

**Award Number:** P14AC01655

**Project Number**: UNM-110

**CFDA #:** 15.945

**Park/NPS Unit:**

**Title of Project:** Climate Tipping Point: Managing Rapid Vegetation Change in a Natural-Cultural Wilderness Landscape: Phase 1

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

**CESU Partner:** The Regents ofUniversity of New Mexico for Natural Heritage New Mexico

**PROJECT CONTACTS:**

**Principal Investigator:** Esteban Muldavin, Division Leader and Ecology Coordinator, UNM, Natural Heritage New Mexico (NHNM), UNM Biology Dept., MSC03 2020, 1 University of New Mexico, Albuquerque NM 87131-0001, 505-277-3822 ext. 228, 505-277-3844, muldavin@unm.edu

**Partner Administrative Contact*:***Diana Sargent, Sponsored Projects Officer, University of New

Mexico, Office of Sponsored Projects, Main, 1700 Lomas Blvd., Suite 2200, MSC01 1247, 1 University of New Mexico, Albuquerque, New Mexico 87131-0001, 505-277-2258, dsargent@unm.edu

**NPS Certified ATR:** Kay Beeley*,* Biologist, Bandelier National Monument, 15 Entrance Road, Los Alamos, NM 87544 *Title, Address,* (505) 672-3861 x 721, FAX (505) 672-9607, kay\_beeley@nps.gov

**NPS Technical Expert:** Brian Jacobs*,* Biologist, Bandelier National Monument, 15 Entrance Road, Los Alamos, NM 87544 *Title, Address,* (505) 672-3861 x 707, FAX (505) 672-9607, brian\_jacobs@nps.gov

**FUNDING INFORMATION:**

**Amount Funded: $35,000**

**NPS Account Numbers (amounts in parentheses): Cost Center: PPIMBANDR4; WBS:PX.XIMROR495.00.1 ($35,000)**

**Fund Source (e.g., ONPS, FLREA, CRPP, CESU, etc.): ONPS**

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: 9/30/2014**

***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: 9/30/2016**

**NPS Administrative Contacts**

**CESU Research Coordinator:** 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.)

{ }Quarterly { } Semi-annually {X} Annually

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* – 9/30/2014

*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)* – 6/30/2016

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

*Draft Final Report* – 3/31/2016

*Final Report* – 5/30/2016

*Project End Date* – 9/30/2016 (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:**

Since the mid-1990’s, the natural and cultural wilderness landscape of Bandelier National Monument has been buffeted by progressively severe episodes of drought and fire-induced disturbances with unprecedented impacts on vegetation, soils, hydrology, and cultural resources. The changes have been so profound that they likely constitute tipping points for many ecological communities in response to classic climate-change-like effects; i.e., the sort of ecological system changes anticipated in response to predicted patterns of warming and drying in the American Southwest.

This project would compile and integrate existing natural/cultural information with an updated vegetation base map, creating a geospatial framework that links ecological information representing the condition of the park’s vegetation and soil conditions with the cultural resource components. Key focus areas of the project include revision of previously mapped vegetation units through targeted resampling of existing vegetation map ground- truth plots, and categorizing component cultural resources within an ecological context. This effort would provide managers with the geospatial data and tools necessary to properly assess and better manage recent drought and fire-induced disturbance effects on the park’s natural-cultural wilderness landscape.

Phase 1 of 3 for this project is to resample 100 vegetation plots not previously resampled following recent fires, and compiling the data to support the mapping revision.

**Scope of Work:**

A representative subset of vegetation ground-truth and verification plots established in support of the 2004 vegetation map will be resampled to inform interpretation of high-resolution 2011 imagery and support update of the vegetation map. Previous vegetation plot resampling efforts targeted mixed-conifer and ponderosa vegetation plots within the Las Conchas burn area; the current sampling would target the woodland zone including areas burned by the Las Conchas fire. During multi-year droughts from 2000-2004 and 2010-2014 over 95% of the mature piñon pine and 30% of the one-seed juniper within the monument died, converting much of the piñon-juniper zone where the majority of prehistoric cultural resources are located to a sparse juniper-shrub woodland with potential effects on ecological integrity and cultural site stability. The existing park vegetation map was prepared using plot data and imagery from ca. 2004 and thus is already out of date. This task would support resampling a subset of vegetation map plots within the piñon-juniper zone to support an update of the park’s vegetation map, which is a critical tool for resource management.

