

Task Agreement Number P15AC01289 / NMSUCP-01
Under
Cooperative Agreement P14AC00921

Between
The United States Department of the Interior
National Park Service
And
New Mexico State University
DUNS No: 17-385-1965
EIN No: 85-6000401
New Mexico State University
Office of Grants & Contracts
New Mexico State University
1050 Stewart Street
MSC OGC P O Box 30002
Las Cruces, NM 88003-8002

CFDA: 15.945

Project Title: Resilient Landscapes: Influence of fire and forest restoration on spatio-temporal distribution of fish communities and benthic aquatic macroinvertebrates in the Valles Caldera National Preserve, New Mexico – Phase I.

Park Unit: Valles Caldera National Preserve (VALL)

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Total Amount of Task Agreement Award: \$47,000.00

Funding source: Resilient Landscapes Grant, Department of Interior

Period of Performance: 1 August, 2015 through 31 December, 2017

Student Involvement: Yes

Sensitive Information: No

ARTICLE I – BACKGROUND AND OBJECTIVES

Cooperative Agreement Number P14AC00921 was entered into by and between the Department of the Interior, National Park Service, (NPS), and New Mexico State University (hereafter referred to as ‘Recipient’) for the purpose of providing research, technical assistance, and/or education, as described below. Unless otherwise specified

herein, the terms and conditions as stated in the Cooperative Agreement will apply to this Task Agreement.

For performance under this task agreement, the regulations set forth in 2 CFR, Part 200, supersedes OMB Circulars A–21 (2 CFR 220), A–87 (2 CFR 225), A–110, and A–122 (2 CFR 230); Circulars A–89, A–102, and A–133; and the guidance in Circular A–50 on Single Audit Act follow-up. The recipient shall adhere to 2 CFR, Part 200 in its entirety in addition to any terms and conditions of the master agreement not superseded by 2 CFR 200, as well as the terms and conditions set forth in this agreement. In the event of a conflict between the original terms of the master agreement and 2 CFR, Part 200, relating to this task agreement, 2 CFR, Part 200 shall take precedence.

Project Title: Resilient Landscapes: Influence of fire and forest restoration on spatio-temporal distribution of fish communities and benthic aquatic macroinvertebrates in the Valles Caldera National Preserve, New Mexico – Phase I.

Project Description: The Valles Caldera National Preserve (VALL) is currently undergoing a landscape restoration project, funded under the DOI Resilient Landscapes program, to restore natural fire regimes to the forest and grassland watersheds on the Preserve. Large-scale restoration efforts involve forest thinning to reduce fuel loads, and prescribed and managed fires to further eliminate fuels and allow for natural fire regimes to return to the landscape. Fires can have varying impacts on watershed function, particularly with respect to water quality and discharge amounts and timing. Post-fire flash floods can result if watersheds are burned severely. VALL has been subjected to two recent large-scale uncharacteristic wildfires (the 2011 Las Conchas fire, and the 2013 Thompson Ridge fire), which led to multiple post-fire flash floods and subsequent damage to fisheries and aquatic macro-invertebrate communities on severely-burned watersheds. While fish and invertebrate communities are currently recovering, ongoing restoration efforts using prescribed fires may continue to impact these biological resources. The goal of the proposed work will be to monitor and characterize response and rate of recovery of the aquatic systems subjected to wildfire and restoration activities throughout the VALL. It is likely that recovery of fish and macroinvertebrate communities within the stream systems of the VALL will be highly variable in response to elevated sediment-laden flows until watersheds and stream catchments stabilize in time through successional re-vegetation. VALL has pre-fire stream data on fish and invertebrates to which post-fire and post-restoration communities can be compared; hence, the specific objectives of this project is to determine when each watershed has recovered to pre-disturbance levels of species composition and abundances.

This project fulfills a Public Purpose of support or economic stimulation via the following CESU objectives:

- a. *The project engages recipients, partners, communities, and/or visitors in shared environmental stewardship as part of the Resilient Landscapes program on VALL.* The overall VALL Resilient Landscapes program has 23 official collaborating

- groups/agencies, and New Mexico State University project will be integrated with projects and participation of these many collaborators.
- b. *The scientific community and/or researchers external to NPS gains by new knowledge provided through research and related results dissemination of natural, cultural and/or historical resource information.* The project will (1) provide usable knowledge to support informed decision making by quantifying the effects of restoration management protocols and by providing data on fish and aquatic invertebrate distributions and abundances; (2) create and maintain effective partnerships among the federal agencies and universities to share resources and expertise by fostering and expanding an existing partnership between the Valles Caldera National Preserve and New Mexico State University Department of Fish, Wildlife and Conservation Ecology, and (3) manage federal resources effectively by providing information and decision support for landscape-scale forest treatments such as thinning and prescribed burning regarding the impact to aquatic ecosystems and recovery times.

