

Vanishing Treasures

National Park Service
U.S. Department of the Interior

Vanishing Treasures Program



Year-End Report for
Fiscal Year 2007 and
Proposed 2008 Activities

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Cover Photo: A seasonal habitation structure on the south rim of the Grand Canyon, typically used by the Havasupai and Navajo.

Photo: Courtesy, Grand Canyon National Park

Table of Contents

<i>Message from the Vanishing Treasures Program Manager</i>	1
<i>At-Large VT Program Staff</i>	
Preston Fisher.....	2
Jake Barrow.....	2
Randy Skeirik.....	3
<i>Feature Articles</i>	
Tonto National Monument – <i>From Deferred Maintenance to Cyclic Maintenance</i>	5
VT Backfilling at Chaco Canyon and Aztec Ruins.....	8
Preservation and Management Guidelines for Vanishing Treasures Resources: <i>The Legacy of Archeological Site Preservation in the National Park Service</i>	13
<i>Workshops and Symposia</i>	
Fort Davis Post Hospital Project.....	16
Southern Arizona Cultural Resource Meetings.....	16
New Mexico Parks Symposium.....	17
<i>Personnel, Projects and Budgets</i>	
Arizona.....	20
Canyon de Chelly National Monument.....	22
Casa Grande Ruins National Monument.....	24
Flagstaff Area National Monuments - Wupatki and Walnut Canyon.....	25
Fort Bowie National Historic Site.....	28
Grand Canyon National Park.....	29
Montezuma Castle and Tuzigoot National Monuments.....	31
Navajo National Monument.....	33
Organ Pipe Cactus National Monument.....	35
Tonto National Monument.....	36
Tumacacori National Historical Park.....	38
California.....	40
Manzanar National Historic Site.....	42
Colorado.....	44
Mesa Verde National Park.....	46
New Mexico.....	50
Aztec Ruins National Monument.....	52
Bandelier National Monument.....	54
Chaco Culture National Historical Park.....	57
El Malpais and El Morro National Monuments.....	60
Fort Union National Monument.....	62
Pecos National Historical Park.....	63
Salinas Pueblo Missions National Monument.....	64
Texas.....	66
Fort Davis National Historic Site.....	68
San Antonio Missions National Historical Park.....	69
Utah.....	70
Canyonlands National Park.....	72
Glen Canyon National Recreation Area.....	73
Hovenweep National Monument.....	74
Wyoming.....	76
Fort Laramie National Historic Site.....	78
<i>Appendices</i>	79
Appendix A: Definition of Vanishing Treasures Resources.....	i
Appendix B: Terminology.....	i
Appendix C: Vanishing Treasures Leadership Committee.....	ii
Appendix D: Vanishing Treasures Advisory Group.....	iii
Appendix E: Vanishing Treasures Annual and Cumulative Funding.....	iii
Appendix F: Vanishing Treasures FY 2008 Project Funding.....	iv

Message from the Vanishing Treasures Program Manager

Planning the transition for the Vanishing Treasures (VT) Program has been my primary focus throughout 2007. Working closely with the VT Leadership Committee, I have been working on the planning necessary to transition VT from an Initiative into a sustainable, ongoing Program. Key elements of the transition planning include:



- the development of a process to develop and complete the Vanishing Treasures *Preservation Guidelines*;
- review and revision of the Servicewide Comprehensive Call (SCC) project criteria to ensure they reflect current project needs;
- transparency and accountability, which remains a foundation for the VT Program; and
- the development of training opportunities and/or workshops to facilitate the sharing of VT expertise throughout participating parks.

Preservation Guidelines: In addressing the Preservation Guidelines, the VT Leadership Committee directed that the process begin with a review of the existing 1995 draft guidelines by a team composed of cultural resource and management professionals. That meeting, which took place in July, 2007, named VT architectural conservator Jake Barrow as lead staff to oversee the updating of the document. In that capacity he is developing a history of preservation in the Southwest and identifying additional contributors to incorporate new preservation information. Seeing this project through to completion will be a tremendous job; but the end result will provide a useful tool for preservation planning, both internally as well as by preservation partners and communities throughout the Southwest.

Servicewide Comprehensive Call: The VT Advisory Group met in Denver to review and rank park project proposals competing for VT project funds through FY 2013. In the process of evaluating the proposals, the Advisory Group concluded that changes to the funding criteria were needed to ensure that projects could compete equitably. Changes to project caps, limits, time span to complete projects, and criteria language were proposed to the VT Leadership Committee, where the proposed changes are under review.

Transparency/Accountability: To ensure that VT-funded projects are completed, and that the manner in which the funding was used is transparent, all parks that receive VT project funding are required to submit project completion reports. VT historical architect Randy Skeirik is continuing to develop a template that parks can use to submit the park report to ensure consistency of that information, which is then included in the VT Annual Report. In addition to providing accountability, we want to use the Annual Report as a means of sharing information on techniques and technologies among parks and partners.

Training/Workshops/Information Sharing: With budgets being tightened, spending caps restricting the ability of park staff to travel, and limitations on the size of official gatherings, the program-wide VT conference is a thing of the past. In response, smaller gatherings have been coordinated by park staff and opened to nearby parks or other parks that have similar preservation challenges. This is a successful means to facilitate meetings of multiple parks to share knowledge and expertise, at relatively little cost. Preston Fisher, VT structural engineer, has participated in many of these meetings and he has documented them to share with those who could not attend. In another effort to facilitate the sharing of information, I have been working to develop the VT Intranet page as a place to post a bibliography of VT-related project documentation.

Finally, a major task that has occupied my time is the re-drafting of the VT Charter. The VT Leadership Committee has reviewed and is updating the existing Charter to ensure it provides forward-looking guidance. It will be reworked in order to move VT from an Initiative, which was to be funded for a period of 10 years, to a Program that will look to develop long-term sustainable approaches to preservation in the Intermountain and Pacific West Regions. There was unanimous agreement among the members of the Leadership Committee that the inclusion of all potential partners in our preservation efforts will be essential in helping VT achieve a proactive preservation program.

Be prepared to contribute your ideas and comments as we work together in 2008 to successfully transition to the Vanishing Treasures Program.

Virginia Salazar-Halfmoon
Virginia Salazar-Halfmoon
Vanishing Treasures Program Manager

At-Large VT Program Staff

Preston Fisher, Structural Engineer



Although stationed at Mesa Verde, 80% of my time is intended to be spent serving the needs of the other 44 parks in the VT Program.

At Mesa Verde, I participated in High Definition Documentation training and assessed its effectiveness and applicability to prehistoric structure documentation, provided an overview of the structural evaluation of prehistoric structures to a contingent of Afghan Engineers and Prehistoric site

management professionals, and served as the Contracting Officer's Representative (COR) on a contract to replace site shelter panels at Ruin 16 on the Mesa Top Loop at Mesa Verde. I also provided assistance to a number of VT parks, including:

- assisting with the design and installation of a replacement roof for Room 24 in the largely unexcavated East Ruin at Aztec Ruins National Monument;
- evaluating the effectiveness of structural monitoring equipment installed in the mid-1980s in the Big House at Casa Grande Ruins National Monument; obsolete equipment was removed and two modern electronic crack monitors with dataloggers were installed;
- assessing the condition of stone structures at the Victoria and

- Lost Cabin Mines in Organ Pipe National Monument;
- evaluating the structural stability and recommending monitoring points to evaluate suspected movement in the retaining wall at the Lower Cliff Dwelling, Tonto National Monument;
- assessing the structural condition of cracked latillas in Montezuma Castle;
- assisting with the evaluation of two early pueblo structures in the Village of Old Orayvi for the Hopi Tribe;
- recommending treatments for addressing erosion concerns at Sivu'ovi, Cave of Life, and Cave of Hands at Petrified Forest National Park;
- evaluating and recommending measures to curb erosion at Transept Ruin and making stabilization recommendations at Tusayan Ruin, both in Grand Canyon National Park.

I also partnered with the Bureau of Land Management (BLM) to evaluate and make stabilization and rehabilitation recommendations for the Fairbanks Mercantile Building near Tombstone, AZ, and I attended Facility Maintenance Software System (FMSS) training in preparation for assisting VT parks with entering their sites and projects into FMSS.

I am fortunate to be a part of the VT Initiative and I look forward to helping to carry the VT Initiative through its transition to the VT Program of the 21st century. To this end, I continue to be available to VT parks to provide assistance in evaluating and monitoring the structural integrity of their resources and developing and recommending actions that can be taken to stabilize, preserve, and protect these fragile resources.

Jake Barrow, Exhibit Specialist



I joined the VT program staff in August, of 2007. Almost immediately I found myself in Old Orayvi at Hopi, one of the oldest inhabitations in the US, if not the oldest. VT was providing the Hopi tribe with a one-day assessment of several structures. From then until now, its been a continuous roller coaster ride through many diverse issues at VT sites.

The job change was something of a formality, since formerly I was assigned to

the Historic Architecture Program and easily 60% of my time was already being spent on VT resources. The simple fact that such a large proportion of Intermountain Region (IMR) cultural resources are exposed archeological sites dictated the needs.

Since joining the Southwest Cultural Resources Center of the Southwest Region in 1987 as a project manager, I have worked in many of the IMR parks and also through the many changes that have transformed our part of the agency into what it is today. We've grown and shrunk at the same time, with a remarkable amount of flexibility and durability. For me it has been a learning process from day one.

I joined the NPS in 1977 as an Exhibit Specialist working in park units of the George Washington Memorial Parkway. This series was pretty new to the Service at the time, having first been adapted at the Williamsport Training Center (now the Preservation Training Center). I came in with the skills of a carpenter/woodworker and proceeded to learn on the job about historic preserva-

tion as it applies to NPS resources.

There were a few detours along the way, such as a year in Rome, Italy, studying architectural conservation at the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) and working as a conservator at an archeological site in Sicily. My move to Santa Fe was by no means forced, as I had picked up a copy of Richert and Vivian's Ruins Preservation in the Southwestern United States in the process of solving some problems with ruins structures along the Patomac (sic) Canal at Great Falls, VA. Some kind of bug bit, and when the offer to join the Division of Conservation came along in 1987, I jumped at it. Early on I got involved at Fort Union and Fort Davis with adobe preservation and proceeded from there. It's been a lively learning experience with exposure to the diverse materials, building systems, and ultimately the many challenges that confront and confound us.

After surviving these years, I have come to realize that I have few certain answers for specific problems but no hesitation to attempt to jointly arrive at options. Standing on site with resource staff, contemplating, discussing, arguing, and ultimately arriving at a consensus of what direction to take remains for me one of the most rewarding routines of this job. Another reward on this job has been the interaction with University preservation programs and working with students who have taken on some of the really difficult preservation challenges—such as the conservation of decorated earthen surfaces. Incremental progress is being made.

Presently I'm putting about 80% of my time solely toward VT resources—consulting, brokering, and training. I look forward to park requests for assistance and the new challenges that will come with those requests.

Randy Skeirik, Historical Architect

Last year, as usual, was a busy one. In addition to my duties as the Resource Management Division Chief at Montezuma Castle and Tuzigoot National Monuments, I participated in a number of VT technical assistance site visits, as well as trips associated with both the administration of the VT Program and with my professional development. The year started with a trip to the North Rim of the Grand Canyon to assist with the rehabilitation of a small log building. Next, I was in the regional office in Santa Fe to participate in their Core-Ops process. In conjunction with the Santa Fe trip I made visits to Bandelier and Fort Union National Monuments and Pecos National Historical Park where we engaged in informal discussions of preservation issues. At the end of November, 2006, I braved a snowstorm north of Flagstaff, AZ to travel to Aztec Ruins National Monument to attend the New Mexico Parks symposium (see page 17), after which I made an unofficial visit to Chaco Culture National Historical Park to discuss their visitor center rehabilitation.

Other VT trips included two to Casa Grande Ruins National Monument to assist with Integrated Pest Management activities and a trip to Organ Pipe Cactus National Monument to consult on cultural resource preservation issues. I also traveled to Denver to sit in on the VT Special Emphasis Program Allocation System (SEPAS) panel, and to Santa Fe to complete the 2006 VT Annual Report and assist with other program administration duties. The year ended with a trip to the Hopi Mesas where VT staff provided assessment and treatment recommendations for two ancient structures in Old Oraivvi, and site visits to Death Valley National Park and Manzanar National Historic Site where I attended a meeting of Pacific West Region cultural resource managers. Finally, the spring of 2007 found me in Harper's Ferry to complete NPS Fundamentals V.

A considerable amount of time this year was devoted to the pro-



duction of the VT Annual Report. Building on the high standards set by the VT staff at the Flagstaff Area Parks who produced the reports through FY 2004, we revised the format to include more photographs that showcase the amazing range of Vanishing Treasures parks and resources and the Vanishing Treasures staff that care for them. I would like to thank all of the parks that have responded to my call for photographs, and encourage everyone to provide photos for the FY 2008 report, especially photos that show VT staff out in the field.

I can't resist announcing that Montezuma Castle and Tuzigoot National Monuments, where I am stationed, and have been serving as the Chief of the Resource Management Division, have received a base funding increase that will allow us to hire a new, full-time natural resource manager. Sharon Kim, who will fill this position about the same time as this report is published, will also assume the duties of the Resource Management Division Chief, freeing me up to devote much more time and attention to my Vanishing Treasures responsibilities. This will be especially good news to those who have been patiently waiting for me to provide reports and drawings. From this point on I will look forward to being able to promptly complete all VT site visit reports and drawings.

As the program, and my duties continue to evolve, one thing that has not changed is that Preston and I, now along with Jake Barrow, are all available to provide specialized technical assistance for Vanishing Treasures Resources. As I noted last year, I am available to all VT parks, at no cost, to provide architectural preservation services. I can assist with the identification, research, planning, treatment, and preservation maintenance of historic and prehistoric structures. I can also help to document existing conditions, define treatment actions, and prepare historic structure reports, and I can assist parks that lack staff experienced in the preparation of VT SEPAS proposals to develop competitive project proposals.

I look forward to continuing to expand my role in both the overall management of the program and the preservation of individual VT resources.



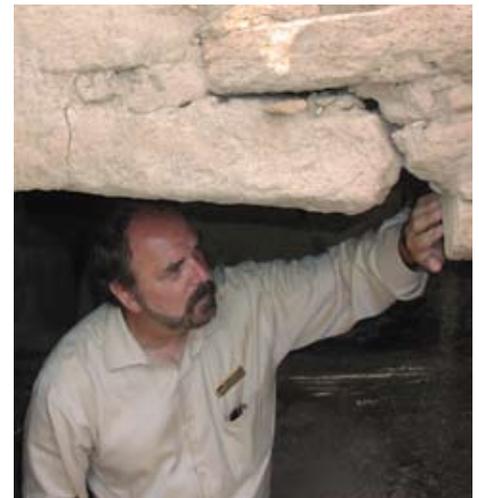
VT Structural Engineer Preston Fisher attaches a crack monitor to a stone structure at Victoria Mine, Organ Pipe Cactus National Monument.

Photo: Joe Tuomey



VT Materials Conservator Jake Barrow cuts a slot in a broken rafter in preparation for the installation of a reinforcing spline, Grand Canyon National Park.

Photo: Randall Skeirik



VT Historical Architect Randy Skeirik examining a failing lintel in a cavate at Puye, an ancestral Santa Clara pueblo near Bandelier NM, Santa Clara Pueblo.

Photo: Preston Fisher

Feature Articles



**Tonto National Monument –
From Deferred Maintenance to Cyclic Maintenance 5**



VT Backfilling at Chaco Canyon and Aztec Ruins..... 8



**Preservation and Management Guidelines for Vanishing Treasures Resources:
The Legacy of Archeological Site Preservation in the National Park Service..... 13**

Workshops and Symposia



Fort Davis Post Hospital Project..... 16



Southern Arizona Parks Cultural Resource Meetings..... 16



New Mexico Parks Symposium 17

Tonto National Monument – From Deferred Maintenance to Cyclic Maintenance

“Do what you can, with what you have, where you are”

Duane C. Hubbard

“The problem of stabilizing and maintaining prehistoric sites is one that has as many ramifications as there are individual structures” (Prehistoric Ruins Stabilization Handbook, Part II, Chapter 1, p 1, 1/1962). This statement is agonizingly true for many of the cultural resources staff working in the VT parks and is truly applicable to my experience at the Tonto Cliff Dwellings (TONT). I’ll present a few of the challenges that Tonto staff have experienced as we addressed several years of backlog maintenance. Our accomplishment was due to many factors, both planned and unplanned. I hope that presenting the process will be helpful and that appropriate recognition is given to those leaders in our field who have laid the foundation for success.

The following outline is my experience and opinion regarding what has worked at Tonto. I’ve outlined the process in no specific order; however, I honestly believe that without any one of these factors, you cannot accomplish the goal of shifting from deferred maintenance to cyclic maintenance.

Superintendent Support

A Superintendent’s commitment to build or maintain a vigorous ruins preservation program is essential. Without management support, the willingness to spend time and resources on ruins preservation staff and projects will be obscured by other management priorities. Fortunately, former Tonto Superintendent, Brad Traver (Figure 1), provided this support and allowed the Tonto program to flourish and accomplish our annual objectives. If preservationists are successful in communicating the value of our resources to Superintendents, then we will be successful in our objectives to preserve these unique resources and receive the



Figure 1: Brad Traver (TONT superintendent 2003-2008) observing Laser scanning fieldwork at the Lower Cliff Dwelling.
Photo: Courtesy, Tonto National Monument

52.20.02, North Interior wall



Figure 2: Annotated photo of stabilization events occurring at a wall in the North Annex Cliff Dwelling.

Image: Courtesy, Tonto National Monument

support, staff, and funding to do so.

Stabilization Histories

The Tonto approach to stabilization histories came from Todd Metzger (Flagstaff Area Parks), Al Remley (formerly with the Flagstaff Area Parks), Dr. Chris Downum (Northern Arizona University), Ellen Brennan (Grand Canyon National Park) and Larry Nordby (formerly with Mesa Verde National Park). The techniques developed by this group have provided a template for smaller parks such Tonto National Monument.

I suggest that understanding our history as preservationists in the NPS must be our starting point for defining how we, as a VT community, will approach ruins preservation in the next 100 years. Embarking on this process gives current staff the ability to learn from past management practices, just as a manager 100 years from now will study our efforts. We began the process of understanding past preservation approaches at Tonto by conducting comprehensive stabilization histories. This information is important so that appropriate decisions are made about proposed treatments to historic fabric or modern-era-altered fabric.

Our stabilization histories included information such as:

- who did the treatment?
- what was the treatment?
- where are the treated areas?
- why was the treatment implemented?

Stabilization histories should include a populated database of all past ruins preservation work so that information can be identified and recorded on architectural sheets or photographs in the field. In turn, this information is preserved for future managers.

Architectural Documentation

I’m not sure who coined the term “Architecture as an Artifact” but it’s a great concept. Prehistoric architecture and elements such as plaster, cold joints, wall features, and wood are often overlooked in the effort to save form and outline. The detailed inventory of architectural features, material types, structural dimensions, construction sequences, and other manifestations of human behavior in architecture are the focus of architectural documentation. Completing this documentation has revealed new research questions at Tonto and a new understanding of the people who built the cliff dwellings.

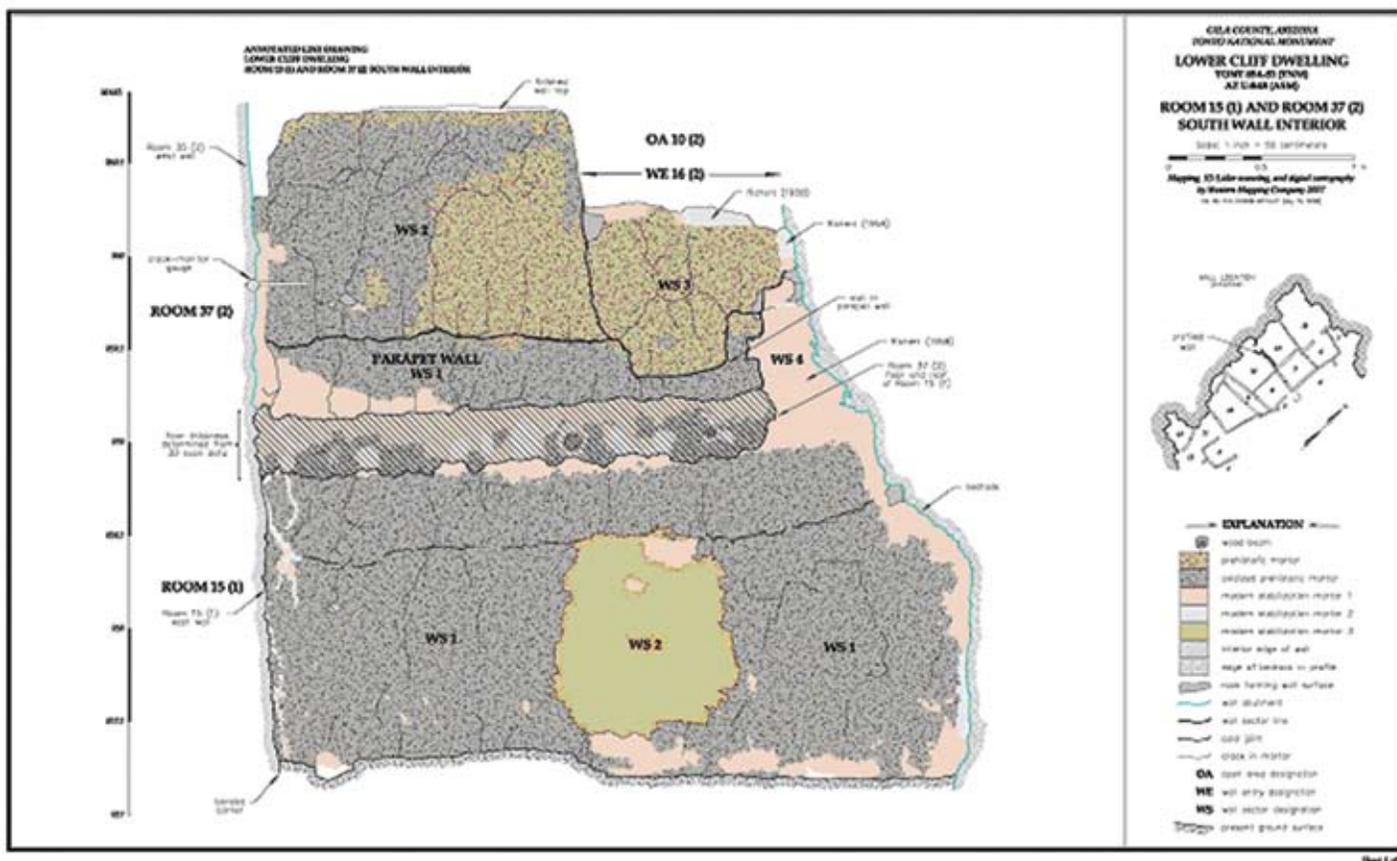


Figure 3: Architectural sheet created by Western Mapping Company and Larry Nordby, depicting construction sequences, repair events, and, most importantly, the anthropological information that tells us behavioral details about the prehistoric inhabitants. Image: Courtesy, Tonto National Monument

Ruins Preservation Plan and Strategy

Similar to a guiding document such as a General Management Plan or Fire Management Plan, Tonto has developed a comprehensive Ruins Preservation Plan. This document outlines the following objectives for Tonto’s preservation program. Our Division used the Flagstaff Area Monument’s Plan as a template (Metzger et. al 2001). The goal of the Tonto plan is to preserve site integrity by focusing on intensive archeological site recording so that significance and integrity are clearly understood and recorded. Once the significance and integrity of sites are recorded at an intensive level, appropriate management decisions can be made based on the site’s level of significance.

Condition Assessments

Tonto staff believe that resources must be appropriately evaluated for preservation needs by developing assessment standards. Accomplishing this goal includes establishing baseline site condition assessments. Baseline condition assessments consist of two elements: (1) wall-level condition assessment using architectural sheets and a detailed condition assessment form and; (2) general site condition determination based on synthesized wall-level information recorded on an overall site condition assessment form.

Apply Appropriate Preservation Treatments

Tonto staff have taken a light-handed approach to treatment at the cliff dwellings. When poor conditions warranted treatment, staff followed Secretary of Interior *Standards for Historic Preser-*

vation. Treatments were assessed prior to application and staff sought to obtain the maximum benefit from funding expended on resource preservation by performing high-quality work that would have long-term effectiveness.

Part of the treatment process involves intensive documentation. Tonto staff intensively documented all preservation treatments with pre/post-photography. A treatment log captures the amount of material applied, the type of material, the location of the application, and any other noteworthy comments about the treatment event.

Study the Lessons Learned

We have learned that a wide array of preservation methods have been implemented at the cliff dwellings to curtail impacts caused by rodents, erosion, gravity, and visitor disturbance. Perhaps the most destructive of past preservation activities included the use of water repellents, asphalt, and amended mortars throughout prehistoric adobe surfaces. Many of these projects have directly impacted the integrity of these sites in adverse ways. However, a case can be made that without this intervention, walls would have collapsed and archeological data would have been catastrophically lost due to increased visitation.

Regardless of my heartache sometimes with past method and procedure, the truth is that the Tonto cliff dwellings are safer today for visitors to experience. However, when did efforts to accommodate visitation exceed the research value present throughout the intact prehistoric wall surfaces and buried deposits? Why were

elements of architecture modified or, in some cases, destroyed so that more visitors could enter the dwellings? The NPS focused on stabilizing form and outline so that visitors could gain access to all parts of the ruins. This approach drove management and preservation decisions at many parks, to the detriment of preserving true research value. A sense of urgency to allow safe visitation overshadowed careful documentation of human behavior manifest through architecture.

Unfortunately, anthropological data once preserved in architectural elements such as cold joints, sealed doorways, wall abutments, plaster, and wooden features was occasionally destroyed. Instead of preserving the true research value of these sites, we (the NPS) chose to unscientifically clear rooms of debris, fill cracks in walls that have been around for 700 years, and construct modern walls and steps to increase visitation. Although most of the NPS preservation community understand the consequences of our past decisions, other agencies and groups, such as amateur archeological societies and our friends in adjacent government land managing agencies, do not. We need to find a way to insert ourselves and our standards into these groups. I believe this is an ethical responsibility for the VT community because of our position as the lead preservation agency. Lessons learned from past management practices and their consequences must be discussed and conveyed to others if we are going to truly preserve all aspects of these national treasures. After all, the places of great ethnographic, scientific, and educational interest set aside by our predecessors are in the hands of NPS managers. Furthermore, I suggest that many of our national treasures still remain unprotected on private and state land and within the control of land managing agencies with little money set aside for historic preservation.

Site Condition Monitoring

Once sites are preserved appropriately through treatments that meet Secretary of Interior standards, site condition monitoring should occur on an appropriate schedule. This final phase includes the elements described in the condition assessment phase: (1) wall-level condition assessment and; (2) general site condition determination based on synthesized wall-level information.

Accountability and Interpretation

There is an unavoidable tension between the preservation of resources and political support for carrying out this mandate. The early NPS was built largely by railroads and the hotel industry. The NPS encouraged this activity to bring great numbers of voters to the parks so that Congress would support not only the idea of parks but parks themselves. Like many other parks, the past management of Tonto became a reflection of this paradigm. However, as the public has become more sophisticated and expectations for interpretive material have increased, a science-based resources management and research program has become

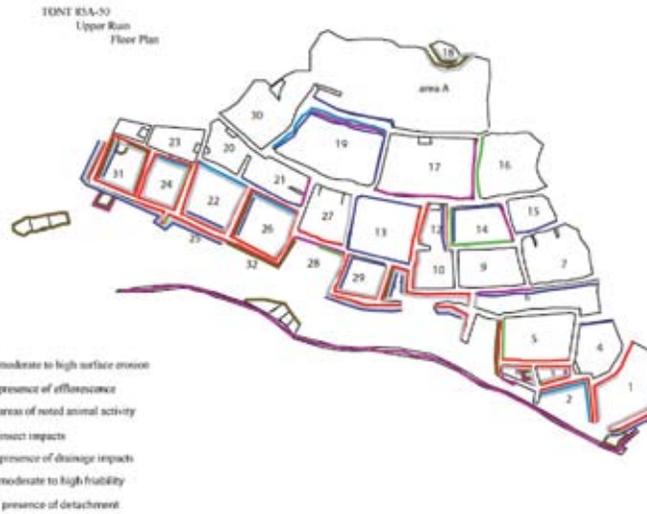


Figure 4: Site-level condition assessment map created by Matt Guebard, depicting numerous impacts throughout the Upper Cliff Dwelling.

