

**Award Number:** P14AC01113

**Project Number**: UNM-107

**CFDA #:** 15.945

**Park/NPS Unit:** El Morro National Monument (ELMO)

**Title of Project:** Documentation and Preservation of Inscriptions, El Morro National Monument

**Administered through the:**  Colorado Plateau Cooperative Ecosystem Studies Unit Cooperative Agreement Number P14AC00921

**CESU Partner:** University of New Mexico (UNM)

**PROJECT CONTACTS:**

**Principal Investigator:** Angelyn Bass, Research Assistant Professor, Department of Anthropology, University of New Mexico, MSC04 2530, Albuquerque, NM 87131, 505-577-8603, angelynbass@gmail.com or angelyn@unm.edu

**Partner Administrative Contact*:***Diana Sargent, CRA, Sr. Sponsored Projects Officer, University of New Mexico Office of Sponsored Projects-Main, 1700 Lomas Blvd. NE, Ste 2200, MSC01 1247, Albuquerque, NM 87131-0001, (505) 277-2258, [dsargent@unm.edu](mailto:dsargent@unm.edu)

**NPS Certified ATR:** Steve Baumann, Chief of Resources Management, El Malpais and El Morro and El Malpais National Monuments, 124 East Roosevelt Ave, Grants, NM 87020, 505-285-4641 ext. 32, 505-285-5661, [steve\_baumann@nps.gov](mailto:steve_baumann@nps.gov)

**NPS Technical Expert (if appropriate):**

**FUNDING INFORMATION:**

**Amount Funded:** $106,346

**NPS Account Numbers (amounts in parentheses): PPIMELMO00 PPMRSCR1C.CA0000 PX.P0190192A.00.1 Fund Source (e.g., ONPS, FLREA, CRPP, CESU, etc.):** CRPP

NPS Funding

Is this funded using a reimbursable account number? If yes, IMR contracting needs a copy of the Interagency Agreement.

**PROJECT DATES:**

**Start Date: October 01, 2014**

***NOTE: This Task Agreement will become effective on the date of final signature or the effective date of the Award document, whichever is later.***

**End Date:** *(please make end date the last day of the month if possible)* **December 31, 2016**

**NPS Administrative Contacts**

**Interim CESU Coordinator (May 18 – September 13, 2014):** Todd Chaudhry, National Park Service/CPCESU, NAU P.O. Box 5765, Flagstaff, AZ 86011, 928-523-6638, Fax: 928-523-2014; [todd\_chaudhry@nps.gov](mailto:todd_chaudhry@nps.gov)

**Intermountain Region Administrative Contact:** Kelly Adams, Grants and Agreements Specialist, National Park Service, 12795 West Alameda Pkwy, Lakewood, CO 80228. Phone: 303-969-2303 Fax: 303-969-2992 Email: Kelly\_adams@nps.gov

**FEDERAL FINANCIAL REPORTS:**

***Federal Financial Reports*** (Check as required for project based on spending plan, period of performance, risk, cooperator history, etc.)

{X} Quarterly { } Semi-annually { } Annually {X} Final (required)

**Project SCHEDULE AND TECHNICAL REPORT DEADLINES:**

List all technical reports and products in sequential order as required in the scope (more lines and milestones can be added as needed):

*Project Start Date* – **October 01, 2014 (tentative)**

*Technical progress reports –* { } Quarterly { } Semi-annually {X} Annually

(Check as needed from PI to monitor progress of specific project. Content should be addressed in the scope.)  
  
*Investigator’s Annual Report (IAR)* – December 31, 2016

*Database, Collections/Specimens, Archives, and Maps provided to the NPS ATR or Technical Expert* – insert date

*Draft Final Report* – June 01, 2016

*Final Report* – September 30, 2016

*Project End Date* – December 31, 2016 (project reports/deliverables are due)

*Final SF425 FFR* must be submitted within 90 days of project end date

**PAYMENTS**

**2 CFR PART 215.22*:*** Cash advance (drawdown) to recipient organization shall be limited to the minimum amounts needed and be timed to be in accordance with the actual immediate cash requirements of the recipient organization in carrying out the purpose of the approved program or project. The timing and amount of cash advances shall be as close as is administratively feasible to the actual disbursements by the recipient organization for direct program or project costs and the proportionate share of any allowable indirect costs.