NPS will have a Substantial Involvement in the project: *NPS is involved with the recipient in describing the goals, jointly developing the scope and the activities to be accomplished. This will be combined with other substantial involvement, that goes beyond Federal stewardship responsibilities.* NPS staff at VALL will be sharing existing site and GIS data, along with population data on fish and aquatic invertebrates on VALL monitoring sites since 2003, and will provide technical assistance with field site selections, sampling design, insect identifications through museum specimens, coordination with restoration contractors and fire crews, and assistance with field work as needed to ensure the success of the project.

ARTICLE II – LEGAL AUTHORITY

54 U.S.C. §101702(a) Cooperative Agreements, Transfer of Services Appropriate Funds

54 U.S.C. §101702(b) Cooperative Agreements, Cooperative Research and Training Programs

54 U.S.C. §100703 Cooperative Study Units

ARTICLE III – STATEMENT OF WORK

A. Statement of work: The Valles Caldera National Preserve (VALL) is currently undergoing a landscape restoration project to restore natural fire regimes to the forest and grassland watersheds on the Preserve. Large-scale restoration efforts involve forest thinning to reduce fuel loads, and prescribed and managed fires to further eliminate fuels and allow for natural fire regimes to return to the landscape. Fires can have varying impacts on watershed function, particularly with respect to water quality and discharge amounts and timing. Post-fire flash floods can result if watersheds are burned severely.

For example, the Las Conchas Fire began on 26 June 2011 and spread at a rate of 43,000 acres in the first 14 hours, ultimately burning 156,593 acres until fully contained on August 1, 2011, making it the largest fire in New Mexico in more than a century. In less than one week, the fire burned 30,039 acres (or one-third) of VALL. Within a few weeks of the fire, a series of rain events on the VALL watersheds resulted in exceptionally high flows and large ash input throughout the streams. Fish surveys following the ash-laden flood events revealed a 90-100% reduction in trout abundance, presumably due to physical (elevated ash and large debris) and chemical effects. These effects also decreased benthic macroinvertebrate density and taxonomic richness, thereby shifting food resources of the fish community. The goal of the proposed work will be to characterize response and rate of recovery of the aquatic systems subjected to both the Las Conchas Fire and the Thompson Ridge fire, and ongoing restoration efforts throughout VALL.

Since the fire in 2011, recovery of many burned-forested regions within the VALL has begun, as seen in patches of young aspen and herbaceous understory. As the structural complexity of the forest canopy and soil increases post-burn, riparian areas and streams will benefit with reduced sedimentation and increased stream stability. Minshall et al. (1997) observed post-fire recovery of aquatic macroinvertebrate community throughout the Yellowstone ecosystem was related to the relatively quick recovery of the riparian areas (less than two years); however, the frequency and severity of large flood events through the years post-fire served to “reset” recovery of the altered stream channels and thus the macroinvertebrate community. Monitoring data from some VALL sites indicate that trout recovery is just beginning to occur, and will take several more years to complete. Native fish populations initially benefitted from the absence of the predatory brown trout, but are now declining as these predators return. It is likely that recovery of fish and macroinvertebrate communities within the stream systems of the VALL will be highly variable in response to elevated sediment-laden flows until watersheds and stream catchments stabilize in time through revegetation.

Landscape restoration of forested watersheds involves physical disturbance of the restored areas through forest thinning and prescribed or managed fire events. Mechanical thinning, using heavy machinery, typically results in some degree of soil disturbance, while the use of fire to reduce forest fuel loads removes litter layers and exposes soils to colonization/establishment of plant seeds. Both intentional and unintentional landscape-scale disturbances, such as thinning and prescribed and naturally ignited fires, provide situations where stream communities can be disturbed from rainfall and snowmelt runoff. Monitoring of aquatic ecosystem resources will inform management decisions and treatment activities during restoration actions.

Study Areas

Two major tributaries of the Jemez River (the East Fork Jemez River and the Rio San Antonio) have their headwaters in VALL. Within the Jemez River drainage basin, the

East Fork Jemez River is a spring-fed, third-order stream with headwaters near the eastern border of VALL and is classified as a C-4 type stream (Rosgen 1996). Mean discharge typically ranges from 0.22 m³/s in October (base flow) to 0.34 m³/s in May (onset of snow melt). Stream gradient in the upper watershed is 2.5%, decreasing to 1.5% in the lower watershed; wetted width ranges from 0.75-1.5 m in the upper watershed to 1.5-2.5 m in the lower watershed; and small cobble is the dominant substrate in the upper watershed while medium to large gravel is the dominant substrate in the lower watershed. Jaramillo Creek is a spring-fed first-order tributary to the East Fork Jemez River with headwaters near the center of VALL and is classified as a B/G-4 stream near the headwaters, shifting to a type C-4 near the confluence with the East Fork Jemez River (Rosgen 1996). Mean discharge rates vary from 0.02 m³/s in May to 0.11 m³/s in October near the headwaters and from 0.12 m³/s in May to 0.28 m³/s in October near the confluence with the East Fork Jemez River (Anderson et al. 2010). Riparian communities are composed of sedges (*Carex* spp.), rushes (*Juncus* spp.), and sod-forming grasses (*Poa* spp.). Undercut banks and overhanging riparian vegetation provide the majority of habitat for fish in these open meadow streams.