Image: Courtesy, Tonto National Monument

critical to both preservation and relevancy. Our focus as managers should be to minimize the impacts of our decisions so that the evolving stories that these places convey to the public are preserved in perpetuity for future generations.

The cultural resources staff has an obligation to provide information to the public regarding why, where, and how we preserve these important sites. We've tried to ensure that information derived from cultural resources preservation projects is made available for interpretive use through exhibits in the visitor center and through online publications. We are now expanding this information to the Learning Center for the American Southwest, in hopes

of reaching a larger audience. This is perhaps the most important component of our ruins preservation program because without expressing the value of the resources that we are preserving, there will be no money or support for what we do.

Work Ethic

Teddy Roosevelt, who set aside Tonto National Monument 100 years ago, had a very simple but applicable quote that I apply to preserving cultural resources. He said, "Do what you can, with what you have, where you are." I think that most would agree that the VT community's belief in our preservation mission and our work ethic is the reason why we have participated in the most successful ruins preservation initiative in NPS history. It's because of our work ethic at Tonto, and at other VT parks, that we can even talk about making progress on what appears to be an insurmountable maintenance backlog. Work ethic is the foundation on which a transformation from deferred to cyclic maintenance must begin.

The Next 100 Years at Tonto

The Tonto staff have followed the direction of NPS ruins preservation mentors in the Southwest and the original draft VT guidelines to arrive at a viable cyclic ruins preservation program. Tonto simply implemented the previously discussed elements and what we've learned about the past to construct a viable cultural resource management program. Models provided by Flagstaff Area Monuments, Chaco, and Mesa Verde have laid the groundwork for smaller parks such as Tonto.

The great challenge for the VT community is no longer within the confines of our park boundaries, but within the larger preservation community. Outside agencies, local governments and private organizations will seek direction and leadership from our agency in the future. I hope that we can live up to this pressure, because without the dedicated staff of the NPS leading the charge and learning from our past mistakes, future generations will never fully appreciate or understand the true value of what we're preserving or why.

Duane C. Hubbard is Chief of Resource Management at Tonto National Monument

VT Backfilling at Chaco Canyon and Aztec Ruins

Roger A. Moore and Gary M. Brown

Introduction

A number of preservation options have been applied to prehistoric structures over the last 120 years. Some, such as wall stabilization with Portland cement, have solved some problems while creating others, and relatively simple methods, such as backfilling, have been quite successful. The VT initiative has supported a variety of methods to help preserve standing architectural sites. Recent VT efforts at preserving and stabilizing ancient structures at Chaco Culture National Historical Park and Aztec Ruins National Monument have selected backfilling (site reburial) as an essential aspect of the preservation program. The large size of the Chacoan-style “great houses” (*Figure 1*) for which these two parks are famous makes it possible to conduct extensive backfilling, while at the same time keeping major portions of the ruins exposed for visitor enjoyment (*Figure 2*). Progress reports on the Chaco and Aztec backfilling programs have been published (Ford et al. 2004; Rivera et al. 2004). Here, we pull together the information on these two programs and draw some preliminary conclusions.

Following occupation, architectural sites gradually fill-in both with natural sediments deposited by wind and water and with debris resulting from the collapse of the architecture. Many of these sites reach a state of relative stability and equilibrium over the centuries. Early excavators noted the condition of buried parts of the sites and the speed with which deterioration proceeded once the structure was exposed to weathering and impacts from visitors and researchers. Backfilling of excavated sites has been done at many sites since the early part of the 20th century, generally by simply putting the excavated fill back into the structures. Experimentation with backfilling techniques and adoption of a more systematic approach started during the 1970s and continues to this day (Thorn, 1991).

The purpose of backfilling is to preserve architectural elements in a way that mimics the effects of natural wall fall and environmental sedimentation. While natural effects have been commonly advantageous, they subject the cultural resources to the vagaries of exposure and weathering and various factors related to climate, soils, depth of fill, surface water drainage, groundwater, and other processes. Only limited information is available on what types of soil are best. What information exists generally notes that the deeper cultural material is buried the better preserved

it remains (Mathewson et al, 1991). Without detailed field observations, preservation specialists have not had sufficient information to correlate soil types and layering different types of fill on preservation of stone, mortar, and wooden architectural elements. Instead, preservationists have had to rely to a greater degree on knowledge of the effects of various types of soils and dirt in relation to their properties of swelling/contracting in relation to moisture content, permeability to moisture at different temperature regimes, and related properties. Backfilling that succeeds in protecting the prehistoric features, materials, and architecture improves our ability to preserve structures and lengthen cycles of invasive fabric treatment.

History of Backfilling

While the practice of stabilizing and preserving prehistoric architectural sites dates back to the late 19th century, intentional backfilling is more recent. One of the earliest references to the technique dates to the Athens Charter for the Restoration of Historic Monuments of 1931. However, in-depth discussions of the technique were not begun until the late 1970s and 1980s. In the early 1960s, NPS guidelines for preservation and ruins stabilization do not even mention backfilling as a viable technique (e.g., USDI NPS, 1962). By 1982, emergency backfilling was conducted in five rooms at Aztec West Ruin using a front-end loader to simply dump sand from a nearby wash into the rooms, presumably to protect roofs and other perishable wooden elements.

The concept in early discussions includes both temporary and permanent covering of sites with fill. Development of systematic practices and programs for backfilling started in the 1980s, when a number of agencies began to seriously consider experimental backfilling, primarily at sites that had been at least partly excavated. The NPS was a leader in this development, particularly with involvement of staff from the Southwest Regional Office and, after reorganization into the Intermountain Region, the Intermountain Support Office in Santa Fe. The need to implement a major backfilling program at Aztec Ruins was identified in the 1989 General Management Plan in order to reduce the ruins maintenance workload, equalize differential fill pressures, and reduce drainage problems. As a result, the IMR Support Office prepared a general plan for backfilling major portions of Aztec West Ruin, the largest architectural site at Aztec Ruins (Trott, 1998). Small-scale backfilling projects were also implemented while this plan was being developed.

Plans for backfilling at both Aztec Ruins and Chaco Culture



Figure 1: The extensive ruins of Chetro Ketl, seen here against the backdrop of Chaco Canyon, are typical of the great houses of Chaco Culture National Historical Park and Aztec Ruins National Monument.

Photo: Randall Skeirik



Figure 2: This example of selective backfilling at Salinas Pueblo Missions National Monument shows how pueblo sites can be protected by backfilling while still retaining their interpretive value.
Photo: Randall Skeirik

began in the mid-to late 1980s, with major backfilling efforts at the two parks beginning in 1990. In addition to the Regional Support Office, planning assistance from the Getty Conservation Institute in the early 1990s was a major benefit. Interaction between Aztec and Chaco also played an important role in developing a consistent approach to backfilling similar structures at the two parks. Planning considered the types of sites to be backfilled, field methodology, types of soils needed, drainage systems, geotextiles, geomembranes, and post-backfill monitoring. The sites selected for backfill were those that had been at least partly excavated, leaving previously buried walls and other architectural elements exposed to the weather and effects of tourist interaction. At Aztec, the Hubbard Tri-Wall site and West Ruin received highest priority, with East Ruin also identified as needing some backfilling. At Chaco, the most visited sites, mostly those in the front country received a higher ranking of priority, with backcountry sites generally having a lower priority.



Figure 3: Conveyor system used for backfilling the south room area at Pueblo del Arroyo.
Photo: Courtesy, Chaco culture National Historical Park

A plastered room with prehistoric inscriptions (West Ruin, Room 117) was backfilled in 1990 and the Hubbard Tri-Wall, in 1991. At Chaco, backfilling began in earnest in 1993, starting at the relatively simple single-story “small sites” (known as the BC sites) near Casa Rinconada. These small unit pueblos consist of single-course masonry structures with fewer than 70 rooms. Major backfilling at the larger-scale “great house” sites was initiated at Chaco in 1994 with work at Chetro Ketl and at Aztec, in 1998 with the East Wing at West Ruin. Backfilling still continues at both Chaco and Aztec.

Methodology

In its simplest form, backfilling is nothing more than putting back the excavated fill to return a structure or archeological site to its pre-excavation condition. The approach taken at Aztec and Chaco is much more refined and seeks balance between preservation and interpretive needs. Backfilling encompasses a number of concepts, materials, and techniques. Most sites have been backfilled to add a degree of stability to the structure that is similar or superior to the level of stability present before excavation. Some unexcavated sites have also had some fill added to enhance stability. The primary stages include pre-backfilling documentation consisting of detailed architectural recording, rectified photo-documentation, and condition assessment; planning for the specific backfill project through creation of detailed scope-of-work; preservation treatment of architectural elements to bring them up to good condition, so that no fair or poor condition walls are buried; drainage installation and backfilling; and monitoring of the backfilled system. Some of these procedures are relatively straightforward; but selection of fill material, drainage design, and use of geotextiles and geofabrics can be critical to the success or failure of the backfill project.

The current backfilling programs include the use of sandy loam and clayey sandy loam soils for most of the filling, with a thick cap of clay to impede saturation of subsoils and to assist in directing surface runoff toward the evaporative basins or PVC drain inlets. A geotextile horizon marker is always laid down first to assist in any future re-excavation and modification of the backfill situation. Fill dirt is generally transported into rooms



Figure 4: Backfill crew tamping sandy loam prior to deposition of another layer at West Ruin, Aztec Ruins National Monument.
Photo: Courtesy, Aztec Ruins National Monument



Figure 5: Drainage system in the back wall row of rooms at Pueblo del Arroyo before backfilling.

Photo: Courtesy, Chaco Culture National Historical Park

mechanically, either using conveyors (Figure 3) or directly using a front-end loader. Fill dirt is spread through the area by hand using shovels and rakes, then tamped after each foot-thick lift (Figure 4). Aztec has used geo-webbing to help control movement of backfill soil where unequal fill levels cannot be avoided.

Different drainage systems have been tested and used at Chaco and Aztec, but two main design types are dominant: a subsurface PVC system of drain pipes (Figure 5), and collection of surface water into evaporative basins (Figure 6). The PVC drain system allows water to be moved from a room or group of rooms to a basin or off-site location. The pipes are usually set relatively high in the backfill and move from rooms or outer walls by passing through doorways, vents, or existing breaches in walls. This has been the preferred drainage method when architectural and elevation constraints allow; but wall perforations are sometimes necessary, especially in order to route drain pipes through exterior walls to off-site locations. Slope gradients of approximately ¼ inch per foot are maintained.

Several types of collection basin systems have been tried at Chaco. Both plastic and metal basins with 40-70 gallon capacities have been used, with some round and some oblong. Aztec has consistently used stainless steel basins that are either 4 feet or 6 feet in diameter. They are acquired from oil/gas well suppliers, who use the basins to cap tanks on local well pads, or from feed stores. Basin depth ranges from one to two feet into the new backfill. Basins have been used mostly in areas where a pipe system is not feasible or would require an unacceptable intrusion through masonry walls (e.g., kivas) or in unexcavated fill. The surface of rooms and kivas is graded to direct runoff into the basin which is typically located in the center.

When basins were first used, it was hoped that all moisture collected would evaporate into the air. This concept works when the room is relatively open to wind and the amount of rain or snow at any one precipitation event is very low. With the types of monsoon showers that often occur in the Southwest, basins often fill to within 80% or more of their capacity and need to be emptied. Basins are usually in places that cannot be drained. Instead, water is usually pumped out of the basins with an electric or gasoline-powered water pump connected to a hose so that water



Figure 6: Central evaporative basin in a room with shallow backfill at Pueblo del Arroyo.

Photo: Courtesy, Chaco Culture National Historical Park

is moved to a location outside the structure. Winter snow and ice can also build up and require removal. Monitoring of the basins after installation is important because some basins fail, allowing water to collect down the outside into surrounding fill. This is usually corrected by re-tamping the backfill dirt and modifying the interface between the soil and the basin or modifying the lip of the basin.

A complicated series of differential fill levels at Aztec Ruins led to implementation of a specialized stratigraphy for alleviating static loading on walls between backfilled rooms and areas that cannot be backfilled to a height within three feet of the higher room. In these instances, when possible, soil retention structures are installed during backfilling. Geoweb structures are synthetic cellular structures laid in horizontal courses with a lean away into the higher fill. They are commonly used in landscaping and highway corridors.

Results

The backfilling programs at Chaco and Aztec have evolved over the past 15 years, so a little background on the progression of these programs is helpful. We have learned a lot that can be shared with future backfilling programs. Some re-excavation of backfilled structures has also been done, providing an opportunity to evaluate the results.

The earliest work at Aztec was emergency backfilling of five rooms at West Ruin in 1982, including one that originally had a perfectly preserved roof that had fallen into severe deterioration due to neglect. Sand was dumped into the rooms in the hopes of protecting what was left of the roof and additional wooden elements in all five rooms. As the current backfilling programs were planned, especially with wood preservation recommendations from a plant pathologist at the University of Minnesota, problems with backfilling wood in a sandy environment with no provision for external drainage were identified. Re-excavation of the rooms in 2005 demonstrated that such an approach did more to increase the rate of wood decay than to preserve the structure. Even dimensional lumber that had been put in to brace the dilapidated roof showed signs of advanced decay only 23 years after burial. Thus, backfilling without drainage is ill-advised, as is the

use of porous sediments that absorb surface moisture.

Improved techniques were employed in 1990 when the Hubbard Tri-Wall Structure was backfilled; but in 2008, with the benefit of hindsight, this project appears primitive. Backfilling at Aztec benefited from continued refinement in 1991, when a professional conservator designed measures to backfill a plastered room that had previously been sheltered from the full brunt of weathering with a protective roof. Continual cracking and spalling had deteriorated the plaster mural over the 70 years since it had been exposed by excavation. Carefully selected membranes and fill sediments were installed in the room to halt this loss. After 15 years, test re-excavation indicated that not only had loss been arrested, the condition of the mural had actually improved. The combination of pressure from the backfill upon the mural and slight ambient moisture seems to have re-adhered spalling plaster onto the masonry wall.

In 1994, the earliest work at Chaco consisted of backfilling at BC 50, covering 1,002 square feet of site area, and 2,610 square feet at BC 51. The following year, the small unit pueblo BC 59 was also backfilled. These three sites utilized PVC pipe drains that allowed the removal of moisture from the interior of the structures to areas up to 20 feet outside the structures. Fill was usually relatively shallow (mostly less than three feet deep), so making adjustments to the system later on would be relatively simple (*Figure 7*). The backfilling did not significantly alter the visitor experience or require the need for much change in the interpretative program. The walls had been relatively low to begin with. Backfilling allowed the sites to appear slightly mounded with all walls still visible above the new fill level, but it reduced the amount of exposed wall fabric that would need cyclic treatment by nearly 50%.

During the summer, of 1994, the first great house was partly backfilled. Chetro Ketl had been partly excavated, mostly along the wide block of rooms at the back of the room block. Rooms with up to three stories of standing wall were exposed in this area. While this was on the higher elevation side of the site, these excavated rooms extended well below the level of the ground surface outside the back wall as well as the plaza area; it was by far the deepest area of the site. Because of this situation, the large

amount of fill that would be required, the presence of roof beams that would be buried, the lack of experimental information to help judge the effectiveness of this project, and related considerations, a special backfill scenario was designed. In consultation with the Getty Conservation Institute (GCI), a design was developed that would provide special protection of the buried wood, allow monitoring of moisture within the new deep fill, and provide a protective barrier near the top of the fill to help protect the buried wood.

Photography is an important part of all treatment and backfilling operations; but for this project it, was felt that additional documentation was in order. Moore Anthropological Research was contracted by the GCI to provide black-and-white and color photography as well as video documentation of all operations and stages of the project. This became very useful in 2003 when parts of the backfill system were replaced. The floor of the rooms was covered with a permeable geotextile as a marker between the unexcavated fill below and the backfill soil above. Wood was wrapped with the geotextile and then with a geofiber material that was like a two-inch thick plastic Brillo pad, to protect the wood from direct contact with the soil. Vertical PVC pipes were placed at various places in the rooms, some near buried wood, and backfill soil was added to the rooms. These vertical pipes provide ports for monitoring humidity using a dielectric probe. About every foot of fill was tamped to provide good compaction and minimal post-construction soil settling. As backfill reached the upper half to two thirds, the PVC pipe drainage systems were installed. About one foot below the top of the fill, an impermeable geomembrane was placed over the fill and Enkamat was laid over that to help prevent puncturing after the final foot of dirt was added.

An average of 8-12 feet of fill was added to eight rooms in the mid-section of the room block at Chetro Ketl. The surface of the fill was contoured so all moisture would drain away from walls and into the PVC drainage pipes. The pipes exited the back wall of the great house and emptied into a ditch about 15 feet behind the back wall (*Figure 8*). A dielectric probe was used at first on a weekly basis, and later on a monthly basis, to monitor moisture present in the fill. In addition, moisture meters were placed on the inside and outside of the west wall of the fill area to monitor effects on



Figure 7: Typical shallow backfill project.
Photo: Courtesy, Aztec Ruins National Monument



Figure 8: Drain from the back row of rooms at Chetro Ketl to a ditch outside the pueblo.
Photo: Dave Six, 2003

wall moisture. The wires from these small meters were run to a nearby kiva, hidden from the public, where a monitor receiver was placed. The data were downloaded monthly by the park and sent to the GCI. In 1995, the rest of the back room block was filled to depths of three to eight feet, but without the near surface geomembrane covering. Later, vertical PVC monitor pipes were placed in this area to allow comparison of the effectiveness of the two methods.

The 1994 backfill areas were monitored for several years to determine the effectiveness of the program. By 1998, the park was ready to begin a second round of backfilling at Chaco. The initial backfilling results and their assessment were also instrumental in designing the West Ruin backfilling program at Aztec. Preparation for these projects included architectural documentation and condition assessments, stabilization treatment of structures to be backfilled, and writing scopes-of-work that included designing drainage systems and backfill contouring. In 1999, the east wing room block of Chetro Ketl was backfilled. Because no wood beams extended out into the rooms to be backfilled, no geomembrane was placed near the top of the fill. Several PVC drainage systems were placed, but they proved challenging since they had to run up to 70 feet outside the ruin to an arroyo in order to provide effective drainage.

Nearly every year since 1999, there has been a backfill project at Chaco: Kin Kletso, 2000; Lizards House, 2001; emergency replacement of first backfill at Chetro Ketl, 2003; Pueblo del Arroyo, 2004-05; and Pueblo Bonito plaza, 2006-08. Backfilling at Aztec West Ruin has been conducted every year since 1998. Each of these projects has protected substantial amounts of previously exposed wall fabric and drained moisture away from the ruins; each has presented its own unique considerations and problems in terms of design. Some of the things that affected design included depth of rooms below (or above) outside ground surface; availability of existing doorways, vents or open-beam holes for routing PVC drainage pipes; visibility of proposed backfill areas to the public; and the surrounding topography.

The emergency work at Chetro Ketl in 2003 was precipitated by the discovery that moisture was beginning to accumulate in the lower fill areas. Exposure of the geomembrane showed that it had leaked in several areas, especially around places where monitor and drain pipes passed through it. The fill was removed and wood examined. A new plan was used to provide protection for the wood. Better geomembrane and geotextile materials were now available as well as manufactured welded pipe sleeves, so we were able to correct the problem. Monitoring continues to test the effectiveness of this new system.

Conclusions

After almost 20 years of systematic backfilling at Aztec and Chaco, we feel that we are beginning to realize some of the gains from this approach. The workload of cyclic preservation has certainly been reduced. Monitoring to date suggests that we have accomplished this while enhancing preservation of fragile, world-class cultural resources. Re-excavation of pioneering backfill project areas at Aztec indicates that selection of relatively impermeable soils, at least near the surface, is preferable to coarse, well-drained sediments. Conversely, the initial use of impermeable geofabrics at Chetro Ketl was quickly discontinued after assessment. Exposed masonry and other conduits for moisture penetration into the structures require backfill environments that can breathe to some extent, rather than trapping moisture within the backfill.

Finally, drainage is absolutely necessary to realize the benefits of backfilling. Although the Southwest is arid, drainage features to catch and eliminate as much surface moisture as possible are necessary because the ground is saturated by precipitation that comes in intense outbursts of summer rainfall and melting snow. Below-grade PVC drainage systems have proven to be effective and relatively low-maintenance. Evaporative basins are also effective, although much more maintenance is needed, especially after heavy precipitation events.

The effectiveness of backfilling has been demonstrated, with VT providing a major source of funding and expertise for development of the approach. Backfilling should be considered an important part of the tool kit for VT preservation.

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Preservation and Management Guidelines for Vanishing Treasures Resources: The Legacy of Archeological Site Preservation in the National Park Service

Jake Barrow

In July, 2007, multi-disciplinary NPS Cultural Resources personnel met in Santa Fe, New Mexico to review the 1997 Draft *Ruins Preservation Guidelines*. While these *Guidelines* were in use by VT personnel, they remained in draft form and had not been approved. The result of the 2007 Santa Fe meeting was to set in motion a process to bring the *Guidelines* up to date and get them approved and formally disseminated.

The preservation of cultural resources in the NPS, including archeological sites and ruins, is guided by Director's Orders 28 and 28A and by the Secretary of Interior's *Standards for the Treatment of Historic Properties*. Supplemental Guidelines are needed because the general and comprehensive nature of the Director's Orders and the Secretary's *Standards* do not directly and specifically address the ruins preservation and archeological site management that is the core mission of the VT Program, i.e., structures within archeological sites require preservation actions that combine two different aspects of the Director's Orders and Secretary's *Standards*. The goal of the new Guidelines is to distill and focus relevant aspects of the Director's Orders and Secretary's *Standards for the Treatment of Historic Properties* into one user-friendly document.

Within the jurisdiction of VT are a wide variety of resources, including open sites with standing stone walls, cliff dwellings, wickiups, mining structures, farm and ranch remains, earthen ruins, log structures, plastered surfaces, as well as many others. Each of these and their respective environments represent unique situations with specialized requirements. The Preservation Guidelines Team decided to refocus the *Guidelines* to reflect a planning approach based on a process orientation rather than prescribed detailed instructions for resource treatment programs. The intention is to establish an orderly, results-driven process that will guide decision making and actions in the field. Ultimately an expanded version of the *Guidelines* will be on-line with links and examples that can be accessed by the field staff and other preservation partners. The goal is to complete the *Guidelines* in 2008 so that they can finally serve to provide principles and planning tools for the best possible preservation of VT resources.

Since its founding in 1916, the NPS has had responsibility for the preservation and maintenance of some of the most significant prehistoric and historic sites and structures in the country. The 45 VT parks situated in the arid west of the United States, contain some of the richest, best preserved, and most complete records of human occupation of North America. Despite the apparent and relative good state of preservation in many cases, they cannot be considered to be unchanged or unchanging. All archeological sites are, by their exposed nature, fragile and in a continuum of change with many ruins damaged or destroyed by natural forces and human impacts. The record of the past that is embodied in these sites is finite and non-renewable. The loss of these sites not only diminishes our chance to study, understand, and interpret critical parts of American history, it also impacts the ability of cultur-

ally affiliated peoples to interact with these significant places and compromises the public's enjoyment of park sites.

From the late 19th century, throughout the 20th century, and into the 21st, the NPS and its various predecessors have been responsible for managing archeological sites (*Figures 1 and 2*). It is instructive to note that the first site preservation efforts undertaken at the Casa Grande Ruins in 1891 attempted to address many of the same preservation challenges that we face today. Those challenges included site desecration/human impacts, structural stability, surface erosion from weathering, basal erosion, wall capping, sheltering, and backfilling (*Figure 3*). At that time, and for some years to come, excavation work and preservation treatments were executed by organi-



Figure 1: The spectacular cliff dwellings at Wetherill Mesa in Mesa Verde National Park, CO, were internationally known discoveries by 1893. By the time the Antiquities Act was passed in 1906, a force of federal forest supervisors, rangers, special agents, Indian school superintendents and teachers, Indian agents, farmers, police, and Indians themselves had been mobilized to protect important Southwest archeological sites. By 1910, several of these sites were added to the inventory of national cultural preserves, including Mesa Verde, El Morro, Chaco Canyon, and Tumacacori.

Photo: NPS Graphics Research Branch, Harpers Ferry Center, WV



Figure 2: A 1920s aerial view of Casa Grande National Monument, AZ. The importance, in the public interest, of long-term preservation for significant archeological sites was recognized more than 100 years ago, when Casa Grande Ruin became the first national archeological preserve. The demand for both interpretation and protection resulted in Federal laws and programs to systematize access for research purposes as well as prevent looting and vandalism at such sites. This rare 1920s aerial view of Casa Grande shows the principal village site and visitors' autos.

Photo: NPS Graphics Research Branch, Harpers Ferry Center, WV

zations such as the Smithsonian Institution and by university field schools, not by the NPS. Eventually, the NPS internalized these activities but never totally abandoned the idea and use of partnerships.

Over time, there has been a significant shift in how archeological sites are managed. Before the turn of the 20th century, there was a great rush to discover sites and excavate them so that their artifacts could be exploited. This resulted in the



Figure 4a: The original caption for this 1958 photo states, "These walls in Compound 'B' have been uncovered, restored to some degree and recovered to protect them from erosion."

Photo: NPS Graphics Research Branch, Harpers Ferry Center, WV



Figure 3: Casa Grande seen from southwest about 1892. Repairs to areas with basal erosion are clearly evident even in this early photo.

Photo: NPS Graphics Research Branch, Harpers Ferry Center, WV

destruction of many resources and led to the passage of the Antiquities Act in 1906. By the 1920s, in reaction to the damage done to resources, an emphasis toward preservation and interpretation emerged. By the end of the 20th century, the process of managing archeological sites had matured significantly, with site preservation, documentation, and applied architectural conservation playing major roles. The establishing principles of the NPS served to direct this change and these principles continue to guide resource protection and appropriate public access.

A fundamental building material of the historic and prehistoric architectural resources within VT parks is earth. The innate fragility of exposed earthen materials and the relative lack of success of early preservation efforts resulted in a call for help to the scientific community in 1931. This was followed in 1940 with the recommendations of the Director's Committee on Ruins Stabilization, experimentation with new "modern" materials the late 1940s and 1950s, and internally conducted research in the 1970s. Failure was routine and al-



Figure 4b: This photo, taken in 2005, shows one of the walls in Compound "B" with its 1950s protective coating. The use of portland cement for the protective coat has caused the original material beneath to deteriorate. This is illustrated by the gap between the protective coat and the current surface of the wall. Nearly two inches of historic material have been lost in less than 50 years.

Photo: Randall Skeirik

ways led to new experimentation (*Figures 4a and 4b*). The move toward the use of scientific methods in ruins preservation has remained in a state of continuing development, yielding substantial and beneficial results. Many of the findings are subtle, since no magic formula or treatment has ever emerged. It is unlikely that one ever will. Rather, the history of our preservation efforts has been a process of experimentation, empirical learning, and trial and error. Ultimately, scientific endeavors, coupled with planning and analysis, will better focus limited resources toward regular maintenance cycles. In the 1990s, graduate preservation programs in universities began joining the NPS in research activities, the pursuit of solutions, and training. This process mirrors the early 1900s University involvement with excavation and stabilization as well as mid-century field schools that were devoted to training archeologists. Cooperative Ecosystems Studies Units (CESUs), which are the mechanism through which most universities now participate, have further invigorated the use of scientific methods and have augmented NPS capabilities.

With the passage of the Native American Graves Protection and Repatriation Act (NAGPRA) in 1990, the role and impact of consultation took on new meaning, with particular impact on archeological sites in the Southwest. Associated tribes and affiliated groups now had a legal right to begin to participate in the planning and decision-making process of preservation and repatriation. New valuable information is being passed from tribal sources to NPS resource staff, improving the knowledge base and assisting with the design of culturally appropriate preservation actions.

To prevent the loss of both existing resources and their research potential, extensive documentation is completed, beginning with data retrieval before treatment and documentation throughout the treatment itself. Therefore a key component of archeological site management is documentation; the reasons to collect data from an archeological resource are both scientific and managerial. The archeologist collects information that can be analyzed and interpreted to contribute to the knowledge of a site and the people who inhabited it, while the manager collects information to be used for conservation, management, protection, and interpretation of the site. Ruins preservation documentation must address and integrate both the scientific and managerial orientations in order to effectively preserve a site's fabric and its values. Recent advances in the world of computing and digital scanning technologies extensively increased recording capability.