**2 CFR PART 215.25 (8)(e)(1):** Incur pre-award costs 90 calendar days prior to award or more than 90 calendar days with the prior approval of the Federal awarding agency. All pre-award costs are incurred at the recipient’s risk. (i.e. the Federal awarding agency is under no obligation to reimburse such costs if for any reason the recipient does not receive an award or if the award is less than anticipated and inadequate to cover such costs.)

**CESU REQUIRED PRODUCTS (may be different from those products required by the ATR – See Statement of Work for Products required by the NPS unit):**

The Principal Investigator will prepare a brief report abstract suitable for public distribution and two hard copies and an electronic version (in PDF file format) of the final report and mail all toTodd Chaudhry, National Park Service, CPCESU, NAU P.O. Box 5765, Flagstaff, AZ 86011. Please be sure to include the project number (e.g.; NAU-###, UMT-###, UAZDS-###) and the P number on the cover page of the final report.

**PROJECT ABSTRACT:**

Staff, students, institutional partners, and professional consultants from the University of New Mexico (UNM) will work with the National Park Service (NPS) to update documentation of selected inscriptions on Inscription Rock at El Morro National Monument, assess their condition, and develop treatments for their conservation.

**Scope of Work:**

The Department of Anthropology / UNM proposes to participate with their institutional and professional partners, and with staff from ELMO in the preservation of selected inscriptions on Inscription Rock. The project team will revisit existing documentation to identify primary modes of deterioration and determine rates of loss, and conduct research for the development of conservation treatments.

*Project Description:*

For more than a decade, ELMO Resources staff have been engaged in a series of investigations intended to inform the development of treatments for conservation of inscriptions on Inscription Rock. These have included: 1) documentation of several of the most significant inscriptions using photography, photogrammetry, and LIDAR scanning; 2) condition assessment of individual inscriptions, with an emphasis on North Point inscriptions; 3) a study of the groundwater hydrology of the pond; 4) characterization of the impacts of lichen growing on the inscriptions, and pilot testing of biocidal treatments, and; 5) pilot treatments focused on the reattachment of detaching portions of the rock face. It is time to evaluate the results of these studies, and augment them where necessary, in order to move toward the development of reliable conservation treatments addressing the primary modes of deterioration and loss.

The primary deterioration mechanisms appear to be the spalling of relatively large sandstone lenses, erosion associated with sheeting water and wind-blown abrasive particles, basal erosion of outcrops at grade, damage associated with lichen cover, and salt weathering.

The work is likely to include updating the documentation of select inscriptions by Barthuli / DeCesaro (1994) in the study area, and an evaluation of the hydrology report prepared by Van Dam and Hendrickx (2007) to prioritize the next steps in that investigation. Van Dam and Hendrickx (2007) concluded that water entered the sandstone cliffs from below a pool at the base of the cliffs by capillary rise and from above as local precipitation that percolates through the unsaturated fractures and matrix. We propose to focus more specifically on the downward percolation of water through the unsaturated sandstone cliffs, which may involve chemical characterization and isotope analysis of the pond and surface water runoff; characterization of these flow paths will help to assess if and how the inscriptions can be protected by an engineered manipulation of the local hydrologic system. In addition, we propose to characterize deterioration processes (including a review of the pedogenic processes thought to be associated with lichen cover and alveolar erosion), review past treatments, and assist the park in selecting additional treatment materials (materials for drip lines, resins for repair, etc.) and methods.