Six permanent study reaches were established throughout the Preserve in 2003 as part of a long term monitoring study to evaluate the effects of livestock and elk grazing on aquatic communities. We will sample the elk exclosures established in the San Antonio drainage on Rio San Antonio (upper, middle, lower) and the three study reaches established in the East Fork of the Jemez River (Lower East Fork Jemez, Upper Jaramillo Creek, Lower Jaramillo Creek), and the Valle Grande. From 2004 to 2008, these six study reaches were added to assess the effects of grazing on riparian areas. Within these reaches, physical, chemical and biological attributes were measured. From 2005 through 2008, another six study reaches were added to the San Antonio drainage sampling area in the Valle Toledo to characterize the effects of a prescription burn on fish and macro-invertebrate populations and physical stream habitat of Indios Creek (reference "Control") and San Antonio Creek (burned treatment). Within these reaches, physical, chemical and biological attributes were measured. These same six sites within the Valle Toledo were revisited immediately following the Las Conchas fire after a series of heavy flooding events (six weeks post-fire) and provide an excellent post-fire baseline to assess temporal and spatial recovery of the aquatic system to fire effects, and will be incorporated into the study design.

Within the San Antonio drainage basin, the Rio San Antonio is a spring-fed third order stream with headwaters near the eastern border of the VALL and classified as a C-4 type stream (Rosgen 1996). Mean discharge varies between 0.16 m³/s in October to 0.48 m³/s in May. Stream gradient within the study area is 1.0-1.5%, wetted width is 3.2-6.2 m, and the dominant substrate varies from coarse gravel in the upper watershed to sand and silt in the lower watershed. Sedges and sod-forming grasses dominate riparian communities on Rio San Antonio. A smaller tributary, Rito de los Indios, feeds into Rio San Antonio in the Valle Toledo watershed. This stream is a smaller C-3 type stream (Rosgen 1996) with discharge that varies between 0.1 m³/s in October and 0.2 m³/s in

May. Stream gradient within the study area (open meadow grassland) is 1.0-1.5%, wetted width is 1.2-5.4 m, and the dominant substrate varies from coarse gravel in the upper reach to sand in the lower reach before it enters the Rio San Antonio.

Benthic Macroinvertebrate Communities of the Preserve

Aquatic macroinvertebrate communities have been widely accepted as useful indicators of disturbances to fire in lotic (flowing) systems (Minshall et al. 1997; Barbour et al. 1999). These communities tend to respond rapidly to changes in temperature, dissolved oxygen, and instream substrate (Vannote and Sweeney 1980; Ward and Stanford 1982). Not only are aquatic macroinvertebrates considered key indicators of system integrity, they provide a critical food source for fishes and an important component to biodiversity of aquatic systems (Nakano and Murikami 2001; Baxter et al. 2005). While shifts in the composition of benthic macroinvertebrate and fisheries communities have been characterized over time in response to large-scale fire (Minshall et al. 1997; Gresswell 1999), the original composition of the communities (pre-fire) is usually unknown. Thus, the absence of baseline or pre-fire data can result in less than an accurate assessment of fire effects and the timeline for recovery of the aquatic community.

Preliminary observations of the benthic macroinvertebrate community immediately after the 2011 Las Conchas fire and flood events revealed a community that ranged from non-impaired to slightly impaired (unpublished J. Jacobi). While the majority of benthic macroinvertebrate taxa were present pre- and post-fire flood events, the sediment strata appeared scoured and completely denuded of periphyton with a large accumulation of interstitial ash that is anticipated to affect the status and recovery of the aquatic macroinvertebrate community for some time (Personal observation J. Jacobi). The aquatic benthic macroinvertebrate communities throughout the VALL have been inventoried, quantified and classified using a suite of community health metrics. Despite minor impairment in a few locations, the communities were deemed indicative of high biological integrity (Anderson et al. 2010; Jacobi 2010). An inventory of aquatic insect fauna on the VALL revealed 134 species, representing 46 families and 89 genera.

Fish Communities of the Preserve

The fish community on the VALL is composed of four species of native non-game fish (Rio Grande chub *Gila pandora*; Rio Grande sucker *Catostomus plebeius*; longnose dace *Rhinichthys cataractae*; fathead minnow *Pimephales promelas*) and two species of non-native trout (brown trout *Salmo trutta* and rainbow trout *Oncorhynchus mykiss*). Within VALL, the East Fork Jemez River contains all six species that vary in abundance from headwaters to lower reaches of the watershed. Within a second drainage on VALL, the dominant fish species on the Rio San Antonio were longnose dace and brown trout until 2007, when Rio Grande chub and Rio Grande sucker were transplanted into the Rio San Antonio drainage from the East Fork Jemez River drainage. Two of the six species of

fish on VALL (the Rio Grande chub and Rio Grande sucker) are State-listed as *Species of Greatest Conservation Need*. These species are considered vulnerable, imperiled, or critically imperiled at both the state and federal levels (NMDGF 2006). The U.S. Forest Service Southwestern Region includes both species as the Regional Forester's Sensitive Species (September 21, 2007 version) with a justification that both are vulnerable throughout their range in the Santa Fe, Carson, Lincoln, and Cibola National Forests of New Mexico. Both sucker and chub species are considered vulnerable and declining due to the introduction and range expansion of nonnative cyprinids, centrarchids, catostomids, non-native salmonids, and the overall degradation of habitat (Calamusso 2005; Rees et al. 2005; Bison-M Taxonomy 2011).

