$	4,000.00
9. Cost of Contracts and/or Agreements to Perform Project		
USFS	$	1,632,153.00
BLM	$	190,000.00
FWS	$	35,000.00
NPS	$	-
Detailed Cost Estimate Subtotal	$	1,857,153.00
OTHER NECESSARY EXPENSES (APPENDIX B-11)		
10. Examples of Other Necessary Expenses (providing a breakdown of these costs is optional, however a		
ADMINISTRATION COSTS		
USFS	$	242,290.00
BLM	$	8,000.00
FWS	$	53,825.00
NPS	$	8,750.00
Other Necessary Expenses Subtotal	$	312,865.00
GRAND TOTAL	**$**	**2,915,736.00**
CASH/ IN-KIND CONTRIBUTIONS		
Contributor 1	$	-
Contributor 2	$	-
Total	**$**	**-**


Monitoring, Assessment, and Restoration of Groundwater Dependent Ecosystems in Southern Nevada
Desert National Wildlife Refuge
Spring Mountains National Recreation Area
Legend
Clark County
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation
City of Las Vegas
Clark County, Nevada
Department of Defense
Department of Energy
Fish and Wildlife Service
Forest Service
National Park Service
Nevada State
Private
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S
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Miles

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Desert National Wildlife Refuge Complex
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130
702-515-5450 phone
702-515-5460 fax

April 14, 2016

Donn Christiansen
Area Manager
Humboldt-Toiyabe National Forest
Spring Mountains National Recreation Area
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130

Subject: Support for Monitoring, Assessment, and Restoration of Groundwater Dependent Ecosystems in Southern Nevada Nomination for SNPLMA Funding

Dear Mr. Christiansen,

We support the Southern Nevada Agency Partnership (SNAP) nomination for Southern Nevada Public Lands Management Act (SNPLMA) funding to monitor, assess, and restore springs on Federal lands in southern Nevada. Springs are significant resources supporting biodiversity in the Mojave Desert and they are subject to impacts from climate change or other disturbances both human-caused and natural. It is important as land managers to monitor changes to these resources to enable management and restoration, as needed.

We appreciate your efforts to prioritize spring resources in southern Nevada to enable the conservation goals of all Federal land management agencies.

Sincerely,

Christy Smith
Project Leader

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Southern Nevada District Office
4701 N. Torrey Pines Drive
Las Vegas, Nevada 89130
http://www.blm.gov/nv/st/en.html

In Reply Refer To:
7200 (NVS00000)

APR 21 2016

Donn Christiansen
Area Manager
Humboldt-Toiyabe NF
Spring Mountains National Recreation Area

Dear Mr. Christiansen:

The Bureau of Land Management's Southern Nevada District Office strongly supports Southern Nevada Agency Partnership (SNAP) nomination for Southern Nevada Public Lands Management Act (SNPLMA) Round 16 proposal "Monitoring, Assessment, and Restoration of Groundwater Dependent Ecosystems in Southern Nevada." Springs are significant resources supporting biodiversity in the Mojave Desert and they are subject to impacts from climate change or other disturbances both human-caused and natural. It is important as land managers to monitor changes to these resources to enable management and restoration, as needed.

We appreciate your efforts and hard work in developing this proposal. We believe that the completion of the stated goals will be invaluable in managing spring resources on public land in southern Nevada.

Sincerely,

Erick Kurkowski
Acting District Manager
BLM-Southern Nevada District Office

United States Department of the Interior

NATIONAL PARK SERVICE
Lake Mead National Recreation Area
601 Nevada Way
Boulder City, NV 89005

IN REPLY REFER TO: L3031 (LAKE-RM)

May 5, 2016

James Hurja
Forest Soil Scientist
U. S. Forest Service
4701 N. Torrey Pines Drive
Las Vegas, Nevada 89130

Dear Mr. Hurja:

The National Park Service (NPS) supports the Southern Nevada Public Lands Management Act Round 16 interagency proposal titled "Monitoring, Assessment, and Restoration of Groundwater Dependent Ecosystems in Southern Nevada." The NPS recognizes the ecological value and importance of spring-fed wetlands throughout southern Nevada. Although the NPS has an existing spring monitoring program, there are several springs within Lake Mead National Recreation Area (NRA) in need of the restoration and monitoring actions included in this proposal, such as exotic plant control and revegetation to improve leopard frog habitat. In addition, the NPS has an Exotic Plant Management Team (EPMT) based at Lake Mead NRA that is available to assist partner agencies with spring restoration activities. If EPMT services are rendered for this project, then approximately $3,500 worth of in-kind equipment would be provided by the EPMT on an annual basis. Equipment includes but is not limited to the following: chainsaws, backpack sprayers, computers, GPS units, cameras, phones, boats, trailers, UTVs, and other types of equipment. We also have a very active volunteer program that could support the volunteer aspects of this proposal.

Thank you for your hard work in developing this proposal. We believe that completion of the stated goals will be invaluable in protecting southern Nevada's critical springs resources. We look forward to working with you.

Sincerely,

FOR Lizette Richardson
Superintendent