Documentation also addresses the potential loss of archeological information as a result of treatment actions by preserving a site's future research potential. VT uses the term "treatment" to include not only fabric intervention but also broad indirect actions such as data recovery and documentation. Both architectural and overall site documentation must be conducted before, during, and after the implementation of any direct action or treatment on an archeological resource. The documentation process must be planned, funded, scheduled, implemented, and archived, according to established standards.

A very important aspect of the Guidelines is the focus on

multi-disciplinary interaction. Archeological site preservation incorporates perspectives of both conservation and archeology, with input from associated disciplines. Each discipline brings a different perspective to ruins preservation, its documentation process, the ultimate presentation of the resource, long-term protection, and maintenance and monitoring. It is the integration of all perspectives that will provide a balanced and relevant approach to preservation actions.

Resource managers, archeologists, and preservation specialists continue to develop site and ruins preservation plans that involve minimal structural intervention with an emphasis on protection. Reconstruction is prohibited, recognizing that sometimes to preserve a wall, a deteriorating or fallen section must be carefully reintegrated to achieve limited preservation objectives. The practice seeks to preserve the scientific and heritage values inherent in the original construction materials by using compatible materials and techniques that characterize the original architecture. Since the process of archeological site excavations has been virtually terminated, the focus now has shifted to site preservation and the fulfillment of nondestructive research requirements.

Archeological site preservation within the context of the VT Program emphasizes:

- (1) a multidisciplinary team approach,
- (2) planning and research,
- (3) analysis of resources and consultation,
- (4) consideration of alternatives and further consultation,
- (5) developing recommendations and rendering decisions,
- (6) formalizing a design and scope of work,
- (7) executing appropriate treatment of least impact,
- (8) formulation of long term management strategies,

These eight activities have been shaped by past efforts at site conservation and contribute to the preservation of archeological sites today. The history of archeological site management by the NPS illustrates a continuum of thought and action, sometimes disjointed, but always instructive. A review of that history, which will be included as part of the Guidelines, will hopefully inform the present, possibly preventing the recurrence of past errors. One continuous thread that runs through the history of archeological site preservation is the overriding concern and care that is manifested by the many individuals who have been charged with site stewardship over the past century and more.

The new *Ruins Preservation Guidelines* will stand as a benchmark of our times and serve as a bridge from the past to the future.

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Fort Davis Post Hospital Project

Jake Barrow

The Fort Davis National Historic Site Post Hospital Restoration and Training Workshop embarked on its third season in FY 2007. VT offered the FY 2007 Lime Plaster and Woodwork Restoration Workshop, building on the previous year's training in historic plaster conservation, lime plastering, graffiti mitigation, 19th-century window and door restoration, and floor reconstruction.

This year's hands-on training opportunity addressed the conservation of historic 19th-century lime plasters on adobe, and the integration of restoration plasters to replicate lost 19th-century plaster. This work included grouting voids, reattaching loose historic plaster, and making and applying new lime plaster to the historic adobe. The woodwork restoration portion of the workshop focused on the reconstruction and restoration of floors, windows, and doors in the hospital.

Held between June 26 and July 21, 2007, the restoration of the post hospital and the installation of new exhibits will provide Fort Davis and west Texas with a fascinating and educational window into 19th-century medical practices as well as a deeper appreciation for the architectural complexity of the adobe hospital.

This ongoing project is part of a Save America's Treasures Grant and is a partnering venture with the University of Vermont, Vanishing Treasures, Fort Davis National Historic Site, and Cornerstones Community Partnerships.



*Ft. Davis Post Hospital Field School Participants.
Photo: Max Kandler*

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Southern Arizona Parks Cultural Resource Meetings

Cultural resource managers from the Southern Arizona parks meet two to four times a year to share information and discuss issues related to cultural resource management. In FY 2007, the group met on October 18, 2006 and January 10, March 7, and May 27, 2007. While not specifically VT meetings, the vast majority of the Southern Arizona parks participate in the VT program and so VT topics are often on the agenda. The Southern Arizona parks group includes Fort Bowie National Historic Site, Tumacacori National Historical Park, Saguaro National Park, and Chiricahua, Organ Pipe, Casa Grande, Tonto, Tuzigoot, and Montezuma Castle National Monuments.

Attendees are primarily park archeologists and cultural resource managers, while other participants may include park superintendents, staff from the Western Archeological and Conservation Center, and the Southern Arizona Support Office (SOAR) Resources Program Manager. In FY 2007, discussions focused on topics that impacted the parks' cultural resources programs, with a continuing focus on establishing technical standards and consistency among our various parks regarding cultural resource management. The group has agreed that a number of fields in each park's condition assessment form can be standardized through a glossary of ruins preservation terms. The glossary will provide consistency regarding the types of impacts recorded and condition definitions. The group also hosts speakers on cultural resource related topics both from within the NPS and from outside organizations.

At the October 18th meeting, agenda items included a discussion of the possible work priorities for the new Cultural Resource Program Manager that would soon be hired by the SOAR office, consideration of the desirability of a coalition of southern Arizona parks submitting a combined Project Management Information System (PMIS) proposal for the documentation and preservation of cultural resources, and a discussion of issues related to working with the Arizona State Historic Preservation Office (SHPO), including a resumption of annual meetings between park cultural resource managers and the SHPO.

At the March 7 meeting, there was a presentation by Christopher Dore from Statistical Research of Tucson, AZ, about various remote sensing technologies that are available and how our parks can apply them in the execution of compliance, stabilization, and research projects. Duane Hubbard provided updates on the Arizona Archeological Council and the Resource Stewardship Advisory Team committee; Randy Skeirik talked about proposed revisions to the VT SEPAS process; and Wendy Lott and Duane Hubbard spoke about the SOAR Cultural Resource Preservation Plan.

New Mexico Parks Symposium

On November 30, 2006, a VT/ruins preservation forum was hosted by Aztec Ruins National Monument. This forum was an informal meeting of stabilization practitioners from VT parks that included masons, exhibit specialists, archeologists, and architectural conservators. The purpose of the meeting (typically held once or twice yearly) was to share information on topics such as materials and methodology regarding fabric treatment of prehistoric masonry and other issues that are relevant to archeological site preservation. Dialogue among the participants is facilitated by the host park, whose staff typically provides a site visit designed to promote further discussion.

Attendance at the 2006 meeting was restricted by an early morning snowstorm that prevented participants from some of the central New Mexico parks from attending. Despite the snow, representatives of Aztec Ruins National Monument, Chaco Culture National Historical Park, and Mesa Verde National Park were joined by Virginia Salazar-Halfmoon, VT Program Director, and VT staff members Preston Fisher, Randy Skeirik, and Jake Barrow.

Informal Agenda

- Introductions
- Park Progress Reports
- Other Reports
- VT Program Update
- FMSS Maintained Arch Sites
- Backfilling
- Compliance
- Safety
- Site Visit

Notes on the park progress reports, presented alphabetically by park, follow.

Aztec Ruins

Gary Brown gave an overview of Aztec Ruins and the cultural resource projects happening at the park. Aztec Ruins was originally established as just West Ruin; but in subsequent years it acquired new lands. With the expansion, the park also inherited gas wells—some active, some abandoned. The park is currently working on a General Management Plan (GMP). Due to the boundary expansion and other park interests, a survey project was needed and is currently underway. It fits in nicely with work on the GMP and servicewide Archeology Corrective Action Plan/ASMIS. Public access to East Ruin is under serious consideration. An NSF grant, Cultural Cyclic, and VT project money are allowing for the stabilization and documentation at East Ruin for the first time in many years. West Ruin cyclic stabilization is continuing and is at a good place; it is now at a maintenance level. The majority of backfilling is complete at West Ruin. Other stabilization this past year included work at the Hubbard Mound. Based on the cultural resource survey, no other VT resources outside of the main ruin complex have been identified. The park also has an ongoing Hydrology project, which is a CESU grant project. Last year's roofing project at West Ruin is complete, and there are several more protective roofs at both East and West Ruin that require periodic repair.

Cheryl Paddock passed out handouts showing the progress of



Participants in the New Mexico VT parks symposium posing outside the new office of the Resource Management Division at Aztec.

Photo: Courtesy, Aztec Ruins National Monument

Architectural Documentation at West Ruin, a copy of documentation forms used at Aztec and examples of how documentation photos are annotated. Documentation is now being completed at East Ruin as well, along with condition assessments.

Jeff Wharton gave an update on the survey project. The survey has documented 46 additional sites outside of the original main ruins group. The inventory includes at least one additional great house, large and small unit pueblos, road features, and other anomalies. Condition assessments are complete, and ASMIS is up to date.

Bandelier

Rae Miller covered preservation projects at Bandelier the past year. The big project the past summer was the roof replacement at Talus House. The present roofing was removed and replaced with a roofing system consisting of a weed barrier fabric, followed by unamended earthen mortar, a membrane of a 45-mil poly liner, followed by a clean mix of compacted soil, and Durowal trus 6" reinforcement within the mortar joints, and a final layer of compacted soil. The roof was built directly on top of the original roof, which consisted of vigas, latillas, and a layer of juniper bark. The main goal was to construct a roof that matched the look of the roof in the original photographs and to repair the cracks. Documentation was completed every day, and the report is nearly complete. Rhoplex-amended mortar was used for routine stabilization work, instead of soil cement. It proved to be easy to work with and seemed fairly strong.

Chaco

Roger Moore presented an overview of projects at Chaco. Work this past year included capping treatment at Pueblo Bonito; some backfilling will be completed in the plaza area. Stabilization work was also done at Kin Bineola and a trading post. Capping is completed using a tinted cement mortar mix, and walls are faced using Daraweld-amended mortar. Condition was updated on 101 sites for ASMIS, and the LCS is being updated. Two years ago, a room at Pueblo Bonito was replastered, and there is now an interpretive sign that seems to be helping decrease vandalism. There is also a site steward program set up, which is tied to the NM site

stewardship program.

The mix that Chaco uses for their capping work is 1 bucket (2½ gallon) of dirt, 4 buckets of sand, and 1 of cement, plus 6 cups of color tint (color Chaco 61205) purchased from SW Building Block in Farmington. Their amended mortar mix for wall faces is 2 buckets (2½ gallon) of dirt, 1 bucket of sand, and 1 gallon of Daraweld mixed with 4 gallons of water.

Discussion with other parks indicated that Aztec also uses Daraweld-amended mortar for repointing, and a cement mortar mix for capping that is over-pointed with the Daraweld-amended mortar mix. Mesa Verde uses Rhoplex-amended mortar for stabilization. Both Daraweld and Rhoplex are bonding agents with different chemical compositions.

Fort Union

Greg Phillipy passed out a handout that summarized VT activities at Fort Union. Greg is the new exhibit specialist at Fort Union, replacing Linda Richards, who left in December 2005; he began work as VT personnel one month ago. FY2006 preservation accomplishments at Fort Union included the application of 120,000 sq ft. of earthen shelter coat.

Mesa Verde

Linda Towle spoke about Mesa Verde. There were no major wildfires the past year, the last event of the Centennial is coming up, and three backcountry sites were opened up for special Centennial tours. It was the first time that the park did not receive any VT project money. Larry Nordby retired and his position has not been filled.

Julie Bell discussed specific cultural resource projects. The Colorado Historical Society continues to be one of their main funding sources for project money. Projects this past year included Spruce Tree House stabilization, backcountry site condition assessment and documentation, BAER fire survey, and condition assessment at Yucca House. Plaster and surface treatment work was contracted out to the University of Pennsylvania.

Laura Ninnemann went over a project that the park is working on with a software developer for the field use of PDAs to record data. The data would download directly into the park database. The software will be tested this winter. The software will not be proprietary but could be purchased by other parks.

Tim Hovezak summarized stabilization work completed at Mesa Verde. The stabilization crew mainly focused on the maintenance of front country sites for the sake of the Centennial, and worked on one backcountry site. They also completed some stabilization work at Chimney Rock.

Montezuma Castle/Tuzigoot

Randy Skeirik noted that preservation projects are completed using fee demo money. There is a laser documentation project going on through Western Mapping, and HABS drawings were just completed. There is an ongoing documentation, stabilization, and capping project at Tuzigoot.

Randy encouraged everybody to use the VT team room that he set up within Lotus Notes for the purpose of networking and sharing information.

El Morro/El Malpais and Salinas

Representatives of these parks were not able to make the workshop due to snowy weather conditions. Gary spoke with Jim Kendrick on the phone and relayed his regrets. He also passed along Jim's offer to host the VT workshop next year at El Morro. Gary talked with Marc LeFrancois the previous day, who decided that road conditions were too poor for the Salinas crew to make the long trip; but they hope to visit Aztec at another opportunity.

Notes on other reports:

Salmon Ruins

Larry Baker, director of Salmon Ruin, discussed stabilization at Salmon Ruin and at Navajo pueblitos on state lands in the Dinetah area. Stabilization continues to be a focus; they are not quite up to a maintenance level. Stabilization has been conducted since the 1970s. Their funding comes primarily from the archeological consulting firm based at Salmon (Division of Conservation Archeology), and they receive a small amount of money from San Juan County.

VT Program Updates

Virginia Salazar-Halfmoon gave VT program updates. Now is the time to submit projects for the Servicewide Comprehensive Call. Projects may be submitted for FY2009-FY2013, and projects will be prioritized through FY2013.

Randy will be assisting with the VT annual report. The format of the report was changed to show summaries by state. Last year, 10 copies of the report were sent to each VT Park Superintendent. Any input on the report is welcome.

Communication continues to be the biggest stumbling block for VT. It is a challenge to get information out to all of the parks. The VT team room is set up and it is suggested that, once something is posted, one send out a follow up e-mail informing people. The VT Web site is in the process of being moved to the IMR site, which will be another avenue for communication and the sharing of information.

As far as training, the regional office is not supporting regional conferences, only this type of small (30 people) informal gathering is possible. This year the advisory group voted that the VT training money should go to the panel presenting at this year's SAA conference.

Randy Skeirik and Preston Fisher are available to assist parks; their time and travel are paid for by VT. Preston finalized instructions for a structural component of a database, which other parks can look at and adapt to their needs.

A suggestion was made that more forums would be a good thing, and that the annual reports should have a bibliography or index listing reports compiled by parks.

The executive summary from the VT Leadership Committee meeting was handed out. The main topics included the development of a sustainable pest management guide, retention of VT positions resolution, VT program strategy development, and FMSS and its relation to VT.

FMSS

Julie Bell serves on the Archeology and FMSS working group, which is developing procedures that will improve their maintenance within the framework of FMSS. Julie discussed and hand-

ed out a memo from the working group regarding progress on the Integration of Maintained Archeological Sites and the FMSS. The memo will be posted on the VT team room. Sites will need to be maintained in FMSS, but probably not until FY08.

Backfilling

Gary Brown briefly touched on backfilling and provided hand-outs from procedures at Aztec. Backfilling is a great long-term preservation technique, but it needs to be well thought out, address drainage, and have a good SOW. It is a huge investment of time and money. For Aztec, the SOW was developed out of the Santa Fe office, and annual reports are completed at the park; and the hope is to put together a comprehensive final report.

Compliance

For Colorado, Mesa Verde has a programmatic agreement with the SHPO regarding their site conservation program. Julie Bell had copies of the PA for anyone interested. For Arizona, the SHPO is taking the lead in trying to rescind the servicewide PA with the NPS. In addition, the Arizona SHPO argued that completing stabilization on a site that has never been stabilized is an adverse effect, at least in one case (Tonto). NPS has taken the decision to the Advisory Council. (The following week it was learned that the Arizona SHPO backed down and Tonto is proceeding as planned.)

Safety

Mesa Verde has a ropes class held every year, which the stabilization crew participates in. Canyonlands also holds a rope class in mid-to late April. Gary complemented VT personnel for a good safety record despite frequent, relatively high-risk activities and urged all to continue.

Final Business

Gary repeated Jim Kendrick's offer to host next year's workshop at El Morro. Julie Bell indicated that Mesa Verde also would be willing to host such an event. Upon discussion, it was decided that next year would convene at El Morro, and we would consider 2008 at Mesa Verde.

Gary thanked all in attendance for taking time to travel under adverse driving conditions so that a good turn-out was possible, with lots of stimulating discussion. Cheryl and Gary promised to write up the minutes for distribution. They also will type up a list of those in attendance (27 people).

Conclusion

The meeting ended at 3:15 without time in the schedule to conduct a site visit, as hoped. Several participants accompanied the Aztec staff on a limited site visit to West and East Ruin to look at protective roofs.



*Chacoan masonry after a snowfall, Chaco Culture National Historical Park.
Photo: Randall Skeirik.*

V a n i s h i n g T r e a s u r e s

A r i z o n a

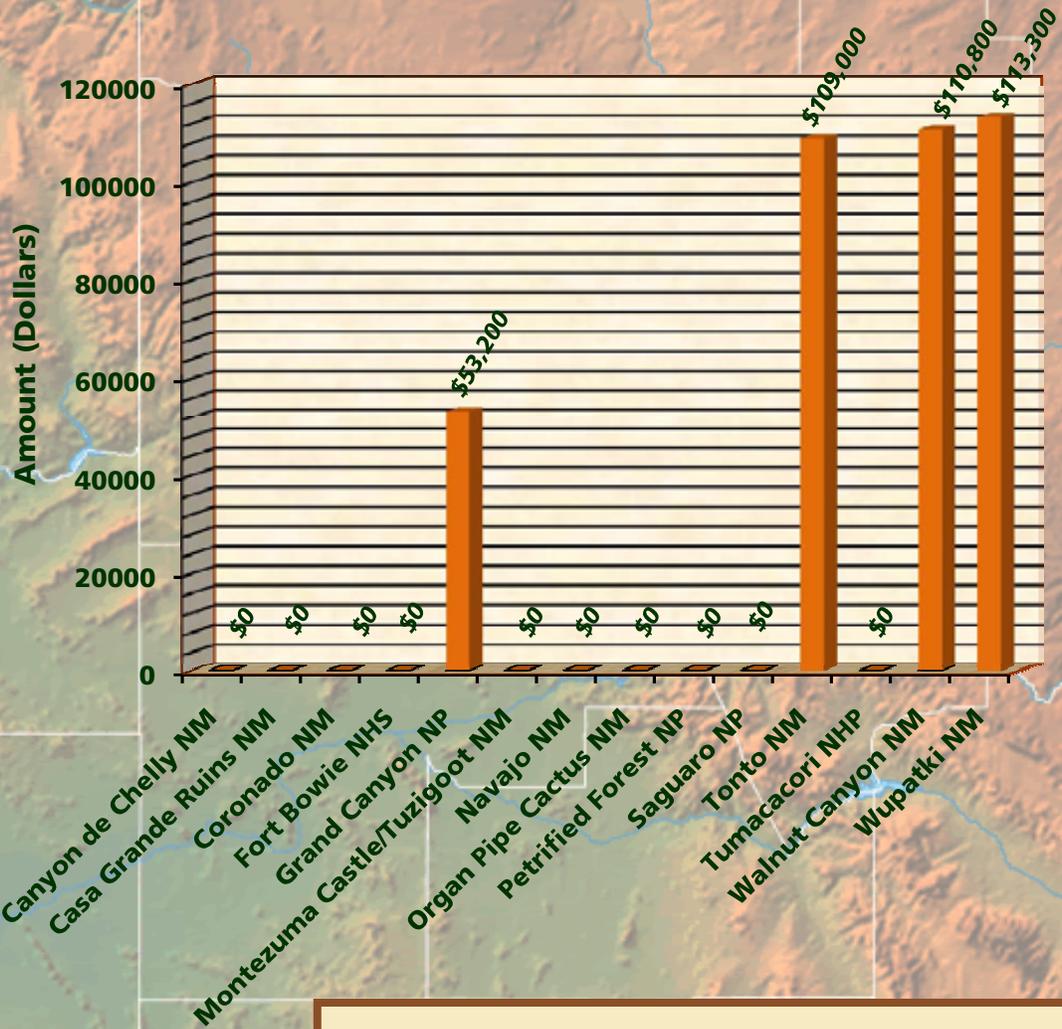


The bell tower of the Mission San José de Tumacácori, Tumacacori National Historical Park.

Photo: Randall Skeirik

- ◆ Canyon de Chelly National Monument ◆ Casa Grande Ruins National Monument ◆
 - ◆ Coronado National Memorial ◆ Fort Bowie National Historic Site ◆
 - ◆ Grand Canyon National Park ◆ Montezuma Castle National Monument ◆
 - ◆ Navajo National Monument ◆ Organ Pipe Cactus National Monument ◆
- ◆ Petrified Forest National Park ◆ Saguaro National Park ◆ Tonto National Monument ◆
 - ◆ Tumacacori National Historical Park ◆ Tuzigoot National Monument ◆
 - ◆ Walnut Canyon National Monument ◆ Wupatki National Monument ◆

FY 2007 Vanishing Treasures Project Funding for ARIZONA PARKS



Arizona Fiscal Year 2007 Project Funding Summary

Project Funds:

- Grand Canyon National Park: \$53,200
- Tonto National Monument: \$109,000
- Walnut Canyon National Monument: \$110,800
- Wupatki National Monument: \$113,300

Canyon de Chelly National Monument (CACH)

VANISHING TREASURES STAFF

Jennifer L. Lavris, Archeologist
Fiscal Year 2002 Position

Jennifer is an archeologist, specializing in North American archeology, historic architecture, human osteology, database management, digital imaging, and Egyptology.

Jennifer co-managed the park Cultural Resources Program this year with Keith Lyons. Her primary duties included archeological database management; Section 106/110 compliance; Native American Graves Protection and Repatriation Act (NAGPRA) compliance; archeological site monitoring; and the development of project and research designs.

In 2007, Jennifer designed and implemented the Watershed Project Archeological Survey (WPAS) that aims to inventory all sites located on the bottom of the southern canyon system that may be affected by the park's ongoing project to remove non-native tree species. Additionally, she was

charged with organizing, managing, and maintaining all data from the park's Watershed Restoration Project, 2005-2007.

She designed and implemented a survey to monitor site conditions for the Archeological Site Management Information System - Corrective Action Plan (ASMIS CAP 2007). This project aimed to re-visit archeological sites to update location information and to complete current condition assessments at 31 sites previously recorded as being in fair to poor condition. A total of 34 sites were re-visited in 2007, exceeding the project goal by three sites.

Jennifer also organized and implemented an emergency condition assessment of the park's historic White House Trail after a severe rainstorm destroyed multiple sections of the trail. Prehistoric, historic Civilian Conservation Corps, and modern NPS trail construction features were documented and given complete condition assessments before a trail crew from Grand Canyon National Park made repairs. Two seasonal archeological technicians and one Student Conservation Association (SCA) archeological technician helped to accomplish this work.

Jennifer continued to work on the divi-

sion's digital imaging project. All historic park photography, color slides and black & white prints from the 1990s Archeological Preservation Project (APP), and the 1940s David DeHarport archeological survey are being digitized. Over 5,000 images have been digitized to date.

In addition, the main phase of the Archeological Site File Scanning Project was completed this year. This project has digitized all of the park's paper archeological site files and created both a digital backup, and a working copy of all of the park's archeological data. While the majority of this work was completed in FY 2006, the scanning was cross-checked in FY 2007 to ensure completeness. Two seasonal archeological technicians and an SCA technician helped to perform this work. Only the oversized maps, which will require a large-format scanner, remain to be done.

Jennifer continued to update and maintain various national and park-related databases this year.

Between February 12 and 16, 2007, Jennifer participated in the Vanishing Treasures Servicewide Comprehensive Call (SCC) Panel at the Intermountain Regional Office in Denver, Colorado.



View of Canyon de Chelly from the Face Rock Overlook, Canyon de Chelly National Monument.
Photo: Randall Skeirik

Keith D. Lyons, Archeologist FY 2003 Position

Keith is an archeologist, specializing in North American archeology, cultural landscapes, human osteology, and site preservation.

In FY 2007, Keith, along with Jennifer Lavris, co-managed the park Cultural Resources Program. His primary duties included archeological site monitoring, field supervision, Section 106/110 and NAGPRA compliance, archeological survey and overall program development. Keith also continued to manage park collections this past year, which included managing the park museum and database. Keith served as the field supervisor for the Watershed Project Archeology Survey and the ASMIS CAP 2007. In that capacity, he supervised a field crew comprised of two seasonal archeological technicians (GS-5) and one SCA archeological intern. The field season began in June and continued through September, 2007. The WPAS documented a total of 41 new sites and updated five previously documented sites. The ASMIS CAP 2007 archeological monitoring project re-visited and collected updated information for a total of 34 sites.

Keith continued to create the park archival inventory project, which aims to generate an accurate report of the park's scientific archives. The inventory will include all archeological site files, bound and unbound site and stabilization reports, photography, and maps.

Keith is currently responsible for entering park projects into PEPC (Planning, Environment, and Public Comment) database/Web site.

Keith completed the Telnet course entitled "Avoid Pitfalls in Hiring: Navigating through the Hiring Process." No specialized VT training was obtained during FY 2007.

Cultural Resource Division Accomplishments

This year, the Canyon de Chelly Watershed Project Archeology Survey was designed and implemented. The Watershed Project Archeology Survey project aims to inventory archeological sites in the southern canyon system that may potentially be

affected by the removal of exotic woody species during an ongoing park-wide Canyon Farms-Watershed Restoration Project. This removal project has potential to impact the cultural resources located in the park. Possible consequences could include a marked increase in erosion and public visitation, as well as an increase in agricultural activities. Canyon Del Muerto was comprehensively inventoried in the 1990s providing reliable baseline maps



*Michael Dennison at Ledge Ruin.
Photo: Charlee Eaton*

and data that assist in planning efforts there. The southern canyon system has never been systematically inventoried.

The focus of the FY 2007 field season was surveying and inventorying specific canyon locations scheduled for exotic tree removal. Eight locations were surveyed, which resulted in the documentation of 41 new archeological sites and the update of five previously recorded sites. Relevant observations and management recommendations were recorded and given to the park Natural Resources Division, who in turn use the data to develop non-destructive plant removal strategies.

Additional survey work is planned in FY 2008 and 2009.

The DeHarport Archeological Relocation Survey (DASRS) continued this year. DASRS aims to re-locate and update site data recorded in the southern canyon system in the 1940s and 1950s. Data from the DASRS 2006 field season was processed and archived in 2007. Only one site was relocated and documented in the summer of 2007.

Keith and Jennifer presented several programs regarding their archeological work and on Canyon de Chelly history to Northern Arizona University's Elderhostel Program.

In January, both Keith and Jennifer participated in a Core Operations Analysis workshop in Farmington, NM.

In July, VT structural engineer Preston Fisher provided park archeologists with recommendations concerning a compromised wall segment at Sleeping Duck Ruin.

VANISHING TREASURES PROJECT FUNDING

Canyon de Chelly did not receive project funding in FY 2007.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: Canyon de Chelly consulted with the Navajo Nation's Historic Preservation Department on a periodic basis and has kept the tribe informed of projects and activities as they relate to park cultural resources. In February, of 2006, Keith attended a NAGPRA consultation in Santa

Fe, NM, with park-affiliated tribes.

Safety: In FY 2007, the Cultural Resources division maintained an effective safety program. Job Hazard Analyses were developed and maintained for all projects, as well as for office and front country duties. Seasonal staff, SCAs, and volunteers were all provided with an extensive park orientation. Weekly division safety meetings were held every Friday throughout the duration of the field season.

Other Challenges: Balancing the needs of a living Navajo community, while maintaining sustainable and effective resource management policies, is the biggest challenge to the management of Canyon de Chelly National Monument.

Casa Grande Ruins National Monument (CAGR)

VANISHING TREASURES STAFF

Rebecca Carr, Archeologist, Chief of Cultural Resources
FY 2005 Position

Rebecca's work has focused on the documentation and conservation of earthen architecture and stone masonry. She has worked on projects ranging from Ancestral Puebloan Cliff Dwellings to Hohokam Classic Period compounds to historic buildings. In 2007, Rebecca assumed additional responsibilities with the formation of a Cultural Resource Management division at Casa Grande. As Chief of the new division, she has hired and supervised project related staff and contractors to ensure the continued preservation of VT resources at Casa Grande.