Methods

Field Measurements- Habitat Attributes

Stream morphology and habitat characteristics will be measured to evaluate long-term impacts and responses of streams within open meadow grasslands. Within each study reach, a series of permanent transects will be established perpendicular to stream flow to measure important geomorphic stream variables (bankfull depth and total wetted-width, residual pool depth, maximum pool depth) according to methods described by Kershner et al. (2004). Aquatic habitat type within each study reach will be categorized as pool, glide, run, or riffle then measured to the nearest centimeter across the horizontal portion of the transect (Bisson et al. 1982; Herger et al. 1996; Sponholtz and Rinne 1997). At each section, stream depth (m) and velocity (m/s) will be measured using a Marsh McBirney direct-reading flow meter to obtain cross sectional stream profile. Substrate will be characterized using the pebble count procedure described by Bevenger and King (1995) and classified according to the Modified Wentworth Particle Size Scale of Bovee and Cochnauer (1977). The VALL science staff established 216 stream geomorphology transects within the elk/cattle/control exclosure sites, and sampled these annually in 2004 through 2008; we will resample these sites as part of our field measurements.

In-stream habitat provided by undercut banks will be measured at all transects intersecting an undercut bank according to methods described by Kershner et al. (2004). Prevalence of undercut banks will be estimated as the number of observed undercut banks divided by the total number of transects within each study reach. Streambank stability and cover will be estimated according to methods described by Platts et al. (1987) and modified by Bauer and Burton (1993). Cover and stability will be visually estimated on left and right streambanks for areas 0.5 m on the upstream and downstream sides of each transect from stream margin to bankfull width. Erosion potential within each reach will be determined based on the combination of cover and stability of the banks. Erosion potential will be estimated for each study reach using the following equation: $\text{Erosion potential} = \sum EI_{ni} / N_{\text{total}}$; where EI_{ni} = erosion index rating for transects (n) and N_{total} = total number of transects per reach (McInnis and McIver 2001).

Field Measurements- Water quality and sediment

Bulk samples of stream water will be collected from the Valle Toledo analyzed for dissolved oxygen, conductivity, pH, hardness and alkalinity. Sediments will be collected twice each year from pools (greater than 1.0 m in depth) throughout sample reaches on the Valle Toledo using a mini-Eckman sediment sampler. The samples from within each pool will be composited and separated into coarse (2.0 – 4.0 mm) to fine (0.25 – 0.5 mm) particulates using U.S. Standard stainless steel sieves (Hauer and Lamberti 1996). From the smallest particle size fractions, carbon and nitrogen ratios (C:N) will be obtained by high temperature combustion and gas chromatography (Pella 1990; Ben-Dor and Banin 1989).

Field Measurements - benthic invertebrates and fish populations

Benthic Macroinvertebrates

Quantitative replicated samples for macroinvertebrate density, species richness, diversity and evenness, will be collected using a modified Hess type circular sampler (mesh size = 250 microns). Sample collections will occur during the spring and fall across nine study reaches (see Table 1). A total of nine study reaches are planned in which pre-burn data are available from prior studies. These will co-occur within the same study reach as the fish collections and will be subjectively selected by habitat type (i.e., riffle) for macroinvertebrate colonization. Briefly stated, three replicate samples ($n=3$, except Indios Creek where $n=4$, due to the additional “Cabin” site) will be collected using the quantitative Hess sampler to estimate macroinvertebrate density and diversity from riffles within each study reach during each fall and spring collection. An earlier study revealed samples from run and pool habitats were highly variable and did not add sufficient taxonomic information to the analyses; thus, only riffle areas will be sampled for macroinvertebrate metrics. A total of 54 invertebrate samples (9 study reaches x 3 samples/study reach x 2 seasons/year = 54 samples/year + Indios Cabin site (2 samples/yr) = total of 56 samples/year) will be collected and stored in 85% ethyl alcohol until processing. All macroinvertebrates will be removed from debris for identification and enumeration to the lowest possible taxon using taxonomic keys (Pennak 1978; Merrit and Cummins 1996) and reference collections obtained throughout VNCP 2005-2007.

Fish Population Collections

Fish populations will be sampled at each within the Valle Toledo from spring (April – May) and fall (September – October) using permanently marked 50 m reaches to assess growth, recruitment, density, overall health, survival and movement. Briefly stated, three-pass depletion (maximum likelihood removal method; Zippen 1958) will be conducted using backpack electrofishing (Smith and Root Back-pack Electrofisher, Model LR-24). Following each electrofishing pass, all captured fish will be measured for total length (TL) to the nearest 1 mm and weighed to the nearest gram. Fish are held in live cars (mesh baskets) in the stream until completion of the third electro-fishing pass at which time all fish are released into the study reach. Density (fish/m²) and standing crop

(kg/ha), age-class from length–frequency distributions will be assessed. Recruitment will be estimated as the number of Age-0 individuals within each fall and spring collection dependent upon timing of spawning by each species.