Subtasks: 1) Resample 100 vegetation plots. Plot selection will be guided by past resampling efforts, fire impact, and archeological context as mutually agreed upon by NHNM and BAND. Plots sampling techniques will follow NHNM protocols used in previous BAND projects with modifications as mutually agreed upon. 2) Compile field data into a relational database and quality control. 3) Identify plant voucher specimens and deposit in the UNM herbarium. 4) Conduct summary analysis suitable for characterizing vegetation type and structure. 5) Write final report and export plot and GIS data in a format acceptable by BAND.

**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) Final report detailing the field sampling and outcomes of the vegetation type and structure analysis.

2) Relational database of all past and current vegetation data in a format suitable for vegetation mapping.

3) Geodatabase of specialized GIS data layers developed during the project.

**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.)*

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NPS BAND Tipping Point** |  |  |  |  |  |  |  |  |
| Note: FY16 salaries are 3% increase over FY15 | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Personnel** |  |  | **FY 15** |  |  | **FY 16** |  | **Project Total** |
|  |  | Base | FTE | Total | Base | FTE | Total |  |
| **Faculty** |  |  |  |  |  |  |  |  |
| Muldavin, Esteban |  | 83112 | 0.0289 | **2398** | 85605 | 0.0385 | **3293** | 5691 |
|  |  |  |  |  |  |  |  |  |
| **Staff** |  |  |  |  |  |  |  |  |
| Neville, Teri |  | 41104 | 0.0255 | **1049** | 42337 | 0.0102 | **432** | 1481 |
| Keeshen, Rebecca |  | 48668 | 0.0112 | **543** | 50128 | 0.0112 | **559** | 1102 |
| Chauvin, Yvonne |  | 41246 | 0.0392 | **1615** | 42483 | 0.0881 | **3743** | 5358 |
| Field Res. Tech - TBA |  | 27040 | 0.0471 | **1273** | 27851 | 0.0824 | **2294** | 3567 |
|  |  |  |  |  |  |  |  |  |
| **Student - undergraduate** |  | Hrly Rate |  |  | Hrly Rate |  |  |  |
| Data Entry |  | 10 | 20 | **200** | 10 | 82 | **820** | 1020 |
| System Admin |  | 18 | 13 | **234** | 18 | 14 | **252** | 486 |
|  |  |  |  |  |  |  |  |  |
| **Benefits** |  | Rate |  |  | Rate |  |  |  |
| Faculty |  | 0.29 |  | 695 | 0.293 |  | 965 | 1660 |
| Staff |  | 0.35 |  | 1568 | 0.356 |  | 2502 | 4069 |
| Student |  | 0.01 |  | 4 | 0.010 |  | 11 | 15 |
|  |  |  |  |  |  |  |  |  |
| **Materials & Services** |  |  |  |  |  |  |  |  |
| Photography |  |  |  | 72 |  |  |  | 72 |
| Field supplies |  |  |  | 200 |  |  |  | 200 |
| Computer supplies |  |  |  | 200 |  |  |  | 200 |
| Photocopy |  |  |  | 50 |  |  | 29 | 79 |
|  |  |  |  |  |  |  |  |  |
| **Travel** |  |  |  |  |  |  |  |  |
| Per diem |  |  |  | 930 |  |  | 930 | 1860 |
| Mileage - 3660 mi @ .80/mi |  |  |  | 1464 |  |  | 1464 | 2928 |
|  |  |  |  |  |  |  |  |  |
| Direct Costs |  |  |  |  |  |  |  | 29787 |
|  |  |  |  |  |  |  |  |  |
| F&A - 17.5% |  |  |  |  |  |  |  | 5213 |
|  |  |  |  |  |  |  |  |  |
| **Total** |  |  |  |  |  |  |  | 35000 |
|  |  |  |  |  |  |  |  |  |