Early in the year, Rebecca hosted a meeting of nine resource specialists to discuss backfilling options for Compound B at Casa Grande. With information gained at this meeting, and with assistance from staff, she completed the archival research and documentation that will be needed to draft a preservation plan for this site.

Programs developed to monitor structural stability, site drainage, and animal and visitor impacts were continued. Preservation treatments were executed to mitigate impacts identified during this process. Examples of such treatments include replacement of broken structural monitors in the Great House, reestablishing site drainage in Compound A, removal of invasive



The Big House seen from near Compound B, Casa Grande Ruins National Monument. Photo: Randall Skeirik

plants that are impacting archeological resources, treatments for termites, periodic raptor flights to discourage pigeons from nesting in the Great House, assisting in the application of lime plaster to a historic-era building, and isolated patching of the sacrificial encapsulation materials that have been historically applied to the prehistoric architecture in Compound A.

As part of an international training program organized by the Archeology Division of the Washington office of the NPS, the University of Arizona, and the George Wright Society, Rebecca hosted three directors of cultural monuments from

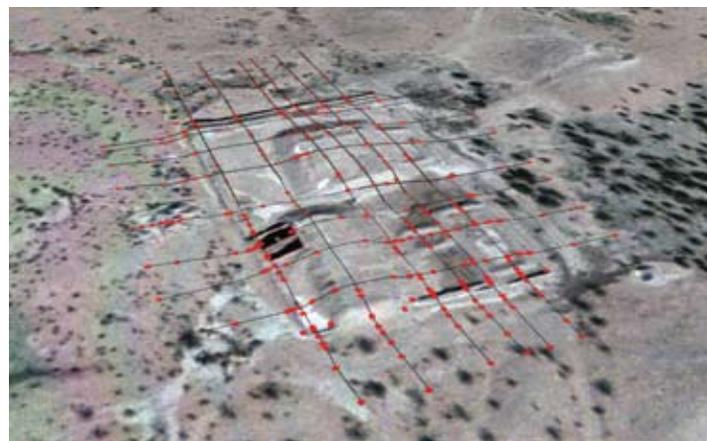
Afghanistan. She attended the program titled "Sister Cultural Parks: Linking Heritage and Communities across Borders" at Mesa Verde National Park and she assisted in guiding the site tour of Fire Tower Cliff Dwelling for that program. Rebecca also pursued a new partnership with the Missions Initiative Program, which facilitates international training opportunities in the United States and in Mexico.

In coordination with the United States Department of Agriculture (USDA) Soil Service, a survey was conducted to determine the effectiveness of Ground Penetrating Radar (GPR) and Electromagnetic



Ground penetrating radar being used to locate previously undocumented subsurface archeological features in Compound A at Casa Grande Ruins National Monument.

Photo: Casa Grande Ruins National Monument



Georectified, three-dimensional aerial photograph of Compound B, a largely backfilled site at Casa Grande Ruins National Monument.

Photo: Casa Grande Ruins National Monument

Induction (EMI) techniques to identify the location and depth of both natural and archeological features in five sample areas. This study concluded that, given the soils at Casa Grande, EMI will be more effective in identifying specific cultural features while GPR will be more effective in identifying natural features that potentially impact cultural sites. Assistance for this project was provided by the Western National Parks Association (WNPA), Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), and the Inter-mountain Geographical Information Services (GIS). Additional products that were produced through the partnerships established during this project included ArcGIS metadata updates and the georectification of newly acquired archival maps.

Rebecca can provide consultation and conservation services for the preservation of architecture constructed from earthen materials or stone masonry. She can provide assistance with condition as-

sessments and documentation projects, historic structures reports, archival research, archeological surveys, selection of compatible treatment materials, mortar analysis, and database management.

Nalbert Chavez, Masonry Worker FY 2001 Position

Nalbert has worked as a maintenance worker at Casa Grande for nearly 40 years. In 2005, he moved into the WG-8 Masonry Worker position vacated by Larry Stewart. In his new capacity, Nalbert periodically provides preservation services and access to historic records for VT projects at Casa Grande. Examples include filling rodent holes in earthen walls with sterile soil and applying amended mud encapsulation treatments at Compound A. After a back injury left Nalbert unable to do heavy manual labor, he worked with Rebecca Carr to assist her with treatment documentation and monitoring work. Examples include taking photographs of

Compound B, making notations on maps, and performing data entry. After several months Nalbert was able to resume his duties as a maintenance worker.

Nalbert has special skills in the areas of landscaping, building maintenance, contractor facilitation, and utility repairs.

VANISHING TREASURES PROJECT FUNDING

Casa Grande Ruins National Monument did not receive project funding in FY 2007.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: Continued consultation with tribes. Updated our contacts for two of the six affiliated tribes in 2007.

Safety: All employees attended CPR, First Aid, AED, Bloodborne Pathogens, Fire Extinguisher Use, and Office Safety training.

Flagstaff Area National Monuments (FLAG)

The Flagstaff Area Monuments are comprised of Wupatki, Sunset Crater Volcano, and Walnut Canyon National Monuments

VANISHING TREASURES STAFF

Archeologist FY 1998 Position (Vacant)

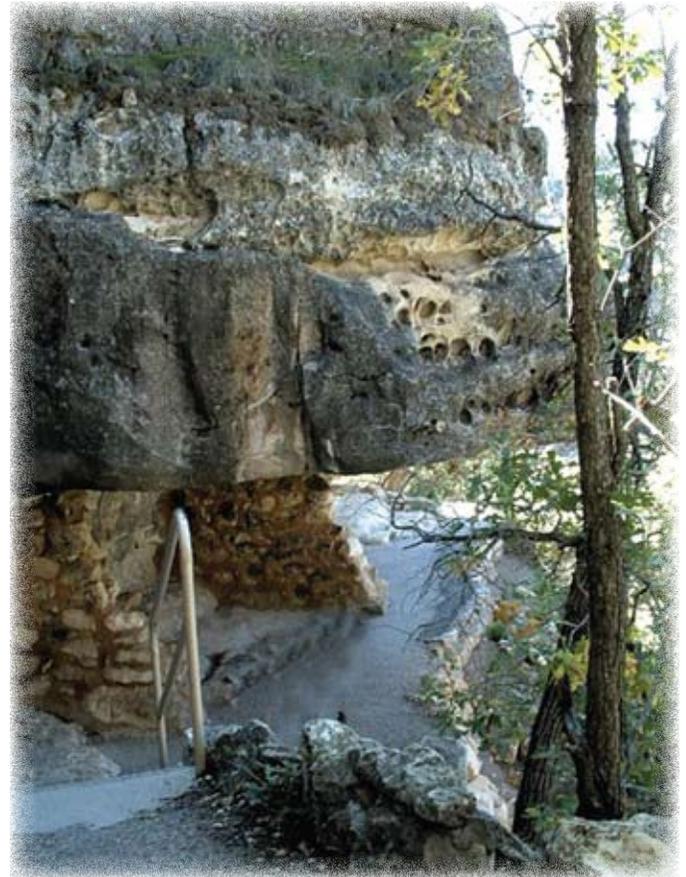
This position was previously filled by Al Remley. In this position, Al performed a variety of duties including research, report writing and editing, and VT Program Support. Al's office duties focused primarily on the day-to-day activities of managing the Flagstaff Area Monuments' Archeology Program while his research and writing tasks included developing and overseeing implementation of scopes-of-work for ruins preservation projects at Wupatki and Walnut Canyon.

Lloyd Masayumtewa, Archeologist FY 1999 Position

In FY 2007, Lloyd was actively involved in a number of preservation projects and assignments related to VT resources including work at both Wupatki and Wal-

nut Canyon National Monuments. With Al Remley's, Lyle Balenquah's and Ian Hough's positions remaining vacant into FY 2007 (see below), Lloyd has taken the lead on all preservation activities in both parks and has successfully directed the implementation of a number of field projects.

With Al Remley's departure, Lloyd has had responsibility for closing out the Archeology Program's budget, writing completion reports for FY 2007 projects, submitting the Flagstaff Area National Monuments Archeological Site Management Information System data and superintendent's certification, conducting employee appraisals, and overseeing the day-to-day operation of the archeology crews.



View of the Island Trail at Walnut Canyon National Monument.

Photo: Randall Skeirik



*Wukoki Pueblo, Wupatki National Monument.
Photo: Randall Skeirik*

In addition, Lloyd continues to provide computer networking and software updating and conversion support for the Flagstaff Area National Monuments.

**Archeologist
FY 2000 Position (Vacant)**

This position was previously filled by Lyle Balenquah. In this position, Lyle functioned primarily as the ruins preservation project leader for Wupatki National Monument. Lyle resigned in early October, 2005, to take a position with the Hopi Tribal Government. Lyle's position at Flagstaff Area National Monuments has yet to be refilled.

**Archeologist
FY 2003 Position (Vacant)**

This position was previously filled by Ian Hough; he was employed primarily as the archeological monitoring project leader. He transferred to Grand Canyon National Park at the end of FY 2005 to fill one of Grand Canyon's VT positions. Ian's position at Flagstaff Area National Monuments has yet to be refilled. Approximately 10% of Ian's lapse salary in FY 2007 was

utilized for VT purposes.

**John Cannella, Geographer/ Geographical Information System (GIS) Specialist
FY 2004 Position (TERM converted to Permanent)**

John was hired in May, 2004, to fill the Flagstaff Area National Monuments GIS/ Database Management position, a unique position that is jointly funded by the VT Program and the Natural Resource Challenge Program. His position was converted to a permanent position during FY 2007.

In FY 2007, John was responsible for overall GIS and Data Management for FLAG, including administration of park cultural databases and GIS data sets. He worked on developing cultural resource GIS data sets, including site datum, site boundary, site feature, and isolated occurrence layers with metadata for each of the Flagstaff Area Monuments. With the help of Cultural Resource staff, John also implemented a flexible information management system to store and retrieve digital site files, maps, and images from GIS. He also provided

ongoing GIS/GPS support and training for FLAG Cultural Resource staff.

In addition, John has developed and implemented an agreement to provide GIS services to three National Monuments in northern Arizona (Tonto, Montezuma Castle, and Tuzigoot) that will mine existing data and create metadata and data management directory structures that conform to Intermountain Region guidelines. This has proven to be a highly successful partnership because of both a strong emphasis on communication between parks and the ability to select outstanding GIS talent from Northern Arizona University's (NAU) GIS certificate program.

VANISHING TREASURES PROJECT FUNDING

Original Project Name: Architectural Condition Assessment of Second Fort Site Complex

Revised Project Name: Architectural Condition Assessment of Fifth Fort (WACA 279)

Project Summary: Walnut Canyon contains five fort sites, and this project was

originally meant to provide an architectural condition assessment of the Second Fort Complex. However, we were not able to proceed with this project because we found that the NPS only had jurisdiction over half of the land on which the Second Fort Complex is located. Although we have been negotiating with the owner to purchase this inholding, we have not yet acquired the rights to the entire site and cannot legally work in this area.

Because the assessment of the Fifth Fort complex was scheduled to be funded in a coming year, we received permission, after consulting with the VT Leadership, to use the funds to perform an architectural condition assessment there instead. This furthered the goal of completing assessments of all five Fort complexes within the park.

Project Budget: \$125,000

- Personnel: \$0
- Vehicles: \$0
- Travel/Training: \$0
- Supplies/Materials: \$0
- Equipment: \$0
- Services: \$65,097 (GIS and Cartography)
- Other: \$59,903 (Cooperative Agreement)

Project Accomplishments: The land on which the Fifth Fort is located was not added to the monument until 1996. Although this land was surveyed in 2001, much of the information that was collected was general and not detailed enough to use for long-term preservation planning and mitigation. In addition, the existing maps and photographs were not comprehensive and did not capture the information necessary to establish baseline conditions of the Fort site.

In addition, condition information on the Fort sites in the original monument boundary was not current and a good number of these sites were left in benign neglect for a number of years. By performing a systematic architectural condition assessment of the site, we now have a better understanding of how to develop management strategies.



Jessica Bland training NAU students in site documentation techniques in Wupatki National Monument.

Photo: Courtesy, Flagstaff Area National Monuments

The project utilized a cooperative agreement with the Anthropology Department at Northern Arizona University (NAU) set up through the Colorado Plateau Cooperative Ecosystem Study Unit to accomplish the majority of the work. Working in conjunction with our staff of term and seasonal archeologists, the NAU students produced scaled photography and maps, collected information on current conditions, and rates and causes of deterioration.

A final report will present the findings and provide treatment recommendations. The final report will be used to establish baseline condition data for future monitoring, identify areas in need of treatment, and develop an effective preservation plan with long-term maintenance goals.

Project Name: Condition Assessment of 23 Architectural Sites in Wupatki Front Country

Project Budget: \$121,900

- Personnel: \$80,625
- Vehicles: \$0
- Travel/Training: \$0
- Supplies/Materials: \$0
- Equipment: \$0
- Services: \$0
- Other: \$41,275 (Cooperative Agreement)

Project Summary: This project consisted of a thorough and systematic condition assessment of 23 architectural sites located in the front- and mid-country

management zones of Wupatki National Monument. These 23 sites surround the most heavily visited areas of the monument.

Project Accomplishments: These pueblo sites date from 1050 to 1275 AD and range in size from seven to over 20 rooms. All the sites exhibit intact standing architecture constructed in a wide range of styles and using a variety of materials including sandstone, basalt, and limestone. Unlike the main interpreted sites of Wupatki, these

open-air ancestral pueblos have not been evaluated or assessed in over 20 years. The only available data for the sites consisted of survey-level site recording information from surveys conducted during the 1984-85 field season. This information did not describe the condition of the sites and provided only minimal information on potential impacts.

This project was a collaborative undertaking through a cooperative agreement between NPS and NAU. The NPS staff consisted of term employees Lisa Baldwin, Jessica Bland, Walter Gosart, Bernard Natseway, and seasonal hires Jonathan Stark, Barbara Bane, Roger Dorr, Alycia Hayes, Nicole Shurack, and Charles Webber. It was initiated during the summer 2007 field season, and in fall, 2007, the NPS staff provided training and support for NAU students Byl Bryce, Chantelle Fahr, Nichol Shurack, Kirsten Slaughter, and Kelly Stehman, who worked under NAU anthropology professor Dr. Christian Downum.

The project produced scaled documentation, photography, and information on the current condition of the sites including the agents of deterioration, immediate threats, and rates of deterioration. The final report will report the findings and provide treatment recommendations; it will be used to establish baseline conditions for monitoring, identifying areas in need of treatment, and developing preservation plans and long-term maintenance goals.

Fort Bowie National Historic Site (FOBO)

VANISHING TREASURES STAFF

**Phil Tapia, Masonry Worker
FY 1999 Position**

Phil is skilled in adobe work, plastering, and rock-pointing. He is the lead person for our annual ruins stabilization projects and he also monitors and documents the work performed.

In FY 2007, Phil, with fellow VT employee Fernie Nunez, made emergency repairs to plaster on the Post Trader’s Store (HS032), Cavalry Barracks (HS008), and Officers’

mortar from between the rocks and disposing of it. The empty joints were then filled with new mortar to keep the rocks in place. Phil also calculated and ordered needed supplies and materials for the season and documented the project.

Phil is very good with adobes, plasters, mortars and rock work.

**Fernie Nunez, Masonry Worker
FY 1998 Position**

Fernie is skilled in adobe work, plastering, and rock-pointing. He is instrumental in our annual ruins stabilization program and is adept with small engines, and maintaining equipment in good operating condition. In FY 2007, Fernie, with fellow VT employee Phil Tapia, made emergency re-

then assists with the repairs. Fernie is very good with adobes, plasters, mortars, and rock work.

VANISHING TREASURES PROJECT FUNDING

Fort Bowie National Historic Site did not receive project funding in FY 2007.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: Because we did not receive project funding this year, and performed emergency repairs that were covered under the programmatic agreement, we had no contact with the SHPO or tribes.



*The Second Fort, Fort Bowie National Historic Site.
Photo: Rian Houston*

Quarters (HS001). He also rock-pointed foundations on the Commanding Officer’s Quarters (HS025). Repairs consisted of removing lime plaster that had separated from the adobe wall underneath. A thin scratch coat of lime plaster was then applied, followed by a finish coat. The hardened plaster was then stained with a soil wash to color the new plaster to match the surrounding native soils. Foundation rock-pointing began by removing loose

pairs to plaster on the Post Trader’s Store (HS032), Cavalry Barracks (HS008), and Officers’ Quarters (HS001). He also rock pointed foundations on the Commanding Officer’s Quarters. Before beginning the annual stabilization project, Fernie makes sure that all tools are in good shape and the equipment is in good operating condition. After determining the quantity that will be needed, he mixes the plaster so that it is cured and available when needed. He

Safety: Our primary safety concern in FY 2007 involved insect infestations. For some reason, wasps were attracted to the small holes in the stone foundation walls, where they established nests. There are hundreds of these small holes and many nests were established. If the nest was too big, the inhabitants were sprayed to reduce their numbers and then the hole was sealed. We were successful in ensuring that no one was stung.

Grand Canyon National Park (GRCA)

VANISHING TREASURES STAFF

Ellen Brennan, Vanishing Treasures Archeologist FY 2000 Position

Ellen assisted with the preservation work at the Boucher Cabin site and Walhalla Glades Pueblo, completed condition assessments of architectural sites in the Clear Creek and Desert View areas, continued to work with a contractor to develop the Grand Canyon Vanishing Treasures database, and began developing the *Standard of Procedures* manual for completing architectural documentation and condition forms.

Ellen participated in the Museum of Northern Arizona (MNA) and Grand Canyon river excavation project documenting and analyzing excavated architectural remains at the Furnace Flat site. She was detailed into the park archeologist position for much of FY 2007, running the day-to-day operations and supervising the staff of the park's archeological program.

Ellen is skilled in the use of archeological applications for digital cartographic and architectural illustration including AutoCAD and Adobe Illustrator. She can assist with database development related to recording historic and prehistoric architectural elements and can review data forms and data collection practices to improve retrieval and analysis of data for research-based syntheses. She can also assist with the development of procedures manuals and stabilization histories.

In the field, she is skilled in completing condition assessments and architectural documentation, recording prehistoric architecture from a variety of culture areas, mitigating visitor impacts to archeological sites, and some preservation maintenance activities.

During FY 2007, Ellen attended a 40-hour contracting officer's representative course, a two-hour Cemetery Care telecom course, and a one-day tree ring workshop. All training took place at Grand Canyon.

Ian Hough, Vanishing Treasures Archeologist FY 2005 Position

Ian participated in the Tusayan Ruin mortar source documentation and kiva bench

stabilization project, the Boucher stabilization, and the stabilization test wall project. He also worked on the VT database (form fields preview); documentation of and consultation on historic Native American wooden structures; the Walhalla Pueblo stabilization project; and Desert View, Clear Creek, and Transept ruin condition assessments.

Ian participated in the joint MNA and Grand Canyon river excavation project that documented and analyzed excavated architectural remains at the Furnace Flat and Crash Canyon sites.

Ian is skilled in the production of architectural documentation (scaled drawings, tabular data sheets, condition assessments), development of preservation treatments, soil and mortar testing, architectural feature identification, and public education

He attended a wooden structures and tree-ring sampling workshop and received training in cemetery care.

VANISHING TREASURES PROJECT FUNDING

Project Name: Complete Condition Assessments of Architectural Sites in the Clear Creek Drainage

Project Summary: This project involved the collection of baseline condition data and the determination of preservation needs for 12 architectural sites located in the Clear Creek use area in the Grand Canyon backcountry.

Project Budget: \$53,200

- Personnel: \$15,457
- Vehicles: \$ 2,073
- Travel/Training: \$525
- Supplies/Materials: \$377
- Equipment: \$2,898
- Services: \$5,080
- Other: \$290

Project Accomplishments: In addition to data collection and the determination of preservation needs, the project funds allowed for the completion of condition assessments on a limited number of sites on the South Rim of the Canyon. The project began in FY 2007 and was concluded early in FY 2008.

Project sites were selected for their exceptionally well-preserved architecture (30 rooms retained masonry walls standing three courses or more in height) and their proximity to areas with high visitor use. Through this project, we documented a total of 51 rooms and identified preservation treatment needs at each of the sites.



*Grand Canyon, Grand Canyon National Park.
Photo: Randall Skeirik*

In some cases, the information provided by this project updated site information that was as much as 45 years old with new site plan maps, photographs, and site recording forms. The 30 individual rooms with intact standing architecture were examined in detail, with the completion of baseline architectural data sheets that include walls present, wall measurement data, photographs, and comprehensive condition assessments. This work was completed by Grand Canyon Vanishing Treasures staff and one National Council for Preservation Education (NCPE) intern during summer, 2007.

Included in this project were 13 nearly complete granary rooms and 17 open-air, coursed masonry structures. The well-preserved granaries contained original stone and mortar. These intact but delicate materials will require frequent monitoring but no preservation treatments at this



time. Although every room and structure that was surveyed showed impacts from exposure to natural processes such as water erosion, none required physical treatment to address these impacts. The greatest threats to these sites are visitor overuse and vandalism, both of which will be addressed through frequent monitoring and increased law enforcement patrols.

Now that the project is complete, a technical report of the project will be prepared and project activities will be published on the park's web site.

The Archeological Site Management Information System (ASMIS) site records for 14 sites were updated with current condition and location information; they are now considered complete, accurate, and reliable. Each of the 14 sites is considered eligible for the National Register of Historic Places.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Safety: The Grand Canyon Vanishing Treasures staff was successful in completing their field projects in the Grand Canyon backcountry without injury to personnel. This is significant in light of the challenges involved in executing these projects. The Clear Creek project required a two day hike to and from the job site, forcing the crew to be self-sufficient, backpacking in all equipment and personal supplies for an extended stay in the backcountry. The crews worked effectively to manage heat stress and to avoid other safety hazards common in the inner canyon environment.

Training: The permanent Vanishing Treasures staff worked with an intern from the NCPE for five weeks during the 2007 field

season. This intern was trained to complete architectural condition assessments, perform ruins preservation maintenance work, record archeological site conditions, and prepare documents related to site stabilization histories.

Permanent staff also trained one seasonal Vanishing Treasures employee to perform ruins preservation maintenance work, complete architectural condition assessments and prepare stabilization histories.

Other Challenges: This is the first year that the Grand Canyon Vanishing Treasures program has had support staff (one seasonal employee and one intern) to assist with program activities. These employees helped move the program forward by assisting with the Clear Creek condition assessment project and by addressing ongoing project needs such as ruins stabilization histories.

Montezuma Castle and Tuzigoot National Monuments (MOCA/TUZI)

VANISHING TREASURES STAFF

John Schroeder, Archeologist
 FY 1999 Position, Converted in FY 2004

John started at Tuzigoot as a Student Temporary Employee Program (STEP) archeological technician in February, 2004. In 2005, after the retirement of one of our VT masons, the position was converted to an archeologist, and John was moved into that position as a Student Career Experience Program (SCEP) archeologist. Since that time, John has functioned as the archeologist for Montezuma Castle, Montezuma Well, and Tuzigoot.

His work this year included overseeing the completion of the stabilization of a series of 19 cavates located at Montezuma Castle National Monument and the publication of a narrative report outlining previous work, current conditions, and recommendations for stabilization treatments. The cavate stabilization followed last year's

project that generated metrically scaled plan view maps and AutoCAD elevation drawings, medium-format photographs of all architecture, and research into previous stabilization work—all of which were incorporated into the final report. The cavate project was particularly interesting because the features had never been historically stabilized and retained intact masonry walls, plastered floor surfaces, fire pits, storage cists, and wall and ceiling plaster.

FY 2007 also saw the completion of the fieldwork for the documentation of Montezuma Castle using 3D light detection and ranging (LiDAR) scanning. The collected data are currently being processed, with delivery of the final images due at the end of FY 2008.

A final report of the documentation of several sites at Montezuma Well, a detached unit of Montezuma Castle that is centered around a spring-fed limestone sinkhole, was published in FY 2007. These sites included Swallet Cave Ruin, three cliff dwellings inside the rim of the well, and a two-level cliff dwelling located on the outside of the well overlooking Wet Beaver Creek. Also at Montezuma Well, remote

sensing, using GPR, was executed to locate subsurface resources that may lie in areas planned for the expansion of visitor and maintenance facilities and John excavated test pits in two areas, also in conjunction with these expansion projects. Aerial photogrammetry at Montezuma Well is being used to develop detailed contour maps of the park.

The multi-year project at Tuzigoot Pueblo continued with the documentation work now more than 80% complete; and approximately 70% of the stabilization work is completed.

In addition to his archeology work, John continued to serve as the park's compliance coordinator, GIS specialist, collections manager, and research coordinator.

Stefan Sloper, Masonry Worker
 FY 1999 Position, Converted to Term,
 Subject-to-Furlough in FY 2006

VT masonry worker Alex Contreras retired in June, 2006. Throughout FY 2007, this VT-funded position remained vacant, with the lapse salary going toward various supplies and equipment for use by the Resource Management Division. Late in FY 2007, the position was advertised as a term preservation mason and was awarded to Stefan Sloper who will start in this new position early in FY 2008.

In the meantime, Stefan has continued in his seasonal position to work on the stabilization of Tuzigoot pueblo, guided by the ongoing research and documentation conducted by STEP archeological technicians Jeremy Omvig and Jaclyn Mullen.

As in previous years, Stefan removed inappropriate pointing mortars and replaced them with a softer soil/cement mix that will facilitate the preservation of the remaining historic fabric. In addition, Stefan worked to remove 1960s-era wall capping that incorporated projecting stones intended to discourage visitors from walking or sitting on the walls. The jagged appearance of these projecting stones contrasted with



Montezuma Castle, Montezuma Castle National Monument.
 Photo: Randall Skeirik



High above Beaver Creek, preservation mason Stefan Sloper repairs the stonework above a lintel in the entrance to a cavate near Montezuma Castle. Photo: Courtesy, Montezuma Castle National Monument

the prehistoric stonework and interfered with the visitor's experience of the site. In addition, the design of the capping encouraged water to penetrate the top of the wall, accelerating the deterioration of the prehistoric mortar remaining inside the walls. The new capping both sheds water from the wall, enhancing the preservation of the remaining historic fabric, and improves the aesthetic qualities of the site, enhancing the visitor experience.

Stefan also assisted with the stabilization of the cavates at Montezuma Castle.

VANISHING TREASURES PROJECT FUNDING

Montezuma Castle and Tuzigoot National Monuments did not receive Vanishing Treasures project funding in FY 2006.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: Montezuma Castle and Tuzigoot continue to work hard to build an effective compliance process that includes regular consultation with the Arizona State Historic Preservation Officer (AZSHPO) and limiting our use of programmatic exclusions to appropriate project types. We have also worked steadily

over the past three years to improve our relationships with our affiliated tribes.



The hill top pueblo and visitor center at Tuzigoot seen from across Tavasci Marsh, Tuzigoot National Monument. Photo: Courtesy, Tuzigoot National Monument

This includes conducting tribal consultations for all proposed projects that may be of concern to the tribes. In addition, we have continued to implement Memorandums of Agreement with the tribes to expedite and streamline the tribal consultation process.

Safety: VT staff and other cultural resource field staff have been careful to develop Job Safety Analyses prior to undertaking work in the field. In addition, tailgate sessions are held regularly to discuss the upcoming work and reinforce the need for safe practices.

Challenges: Budget erosion has made it impossible for the park to maintain the two full-time VT positions originally funded in FY 1999. Fortunately, the Superintendent continues to fully support the park's cultural resource program and that ensures that our existing positions will be maintained to the fullest extent possible. The conversion of our remaining mason position to subject-to-furlough will allow us to fund some of our VT stabilization work with Federal Land Recreation Enhancement Act money, which will ensure that we continue to get a full season's fieldwork from the position.

Navajo National Monument (NAVA)

VANISHING TREASURES STAFF

Brian Culpepper, Archeologist FY 2000 Position

Brian, now in his second decade as a professional archeologist, has specialized in the identification of ephemeral hunter-gatherer sites, lithic analysis, and tree-ring dating, conducting projects and directing divisions at Canyon de Chelly, Aztec Ruins, and Navajo National Monuments. Brian's primary expertise within the Vanishing Treasures program lies in ruins preservation and program management.