The Valle Toledo fish population data will be augmented by fish data from 7 other VALL locations, and 9 locations downstream of VALL, collected by VALL science staff each spring and fall. These data are collected in identical fashion to the proposed Valle Toledo samples, except that VALL staff use 100-m permanent reaches instead of 50-m reaches.

At the time of capture, passive integrated transponder (PIT) 4.5 mm tags will be implanted into each trout over 50 mm (Biomark, Boise, ID). Growth will be calculated as millimeters and grams gained per day over the course of each successive recapture using the growth equation developed by Swift (1961). Movement among fish recaptured within study reaches will be calculated as the distance between the center of the reach where the fish was last observed to the center of the current capture reach. Long distance movement will be calculated using ArcGIS, with total stream distance between recapture locations being calculated as the distance between GPS locations. Mean distance moved will be related to seasonal periods and behavioral patterns that best reflect spawning movement versus search for optimal thermal habitat. Movement among age classes (except for age-0) will also be calculated to evaluate dispersal and establishment of home ranges among fish.

Table 1. Proposed research includes 14 study reaches distributed across open meadow areas (Valle Toledo and Valle San Antonio) within the San Antonio watershed and Valle Grande within the Jemez watershed of the VALL. Sample attributes include fish habitat and water quality, invertebrates, and fish populations.

Watershed / Streams	Study Reach	# Samples	Sample Attributes
San Antonio Watershed			
Valle Toledo			
Rito de los Indios	Cabin Site, Upper, Middle, Lower	1 each	Habitat, Water quality, Invertebrates, Fishes
Rio San Antonio	Upper, Middle, Lower	1 each	Habitat, Water quality, Invertebrates, Fishes
Valle San Antonio			
Rio Antonio Creek	Upper, Middle, Lower	3 each	Invertebrates (Elk exclosures)
East Fork Jemez River			
Valle Grande			
East Fork of Jemez	Lightning Shack	3 each	Invertebrates
East Fork of Jemez	Hidden Valley	3 each	Invertebrates
Jaramillo Creek	Upper, Lower	3 each	Invertebrates (Elk exclosure)

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B. Project schedule and products:

Date	Task Description
Jul 2015	Complete cooperative agreement
Sep 2015	Fall 2015 field sample and data collections
Oct 2015 – Apr 2016	Analyze samples and data; present results in “All Hands” meeting.
May 2016	Spring 2016 field sample and data collections
Summer 2016	Analyze samples and data
Sep 2016	Fall 2016 field sample and data collections
Oct 2016 – Apr 2017	Analyze samples and data; present results in “All Hands” meeting.
Dec 2017	Final report to VALL

Specific Outputs and Products:

- a. Annual reports in December of 2015 and 2016.
- b. Final report in Dec. 2017 to include analyses and assessments; report may be in manuscript format for journal submission.
- c. Sample site maps and shape files for GIS (in ESRI file geodatabase, version 10.0 or newer; UTM Zone 13, NAD1983). Use of sub-meter accuracy GPS (e.g., Trimble GeoXT 3000 or 6000 or newer).
- d. Digital copies of all photographs associated with project (high-resolution .jpg, .gif, .tif or .png files)
- e. Digital copies of summarized data (Excel data files)
- f. Presentation at CFLRP “All Hands Meeting” in March 2016 and 2017.

C. Recipient agrees to:

- a. Conduct field data collections of fish, invertebrates and habitat variables as described in the Methods.
- b. Analyze results with respect to habitat variables, fire impacts and restoration treatments.

- c. Compile maps and photographs, including GIS shape files, of field study sites.
 - d. Prepare annual reports (due Dec. 2015, Dec. 2016) and final report (Dec. 2017)
 - e. Present results at CFLRP “All Hands Meeting” in March, 2016 & 2017.
- D. NPS agrees to:
- a. Provide all background relevant data sets for assisting with this project (e.g., GIS data layers, past fish and invertebrate data, with stream geomorphology data, and access to invertebrate archived reference specimens for identification purposes, etc.).
 - b. Provide permits and access gate codes, maps, radio, and safety/security information in an ongoing fashion during the project.
 - c. Provide VALL technical science staff as needed to ensure project success.
 - d. Coordinate with thinning and fire crews, and public activities, during the field sampling work of the project.
 - e. Provide technical assistance as needed for preparation of reports, potential journal publications, and meeting presentations.

ARTICLE IV – TERM OF AGREEMENT

This Task Agreement will become effective on August 1, 2015 and extend through December 31, 2017.

ARTICLE V – KEY OFFICIALS

- A. Key officials are essential to ensure maximum coordination and communication between the parties and the work being performed. They are:

1. **For the NPS:**

Agreement Technical Representative:

Todd Chaudhry, Ph.D.