The scope of work includes:

1. Conducting a study called “**Documentation and Preservation of Inscriptions, El Morro National Monument**” for UNM students, NPS staff, and institutional and professional partners, and focused on:
2. A review of the documentation of select inscriptions in the study area as recorded by Barthuli / DeCesaro (1994), and selection (in consultation with the park) of individual project sites for condition assessment and treatment development
3. An evaluation of the hydrology report by Van Dam and Hendrickx (2007) to prioritize the next steps in the investigation of the role of groundwater in the deterioration of inscriptions on Inscription Rock
4. Preliminary characterization of pooled and surface water runoff for general chemistry and the stable hydrogen and oxygen isotopes in an effort to characterize and quantify the different water sources that contribute water to the pool
5. A review of the pedogenic processes thought to be associated with lichen cover, and an evaluation of pilot treatments conducted by Fix (2007) for biocide selection (if ascertainable)
6. A review of past treatments, particularly focused on the stabilization of detaching sandstone spalls. Assistance to the park in selecting treatment materials that are likely to include materials for installation of drip lines over inscriptions exposed to sheeting water, the selection of repair resins resistant to microbial attach, and materials and methods available for low-impact surface drainage
7. Preparing a project completion report that includes:
8. Narrative description of the project goals and methodology
9. Results of documents review
10. Evaluation of past treatments and research
11. Narrative description of pilot treatment methods and implemented treatments
12. Recommendations for additional research and treatment
13. Photodocumentation and other graphics produced for the project

*Statement of Work:*

The UNM will:

1. Undertake a project titled “**Documentation and Preservation of Inscription Sites, El Morro National Monument**” as described in Attachment I and throughout this document in collaboration with NPS.
2. Appoint *Angelyn Bass, Research Assistant Professor, Department of Anthropology, University of New Mexico, MSC01-1040, Anthropology 1, Albuquerque, NM 87131, 505-577-8603,* angelyn@unm.edu
3. Hire student research assistants as needed to conduct the project.
4. The cooperator will perform the following tasks:
5. Develop a work plan in collaboration with NPS experts.
6. Provide oversight, supervision and guidance to consultants and students involved in the project.
7. Work with park staff to complete archival research for site.
8. Plan and conduct fieldwork to complete documentation and implement treatments.
9. Produce a final report as described in Item 2.
10. Provide qualified conservation trainees to work with the project team.
11. Correspond regularly by email with the NPS Technical Expert.
12. Fully acknowledge the NPS in any published or formally presented material (PowerPoint presentations, signs and film) developed or derived from this Task Agreement.
13. Participate, as appropriate, with the NPS in a 60-day wrap-up period following the due date of the last project product.

The NPS will:

1. Undertake a project titled “**Documentation and Preservation of Inscription Sites, El Morro National Monument**” as described in Attachment I and throughout this document in collaboration with UNM.
2. Appoint Steve Baumann as NPS Certified ATR.
3. The NPS will perform the following tasks:
4. Develop a work plan in collaboration with UNM.
5. Provide project oversight and guidance to cooperators involved in this project.
6. Work with UNM to complete archival research for the sites.
7. Participate, as needed, in project planning and fieldwork to document the inscriptions, assess current conditions, and develop treatment recommendations.
8. Review final report as described in Item 7.
9. Participate, as appropriate, with the UNM in a 60-day wrap-up period following the due date of the last project product.
10. Fully acknowledge PI(s) in any published or formally presented material developed or derived from this Task Agreement.

**COOPERATIVE AGREEMENTS OR TASK AGREEMENTS INVOLVING COOPERATORS WORKING ON-SITE**

**Background**

In cooperative agreements or task agreements with universities where the university utilizes interns, student employees, research associates (RAs) or cooperators on-site (hereafter called “cooperator personnel”), these cooperator personnel sometimes work on government sites in close proximity to federal employees. It is illegal (without specific statutory authority) for federal employees to directly supervise the cooperator personnel or any university employees or for the students or other university employees to supervise federal employees. When cooperator personnel are working on an NPS site, it is important that there is a clear distinction between students and federal employees.