In FY 2007, Brian was responsible for the overall management of the Vanishing Treasures program at Navajo National Monument, directing an archeological inventory of the Administrative Unit and initiating a geographic information system (GIS) program. He also continued research into the architectural history of Keet Seel as background for condition assessment and architectural documentation that will incorporate 3-D light detection and ranging (LiDAR) data from 1,048 scans of the site. His other duties included responsibility for compliance with the National Environmental Policy Act (NEPA), Section 106 of the National Historic Pres-

ervation Act (NHPA), and NAGPRA; management of ASMIS and the Research Permitting and Reporting System (RPRS); and coordination of the Government Performance Results Act (GPRA) for Navajo National Monument. Using Portfolio Extentis software he began the electronic organization of Keet Seel historic photography into a searchable database, using a unified format that will eventually be extended to include Inscription House, Betatakin, and the other smaller prehistoric structural sites. Finally, Brian contracted with former NPS archeologist Larry Nordby to complete the final report for the 1999-2003 architectural documentation of Inscription House, a Vanishing Treasures funded project.

Brian also coordinated the renovation and restoration of the park's historic contact station. Prior to the construction of a new Visitor Center in early 1960s, the contact station functioned as both the monument's headquarters and its museum. Until 1964, intrepid visitors were forced to travel the rocky and windblown dirt road from the nearby town of Shonto because the paved entrance road (Highway 564) had not yet been built. The Contact Station provided information about trails and tours to Betatakin, Inscription House, and Keet Seel. Inside; stone stools and ancient pottery were displayed, as was a diorama of Keet

Seel that can be seen today at the Hopi Cultural Center on Second Mesa. After the construction of the new entrance road and visitor center, the little contact station was mostly forgotten. For a brief time, it served as office space; but slowly it fell into disrepair until only generations of mice, packrats, and squirrels called it home.

In February, 2007, Brian coordinated efforts with NPS historic preservation specialists from Santa Fe to restore the contact station to its early 1950s appearance. Plans are currently underway to make it an important part of the monument by interpreting the formative years during which this building played a major role.

Brian has special skills in performing condition assessments, architectural documentation, site monitoring, photography, lithic analysis, and tree-ring sample collection.

James Dryer, Archeological Technician FY 2005 Position (Term)

Since 1983, Jim has worked in various capacities in archeology throughout the northern portions of the American Southwest. He is familiar with the Ancestral Puebloan archeology lifeways from Canyonlands to the Mogollon Rim and from Jemez to the Grand Canyon. Through this experience, he has developed a general understanding of site artifact assem-



*The approach to Inscription House, Navajo National Monument
Photo: Randall Skeirik*

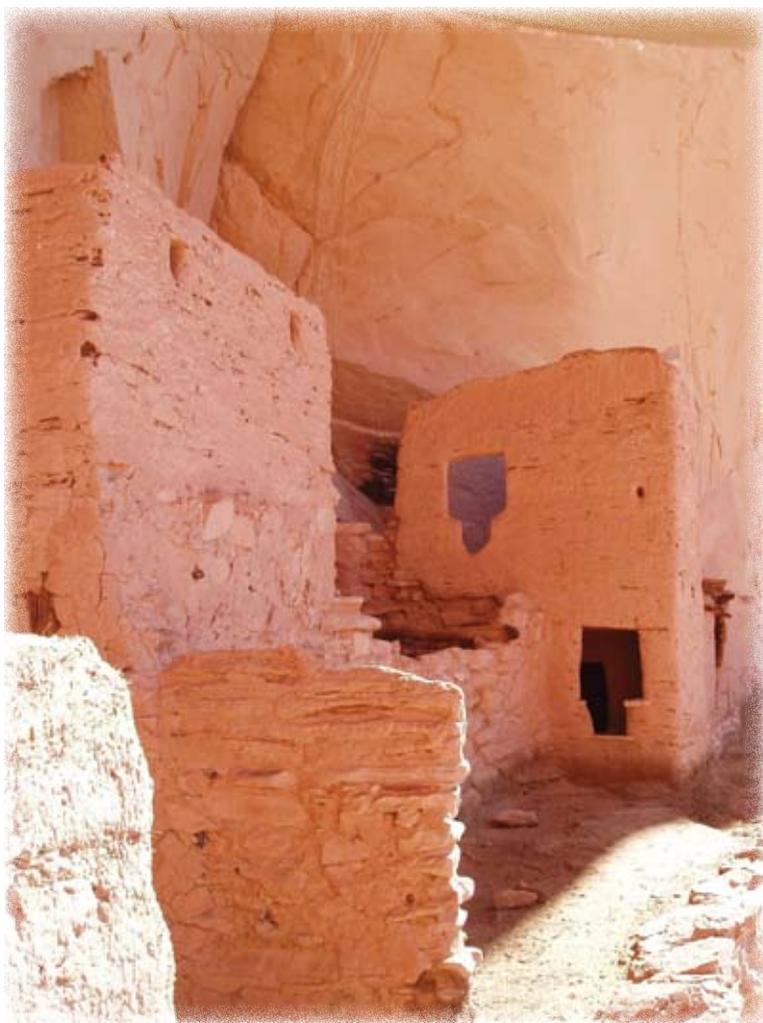
blages and built structures throughout most of this area. He has applied that knowledge in the areas of archeological compliance, GPS, GIS, map reading and land jurisdiction, botany, paleoethnobotany, excavation, field inventory and assessment of sites and isolates, site recording, field photography, geology, and soils stratigraphy.

In FY 2007, Jim inventoried the 240-acre Administrative Unit for archeological resources. By September 30, he had completed a thorough archeological inventory of the Administrative Unit on Navajo Nation Tribal Trust Land adjacent to Betatakin. Jim recorded six new archeological sites, four of which are 20th-century historic Navajo structures built between 1930 and 1960. Jim also began building a GIS archeological site atlas, fleshing out attribute tables of photographs, architectural feature condition statements, monitoring information, artifact inventories, and specific environmental settings for an integrated cultural resources geodatabase. In May, Jim attended a NEPA/Section106 workshop and ASMIS training in Santa Fe, New Mexico.

Jim has special skills in the use of GIS and GPS.

**Theodore Roberts,
Archeological Technician
FY 2007 Position (Term)**

Ted joined the Vanishing Treasures staff at Navajo National Monument in July, 2007 where his primary task has been to research the room histories of Keet Seel in preparation for future condition assessment and architectural documentation of the site. Over the first six years of his career, Ted held a wide range of archeology positions, mostly in the private sector. These



*Inscription House, Navajo National Monument.
Photo: Randall Skeirik*



*Betatakin, Navajo National Monument.
Photo: Randall Skeirik*

included supervisory positions directing survey work, testing, and excavation for data recovery. He also has specific experience in laboratory analysis, fieldwork, and cultural resource management laws and practice. He has gained experience in site condition assessment, cyclical monitoring, and architectural stabilization documentation working at Walnut Canyon and Navajo National Monument. Additionally, he has worked in an academic capacity in both the United States and South America.

Ted's proficiency with electronic equipment and computer applications integral to archeology makes him particularly well suited to address the demands of the archeological profession in the 21st-century. His interests include lithic analysis, and hunter-gatherer mobility and technological organization. He is particularly skilled in obsidian sourcing, condition assessments, and architectural documentation.

**VANISHING
TREASURES PROJECT
FUNDING**

Navajo National Monument did not receive project funding in FY 2007.

**VANISHING
TREASURES
ACCOMPLISHMENTS
AND CHALLENGES**

Consultation: Navajo National Monument has maintained a strong professional working relationship with the Navajo Nation Historic Preservation Department and no compliance-related issues were encountered during this fiscal year.

Safety: Navajo National Monument's VT program had no accidents or injuries in FY2007.



*Sunset at Organ Pipe, Organ Pipe Cactus National Monument.
Photo: Courtesy, Organ Pipe Cactus National Monument*

Organ Pipe Cactus National Monument (ORPI)

VANISHING TREASURES STAFF

Joe Tuomey, Archeologist
FY 2004 Position

Throughout FY 2007, Joe continued his work to locate, document, and update records on the park's cultural resources.

He focused on completing condition assessments of the monument's cultural resources, working in partnership with University of Arizona staff, other NPS archeologists, and State of Arizona site stewards.

He also followed up on the location and documentation of a number of prehistoric sites that are located along the Ajo Mountains crest line.

Joe has special skills in the field of post-fire archeological site rehabilitation and in the identification and analysis of prehistoric agricultural terracing

VANISHING TREASURES PROJECT FUNDING

Organ Pipe Cactus National Monument did not receive project funding in FY 2007.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: We successfully coordinated a Hia-Ced-tribe sponsored "Unity Run" through the Monument's wilderness area, along with attendant ceremonies, and camping accommodations for 150-200 people at Quitobaquito Springs.

Safety: No cultural program staff received any injuries in FY 2007.

Training: Joe completed NPS Fundamentals II and NEPA/106 training this year.

Other Challenges: Most of the more significant historic structures in ORPI have been documented and Joe is working to secure funding to stabilize these structures.



*Vanishing Treasures historical architect Randy Skeirik inspecting a ruin at the Lost Cabin Mine, Organ Pipe Cactus National Monument
Photo: Joe Tuomey*

Tonto National Monument (TONT)

VANISHING TREASURES STAFF

Duane Hubbard, Chief, Resource Management
FY 2000 Position

During FY 2007, Duane supervised a variety of cultural resource projects, including preservation projects at backcountry archeological sites, and continued documentation, preservation, and research at the primary cliff dwellings in Tonto.

Successful project proposals provided cultural resources project funding in FY 2007 for two cultural resources positions, Archeologist Matt Guebard and Maintenance Worker Cinda Ewing. Project funding also supported additional archeologists and students from NAU, and from private contract firms. This group completed projects related to backcountry site preservation, implemented integrated pest management treatments in the primary

cliff dwellings, and completed architectural and stabilization histories at the Lower Cliff Dwelling and the Northern Annex that involved intensive archival records research and in-field analysis of treatment locations and documentation. Duane continued to establish relationships with numerous tribes and he managed archeological research, curation, consultation, and compliance for the park.

Initially, this position was classified as an exhibit specialist, but it was not funded at the full performance level. The park allocated additional base funds to fill the position as a GS-11 exhibit specialist and, in FY 2004, the position was changed to an archeologist (GS-0193-11). The position has remained in the 0193 series since then, with the original VT allocation covering less than ¾ of the position.

Division staff can offer consultation assistance in ruins condition assessments (wall and site level), preparation of stabilization histories, laser scanning documentation, and GIS.

VANISHING TREASURES PROJECT FUNDING

Project Name: Implement Preservation Treatments at the Upper and Lower Cliff Dwellings, (Phase I)

Project Summary: Tonto requested funding for a treatment/documentation project focused on the Lower Cliff Dwelling, the Lower Cliff Dwelling Annex, and 24 rooms inside the dripline at the Upper Cliff Dwelling. Phase I of this project (FY 2007) implemented noninvasive treatments to collect high-quality baseline documentation through laser scanning technology (LiDAR). The project focused on three crucial preservation tasks including developing architectural profiles for every wall in the three dwellings, preparing architectural sheets and 3D models prior to mitigating animal disturbance, addressing concerns about the stability of intact prehistoric roofs, and preparing a scope of work for the implementation of Phase II (invasive treatment).



The Lower Cliff Dwelling in the snow, Tonto National Monument.
Photo: Cinda Ewing

Project Budget:\$120,000

- Personnel: \$25,777
- Vehicles: \$0
- Travel/Training: \$2,495
- Supplies/Materials:
- Equipment: \$3,661
- Services: \$88,067
- Other: \$0

Project Accomplishments: Field work, database construction/entry, background research, scope of work development, and reporting were undertaken by Duane Hubbard, Tonto Chief of Resource Management/Archeologist. Also assisting in these tasks was Matt Guebard, Tonto Project Archeologist. Matt's salary totaled 16% of the total allocation. Planning and support for the project, which included salary managed through a GIS partnership with the FLAG area parks and/TUZI, and prehistoric wood condition and species information from the University of Minnesota, comprised 5% of the budget. Travel related to the project accounted for 2% and equipment and supplies accounted for 4%. As originally planned, a contract for intensive site mapping and surveying was implemented using the Western Mapping Company (WMC), which accounted for the remaining 73% of the project.

Tonto staff began reviewing past condition assessment information and examining the Upper and Lower Cliff Dwellings for the development of a scope of work. The scope of work can't be completed until all deliverables are presented from



Matt Guebard and Cinda Ewing completing preservation documentation while braving bugs in the field, Tonto National Monument."

Photo: Duane Hubbard

WMC in December, 2007. Tonto staff also engaged in helpful discussions with other parks in SOAR and the VT community pertaining to similar treatment issues. For example; discussions with staff from Tumacacori about architectural analysis and condition assessments, and Casa Grande staff regarding backfilling were useful in the planning and foundation of a scope of work.

Tonto is nearing the end of the most comprehensive documentation project ever undertaken there. Once final mapping

products are obtained in December, 2007, the final scope of work will be finished and staff will commence work on Phase II (Treatment). With the completion of the mapping projects over the last three years, WMC will have scanned all five primary cliff dwellings and will provide architectural sheets for four out of the five. Due to the size and architectural complexities of the Upper Cliff Dwelling, more work is needed in the next year to provide all documentation prior to implementing Phase II at this site. Architectural sheets for the primary dwellings include 2D digital and hardcopy images of the color photography color-corrected, mosaic, draped, and rectified onto high-resolution 3D models, so that future measurements and characterizations for documentation and stabilization histories can be superimposed on the images. There is also a vector (line) version of the wall maps showing wall profiles, outlines of individual rocks, and identified wall features for use in CAD or GIS programs.

Overall, Phase I of this project has occurred as planned and the staff is ready to finalize preservation planning and treatments at the park's primary attractions.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: Consultation with tribes and the AZSHPO proceeded as planned.

Safety: None to report

Training: None this year

Other Challenges: None to report



Matt Guebard and Duane Hubbard performing preservation work at a backcountry cliff dwelling.

Photo: Cinda Ewing

Tumacacori National Historical Park (TUMA)

VANISHING TREASURES STAFF

Ramon Madril, Masonry Worker FY 1998 Position

Ray conducted site and condition assessments at the Magdalena Ranger Station and the Sabino Canyon bridges for the US Forest Service, El Sid minesite at Joshua Tree National Park (JOTR), and Fairbank Mercantile Building, Sanford Ranch, and the Red Cloud and Charleston Mill sites for the BLM.

Ray capped the walls of Guevavi Mission, a detached unit of Tumacacori, and at the Presidio Santa Cruz de Terranate. He also conducted preservation treatments at JOTR (Ryan Ranch, Keys Ranch and El Sid minesite) and at the Red Cloud Mill site in southern California. Ray has also stabilized the CCC picnic structures at Saguaro National Park (SAGU), and preserved the ruins at Sanford Ranch. Ray continues to provide expertise in historic preservation to the three units comprising Tumacacori NHP.

Ray is well versed in many facets of historic preservation. His skills include journeyman-level skills in earthen architecture, wood, stone, and historic plasters. He can provide assistance with all facets of historic preservation treatments.

David Yubeta, Exhibit Specialist FY 1998 Position

David has served as project manager on various projects in the southwest including the EL Sid minesite, Ryan Ranch, Keys Ranch, and the Henson and Pinon Well minesites at Joshua Tree. Other projects with which he has been involved include the Magdalena Ranger Station in Magdalena, New Mexico, and the Sabino Canyon CCC bridges (both for the US Forest Service)- Saguaro firepits and historic ramadas, Sanford Ranch, basement stabilization for the Little Red Schoolhouse ruins, the Red Cloud Mill site, emergency stabilization and capping of the extant ruin walls at Terranate on the Santa Cruz (all for the BLM), and Faraway Ranch at Chiricahua National Monument. He has conducted site condition assessments of cultural resources in California, New Mexico, and Arizona.

In addition to providing training for the

NPS Fundamentals program, David continued to teach a workshop on adobe preservation at Snow College in Ephraim, Utah. He has also conducted training workshops at the La Puerta Foundation in Anza, California and at El Sauz, Chihuahua, Mexico.

David has special expertise in managing historic preservation projects and is an NPS trainer for facilities management training in NPS Fundamentals II. If time allows, Tumacacori's VT preservation team can assist parks and agencies in accomplishing projects.

Jeremy Moss, Archeologist, Resource Manager FY 2000 Position

Jeremy has worked on documentation and completion of condition assessments for various structures, documentation of historic inscriptions in the church sacristy (identifying the signature of the first member of the (Linda) Ronstadt family, ca. 1853). Jeremy is also working on completion of the 2004-2006 New Lands Testing Report for which he received grant funding. He is also working with the University of Arizona on isotopic analysis of historic lime plaster, working on park NAGPRA issues, conducting an archival survey of park collections, and putting together exhibits for the new park museum that will

open in September, 2008. He also finished documentation and archival research of Saguaro National Park's historic lime kilns and is working on the final report.

Jeremy is skilled in the practice of archeology, cultural resource management, historic preservation documentation and treatment, natural resource management, and collections management. He can provide assistance with condition assessment or documentation projects, and with project management.

VANISHING TREASURES PROJECT FUNDING

Tumacacori National Historical Park did not receive project funding in FY 2007.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Training: Tumacacori hosted three Afghan cultural resource managers that were in the US as a joint NPS-US State Department training in cultural resources. The Afghan managers visited Tumacacori for two weeks, the University of Arizona for one week, and Casa Grande Ruins National Monument for training. This training proved to be a success as shared problems were discussed and solutions were planned.



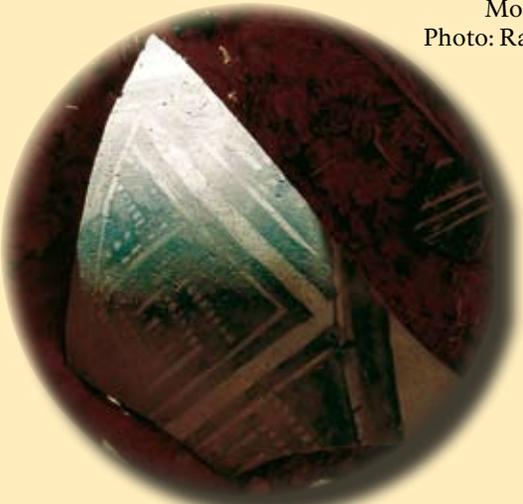
Ray Madril and Ramon Estrada plastering a wall at Joshua Tree's Ryan Ranch
Photo: Courtesy, Joshua Tree National Park



Montezuma Castle, Montezuma Castle National Monument
Photo: Randall Skeirik



The "Smokehouse", Montezuma Well National Monument
Photo: Randall Skeirik



Pot sherd, Inscription House, Navajo National Monument
Photo: Randall Skeirik.



Fresco painting inside the mission church, Tumacacori National Historical Park.
Photo: Randall Skeirik



Navajo Fortress Rock, Canyon del Muerto, Canyon de Chelly National Monument
Photo: Keith Lyons



Sunset at Organ Pipe Cactus National Monument
Photo: Joe Tuomey

V a n i s h i n g T r e a s u r e s

California/Nevada

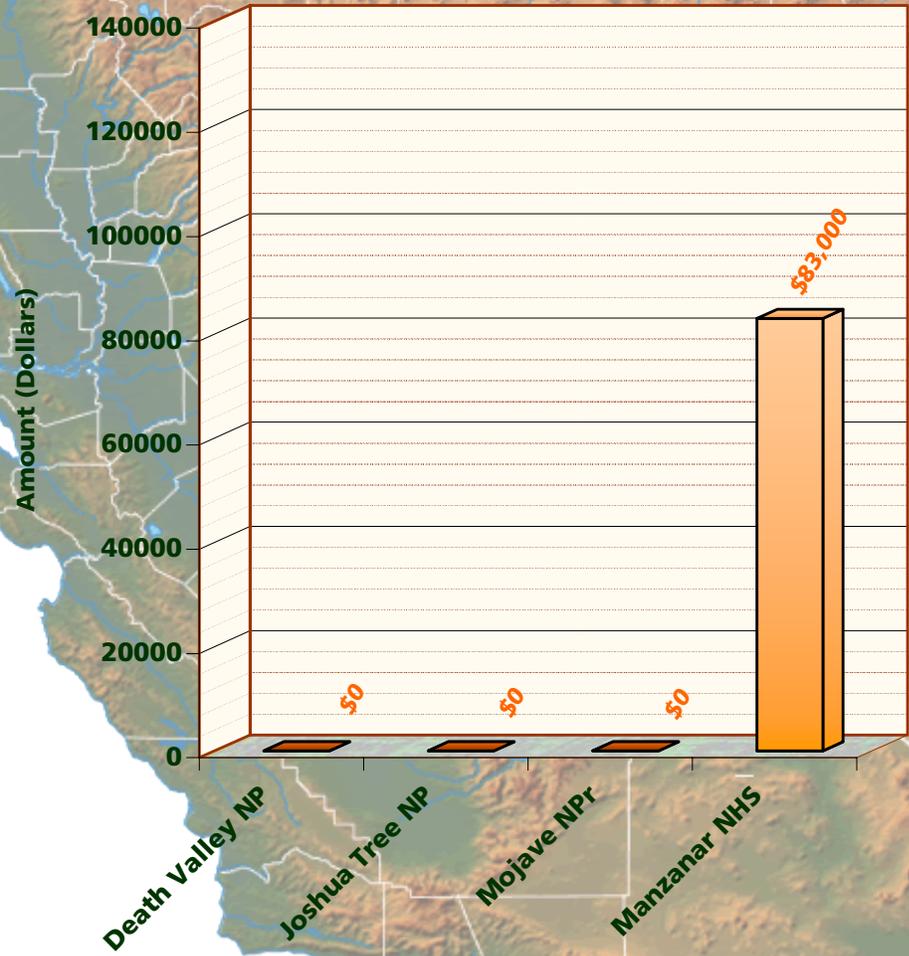


Keane Wonder Mine Tramway, Death Valley National Park

Photo: Randall Skeirik

- ◆ Death Valley National Park ◆ Joshua Tree National Park ◆ Mojave National Preserve ◆
- ◆ Manzanar National Historic Site ◆

**FY 2007 Vanishing Treasures
Project Funding
for
CALIFORNIA and NEVADA PARKS**



**California/Nevada Fiscal Year 2007
Project Funding Summary**

Project Funds:

Manzanar National Historic Site: \$83,000

Manzanar National Historic Site (MANZ)

VANISHING TREASURES STAFF

Manzanar National Historic Site has not received funding for VT staff.

VANISHING TREASURES PROJECT FUNDING

Project Name: Excavate, Document, and Stabilize Features in Accordance with Cultural Landscape (CLR) Report Recommendations

Project Summary: In 2007, the Block 9 Mess Hall Garden at Manzanar was documented and stabilized. This feature, which had been partially buried by sediment and overgrown with vegetation, had been determined to be important for telling the story of how Manzanar’s Japanese American internees adapted to the confinement and tedium of their imprisonment. Mr. Ryozo Kado, a Methodist landscaper interned in Block 34, constructed the garden to revive the morale of the Buddhist fishermen from Terminal Island who lived in Block 9. The garden had been identified during previous archeological survey work; but its extent was unknown and no historic photographs of the feature have been found.



The Block 9 mess hall garden before excavation.

Photo: Courtesy, Manzanar National Historical Site

Park Archeologist Jeff Burton directed the investigations and stabilization. Much of the work was conducted by volunteers, including former internees and their children and grandchildren, as well as by members of the neighboring communities and park staff from both Manzanar and Death Valley National Park.

Among the volunteers was 89-year-old Henry Nisi and his son. Mr. Nisi had helped his own father build gardens at Manzanar during the internment.

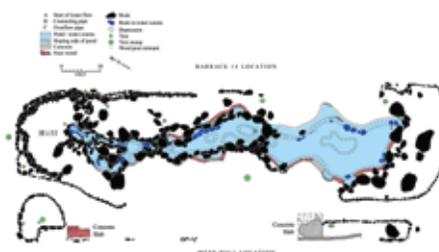
Project Budget:

- Personnel: \$18,115
- Vehicles: \$507
- Travel/Training: \$5,038
- Supplies/Materials: \$1,574
- Equipment: \$557
- Services: \$4,202
- Other: \$7

Project Accomplishments: Work included removal of brush and the hand excavation of 20 cubic meters of sediments. The project and interviews with participants were featured in local television spots and



Above: The Block 9 mess hall garden during restoration. Below: Garden plan. Photos: Courtesy, Manzanar National Historical Site



newspaper articles. The 2007 archeological excavation revealed that the Block 9 garden was the largest and most elaborate mess hall garden at Manzanar. The garden included extensive rock work, a watercourse, waterfalls, two connected ponds, and faux wood logs created from concrete.

The excavation also provided evidence about the relocation center abandonment. When the relocation center was closed, building debris and left-behind artifacts were dumped into the pond and burned. This disposal, evidently done with heavy machinery, pushed in some of the rocks of the garden and damaged other features. Over 400 artifacts, including buttons, a ring, toys, a toothbrush, jars, a spoon, and food remains, were collected from the pond fill.

Stabilization work included re-fitting of boulders that had been displaced, restoration of an earthen mound, and patching of concrete. One faux wood log, a hallmark of Mr. Kado’s work, which had been damaged during abandonment, was repaired. Mapping and photography, including overhead views, and documentation of the stages of excavation and stabilization. Artifact analyses and a detailed archeological report are in progress. Techniques initiated and developed for the Block 9 garden project will facilitate a much larger project at Merritt Park, Manzanar’s community garden that is scheduled for 2008.



The Block 9 mess hall garden after restoration.

Photo: Randall Skeirik



*The Keane Wonder Mine Tramway,
Death Valley National Park.
Photo: Randall Skeirik*

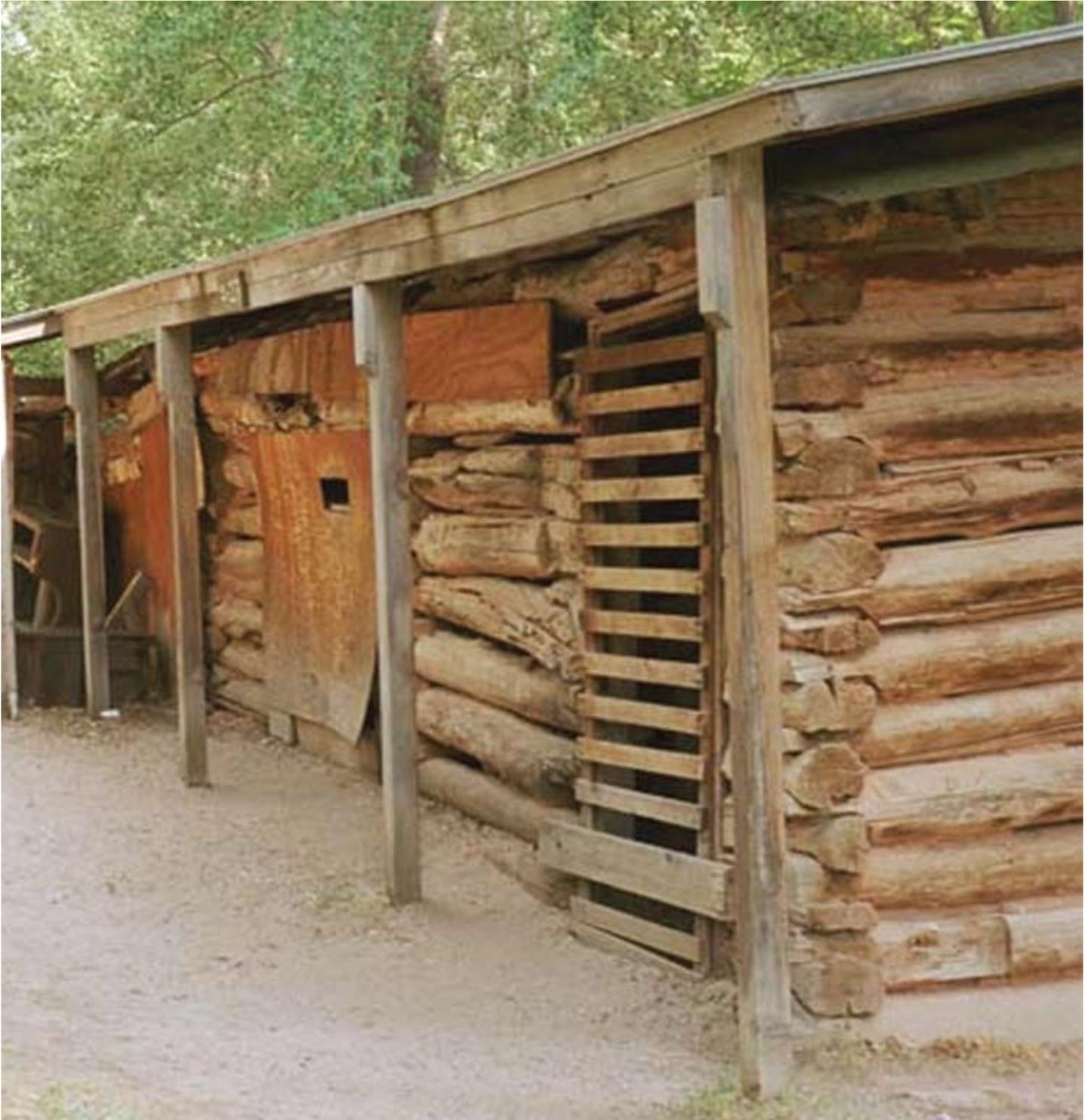


*Remains of a barracks garden, Manzanar National Historic Site
Photo: Randall Skeirik*



*The Mill at Gold Mill Hill, Death Valley National Park.
Photo: Randall Skeirik.*

V a n i s h i n g T r e a s u r e s
C o l o r a d o

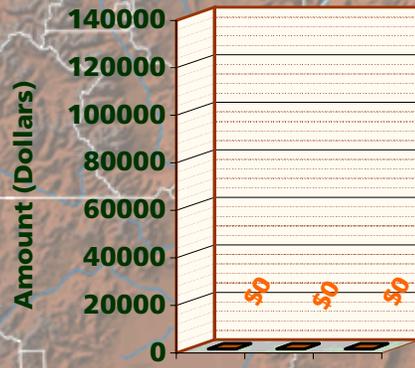


The Josie Bassett Morris Cabin, Dinosaur National Monument

Photo: www.hodgman.org

◆ Colorado National Monument ◆ Dinosaur National Monument ◆
◆ Mesa Verde National Park ◆

FY 2007 Vanishing Treasures Project Funding for COLORADO Parks



Colorado NM
Dinosaur NM
Mesa Verde NP

0 100 KM 100 Miles © geology.com

Colorado Fiscal Year 2007 Project Funding Summary

Project Funds:
No Colorado parks received project funding.