Research Coordinator

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2. **For Recipient:**

Principal Investigator:

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- B. **Communications** - Recipient will address any communication regarding this Agreement to the Awarding Officer with a copy also sent to the ATR. Communications that relate solely to routine operational matters described in the current work plan may be sent only to the ATR
- C. **Changes in Key Officials** - Neither the NPS nor Recipient may make any permanent change in a key official without written notice to the other party reasonably in advance of the proposed change. The notice will include a justification with sufficient detail to permit evaluation of the impact of such a change on the scope of work specified within this Agreement. Any permanent change in key officials will be made only by modification to this Agreement.

ARTICLE VI – AWARD AND PAYMENT

- A. **Financial Assistance:** NPS will provide funding to Recipient in an amount not to exceed \$47,000 for the work described in Article III and in accordance with the approved budget (Attachment A). Any award beyond the current fiscal year is subject to availability of funds.

- B. Recipient shall request payment in accordance with the following:
1. **Method of Payment.** Payment will be made by advance and/or reimbursement through the Department of Treasury's ASAP system.
 2. **Requesting Advances.** Requests for advances must be submitted via the ASAP system. Requests may be submitted as frequently as required to meet the needs of the FA Recipient to disburse funds for the Federal share of project costs. If feasible, each request should be timed so that payment is received on the same day that the funds are dispersed for direct project costs and/or the proportionate share of any allowable indirect costs. If same-day transfers are not feasible, advance payments must be as close to actual disbursements as administratively feasible.
 3. **Requesting Reimbursement.** Requests for reimbursements must be submitted via the ASAP system. Requests for reimbursement should coincide with normal billing patterns. Each request must be limited to the amount of disbursements made for the Federal share of direct project costs and the proportionate share of allowable indirect costs incurred during that billing period.
 4. **Adjusting payment requests for available cash.** Funds that are available from repayments to, and interest earned on, a revolving fund, program income, rebates, refunds, contract settlements, audit recoveries, credits, discounts, and interest earned on any of those funds must be disbursed before requesting additional cash payments.
 5. **Bank Accounts.** All payments are made through electronic funds transfer to the bank account identified in the U.S Treasury ASAP system by the FA Recipient.
 6. **Supporting Documents and Agency Approval of Payments.** Additional supporting documentation and prior Agency (NPS) approval of payments may be required when/if a FA Recipient is determined to be "high risk" or has performance issues. If prior Agency payment approval is in effect for an award, the ASAP system will notify the FA Recipient when they submit a request for payment. The Recipient must then notify the NPS Awarding Officer identified on the Assistance Agreement that a payment request has been submitted. The NPS Awarding Officer may request additional information from the Recipient to support the payment request prior to approving the release of funds, as deemed necessary. The FA Recipient is required to comply with these requests. Supporting

documents may include invoices, copies of contracts, vendor quotes, and other expenditure explanations that justify the reimbursement requests.

ARTICLE VII – REPORTS AND/OR DELIVERABLES

- A. Specific projects or activities within this agreement will be tracked and reported by quarterly submission of a SF-425 Federal Financial Report (FFR) and annual submission of a Performance Report. A final SF-425 and Performance Report shall be submitted at the completion of the Agreement. The following reporting period end dates shall be used for interim reports: 12/31. For final the SF-425 and Performance Report, the reporting period end date shall be the end date of the agreement. Interim reports shall be submitted no later than 30 days after the end of each reporting period. Annual and final reports shall be submitted no later than 90 days after the end period date. All reports shall be submitted via email to the NPS Awarding Officer with a copy to the NPS Agreements Technical Representative via email.
- B. An electronic version of the final report and separate abstract suitable for public distribution will be submitted by the Recipient to the ATR. The ATR will send the final report electronically to NPS's Technical Information Center and carbon-copy the CESU Research Coordinator. Please send Catherine Kisluk at Technical Information Center (TIC) one hard copy and one digital copy of the final report and abstract. Mail the hard copy to: NPS Technical Information Center (TIC) 12795 West Alameda Parkway, Lakewood, Colorado 80228 Attn: Catherine Kisluk and email the digital version to catherine.kisluk@nps.gov and cc the CESU Research Coordinator.
- C. Detail other reports/items as described in the statement of work. GIS shape files and electronic versions of databases and photographs to be delivered with final report.

ARTICLE VIII – MODIFICATION AND TERMINATION

This Task Agreement may be modified at any time, prior to the expiration date, by the mutual concurrence of the Recipient and the NPS. Modifications will be in writing, approved and signed by the NPS Awarding Officer and the Recipient's signatory official.

ARTICLE IX – GENERAL PROVISIONS

1. **OMB Circulars and Other Regulations.** The following Federal regulations are incorporated by reference into this Agreement (full text can be found at <http://www.ecfr.gov>):

a) **Administrative Requirements:**

2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, in its entirety;

b) **Determination of Allowable Costs:**

2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart E;

and

c) **Audit Requirements:**

2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart F.