**Office Environment and Vehicles**

* The office space of the cooperator personnel and NPS personnel should be clearly labeled (Name and NPS or University affiliation on office or cubicle space).
* Cooperator personnel should be listed separately from NPS personnel in telephone lists, other identification or organizational rosters, and publication credits.
* Cooperator personnel should not receive “all-employee” e-mail or other communications intended for NPS personnel (unless it relates directly to the work the cooperator is doing for the NPS). When the e-mail does relate to the work being done, a copy of the same e-mail message should be sent to the University or cooperator’s supervisor.
* Cooperator personnel may use NPS e-mail systems when the communication relates directly to the work the cooperator is doing for the NPS. The e-mail addresses of the cooperator personnel must include a label associated with their NPS e-mail address that identifies the cooperator’s status (i.e., “Linda Webb, Cooperator” would be the label associated with the e-mail address, [linda\_webb@contractor.nps.gov](mailto:linda_webb@contractor.nps.gov)). Doing so clearly identifies this individual each time they send an e-mail message using the NPS system, and it identifies their status as a research associate, student intern or student employee in the e-mail directory.
* Unless stipulated in the agreement, cooperator personnel should not drive government vehicles.
* Unless stipulated in the agreement, cooperator personnel should not ride as a passenger in a government vehicle. When this is planned as part of the agreement, an appropriate amount of liability insurance should be negotiated.
* Prior written approval by the Park Superintendent or Center Manager must be obtained in order for a task to allow cooperator personnel to drive or ride in government vehicles.

**Supervision and Scheduling**

* Each task must specify the university’s/cooperator’s supervisor for the cooperator personnel.
* Unless stipulated in the agreement, NPS staff should not set hours for cooperator personnel, specify where the work should be done, or conduct performance appraisals. National Park Service staff may give performance feedback to the cooperator personnel supervisor.
* Cooperator personnel should report leave, scheduling, and other related issues to the university or cooperator’s supervisor, not to NPS employees. The supervisor of the cooperator personnel should then communicate with the NPS. National Park Service employees cannot directly supervise cooperator personnel on a day-to-day basis. Work should be given to the cooperator personnel (via the cooperator’s supervisor) on a “task basis.” Cooperators should work without NPS supervision to accomplish each task, although technical consultations and cooperation is permissible.
* The Cooperator will be responsible for any disciplinary action needed to correct student employee conduct or performance problems. The NPS agreements technical representative will inform the university/cooperator’s supervisor of any conduct or performance problems.
* The Cooperator will remove student employees from their positions if they fail to improve performance or address conduct issues.
* The NPS will review and provide feedback to students or interns regarding work assignments.
* The NPS will inform the cooperator of conduct or performance problems with cooperator personnel so that the university can counsel employees and correct the performance problems.
* The NPS will recommend to the cooperator dismissal of cooperator personnel based on conduct or performance issues.
* The Cooperator will hire students, interns or RAs to work on NPS tasks identified in the agreement. Hiring will be conducted in consultation with the NPS Agreements Technical Representative (ATR).
* The Cooperator will: pay students, interns or RAs for hours they have worked in support of the agreement.

**Representation and Communication**

* Cooperator personnel cannot in any way represent themselves to the public as NPS employees.
* Cooperator personnel are required to wear visible identification at all times.

**Other Issues**

* Cooperator personnel should not list an NPS affiliation on publications, but rather should list the cooperative agreement under which the work was performed.
* Cooperator personnel should not be invited to official NPS “social” events.
* Cooperator personnel will follow the local policy of the facility when federal facilities are closed due to early release for holidays, snow days, etc.

**PRODUCTS:**

1. One digital copy of a Draft Project Completion Report for review by NPS.
2. 1 electronic copy (CD) of Final Report (.pdf format) including photo documentation and drawings.
3. Two hardcopies of the Final Report
4. In addition to the above, the Principal Investigator shall complete the NPS Investigator’s Annual Report.