Mesa Verde National Park (MEVE)

VANISHING TREASURES STAFF

Joel Brisbin, Exhibit Specialist FY 2000 Position (Converted in 2005)

Joel has worked as a professional archeologist for the past 30 years. In his position at Mesa Verde, Joel directs both the stabilization crew and the Architectural Documentation Project (ADP) at Spruce Tree House. This year, Joel's primary duty was to write up four years of architectural documentation at Spruce Tree House. Although Joel will be retiring on October 30, 2007, this Colorado Historical Society Funded project is still ongoing. For this reason, he has worked diligently to compile the past four years of documentation work into a narrative that will be used in a future comprehensive report on the completed project. The site, which contains 121 rooms, nine kivas, and two towers, is

one of the largest cliff dwellings in Mesa Verde. Joel has completed a report on over 49 study units, including a comprehensive analysis of two kiva courtyards and a chronological comparison of construction dates between the north and south ends of the site. This report will be invaluable to the successful completion of the project and the production of a comprehensive final report.

Tim Hovezak, Exhibit Specialist FY 1998 Position (Converted in 2005)

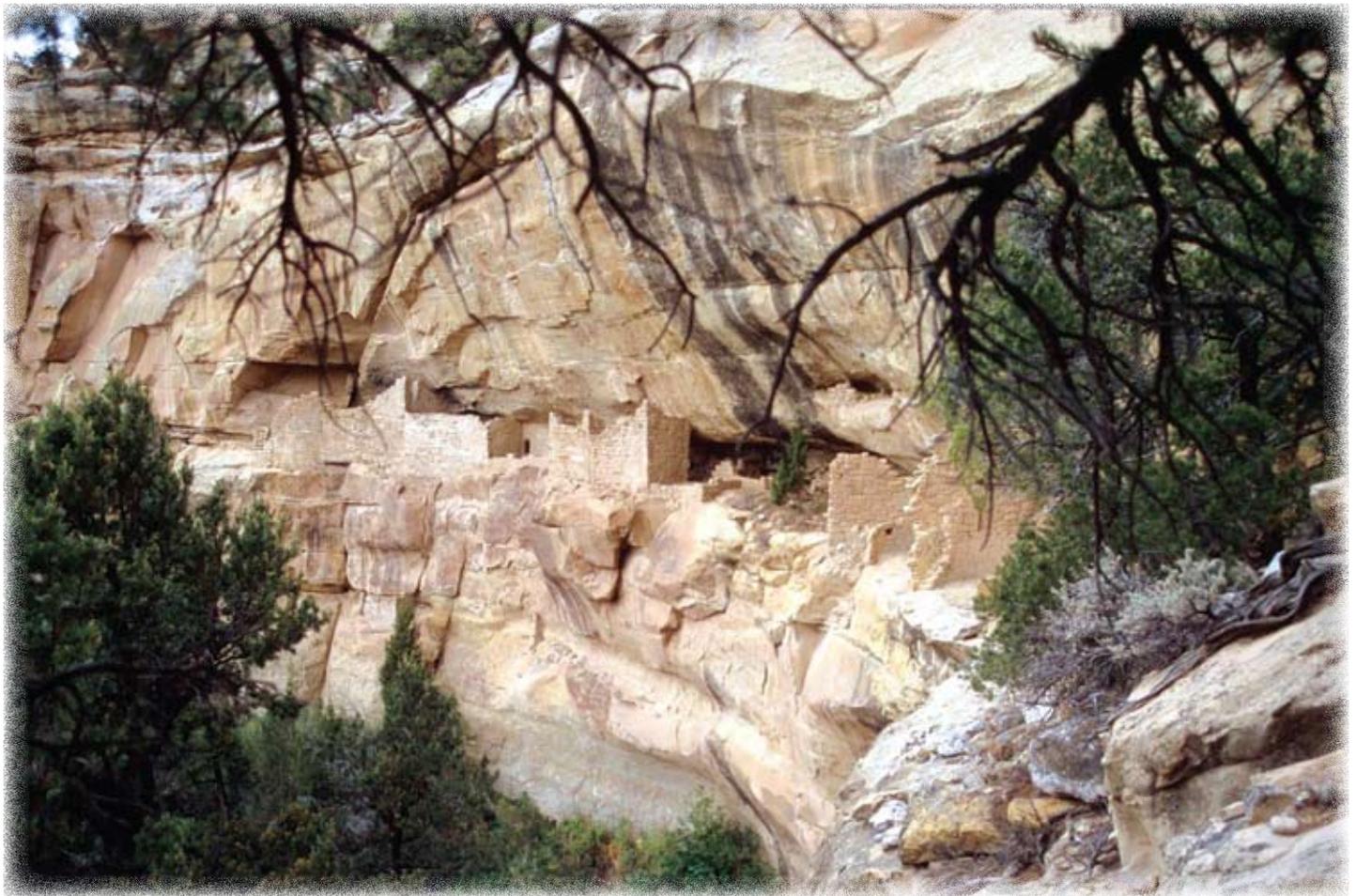
Neill Smith, Masonry Worker FY 1998 Position

Tim specializes in the stabilization of masonry structures, architectural documentation, and report writing. Tim and the other members of the stabilization crew began FY 2007 by traveling outside the park to initiate an architectural preservation program at Chimney Rock Pueblo near Pagosa Springs. The project is a multi-year effort in partnership with the US Forest Service, the Chimney Rock In-

terpretative Association, and Mesa Verde to stabilize and provide long-term management options for this popular and important site. Their first efforts consisted of assessing the condition of the pueblo and applying emergency treatments to seven rooms and one kiva. The Chimney Rock work is logistically difficult because of the site's location on a high rock pinnacle that is accessible only by foot and requiring helicopter transport of materials and equipment.

The stabilization crew spent the remainder of the 2006 field season conducting annual maintenance and winterization of Chapin Mesa sites that are accessible to the public during the fall and winter months. Tim was retained for one pay period in December to compile an interim report for the Forest Service on the 2006 stabilization at Chimney Rock and a separate condition assessment and preservation plan for the site.

While Tim was working on the Forest Service report, a large slab fell from the alcove



*Nordenskiöld's Ruin No.12 (5MV1321), Mesa Verde National Park.
Photo: Courtesy, Mesa Verde National Park*

overhang in Square Tower House, damaging four rooms and two kivas. Because this occurred during the crew's furlough, three members of the crew, including Tim and Neill, returned to active status for one pay period in February, 2007 to remove as much of the boulder as possible and conduct emergency stabilization treatments to the damaged structures. The affected structures are located at the north end of the site and include Room 1, the hardened remnant of a small surface room, Kivas A and B, and Rooms 2 and 3, a two-story complex. The rock fall caused significant damage to upper coursing of the north and south walls of Room 1, the upper portions of which had been stabilized and partially reconstructed with Portland cement mortar. Nearby, Kiva A sustained only minor damage from scattered debris while the largest slab, measuring approximately 3 by 4 meters in size and averaging 40 cm in thickness, rested squarely in Room 2. This slab decimated the entire north wall and large sections of the west and east walls of the room. The east wall of Room 2 is shared with the west wall of Kiva B,

where rock debris had loosened the original masonry, resulting in the loss of a small section of this wall during the removal of debris.

The initial clean-up at Square Tower House consisted of the removal of scattered bedrock debris and fallen wall stones from the affected structures. Solid and reusable wall stones were stockpiled against the cliff face to the west of Room 1 while all of the bedrock debris that was removed from the site was deposited on the talus slope to the south of the site. Reduction of the large slab proved a daunting task because of the solidity of the stone and the limited space in which to work. The upper, thinner portion of the slab was reduced with hammers and rock chisels while the remainder had to be broken with the use of an explosive device. In addition, Neill Smith and Gary Ethridge spent two days removing rock debris from the blasting of a large boulder overlooking the Spruce Tree House trail. The Colorado Youth Corps assisted in this effort.

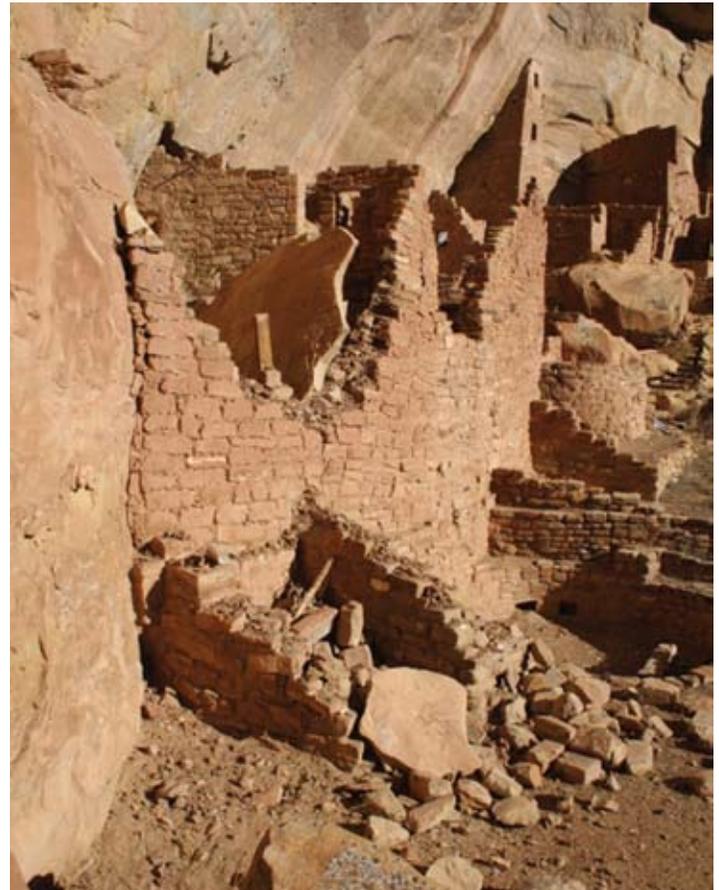
The crew returned from furlough on

April 2 to conduct annual assessments of all sites that are open to visitation. These routine condition assessments are typically completed in the spring when the stabilization crew begins their seasonal operations. These assessments are undertaken with the goal of maintaining the sites in "good" condition, as defined by Park Service maintenance standards for historic buildings, as well as to provide for visitor safety and quality of experience. The sites are inspected for structural defects and impending failures, infrastructure condition, and rock-fall potential in the alcove sites. Minor structural defects and safety hazards are typically repaired during the assessments. These front-country sites are also often cleaned when they are assessed. This involves the removal of accumulated debris, opening protective curtains, and clearing drainage ditches in preparation for the summer monsoon season. The tunnel under Cliff Palace is inspected for standing water and the Balcony House entry ladder may receive a new coat of white paint.

Minor fabric work was conducted at three



*Archeologist Julie Bell documenting damage from a rock fall at Square Tower House, Mesa Verde National Park.
Photo: Courtesy, Mesa Verde National Park*



*Damage from rock fall to standing walls at Square Tower House, Mesa Verde National Park.
Photo: Courtesy, Mesa Verde National Park*

front-country sites to repair structural defects that were observed during the spring assessments. Two of the sites are part of the Far View group, where the west wall of Kiva A at Pipe Shrine House (5MV00809), had sustained damage from an animal burrowing in the plaza. The burrow had allowed water to be channeled behind the kiva wall, resulting in mortar erosion, veneer separation, and the collapse of several veneer stones. Approximately one square meter area of the kiva wall was reconstructed and the burrow was filled with stone rubble mixed with amended soil mortar. Also at Far View, the stabilization crew conducted routine maintenance at Coyote Village (5MV00820). This work consisted of filling and patching animal burrows, weed removal, and cleaning. On the Chapin Loop, routine maintenance was undertaken at Site 5MV00016 consisting of general cleaning and the repair of rodent damage to Kivas 1, 2, and 3. Repairs at Kiva 1 involved the patching of rodent burrows in the south wall of the southern recess and the modern ground surface above the east wall. More extensive damage was identified and repaired at Kivas 2 and 3, where the rodent burrows were filled with soil mortar and sandstone rubble. Loose sediment was removed from the banquettes and floors of all three kivas.

In May, the stabilization crew returned to Chimney Rock to resume the program begun the previous October. This crew was composed of Gary Ethridge, Neill Smith, Tim Hovezak, and Fort Lewis College intern Stephen Matt. The 2007 work involved continued architectural documentation as well as extensive repairs at three rooms and one of the kivas. This project is but one example of the productive working partnerships that have been established between VT staff, sister agencies, and universities.

Work was also conducted in the Mesa Verde backcountry this year. The crew began evaluating the condition assessments at sites with serious structural defects in preparation for future stabilization planning. This process involved visiting eight sites (5MV00514, 5MV00626, 5MV01206, 5MV01209, 5MV01228, 5MV03738, 5MV01142, 5MV01195) to evaluate stabilization needs previously recorded by the architectural documentation crews, establishing a list of priorities and evaluating logistical issues.

Additionally, the crew returned to complete preservation work at one backcoun-

try site in 2007. Site 5MV1006 was in need of stabilization repairs when its condition was first assessed in 2000. Because it is a remote site that required helicopter support, temporary repairs were put in place in 2001 until funding was available to properly stabilize the site. Full-scale stabilization treatments were undertaken in 2004 and 2006, with the stabilization and architectural documentation completed in July and August, 2007 with the treatment of one kiva and two additional rooms.

The crew ended the year by continuing the preservation work at Square Tower House that began in February. This work concentrated on Kiva B and Rooms 2 and 3; but it included extensive work at Kiva C. Existing fill was removed from the floors of both Kivas B and C at the initiation of preservation work. The floors were appropriately documented and covered with geotextile, a thin layer of sediment, and heavy canvas tarps before work on the walls began.

The rock fall, which had destroyed most of the well-preserved original south wall of Room 3 and most of a wide, rubble-core wall between Room 2 and Kiva B, left fragmented wall ends exposed in both rooms and in the kiva. Preservation work concentrated on securing the damaged masonry against further collapse by resetting loose stones and adding one or more new masonry courses to the remaining original fabric. As always, maintaining the integrity of the original masonry was of the highest priority during this work.

The preservation work at Kiva C replaced earlier reconstruction by JW Fewkes and consisted of the reconstruction of virtually all of the interior west wall, much of the south wall, and the replacement of numerous cap stones. The position of this kiva at the front of the site and under the drip line was responsible for its deteriorated condition.

Tim is skilled in stabilization work and architectural documentation while Neill can provide assistance with masonry stabilization work.

Kay Barnett, Exhibit Specialist

FY 2000 Position

During FY 2007, Kay directed the Spruce Tree House ADP, which was partially funded by a grant award from the Colorado Historical Society State Historical Fund. The project focused on documenting architectural units that were either never documented or only partially documented. All of these units were located

in either the northern portion of Spruce Tree House or in two associated ledge-room sites (5MV641 and 5MV530). In the main Spruce Tree House alcove, the southern boundary of the study unit was the architectural division within the cliff dwelling that is known as "Main Street," which runs east-west through the site. Site 5MV641, which is located directly north of the Spruce Tree House alcove on the east side of Spruce Canyon, is comprised of a total of nine rooms, seven open areas and two miscellaneous structures. Site 5MV530 is situated on the west side of Spruce Canyon, directly across the canyon from Spruce Tree House, and contains one room and one open area.

This documentation resulted in a revised assessment of the number of architectural units in Spruce Tree House and its associated ledge rooms. The new count includes 233 architectural units: 128 rooms, nine kivas, two towers (comprised of three rooms), 62 open areas, and 31 miscellaneous structures. These numbers include the 10 associated ledge rooms with their seven open areas as well as two miscellaneous structures.

At the beginning of the field season, there were 62 architectural units at Spruce Tree House that still required either complete or partial documentation (two kivas, 24 rooms, 24 open areas, and 12 miscellaneous structures). Kay's goal for the FY 2007 season was to complete the documentation of approximately half of these, with the rest to be finished in the early spring and summer, 2008. At that time Spruce Tree House will be fully documented.

In a highly productive season, Kay and the documentation crew far exceeded their fieldwork goals for the year. Seventeen rooms, 22 open areas, two kivas, and 11 miscellaneous structures were thoroughly mapped and documented, resulting in a total of 52 architectural units completed, 38 of which were in the main site alcove. This resulted in the production of a total of 86 maps.

Outside researchers worked with the documentation crew at Spruce Tree House this year, including interns from the University of Pennsylvania's Graduate Program in Historic Preservation and Howard J. Arnott from the Department of Biology and Center for Electron Microscopy, University of Texas at Arlington. The partnership between the University of Pennsylvania Conservation Lab and the National Park Service has produced a vast quantity

of detailed documentation as well as research into the mechanisms of surface finish deterioration and low-impact methods for stabilizing deteriorated finishes. This cooperative agreement has been in place for almost 15 years and has resulted in research and documentation of multiple sites including Spruce Tree House, Mug House, Cliff Palace, and Long House. These summer field school sessions have provided educational opportunities for dozens of students who gain working knowledge of architectural surface finishes and the opportunity to work at an internationally recognized site of great historical significance. This year's field school involved four interns and two post-graduate project consultants. They documented the condition of earthen plasters and painted finishes in Rooms 10(1), 11(1), 100(2), and Open Area 5(2), and recorded plaster conditions and treated detaching plaster finishes. Further treatment will be carried out in 2008.

In addition, Howard J. Arnott visited Spruce Tree House to photograph the roof beams in Rooms 23, 25, and 43. He has been examining cores from original roof beams to determine whether they show frost rings. Frost rings are annual rings that show damage caused by freezing temperatures during the growing season. The study of these rings may potentially provide information concerning the climate at the time of abandonment.

A total of 366,535 people visited Spruce Tree House during FY 2007 and the archeologists working on the project constantly had direct interaction with large numbers of people. The opportunity for visitor/archeologist interaction in Spruce Tree House was popular, with a significant proportion of the visitors asking about the research being conducted. The public was interested in the work that was being conducted and inundated the archeologists with questions, giving the archeologists an opportunity to educate the public about the significance of continuing archeological research.

Several educational training sessions and VIP tours were given during the 2007 field season to disseminate information about the documentation methods used and the project's preliminary results. At the beginning of the season, the park's interpretive rangers were given an in-depth tour of Spruce Tree House that included information about the planned fieldwork. In addition, special interest groups and VIPs received in-depth tours of Spruce Tree

House, including Richard Moe, Executive Director for the National Trust for Historic Preservation; Mark Wolf, Director of the Colorado Historical Society State Historic Fund; Betty Janes, Assistant Superintendent of Mesa Verde; Board members of the Heard Museum; Board members and scholars from Crow Canyon Archaeological Center; and a National Park Foundation/Discovery Channel Young Scholar.

The 2007 architectural documentation of Spruce Tree House received national exposure in the form of two separate television broadcasts. "Wired Science," a new show on PBS, highlighted the accomplishments of Ben Kacyra from CyArk, who has pioneered laser-scanning technologies. The show focused on the preliminary laser-scanning work underway at Square Tower House and highlighted the archeologists who are executing the architectural documentation of Spruce Tree House. A second show, called "Boundaries," was filmed in numerous locations throughout the southwest including Spruce Tree House. It will focus on how ancient and modern communities live on the landscape.

Kay is skilled in the architectural documentation and stabilization of archeological sites.

Laura Ninnemann, Database Archeologist FY 2000 Position

Laura focused much of her work in 2007 on the field and laboratory testing and modification of the park's Mobile Archeological Data Management System (MADMS), a mobile solution for electronically capturing archeological data (including that required by ASMIS) during field documentation of archeological sites. The platform is geo-referenced, and GPS data are directly transmitted to the relational database model. The data flows from primary archeological databases to a mobile device (personal digital assistant or PDA) where records are added or updated based on field observations. As the data flows back into primary databases, the records are evaluated for completeness and integrity utilizing a group of quality assurance/quality control (QAQC) queries within a separate Microsoft Access database. Throughout the process, relational data models are maintained. In addition, an attachment tool allows crews to carry photographic and other images into the field on a data storage card.

Expansion of the system late in the year

resulted in the capability to access the Data Capture Standards manual (totaling approximately 270 pages) from the mobile device, as well as the addition of two new database components for Rock Modification Panels and Structural Engineering. Site logs and inventory reports can also now be generated from primary database records. Testing of the two new components, and other new features will continue in FY 2008 following the deployment of the latest software version. When fully implemented, MADMS will result in significant cost/time savings, as well as increased data completeness and integrity. Following extensive testing and resulting modifications to solution functionality, the project was approximately 95% complete by the end of the fiscal year.

Laura also worked on the park's mandated goal to update site conditions and create complete, accurate, and reliable records for 35 sites in ASMIS. The Intermountain Regional Office provided additional funding that allowed our staff to more than double that total. Laura was able to update condition data for approximately 900 additional ASMIS records as the result of funding provided through the Federal Lands Recreation and Enhancement Act (FLREA). To accomplish this work, site records within the park's survey database were examined and compared to both ASMIS records that lacked current condition data and sites that had not previously been included in ASMIS.

During FY 2007, Laura made recommendations to the national-level ASMIS Coordinator for improvements to the ASMIS user interface and she attended training at the Regional Office in Santa Fe, New Mexico that focused on assessing an updated version of ASMIS.

Laura has extensive experience with database development and management and mobile data capture systems.

Vacant, Conservator FY 2000 Position

Lapse salary from this position was used to help cover overall park shortages.

Vacant, Exhibit Specialist FY 2004 Position

Lapse salary from this position was used to help cover overall park shortages.

VANISHING TREASURES PROJECT FUNDING

Mesa Verde National Park did not receive project funding in FY 2007.

V a n i s h i n g T r e a s u r e s

N e w M e x i c o

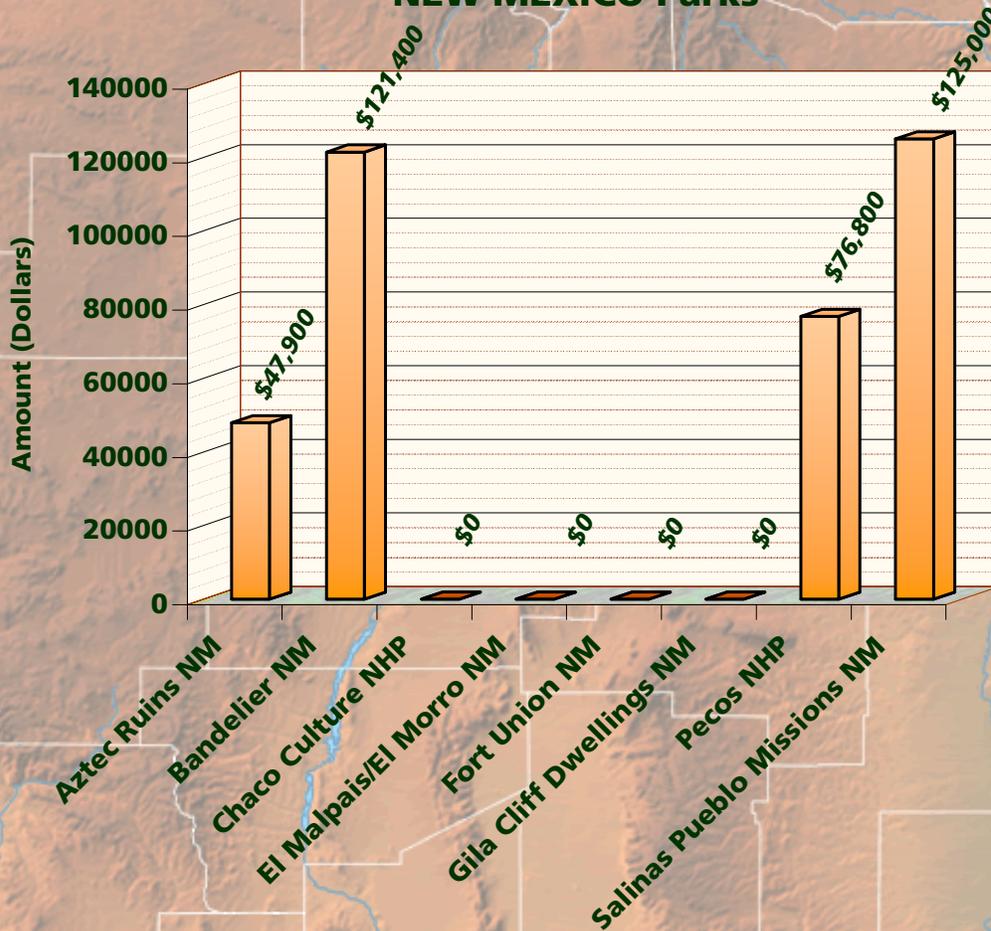


Fort Union in the moonlight, Fort Union National Monument.

Photo: Greg Phillipy

- ◆ Aztec Ruins National Monument ◆ Bandelier National Monument ◆
- ◆ Chaco Culture National Historical Park ◆ El Malpais National Monument ◆
- ◆ El Morro National Monument ◆ Fort Union National Monument ◆
- ◆ Gila Cliff Dwellings National Monument ◆ Pecos National Historical Park ◆
- ◆ Salinas Pueblo Missions National Monument ◆

FY 2007 Vanishing Treasures Project Funding for NEW MEXICO Parks



New Mexico Fiscal Year 2007 Project Funding Summary

Project Funds:

Aztec Ruins National Monument, \$47,900

Bandelier National Monument: \$121,400

Pecos National Historical Park: \$76,800

Salinas Pueblo Missions National Monument: \$125,000

Aztec Ruins National Monument (AZRU)

VANISHING TREASURES STAFF

Carl Jim, Masonry Worker
 FY 1998 Position, converted to Term,
 Subject-to-Furlough in FY 2001

During FY 2007 Carl served as work leader on ruins preservation tasks at Aztec Ruins's West and East Ruins. He replaced several protective roofs covering ancient roofed rooms and performed masonry fabric replacements at both sites. He also helped with daily ruins maintenance. Carl was injured during work in July, 2007 and was unable to work for the remainder of the year. However, there was no lapse salary because only part of his salary is covered by VT.

Carl is skilled in masonry ruins stabilization, pre-stabilization and post-stabilization documentation, and digital photography. His specialties include backfilling, ruins repairs, stabilization, and protective roofing.