**ARTICLE X – MINIMUM WAGES UNDER EXECUTIVE ORDER
13658(January 2015)**

(a) *Definitions.* As used in this clause—

“United States” means the 50 states and the District of Columbia.

“Worker”—

(1) Means any person engaged in performing work on, or in connection with, an agreement covered by [Executive Order 13658](#), and

(i) Whose wages under such agreements are governed by the Fair Labor Standards Act (29 U.S.C. chapter 8), the Service Contract Labor Standards statute (41 U.S.C. chapter 67), or the Wage Rate Requirements (Construction) statute (40 U.S.C. chapter 31, subchapter IV),

(ii) Other than individuals employed in a bona fide executive, administrative, or professional capacity, as those terms are defined in [29 C.F.R. § 541](#),

(iii) Regardless of the contractual relationship alleged to exist between the individual and the employer.

(2) Includes workers performing on, or in connection with, the agreement whose wages are calculated pursuant to special certificates issued under [29 U.S.C. § 214\(c\)](#).

(3) Also includes any person working on, or in connection with, the agreement and individually registered in a bona fide apprenticeship or training program registered with the Department of Labor's Employment and Training Administration, Office of Apprenticeship, or with a State Apprenticeship Agency recognized by the Office of Apprenticeship.

(b) *Executive Order Minimum Wage rate.*

(1) The Recipient shall pay to workers, while performing in the United States, and performing on, or in connection with, this agreement, a minimum hourly wage rate of \$10.10 per hour beginning January 1, 2015.

(2) The Recipient shall adjust the minimum wage paid, if necessary, beginning January 1, 2016 and annually thereafter, to meet the Secretary of Labor's annual E.O. minimum wage. The Administrator of the Department of Labor's Wage and Hour Division (the Administrator) will publish annual determinations in the Federal Register no later than 90 days before the effective date of the new E.O. minimum wage rate. The Administrator will also publish the applicable E.O. minimum wage on www.wdol.gov (or any successor Web site) and on all wage determinations issued under the Service Contract Labor Standards statute or the Wage Rate Requirements (Construction) statute. The applicable published E.O. minimum wage is incorporated by reference into this agreement.

(3) (i) The Recipient may request a price adjustment only after the effective date of the new annual E.O. minimum wage determination. Prices will be adjusted only if labor costs increase as a result of an increase in the annual E.O. minimum wage, and for associated labor costs and relevant subaward costs. Associated labor costs shall include increases or decreases that result from changes in social security and unemployment taxes and workers' compensation insurance, but will not otherwise include any amount for general and administrative costs, overhead, or profit.

(ii) Subrecipients may be entitled to adjustments due to the new minimum wage, pursuant to paragraph (b)(2). Recipients shall consider any Subrecipient requests for such price adjustment.

(iii) The Awarding Officer will not adjust the agreement price under this clause for any costs other than those identified in paragraph (b)(3)(i) of this clause, and will not provide duplicate price adjustments with any price adjustment under clauses implementing the Service Contract Labor Standards statute or the Wage Rate Requirements (Construction) statute.

(4) The Recipient warrants that the prices in this agreement do not include allowance for any contingency to cover increased costs for which adjustment is provided under this clause.

(7) The Recipient shall pay, unconditionally to each worker, all wages due free and clear without subsequent rebate or kickback. The Recipient may make deductions that reduce a worker's wages below the E.O. minimum wage rate only if done in accordance with [29 C.F.R. § 10.23](#), Deductions.

(8) The Recipient shall not discharge any part of its minimum wage obligation under this clause by furnishing fringe benefits or, with respect to workers whose wages are governed by the Service Contract Labor Standards statute, the cash equivalent thereof.

(9) Nothing in this clause shall excuse the Recipient from compliance with any applicable Federal or State prevailing wage law or any applicable law or municipal ordinance establishing a minimum wage higher than the E.O. minimum wage. However, wage increases under such other laws or municipal ordinances are not subject to price adjustment under this subpart.

(10) The Recipient shall pay the E.O. minimum wage rate whenever it is higher than any applicable collective bargaining agreement(s) wage rate.

(11) The Recipient shall follow the policies and procedures in [29 C.F.R. § 10.24\(b\)](#) and 10.28 for treatment of workers engaged in an occupation in which they customarily and regularly receive more than \$30 a month in tips.

(c) (1) This clause applies to workers as defined in paragraph (a). As provided in that definition—

(i) Workers are covered regardless of the contractual relationship alleged to exist between the Recipient or Subrecipient and the worker;

(ii) Workers with disabilities whose wages are calculated pursuant to special certificates issued under [29 U.S.C. § 214\(c\)](#) are covered; and

(iii) Workers who are registered in a bona fide apprenticeship program or training program registered with the Department of Labor's Employment and Training Administration, Office of Apprenticeship, or with a State Apprenticeship Agency recognized by the Office of Apprenticeship, are covered.

