**Award Number (for administrative use only):**

**PR/J Number: R7481100027**

**PROJECT ABSTRACT**

**Colorado Plateau Cooperative Ecosystem Studies Unit**

**(Cooperative Agreement # H1200-09-0005)**

**Parks:** **GRCA, ROMO**

**Project Title:** **Document and Record Aboriginal Wooden Structures at High Risk from Increased Wildfires Due to Climate Change**

**Funding Amount:** **$60,000**

**CPCESU Partner Institution:** **University of Pennsylvania, School of Design, Graduate Program in Historic Preservation**

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**Start Date:** August 9, 2010

**End Date:** February 28, 2013

**Abstract:**

Based on current models of climate change, the mountain west will become warmer and drier, resulting in a dramatic increase in the frequency, size, and intensity of wildland fires. The IMR Fire Program predicts this year the northern half of the region will experience a level of catastrophic wildfires comparable to those of 1989; and the southern portion of the region will experience similar fires in 2011. Such fires pose considerable threat to NPS archeological sites in forested areas, particularly those containing wooden elements such as wickiups, platforms, forked-stick hogans, sweat lodges, and game drives/traps. Fragile by nature, and often exposed to the elements, wildland fires pose even more immediate and catastrophic threats to such resources. Using 3D laser imaging technology and a relational database inventory format developed specifically for such features (in consultation with NPS archeologists), this CESU project will upgrade the documentation of selected sites, ensuring that improved records of the sites survive, irrespective of the whims of wildland fires.

Thirty-eight (38) aboriginal wooden structures, situated within two (2) IMR parks (*i.e.*, GRCA and ROMO), will be selected for this CESU project:

* 19 structures at GRCA
* 19 structures at ROMO

This choice of structures will be left to the discretion of the individual parks, based on each park’s particular research/preservation priorities and the relative vulnerability of various structures to wildland fire damage/destruction.

Using mid-range laser scanning equipment and/or stereo photogrammetry (Topcon Image Master), digital photographic and inventory survey, the Architectural Conservation Laboratory of the University of Pennsylvania (UPenn) Historic Preservation Program field crew(s) will record the form, volumetry, materials, condition, and spatial context of all 38 aboriginal wooden structures included in this CESU project. Thereafter, the UPenn crew(s) will employ these data to generate virtual, scaled, three-dimensional digital renderings of the existing wooden structures (the central deliverable expected by the NPS from this CESU project). The recorded sites will also be geo-located on land maps using GPS coordinates, and the spatial data will be used by NPS archeologists and cultural resource personnel to test occurrence patterns (in terms of elevation, slope, aspect, vegetation zone, proximity to drainages, *etc*.), suggesting possible predictive models about where other such aboriginal wooden structures (presently undiscovered and unrecorded) might exist.

In all stages of the fieldwork the UPenn crew(s) will collaborate/coordinate closely with NPS archeologists and cultural resource personnel, updating pertinent site, structural, and feature records, including those assessing overall site condition.

**Keywords:**

**Cultural Resources**

1. Surveys

4. Modeling

6. Native American

7. Historic Sites

**Anthropogenic Issues**

3. Archeology

**Fire**

3. Maps/Inventory

**GIS/Spatial Data/Tabular Data**

2. Inventory/Maps

3. GIS Coverage

5. Modeling

**Global Change/Climatology**

2. Miscellaneous