Raymond Torrivio, Masonry Worker
 FY 1998 Position

Raymond retired in December, 2006 after

more than 30 years of NPS employment. During that time, he worked in a variety of positions on ruins stabilization crews at both Aztec Ruins and Chaco Canyon. After many years of seasonal preservation work, the VT Initiative gave him the opportunity in 1998 to obtain permanent employment. He worked until the close the 2006 field season, helping to finish up masonry repairs at West and East Ruins.

Raymond's specialties included ruins preservation stabilization and backfilling.

Jeffrey Wharton, Exhibit Specialist
 FY 1998 Position, Converted from Masonry Worker in FY 2007

With Raymond Torrivio's retirement in December, 2006, his position was converted to Exhibit Specialist and Jeff was hired for the position. Jeff has an extensive background in the archeology of the Colorado Plateau, particularly of the San Juan Basin, with an emphasis on dealing with cultural resource management concerns. His work in archeology has included project planning and development of survey strategies; preparation of data recovery plans; preparing cost estimates and budgets for small-scale, large-block survey and excavation projects; managing and conducting cultural resource inventories; coordinating and conducting archeological excava-

tion and testing programs; archeological compliance monitoring; cultural resource recordation and evaluation; synthesis of survey and excavation data; report preparation and editing; GIS analysis; computer graphics production; and data/laboratory analysis. His graphics preparation experience includes extensive mapping and illustration of archeological sites and features, and photo-documentation utilizing archeological photographic methods.

His accomplishments this year include the archeological survey of the expanded monument boundaries (320 acres) at Aztec Ruins. In this survey, over 50 structural ancestral pueblo sites and other prehistoric and historic properties, including cultural landscape features, were documented. Condition assessments and GIS analysis of survey data were also part of the overall project. Other accomplishments include archeological monitoring of various park management projects and serving as the cultural resource specialist on the Aztec Ruins Vegetation Management Planning Team. He was also involved in East Ruin preservation projects, including protective roof replacement and protective gate replacement; he was responsible for writing archeological monitoring results documentation, sections of the Scope of Work for the East Ruin stabilization, backfilling, and preservation projects, and select



*West Ruin, Aztec Ruins National Monument.
 Photo: Randall Skeirik*

revisions to the cultural resources section of the Aztec Ruins General Management Plan. Jeff participated in several West Ruin preservation projects, including backfill adjustment to eliminate soil contact with prehistoric wood door lintels that had resulted in rodent damage and backfill adjustments to reduce impacts caused by differential fill levels. These backfill adjustments also involved installation of drains to help move water away from the ruin. Finally, Jeff conducted damage assessments of several outlying prehistoric sites in the expanded monument boundary that had been looted, providing documentation of the archeological damage, estimating the cost of restoration and repair, and coordinating backfilling in accordance with the Archeological Resources Protection Act (ARPA).

Jeff attended training in the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA); an introduction to GIS metadata creation, editing, and production; introduction to the Archeological Site Management Information System (ASMIS); and an introduction to the Planning, Environment, and Public Comment (PEPC) website.

He has special skills in archeological survey and excavation, cultural resource management, the design and construction of protective roofs and gates, and preservation archeology.

Gary Brown, Supervisory Archeologist
FY 2001 Position

During FY 2007, Gary recruited a sizeable staff to augment existing park personnel on preservation, archeology, and curation projects. As Chief of Cultural Resources, he provided oversight for structure and site condition assessments, backfilling and fill adjustments, protective roof maintenance and repair, cultural resource inventory, List of Classified Structures (LCS) documentation, ruins stabilization and minor fabric replacements, and museum collections management. Gary organized and hosted the New Mexico Parks VT workshop (see "Workshops and Symposia" earlier), participated in ongoing hydrology monitoring through a Cooperative Ecosystem Study Unit (CESU) partnership, and worked with the National Science Foundation (NSF)-funded Middle San Juan Chacoan Outlier research partner-

ship. He also served as co-principal investigator on analysis of perishable artifacts from Aztec Ruins. Working with a group of VT staff from other parks, he assisted in planning and scoping a proposed backfilling project at Casa Grande Ruins National Monument.

Gary participated in training in ARPA site damage assessment and employee relations for supervisors.



VT Masonry Worker Carl Jim executing masonry replacement on deteriorated Chacoan walls at West Ruin, Aztec Ruins National Monument.
Photo: Cheryl Paddock

His specialties include backfilling, site conservation, ruins preservation, architectural documentation, archeological dating, compliance, artifact analysis, writing, technical illustration, statistical analysis, and project management.

VANISHING TREASURES PROJECT FUNDING

Project Name: Stabilize East Ruin

Project Budget: \$70,100

- Personnel: \$59,333
- Vehicles: \$0
- Travel/Training: \$0
- Supplies/Materials: \$9,186
- Equipment: \$1,581
- Services: \$1,581
- Other: \$0

Project Accomplishments: This FY 2007

project was the culmination of a two-year project that represented the first significant preservation work at Aztec Ruins's East Ruin in more than a decade. The FY 2007 component completed high-priority preservation work including substantial preservation treatments in seven rooms, along with pre-treatment and post-treatment documentation. In addition to wall capping and other masonry work, treatments in one room included removing and replacing an old protective roof that had begun to leak and was placing lateral stresses on ancient masonry as well as replacing two old wooden doors with modern metal gates that prevent unauthorized entry to sensitive portions of the ruin.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: Most historic preservation consultation was done through our annual written report to associated tribes and a meeting with tribal representatives of both Aztec Ruins and Chaco Culture National Historical Park (CHCU). Project-specific consultation was initiated on modifications to the West Ruin Backfilling Program, including fill reduction in areas where differential fill cannot be equalized through backfilling. The tribes and the New Mexico State Historic Preservation Office (SHPO) were generally supportive, but there were concerns about excavation of undisturbed archeological deposits and removal of artifacts from the site

Safety: Progress continued on development of Job Safety Analysis and Job Hazard Assessment forms for preservation. A six-year safety record without reportable incidents was unfortunately ended when one individual suffered a broken leg stepping off an ancient doorway in West Ruin.

Training: In addition to individual training attended by VT staff, the Aztec Ruins cultural resource staff attended a meeting with Chaco and Mesa Verde personnel, which covered a variety of preservation, documentation, safety, and related topics.

Other Challenges: In the wake of an unfortunate accident, restoring a perfect safety record is our biggest challenge for the future. The incident caused us to re-examine our procedures and seek ways to ensure that no similar incident will occur in the future.

Bandelier National Monument (BAND)

VANISHING TREASURES STAFF

Angelyn Bass Rivera, Exhibit Specialist (Conservator)

FY 1999 Position

From October, 2006 through May, 2007, Angelyn Bass Rivera continued to lead the Vanishing Treasures Program at Bandelier National Monument. She, along with Lauren Meyer, completed the preliminary data analysis and treatment recommendations for the Frijoles Canyon Cavates. The document that was produced as the result of this project contains seven years of research, documentation, and treatment testing in the cave dwellings within the main interpretive area of the park. The analyses and results that are presented in the report will inform cultural resource management decisions within the park for years to come. Angelyn also initiated an assessment and testing program for the methods and materials used to obscure graffiti in the cavates. Assisted by Lauren Meyer, along with Larry Humetewa and Conor McMahon (conservators from the Museum of New Mexico), Angelyn assessed past treatments for efficacy and compatibility (color, texture, etc.), and tested all fill materials for composition and characteristics such as permeability, durability (hardness), liquid/plastic limit, shrinkage, and composition. Portions of the materials testing took place in the conservation lab at the Intermountain Regional Office in Santa Fe. In addition, Angelyn prepared Scopes of Work for several projects for which the Bandelier Vanishing Treasures Program received funding in FY 2007. She also developed contracts for a large park-wide infrastructure mapping and laser-scanning project for one of the high-priority cavates in Frijoles Canyon, and she supervised a GS-09 exhibit specialist (conservator).

Angelyn and Lauren Meyer made a presentation at the New Mexico Heritage Preservation Alliance Annual Conference on the conservation techniques and documentation technologies (Microsoft Access, geographical information systems (GIS), and laser scanning) that are used in the park. In addition, Angelyn continued to provide technical assistance to the Vanishing Treasures Program, as well as other agencies, parks, programs and external

organizations.

In May, 2007, Angelyn left Bandelier to accept a position with Pecos National Historical Park. While at Bandelier, her experience, professionalism, dedication and determination brought national and international attention to the Vanishing Treasures Program at Bandelier. She established lasting partnerships with organizations such as the Museum of New Mexico, the University of Pennsylvania, and the Getty Conservation Institute that have financially and professionally benefitted both the program and the park. She successfully acquired substantial funding for cultural resource conservation and research from both federal sources (NPS funding, the Save America's Treasures Program) and non-federal sources such as the Getty Grant Program, the Tauck Foundation, and the National Park Foundation. This funding allowed the implementation of large-scale documentation, assessment, analysis and treatment projects. Through her efforts, Angelyn has created a strong program that will continue to uphold her high standards of workmanship, profes-

sionalism, and character. The staff at Bandelier wishes her well in her future endeavors.

Since leaving, Angelyn has continued to assist the Vanishing Treasures Program at Bandelier with program development, treatment implementation, and employee training.

Angelyn's specialties include plaster conservation (earth/lime) and project management.

Lapse salary for the period this position was vacant was used to cover relocation costs, and in other areas of the park.

Lauren Meyer, Exhibit Specialist (Conservator)

FY 1999 Position

After several years as a seasonal, and then term project leader for documentation and conservation projects related to the cavates, Lauren accepted a permanent Exhibit Specialist (Conservator) position with the Vanishing Treasures Program at Bandelier this year, entering on duty in March, 2007, to fill the position that had been vacated in September, 2006, by Mary



*Frijoles Canyon, Bandelier National Monument
Photo: Randall Skeirik*

Slater. Until Angelyn's departure in May, Lauren assisted her in the management of Bandelier's Vanishing Treasures Program, after which she took over direction and management of the program. Lauren will continue to serve as the program manager until Angelyn's position can be filled.

As the project and program manager for the VT program at Bandelier, Lauren's responsibilities included the oversight of field projects. In FY 2007, these projects included the following:

Stabilization of Tyuonyi Pueblo: After a three-year hiatus, stabilization efforts at Tyuonyi Pueblo resumed this year. The primary objective of this work is to reinforce the stone walls by replacing deteriorated and/or poorly applied mortar with an amended mortar that is more compatible to the stone. Treatment options will include the partial or complete rebuilding and repointing of wall segments. Vanishing Treasures Masonry Worker Marty Davenport, assisted by a Santa Fe Historic Preservation Projects crew led by Walt Morris, assessed and stabilized 97 high- and medium-priority wall faces in FY 2007. The crew also provided assistance to Santa Clara Pueblo in their effort to stabilize the walls of their ancestral pueblo at Puye.

Documentation and Condition Assessment of Big Kiva: Exhibit Specialist (Conservator) Shannon Dennison led a crew of archeological technicians and masonry workers in the documentation and assessment of Big Kiva, a 14th-century structure associated with Tyuonyi Pueblo. This season's work resulted in the development of a thorough site treatment history, as well as a document outlining existing conditions and treatment recommendations. Stabilization of Big Kiva will occur in FY 2008.

Graffiti Mitigation in Frijoles Canyon Cavates: In FY 2007, a cooperative agreement between the Museum of New Mexico Conservation Laboratory, under the direction of Mark Mackenzie, and the Vanishing Treasures Program at Bandelier was put in place. Through this agreement, conservators Larry Humetewa and Conor McMahon assisted the VT crew in assessing past graffiti mitigation efforts, testing materials used to fill and obscure graffiti, and implementing new treatments in priority areas. Approximately 15 cavates were treated in FY 2007. In addition, Cave Kiva, a site that is frequently defaced by graffiti, was treated quarterly.

Emergency Treatment of Frijoles Canyon Cavates: With assistance and training pro-

vided by Angelyn Bass Rivera, four cavates in Frijoles Canyon were treated for tuff deterioration, ceiling undercutting, and poor drainage. Treatments were performed by the seasonal VT field crew with assistance from conservators from the Museum of New Mexico and the Rocky Mountain trail crew, who installed a drainage diversion system on the exterior of a severely eroded cavate in Frijoles Canyon. (See the following VT Project narrative for further information on this work.)

In addition to oversight of field projects, Lauren assisted Angelyn Bass Rivera in the completion of the preliminary data analysis and treatment recommendations for the Frijoles Canyon cavates; participated in the assessment and testing of the methods and materials used to obscure graffiti in the cavates; gave a presentation, along with Angelyn Bass Rivera, at the New Mexico Heritage Preservation Alliance Annual Meeting; provided assistance to other park programs and divisions on projects related to Bandelier's Civilian Conservation Corps Historic District, Visitor Center exhibits, and database development and management; and supervised a crew of term and seasonal conservators and archeologists. Lauren continues to serve as the Contracting Officer's Representative (COR) for a project to provide laser scanning of a high-priority cavate in Frijoles Canyon, develop a base map, and collect associated geographic information system data of the entire park that will be

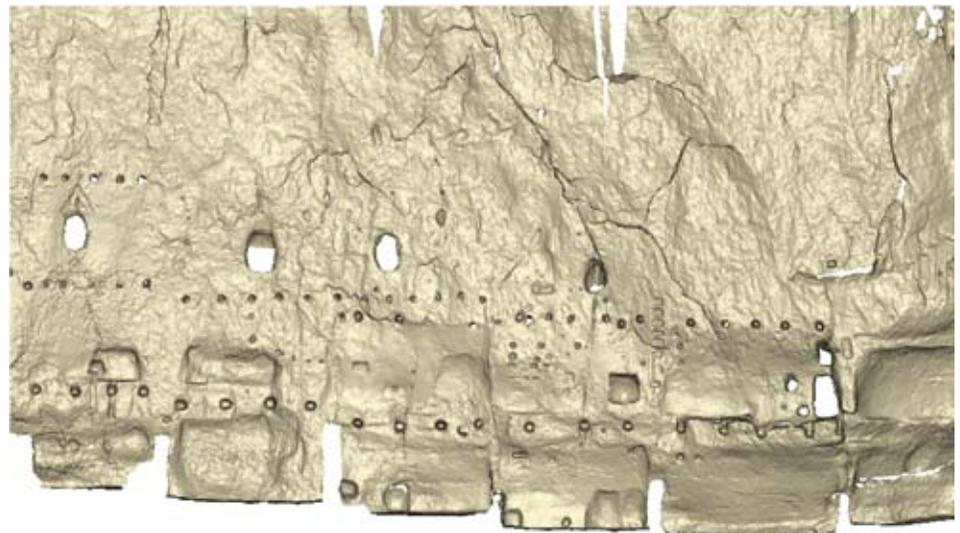
used to facilitate management of the park's cultural and natural resources and its infrastructure. Lauren gave several tours to local, national, and international groups, and she participated in several published and broadcast interviews relating to the work of the Vanishing Treasures Program at Bandelier. She also assisted Pecos National Historical Park in a project to treat the lime plaster walls of a 19th-century adobe structure at Pigeon's Ranch.

Although there was little time to squeeze in training, Lauren was able to complete a COR training course and participate in an adobe workshop put on by Cornerstones. After Mary Slater's departure in September, 2006, the lapse salary for this position was used to support two VT term positions, a GS-7 exhibit specialist (crew leader) and a GS-9 exhibit specialist, conservator who served as the cavate conservation project leader.

VANISHING TREASURES PROJECT FUNDING

Project Name: Detailed Documentation and Emergency Conservation of Frijoles Canyon Cavates FY 2007

Project Summary: Cavates, which are hand-hewn rock chambers used for habitation and storage, are a unique style of architecture, which can be found in only a few locations worldwide. Dating to the Pueblo IV period (1300 – 1600) of Southwestern US cultural development, the cavates of Frijoles Canyon in Bandelier rep-



Elevational representation of the 3-dimensional data of a cliff face collected through the use of high-resolution laser scanning. The horizontal series of circles show viga sockets that once supported floor or roof structures for rooms built in front of the cliff face.

Image: Western Mapping Company

resent the largest concentration of such excavated chambers in the United States.

As of 2006, 1,055 of these excavated rooms have been documented and assessed for their archeological significance and physical condition. Condition assessment has revealed that the cavates are slowly deteriorating from both environmental and human impacts. Because of the sheer number of cavates, many of which are located high on the cliff face, conservation will focus on 84 archeologically significant cavates that are facing imminent deterioration from erosion. Additional cavates will receive some form of preventive conservation to prevent rapid deterioration, while all of the cavates will, at a minimum, be documented and monitored.

This project had four goals:

1. To document, using high resolution laser scanning technology, cavate MQ160, a high-priority cavate that retains a significant amount of original material, yet is in poor condition;
2. To document the condition of the masonry wall in cavate BA002, another high priority cavate that retains one of only two intact masonry closure walls that remain in the cavates of Frijoles Canyon and to develop a system to monitor movement of the closure wall and the widening of structural cracks;
3. To implement emergency treatments in other high-priority cavates that are immediately threatened; and
4. To continue photographic documentation of the cavates in Frijoles Canyon.

Project Budget: \$124,900

- Personnel: \$25,050
- Vehicles: \$0
- Travel/Training: \$403
- Supplies/Materials: \$401
- Equipment: \$1,950
- Services: \$97,007
- Other: \$0

Project Accomplishments: VT project funds were used to support a GS-07 term project leader and a seasonal crew. Crew members included project leader Shannon Dennison, archeological technicians/photographers Breelyn Van Fleet and Moe Nadel, masonry worker Marty Davenport, and archive technician Rande Ramsey-Cross. Project activities and accomplishments included the following:

-A contract was awarded to 4G Consultants/Western Mapping Company to conduct 3D laser scanning of the interior and exterior of cavate MQ160 to acquire

high-resolution (0.1-6mm) 3D model data and digital color imaging. The 3D model and associated data will be used for future analysis and monitoring in the cavate.

-Preston Fisher, Structural Engineer with the Vanishing Treasures Program, conducted a cursory on-site inspection and evaluation of the prehistoric masonry wall enclosing cavate BA002. Crack monitoring points were established on the cavate ceiling (indicated by parallel black marks) that can be monitored with a caliper to determine if there is any movement. In addition, recommendations were made for further treatment in the cavate.

-Angelyn Bass Rivera provided assistance and training to current VT staff in documentation and conservation of the cavates at Bandelier. She also provided program and project management assistance.

-Four cavates in Frijoles Canyon were treated for ceiling and wall undercutting. Preliminary analysis suggested that this condition is the result of a combination of factors including differential weathering resistance of the tuff and cavate exposure to water and wind-blown particles. Chemical absorption and physical accumulation of soot on the surface of the ceiling is also believed to contribute to the undercutting effect by creating a hardened layer that mimics the protective "case-hardened" outer layer of the tuff. Mechanisms of erosion target the softer tuff underlying the hardened surface layer, eventually leaving the outer layer unsupported. Once undercutting begins, it extends along the plane of the surface (wall or ceiling) creating a disconnected ledge that deforms and eventually collapses from natural forces or vandalism. Treatment of undercutting in cavate ceilings and walls involved pre-consolidating the friable surface of the tuff with a non-toxic consolidant (3% to 5% solution of acrylic emulsion El Rey 200 in water) and filling the void between the undercut ledge and the underlying cavate surface with a compatible, lime-based mortar. All cavates were digitally photographed prior to and after treatment.

-A large area of loss in one cavate, MP146, was infilled with masonry and drainage was directed away from the cavate walls and openings in order to avoid structural failure and prevent further deterioration.

-All previously treated cavates were assessed for current condition, the compatibility and durability of treatments previously applied, and further treatment recommendations were made. Some of the

previously applied treatments that were evaluated were the infilling and inpainting used to obscure graffiti, drainage modification through the use of silicone driplines, masonry stabilization, and the consolidation and infilling in areas of tuff experiencing deterioration and undercutting.

-Approximately 207 medium-priority cavates were photo-documented using both digital and traditional 35mm cameras. The photography methodology that was first developed in 2002 was refined in the 2007 field season to include settings for newly acquired camera equipment and for capturing high-quality interior images without the use of a flash.

-All digital and print photographs from the 2007 season were archived and recorded in a digital database created specifically for photographs taken by the Vanishing Treasures Program.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: The park was careful to consult with the State Historic Preservation Officer and affiliated tribes under Section 106 requirements for all work related to the preservation of cultural sites.

Safety: The Vanishing Treasures Program at Bandelier conducted weekly safety sessions led by different staff members that addressed issues related to both field projects and office work. These sessions utilized both Job Hazard Analyses developed for projects and outside research. Members of the VT field crew were very aware of the hazards involved in their jobs and took great care to keep themselves and their co-workers safe.

Other Challenges: The success of the Vanishing Treasures Program at Bandelier can be attributed to the hard work of the crew of term and seasonal archeologists, conservators, masonry workers, and archival specialists, as well as the contributions of other park staff and partners. In a short season that was filled with obstacles, the VT crew completed an astounding amount of work.

Special thanks go to Acting Superintendent Vito Spinale; John Mack, Chief of Resources; and to Mark Mackenzie, Director of Conservation for the Museum of New Mexico Conservation Laboratory.

Chaco Culture National Historical Park CHCU

Vanishing Treasures Personnel

Roger Moore, Archeologist FY 1999 Position

Roger has acquired significant on-the-job training in masonry work and has formal training in general preservation techniques, lithic artifact analysis, lithic materials identification and analysis, National Environmental Policy Act and Section 106 of the National Historic Preservation Act compliance, and Archeological Resources Protection Act investigations and incident reporting. Roger is skilled in the design of preservation documentation, the evaluation of treatment options, mortar mixing and color experimentation, scaffold safety, lithic technology, and working with and supervising preservation and archeological crews.

He is skilled in Special Emphasis Program Allocation System (SEPAS) proposal writing, preservation program planning, preservation documentation, and database design and monitoring. Roger serves as the park's Archeological Sites Management Information System database coordinator and maintains scaffold use and safety certification as well as Professional Responder certification.

Leo Chiquito, Masonry Worker FY 1999 Position

Leo is a very skilled masonry worker, having worked for many years doing wall facing repointing, stone replacement, wall core rehabilitation, wall basal repair, and wall capping construction and repair.

He is very experienced in mud and cement mortar repair on prehistoric and historic stone structures, backfill operations, and the design and construction of pipe drainage systems associated with backfilling.

Leo's training this year included a formal three-day scaffolding training program, Lay Responder First Aid and CPR training, and the annual NW New Mexico VT workshop.

Paul Tso, Masonry Worker FY 2001 Position

Paul has spent over 30 years working for the Park Service and other branches of the Federal Government and is a skilled ma-

sonry worker, having experience with wall facing repointing, stone replacement, wall core rehabilitation, wall basal repair, and wall capping construction and repair. He is one of the best masons on the preservation crew and has helped train many of the newer crew members.

Paul's training has included a formal three-day scaffolding training program, Lay Responder First Aid and CPR training, and the annual NW New Mexico VT workshop. Paul is very experienced in mud and cement mortar repair on prehistoric and historic stone structures, backfill operations, and design and construction of pipe drainage systems associated with backfilling. He is also an experienced Bobcat operator.

Earl Johnson, Masonry Worker Work Leader and Supervisor FY 1999 Position

Earl is a master mason with 30 years of ex-

perience working on many of the sites in the park as well as on greathouses and Navajo pueblitos. He has also been involved in the backfilling program since it started nearly 14 years ago. He has experience in simultaneously managing multiple preservation crews involved in different levels of ruins treatment at several sites.

In addition to his long history of masonry work, Earl has received formal training in scaffold erection, dismantlement, and safety inspection; and has learned to estimate the personnel time needed to carry out various preservation and backfill activities, assisting with estimates of project time and cost for SEPAS project proposals. He speaks both English and Navajo and can supervise employees in both languages.

His training this year included a three-day scaffolding training program, Lay Responder First Aid and CPR training, and the NW New Mexico VT workshop.



*Chetro Ketl, one of the Chacoan Greathouses, Chaco Culture National Historical Park.
Photo: Randall Skeirik*

**James Yazzie, Masonry Worker
FY 1999 Position**

James is a skilled masonry worker, having spent many years doing wall facing re-pointing and stone replacement, wall core rehabilitation, wall basal repair, and wall capping construction and repair. James is very experienced in mud and cement mortar repair on prehistoric and historic stone structures, backfill operations, and the design and construction of pipe drainage systems associated with backfilling.

James participated in a formal three-day scaffolding training program, Lay Responder First Aid and CPR training, and the annual NW New Mexico VT workshop.

**Garry Joe, Masonry Worker
FY 2002 Position**

Garry is a skilled masonry worker, with many years of experience in wall facing



repointing and stone replacement, wall core rehabilitation, wall basal repair, and wall capping construction and repair. In addition, Garry can operate a dump truck, front end loader, and Bobcat loader. He is very experienced in mud and cement mortar repair on prehistoric and historic stone structures, backfill operations, and the design and construction of pipe drainage systems associated with backfilling.

Garry's training included a formal three-day scaffolding training program, Lay Responder First Aid and CPR training, and the annual NW New Mexico VT workshop; and he maintains an LCD license.

**Vanishing Treasures Project
Funding**

Project Name: Pueblo Bonito Treatment and Backfill Project

Project Description: Pueblo Bonito is one of the three largest Ancestral Puebloan greathouses in northwest New Mexico. It was built in multiple stages between about 880 and 1125 AD. It is the premier destination for park visitors and is the primary focus of the Interpretive Division's tour program. The near total excavation of the site in the late 19th and early 20th centuries has exposed thousands of square feet of wall fabric up to four stories in height. Weathering of these previously buried walls, coupled with heavy visitation, makes this site a primary target for annual preservation work. In an effort to help control wall deterioration and improve drainage in the plazas, it was decided to modify and upgrade the contours of the plazas.

This was the second year of a two-year backfill project at Pueblo Bonito. The plan called for backfilling in the east and west plaza areas so there would be proper drainage from the room blocks into the drains located in the center of each of the two plaza areas. In FY 2006, a backfill plan was designed and treatment of some of the rooms bordering the plaza was started. This year the final stage of backfilling at Pueblo Bonito targeted those rooms, room blocks, and kivas in the perimeter of the west and east plaza areas. The masonry in these rooms was in poor condition because of drainage failures in the plazas and high visitor impacts. Once the pre-treatment documentation was completed, the most fragile and damaged masonry was repaired along the lower and basal segments of the exterior walls of about 45 rooms and seven kivas (nearly 500 square feet). This ensured that these walls were in

good condition prior to backfilling.

A detailed topographic map was developed through a cooperative agreement with the University of New Mexico that helped in fine-tuning and trouble-shooting the drainage system installation. Based on that mapping, several areas were identified that would need more fill than previously calculated, necessitating that the capping on kivas Q and R be repaired and that several additional courses be added to accommodate the additional fill. Most of the existing drainage structures in the west plaza could be reused and were rehabilitated, including the addition of several hundred feet of six-inch PVC pipe and inlets to better drain the northern sections.

To date, over 150 cubic yards of fill have been added, primarily to the west and northern portions of the plazas. Because of the extensive amount of masonry work needed and the amount of extra fill required to adequately drain the northern sections of the plazas, work will resume next spring to complete the remainder of the east plaza.

The Pueblo Bonito backfill project is the last of the backfill projects that commenced more than 14 years ago. To date, 24 sites have had some level of backfilling. As a result, deteriorating wall fabric has been covered, otherwise unsupported wall fragments have been stabilized, and moisture is being moved away from walls into open rooms, plaza areas, or outside of structures. This has significantly reduced the amount of exposed wall fabric needing annual, cyclic, or periodic maintenance.

Project Budget: \$84,000

- Personnel: \$4,000
- Vehicles: \$1,000
- Travel/Training: \$12,000
- Supplies/Materials: \$3,000
- Equipment: \$500
- Services/Contracts: \$2,000
- Other: \$0

Project Accomplishments:

In preparation for the plaza backfilling, plaza-facing walls were evaluated for condition and repaired where needed. Some walls, especially in the kivas on the north end of the east and west plazas required several additional layers of capping stone to allow backfill to be placed at the necessary height to provide proper drainage. In the north end of the plaza, several drain pipes and drains were installed to serve areas where water was previously only able to flow into the kivas. The completed

plaza backfill allows the moisture that collects in the plaza to drain away from all of the plaza-facing rooms and walls and into the existing drainage system; at the same time it allows the plaza to remain open to the public. With occasional annual fine-tuning, this new drainage pattern should be relatively easy to maintain. The new trail surfacing program, which the park will begin to implement in FY 2008, will help to control visitor traffic effects on the newly contoured surfaces, adding to the longevity of the backfill project.