(2) This clause does not apply to—

- (i) Fair Labor Standards Act (FLSA) – covered individuals performing in connection with contracts covered by the E.O., *i.e.* those individuals who perform duties necessary to the performance of the agreement, but who are not directly engaged in performing the specific work called for by the agreement, and who spend less than 20 percent of their hours worked in a particular workweek performing in connection with such agreements;
- (ii) Individuals exempted from the minimum wage requirements of the FLSA under [29 U.S.C. § 213](#)(a) and 214(a) and (b), unless otherwise covered by the Service Contract Labor Standards statute, or the Wage Rate Requirements (Construction) statute. These individuals include but are not limited to—
- (A) Learners, apprentices, or messengers whose wages are calculated pursuant to special certificates issued under [29 U.S.C. § 214](#)(a).
 - (B) Students whose wages are calculated pursuant to special certificates issued under [29 U.S.C. § 214](#)(b).
 - (C) Those employed in a bona fide executive, administrative, or professional capacity ([29 U.S.C. § 213](#)(a)(1) and [29 C.F.R. § part 541](#)).
- (d) *Notice.* The Recipient shall notify all workers performing work on, or in connection with, this agreement of the applicable E.O. minimum wage rate under this clause. With respect to workers covered by the Service Contract Labor Standards statute or the Wage Rate Requirements (Construction) statute, the Contractor may meet this requirement by posting, in a prominent and accessible place at the worksite, the applicable wage determination under those statutes. With respect to workers whose wages are governed by the FLSA, the Recipient shall post notice, utilizing the poster provided by the Administrator, which can be obtained at www.dol.gov/whd/govcontracts, in a prominent and accessible place at the worksite. Recipients that customarily post notices to workers electronically may post the notice electronically provided the electronic posting is displayed prominently on any Web site that is maintained by the Recipient, whether external or internal, and customarily used for notices to workers about terms and conditions of employment.
- (e) *Payroll Records.* (1) The Recipient shall make and maintain records, for three years after completion of the work, containing the following information for each worker:
- (i) Name, address, and social security number;
 - (ii) The worker's occupation(s) or classification(s);
 - (iii) The rate or rates of wages paid;

- (iv) The number of daily and weekly hours worked by each worker;
 - (v) Any deductions made; and
 - (vi) Total wages paid.
- (2) The Recipient shall make records pursuant to paragraph (e)(1) of this clause available for inspection and transcription by authorized representatives of the Administrator. The Recipient shall also make such records available upon request of the Contracting Officer.
- (3) The Recipient shall make a copy of the agreement available, as applicable, for inspection or transcription by authorized representatives of the Administrator.
- (4) Failure to comply with this paragraph (e) shall be a violation of [29 C.F.R. § 10.26](#) and this agreement . Upon direction of the Administrator or upon the Awarding Officer's own action, payment shall be withheld until such time as the noncompliance is corrected.
- (5) Nothing in this clause limits or otherwise modifies the Recipient's payroll and recordkeeping obligations, if any, under the Service Contract Labor Standards statute, the Wage Rate Requirements (Construction) statute, the Fair Labor Standards Act, or any other applicable law.
- (f) *Access.* The Recipient shall permit authorized representatives of the Administrator to conduct investigations, including interviewing workers at the worksite during normal working hours.
- (g) *Withholding.* The Awarding Officer, upon his or her own action or upon written request of the Administrator, will withhold funds or cause funds to be withheld, from the Recipient under this or any other Federal agreement with the same Recipient, sufficient to pay workers the full amount of wages required by this clause.
- (h) *Disputes.* Department of Labor has set forth in [29 C.F.R. § 10.51](#), Disputes concerning Recipient compliance, the procedures for resolving disputes concerning an Recipient's compliance with Department of Labor regulations at [29 C.F.R. § 10](#). Such disputes shall be resolved in accordance with those. This includes disputes between the Recipient (or any of its Subrecipients) and the contracting agency, the Department of Labor, or the workers or their representatives.
- (i) *Antiretaliation.* The Recipient shall not discharge or in any other manner discriminate against any worker because such worker has filed any complaint or instituted or caused to be instituted any proceeding under or related to compliance with the E.O. or this clause, or has testified or is about to testify in any such proceeding.

(j) *Subcontractor compliance.* The Recipient is responsible for Subrecipient compliance with the requirements of this clause and may be held liable for unpaid wages due Subrecipient workers.

(k) *Subawards.* The Recipient shall include the substance of this clause, including this paragraph (k) in all subawards, regardless of dollar value, that are subject to the Service Contract Labor Standards statute or the Wage Rate Requirements (Construction) statute, and are to be performed in whole or in part in the United States.

ARTICLE XI – ATTACHMENTS

The following documents are attached and made a part of this Task Agreement:

- A. Detailed Budget: See attached Budget Excel file.
- B. ATR Designation Letter

ARTICLE XII - SIGNATURES


IN WITNESS WHEREOF, the parties hereto have executed this Task Agreement on the date(s) set forth below.

FOR RECIPIENT

Name
Title

Date

FOR THE NATIONAL PARK SERVICE



Kelly Adams
Awarding Officer

8/4/15

Date