**BUDGET:***(You may create your budget in a spreadsheet and attach it as a separate document when you submit your project coversheet and Justification for Use of Financial Assistance.)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Rate** | **Unit** | **No. of Units** | **Total** |
| **UNM SALARIES** |  |  |  |  |
| Faculty- University Investigator | percent effort | biannual | 20% | $15,233 |
| Student | $12.00 | hr. | 307 | $3,688 |
| Project Lead Benefits | 31% of total salary rate |  |  | $4,429 |
| Student Benefits | 1% of total temp salary + insurance |  |  | $1,698 |
| **UNM Salary Subtotal** |  |  |  | **$25,048** |
| **UNM TRAVEL** |  |  |  |  |
| Local Travel (car rental, fuel for PI & student) | $100 | day | 15 | $1,500 |
| Housing/M&IE (for PI & student) | $150 | day | 20 | $3,000 |
| **Travel Subtotal** |  |  |  | **$4,500** |
| **CONSULTANTS** |  |  |  |  |
| Architectural Conservator |  |  |  |  |
| Fees | $80 | hr. | 150 | $12,000 |
| Benefits | $0 |  |  | $0 |
| Housing/M&IE | $150 | day | 10 | $1,500 |
| Assistant Conservator |  |  |  |  |
| Fees | $50 | hr. | 150 | $7,500 |
| Benefits | $0 |  |  | $0 |
| Local travel (car, fuel) | $100 | day | 10 | $1,000 |
| Housing/M&IE | $150 | day | 10 | $1,500 |
| **Consultants Subtotal** |  |  |  | **$23,500** |
| **Sub-Award** |  |  |  |  |
| New Mexico Bureau of Geology & Mineral Resources |  |  |  |  |
| Fees (senior personnel) |  | 5 weeks |  | $6,324 |
| Fees (senior personnel) |  | 8 weeks |  | $9,280 |
| Benefits | 32% |  |  | $4,993 |
| Local travel (car rental, fuel) | $0.32 | mile (14 trips @ 350) | 4900 | $1,568 |
| perdiem | $85 | day | 14 | $1,190 |
| Analytical costs |  |  |  | $6,562 |
| Indirect Costs at 17.5% |  |  |  | 5,236 |
| **Sub-Award Subtotal** |  |  |  | **$35,153** |
| **SUPPLIES** |  |  |  |  |
| Printing of architectural photographs and copying of maps for field documentation; SEM lab time |  |  |  | $2,306 |
| REPORT PRODUCTION |  |  |  | $0 |
| **Project Totals** |  |  |  |  |
| **Total Direct Costs** |  |  |  | $90,507 |
| **Total Indirect Costs (17.5%)** |  |  |  | $15,839 |
| **GRAND TOTAL** |  |  |  | $106,346 |

**Budget narrative:**

Project research will be conducted by two institutions, UNM and New Mexico Bureau of Geology & Mineral Resources (NMBGMR). NMBGMR has expertise in water flow analyses and alveolar weathering, and has testing facilities to conduct instrumental analyses at costs well below standard lab rates. UNM will oversee the sub-award and all field assessments and pilot treatment testing. The PI will provide project planning and oversight at every stage of the work and will supervise the project assistant(s)/students, consultants, analysis of all assessment and test results, and preparation of the final report. The PI’s estimated involvement is 20% of full time over the course of 2 years.

The Project Assistant (student) will conduct a literature search pertaining to sandstone weathering and surface water diversions (dripline), assemble the available past treatment history provided by the park, and assist with project documentation, fieldwork and report preparation. The assistant’s estimated involvement is 175 hours/year over the course of 2 years.

The architectural conservator, Douglas Porter, and an assistant will analyze past treatments, conduct pilot treatments, and document them in accordance with professional standards for conservation practice, and collaborate on treatment design and report preparation.

Supplies include incidental materials for documentation (batteries, scales, camera supplies, memory cards) and time in the SEM lab at UNM.

Due to the exploratory nature of this project, costs are estimates. Some costs and time commitments may vary based on discoveries made during the course of the work.