Activities within the scope of this project included digging and loading backfill dirt from a quarry outside the park with a front end loader; transporting the fill to the staging area in front of Pueblo Bonito using a park-owned dump truck; moving the dirt, using a Bobcat loader, from the staging area to a conveyor belt system set up in the plaza; setting up, operating, and moving a 2-7 section electric conveyor belt system; maintaining a trailer-mounted diesel-powered generator to provide power for the conveyor belt system; and maintaining a fleet of four trucks to move personnel and equipment from the preservation shop to the project area.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: Even though these activities fell within the Programmatic Exclusion IV.A1, an Assessment of Effect form was submitted to the State Historic Preservation Office (SHPO) for their information. In addition, over the 14-year course of this project, the Chaco Native American Consultation Committee has had opportunity to review and comment on this and other routine preservation and general treatment plans at our annual meeting with the 21 tribes that comprise the committee.

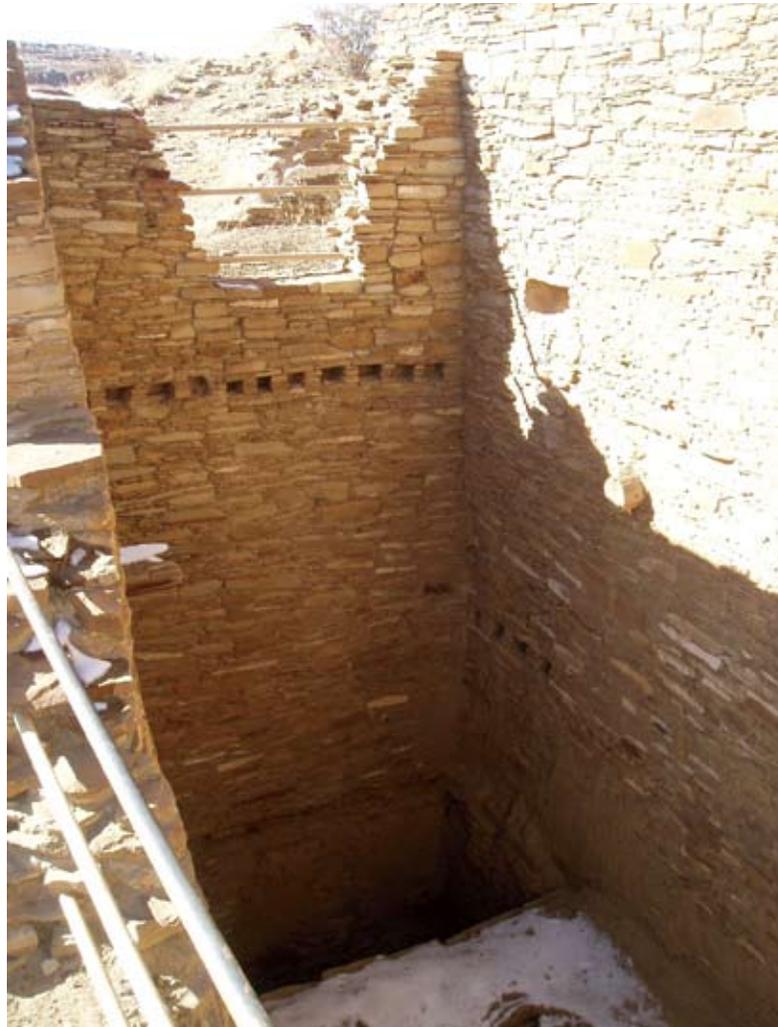
Safety: Job Safety Analyses

(JSAs) for the various activities were reviewed at the beginning of the project and tailgate meetings were held at the start of each day, helping to avert potential safety and general equipment maintenance problems. During a three-day park-wide safety review and training program, we were able to have an outside training program representative look at our backfill operation in action and provide useful suggestions for improving both our set-up and our behavior around moving equipment. We successfully completed the field season with no lost-time accidents.

Special Training: Training opportunities for the type of backfill operations and stone

structure preservation activities practiced at Chaco are rare, and funding for travel is limited. Nevertheless, we managed to ensure that employees received the training necessary to work safely. The entire preservation staff attended the annual VT Symposium of the northwestern New Mexico parks, which was started in 2004 by Roger Moore and was held this year at Aztec Ruins. At these workshops each park presents their current preservation activities, relating successes and problems which are then discussed by the group. These discussions, along with tours of project activities at the host park, have been valuable learning experiences for all involved, and they have helped to increase the flow of information among neighboring VT parks. Other training provided during the year included First Responder First Aid and CPR training, Fire Extinguisher training, and a three-day park-wide safety review and training.

Challenges: Because of the ongoing nature of preservation work, both in relation to backfilling and architectural treatment, we have developed a crew of seasoned and well-trained master masons. This has helped us with our VT resources, as well as with non-VT preservation work in the park. This year we used those skills to build two walls in the new Hibben Center for Archeological Research. The Hibben Center is Chaco Culture National Historical Park's new curation facility located on the University of New Mexico campus in Albuquerque, New Mexico. To help give researchers using the facility a feel for what is located in the park, the preservation crew built two wall segments in the new building that are constructed in the same styles used in Chaco, representing two types of greathouse-period masonry.



This deeply excavated room block illustrates the problem of differential fill as well as the need for good site drainage. The weight of the soil on the back side of these walls will eventually cause them to collapse, while the water that collects in the bottom of the excavated room will accelerate the deterioration of the masonry. Additionally, good drainage of the soil outside these rooms will decrease hydrostatic pressure, reducing the forces acting to push the walls over.

Photo: Randall Skeirik

El Malpais National Monument (ELMA)

VANISHING TREASURES STAFF

James W. Kendrick, Archeologist FY 1999 Position

Jim managed multiple Vanishing Treasures projects at both El Malpais and El Morro National Monuments during FY 2007. At El Malpais, the VT program conducted routine preservation treatments on the Alben Homestead. This work included repointing eroded mortar joints and photo-documenting the current condition of this turn-of-the-20th century homestead. At El Morro, the VT program conducted preservation treatments that included both vegetation management, to clear weeds from rooms and drainage systems, and structural maintenance to repair the pilasters within the pueblo's rectangular

kiva. Mortar in two additional rooms in the pueblo was repaired or replaced. Vanishing Treasures personnel from El Malpais and El Morro were also involved in meeting condition assessment goals for the service-wide Archeological Sites Management Information System (ASMIS) corrective action plan and in protecting cultural resources (most of which are VT resources) during fire management activities. During the summer of 2007, Jim acted as the preceptor for the program's intern from Northern Arizona University. He also worked closely with Southern Methodist University as they completed the archeological survey of the Zuni-Acoma Trail, which we now know contains numerous VT resources. Jim also worked closely with neighboring and associated tribes, collaborating and consulting on issues and projects that ranged from VT to Native American Graves Protection and Repatriation Act (NAGPRA). Additionally, Jim developed a cooperative agreement with the Historic Preservation De-

partment of the University of Pennsylvania (UPENN). This agreement, facilitated through the Colorado Plateau Cooperative Ecosystems Study Unit, will support UPENN's work at El Morro for the next two or three years. This work will focus on the development of a landscape-oriented approach to long-term preservation of the resources at the monument.

Jim's training this year included the following tel-net or online courses: Dealing with Misconduct, What's in a PD, How to Write a PIP, From Hugger to Harrasser, and The True Story Behind Sexual Harassment. He also took a region-sponsored course in National Environmental Policy Act/Section 106 compliance, and he did a developmental detail in cultural resources at the Intermountain Regional Office. His specialities include cultural resource program management, field archeology, cultural resource compliance, and archeological project direction, including data recovery and survey.



*El Morro, or Inscription Rock, El Morro National Monument.
Photo: T. K. Bowman, www.pbbase.com*

Calvin Chimoni, Masonry Worker FY 2000 Position

Calvin has exceptional skills in the field of historic preservation, particularly when it comes to masonry and the use of earthen materials in prehistoric and historic structures. Calvin's other skills and abilities include architectural documentation through photography, conducting architectural condition assessments, and determining appropriate preservation treatments. Calvin has also gained skills in archeological survey and documentation since joining the VT program.

Calvin participated in several VT projects in FY 2007, including the Atsinna Pueblo Preservation Project at El Morro, and the Alben Homestead Preservation Project at El Malpais. At Atsinna, Calvin assisted with activities that focused on routine preservation treatments, including vegetation and drainage system management, repairs to kiva pilasters, and repointing of walls in two rooms. At the Alben Homestead, Calvin helped to repoint eroded mortar joints and photo-document the current condition of the structure. He also participated in preservation work on the historic Administration Building at El Morro. In addition, Calvin served as the Collateral Duty Safety Officer at El Morro and El Malpais National Monuments. In that capacity he has succeeded in creating a safe work environment on all of our VT projects. In fact, the Heritage Preservation Division, in which the VT program at El Morro and El Malpais operates, has not had an accident or injury in over five years (including volunteers, contractors, and partners, too), despite the challenging landscapes of El Malpais and El Morro.

Calvin completed the mandatory training in the Federal Information Systems Security Awareness and Discrimination and Whistle-blowing in the Workplace; and he also completed the annual firefighter refresher course.

Calvin's specialties include historic preservation, masonry work, documentation, and archeological survey and documentation.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Safety: The VT Program, which is a part of the Heritage Preservation Division at El Morro and El Malpais National Monuments, has placed employee and visitor



*East Wall of the Alben Homestead after preservation, El Malpais National Monument.
Photo: Courtesy, El Malpais National Monument*

safety as its highest priority. Formal Hazard Assessments and Job Hazard Analyses have been completed for VT projects and activities. Our VT Masonry Worker serves as Collateral Duty Safety Officer for both monuments. This emphasis on safety is manifested in an exceptional safety record for both the VT program and the Heritage Preservation Division. For over five years, there have been no accidents or injuries within the division. Given the rugged nature of the landscapes at both monuments, which include steep and rocky bluffs, lava tube cave systems, volcanic peaks, and jagged lava flows, such an excellent safety record is indeed a VT success story.

El Morro National Monument (ELMO)

VANISHING TREASURES STAFF

Steve Baumann, Archeologist
FY 2001 Position, Converted from Masonry Worker to Subject-to-Furlough Archeologist

Steve has exceptional field archeology skills, is considered an Archeological Sites Management Information System (ASMIS) expert, and has extensive field experience in numerous national parks in

several different regions. Complementing these skills is his ability to develop and manage large cultural resource information systems. Steve has been instrumental in the development of ASMIS, and he is quite knowledgeable about geographical information systems (GIS) and integrating GIS with ASMIS.

Steve has managed several major Vanishing Treasures projects since 2005. At El Malpais he managed the Alben Homestead Preservation Project, which included preservation treatments to three rooms and routine maintenance to its drainage systems. This project posed many challenges because it is located in the backcountry of the monument. At El Morro he managed the Atsinna Pueblo Preservation Project. In addition, Steve worked very closely with the Center for Desert Archaeology and the Colorado Plateau Cooperative Ecosystems Study Unit to develop a partnership to inventory cultural resources at El Malpais.

Steve had training in basic fire fighting and has earned his redcard. He acted as a resource advisor on prescribed burns, protecting dozens of VT resources during fire management activities at both monuments throughout FY 2007.

His specialties include archeological project direction, information management, and geographical information systems for cultural resources; and he is qualified to act as a cultural resource advisor during fire incidents or fire management activities.

Fort Union National Monument (FOUN)

VANISHING TREASURES STAFF

Greg Phillipy, Exhibit Specialist
FY 2002 Position

Greg came to the program in 2007 with broad-based preservation and exhibit experience acquired while working at a variety of city, state, and national parks. At Fort Union, Greg provided frontline supervision for the four-person preservation crew, composed of two seasonal employees and two students with the Youth Conservation Corps. He monitored quality control for preservation activities, while also performing architectural documentation, evaluation, and assessment of the 72 historic structures within the park.

Greg was heavily involved in the hands-on stabilization efforts on the adobe and brick masonry features throughout the complex, while also researching and compiling National Environmental Policy Act/National Historic Preservation Act compliance packaging, writing preservation funding proposals, and coordinating safety and preservation training for the crew.

During the year, Greg became proficient in the use of the Adobe InDesign desktop publishing software and assisted the Vanishing Treasures staff with the graphic design of the Annual Report. Working in cooperation with Harpers Ferry Center, he designed new wayside interpretive panels describing the preservation activities. Finally, he assisted in planning for the Comprehensive Interpretive Planning workshop.

Greg is skilled in the areas of historic preservation, conservation, and graphic design.

He received training in compliance with the National Environmental Policy Act/National Historic Preservation Act.

Theodore Garcia, Craft Specialist
FY 2005 Position

Ted has gained a wealth of experience after working more than 30 years at Fort Union. He was first hired in 1973 as a seasonal laborer, and has worked in every capacity on the preservation crew since that time. For the last six years, Ted has served as project work leader and has shared the insights into adobe stabilization that he has acquired. New seasonal workers have benefited from Ted's knowledge of ruins preservation and work site safety. That knowledge has been valuable in providing guidance to the park's facilities manager and exhibit specialist. Ted's specialty is adobe preservation.

In FY 2007, Ted supervised Craft Specialists Pablo Martinez and Eddie Gonzalez, both of whom have been seasonal craftsmen at Fort Union for many years before being brought on as full-time, term employees this year. Altogether, the preservation crew applied 70,275 square feet of mud plaster shelter coat on the adobe structures at Fort Union and completed 3,247 linear feet of repointing and repair of brick hearth structures and stone founda-

tions; and they assisted in plaster stabilization activities at Pigeon's Ranch at Pecos where they received instruction in plaster stabilization techniques from Angelyn Bass Rivera. They also assisted with exotic plant removal at Fort Union.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Safety: Fort Union logged no significant work-related injuries this year. The entire park staff, including the preservation crew, chose to be members of the re-established safety committee and Greg Phillipy is serving as the committee Chair. The safety committee held regular meetings, covering the following topics: ladders-proper set-up and equipment check; mixer and power tool safety; proper lifting techniques and back safety; personal lightning safety; hantavirus; fire extinguisher use and safety; and heat and heat related illnesses.

Training: Crew members attended training for and received certification in Basic First Aid, and CPR/automatic electronic defibrillator use.



The Fort Union preservation crew applies a shelter coat to the adobe walls, Fort Union National Monument.

Photo: Greg Phillipy

Pecos National Historical Park Park (PECO)

VANISHING TREASURES STAFF

Pecos National Historical Park has not received funding for VT staff.

VANISHING TREASURES PROJECT FUNDING

Project Name: Stabilize Architecture at Pigeon's Ranch

Project Budget: \$33,900

- Personnel: \$21,988
- Vehicles: \$0
- Travel/Training: \$0
- Supplies/Materials: \$2,829
- Equipment: \$0
- Services: \$0
- Other: \$8,356

Project Summary: Pigeon's Ranch Complex, which is comprised of a 1,100-square foot adobe structure, 3,500 square feet of foundations from the Main House, two stone corrals, a stone masonry horno, and a stone well, was built as a working sheep ranch and Santa Fe Trail stage stop in the mid-1800s. It was the key location on the

last day of the Civil War Battle of Glorieta Pass (1862). This project, which has a two-year duration, entails developing a preservation treatment plan for the site as well as conducting emergency stabilization of highly threatened building components.

Project Accomplishments: In 2007, a condition assessment of the adobe structure and emergency stabilization of the adobe walls and interior plasters was undertaken. Fieldwork took place from June 27–September 27, 2007. Approximately 24.2 m² (260 square feet) of surface finishes were stabilized this season, as well as approximately 20 square feet of adobe wall face. Conservation treatments included plaster reattachment, adobe replacement, paint consolidation, pre/post-treatment photography, and graphic recording. Work was accomplished in cooperation with Pecos National Historical Park, the Museum of New Mexico Conservation Lab, Bandelier National Monument (BAND), and Fort Union National Historical Site (FOUN).

After the field season, Angelyn Bass Rivera developed a draft treatment plan and final report for the field work. The plan includes treatment recommendations for next season, including additional adobe

replacement and plaster reattachment, exterior stuccoing, roof repair, stone masonry repointing and capping, and regrading the site to improve drainage.

The 2007-2008 project to stabilize Pigeon's Ranch involved a multi-disciplinary team of specialists. The fieldwork was accomplished with the assistance of the Museum of New Mexico Conservation Lab and numerous staff from PECO, FOUN and BAND. Three Museum of New Mexico conservators, Connor McMahon, Larry Humetewa, and Anya McDavis-Conway, participated through a cooperative agreement facilitated through Bandelier National Monument. NPS staff included Jeff Brown, Joe Dalton, Christina Armijo, Victor Ortiz, Frank Archuleta, and Eluterio Varela from PECO; Lauren Meyer, Shanon Dennison, Moe Nadel, and Breelyn Van Fleet (who all assisted extensively with both photography and conservation treatments) from BAND; and Greg Phillipy, Teddy Garcia, Jose Padilla, Pablo Martinez, Eddie Gonzales, Loretta Garcia, and Jason Garcia from FOUN. Leroy Garcia, Anthony Garcia and Erica Gallegos of the Youth Conservation Corps provided invaluable and much needed assistance with adobe repair and replacement.



This interior view of Pigeon's Ranch shows a historic inscription written on the interior plaster finish. Deteriorating adobe beneath the plaster was causing the plaster to crack and delaminate. In addition, a failing roof was allowing water penetration that was washing dissolved adobe down the face of the wall partially obscuring the inscription, Pecos National Historical Park.

Photo: Randall Skeirik.

Salinas Pueblo Missions National Monument (SAPU)

VANISHING TREASURES STAFF

Ramona Lopez, Maintenance Worker (Ruins Preservation)

FY 1998 Position

Ramona has been involved in ruins preservation for many years, even before her appointment in the VT program. She is skilled at stabilizing and building stone walls set in adobe and amended mortars. She is an experienced crew leader, and she pays close attention to detail.

Ramona, serving in a key training role, helped to lead a crew of 15 summer high school student hires. As a result, the cyclic stabilization of the Kiva F Plaza structures at Gran Quivira and partial cyclic stabilization of the Mound 7 Pueblo House ruin, were successfully completed. Ramona also led crews in completing the park's annual vegetation management program around the ruins of Gran Quivira, Abó, and Quarai.

Ramona is skilled in all aspects of ruins preservation, with special skills in the use of amended and unamended soil mortars to preserve complex stone archeological ruins.

Philip W. Wilson, Chief of Resources, Chief of Facility Management

Phil is an accomplished archeologist with an M.A. in Anthropology from Northern Arizona University. He is skilled in the various preservation techniques associated with prehistoric and historic ruins preservation, is an accomplished expert in site documentation (including mapping and photography), and is experienced in managing complex budgets and numerous diverse personnel classifications. Phil is also skilled at performing complex trail work and managing trails projects among other facets of park activities and management. Phil is heavily involved in management decisions, both within the park and within the region, and he often works with the NPS Washington Office (WASO) on special projects.

Phil's accomplishments related to resource management and the Vanishing Treasures Program at Salinas Pueblos include cyclic stabilization at Gran Quivira, funded through the Cultural Resources Protection Program (CRPP), and documentation



The pueblo at Gran Quivira with the remains of the mission church beyond, Salinas Pueblo Missions National Monument.

Photo: Randall Skeirik

of the Abó Mission, funded through VT. He also oversees the park fire management program and the park vegetation management program, and participates in cultural resource discussion panels. Phil played a key role in working with the WASO and the U.S. State Department to host an NPS training program for three Afghan preservationists who spent a month at Salinas Pueblos (in addition to other parks) to learn how ruins preservation is accomplished in the southwestern United States. Phil continued working with the Maintained Archeological Sites Work Group (MASWG) to develop a method of creating realistic current replacement values

for archeological assets in order to enter their records into the Facility Maintenance Management System (FMSS). Phil is experienced with complex site documentation techniques and hands-on ruins preservation and is a skilled manager and problem-solver.

Phil left Salinas Pueblos, and the Vanishing Treasures Program, in early FY 2008 to accept a management position at Carl Sandburg Home NHS in North Carolina.

**Marc A. LeFrançois, Exhibit Specialist
FY 2003 Position**

In addition to architectural conservation, Marc's skills include site documentation,

historical research and writing, and physical investigation and analysis, as well as skilled trades including carpentry, metal-working, architectural ornamentation, masonry, and plaster. He is also skilled in the use of period tools and knowledgeable about historic trades and technology, facility operations and maintenance, project management and Contracting Officer's Representative (COR) duties.

Marc provided oversight, quality control, and problem-solving for the cyclic preservation of the Kiva F Plaza structures, assisted the Chief of Resources with division management, supervised a Student Temporary Employment Program (STEP) Historian, and worked on continuing ruins preservation issues regarding pending projects. Marc gave several professional presentations on Salinas Pueblos's park research and preservation activities and participated in a problem-solving forum at another park. Marc also prepared many of the park's Project Management Information System (PMIS) project proposals to secure cultural resource project funding.

Marc is particularly experienced in ruins preservation problem-solving and techniques, site documentation, historic structure preservation and reconstruction, as well as period technology and craftsmanship.

His training goes back to 1985, when he was hired by the Mount Vernon Ladies' Association of the Union and subsequently became Mount Vernon's first architectural conservator. However, no new training was accomplished in FY 2007.

Tobin Roop, Archeologist FY 2000 Position

Tobin is a skilled archeologist, National Environmental Policy Act/Section 106 of the National Historic Preservation Act compliance officer, project manager, and Contracting Officer's Representative. Tobin is also a skilled craftsman and has a great deal of experience in site documentation, field survey and assessment, and database management. He was also key in managing the Park Fire Management Program's prescribed burns within the park. Tobin is currently working on completing his Master of Arts in Anthropology.

Tobin's key accomplishments revolved around his contributions to the cultural resource program management through his service as the park compliance officer, Native American Graves Protection and Repatriation Act coordinator, Archeologi-

cal Sites Management Information System data manager, as well as fire management coordinator, and through his execution of skilled crafts in the field. Tobin often served as the acting Chief of Resources in Phil Wilson's absence, and he participated in the Afghan training program hosted by the NPS and the U.S. State Department,

After serving on an extended detail as the Resources and Facility Manager at Tallgrass Prairie National Park and Preserve (TAPR) in Kansas, Tobin competed for, and accepted, a full-time position in that role and is no longer with the Vanishing Treasures Program.

Tobin's lapse salary was used to cover other personnel services that backfilled for the periods he was absent from the park and to supplement other (non-SAPU) VT travel costs to San Antonio, TX, to present a session at the Society of American Archeology Annual Meeting.

Thelma Griego, Maintenance Worker (Ruins Preservation)

FY 2003 Position

Thelma was unable to work through 2006 and left her position with the National Park Service in FY 2007.

VANISHING TREASURES PROJECT FUNDING

Project Name: Documentation and Development of Treatment Strategies for the Abó Mission Complex

Project Summary: This project involves documentation of the architecture, stabilization history, environmental setting, and deterioration of the Mission San Gregorio de Abó at the Abó Unit. The data will be acquired through 3D laser scanning/mapping of the architectural remains and the adjacent landscape. The scanning will produce a digital model with a resolution of 1 centimeter that will be used for management planning and to obtain accurate, basic metric data (dimensions, areas, and volumes) and to visualize the architecture in a 3D digital environment for general planning purposes. The laser scans are geo-referenced, can be exported as shape files, and can be attributed with various datasets and graphics for use in the park geographical information system (GIS) program. They can also be used to enhance the park interpretive program.

Remote sensing methods will also be employed to assist in the geo-hydraulic mapping of the area to identify depth

to bedrock and water table, subsurface anomalies and/or structures, and flow patterns. The new data will be compared with a quantification of current and past environmental conditions, archival research, a review of relevant archeological and historic documents, as well as documentation and analysis of previous preservation treatments. The park will use the data to identify the primary sources of deterioration, to identify the causal relationship between the manifestations of the deterioration and its source, and to ultimately develop appropriate preservation strategies to address the true source(s) of deterioration.

Project Budget: \$125,000

- **Personnel:** \$112,389
- **Vehicles:** \$0
- **Travel/Training:** \$0
- **Supplies/Materials:** \$10,137
- **Equipment:** \$0
- **Services:** \$2,474
- **Other:** \$0

Project Accomplishments: The planning for this project was initiated in FY 2007 but was not completed. Funding was expended on personnel services and supplies, and the project will be completed in FY 2008 with other park funds. The park is presently developing the contract for the 3D laser scanning and other, associated research.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

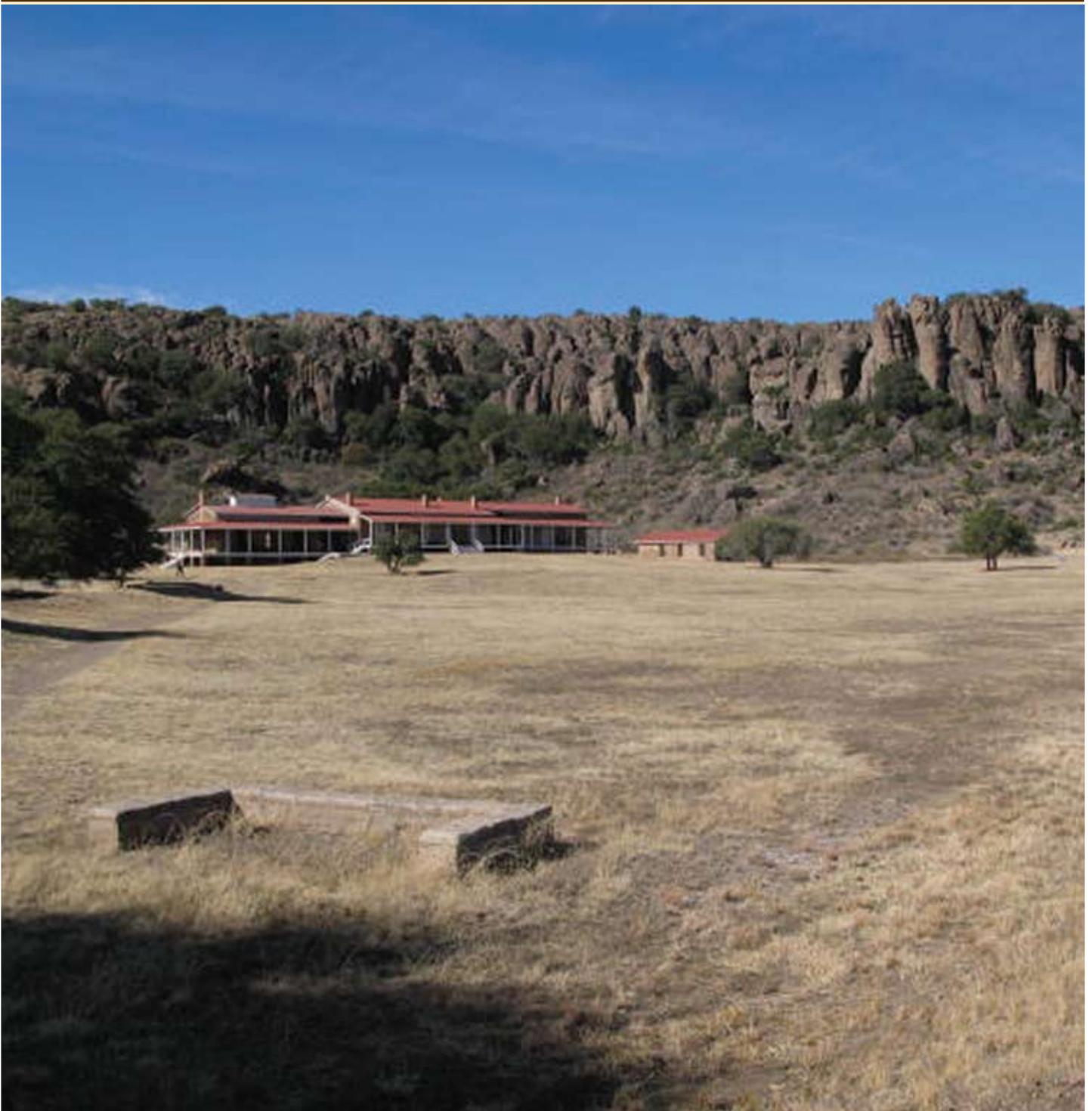
Other Challenges: Salinas Pueblos participated in a multi-park program coordinated with WASO and the State Dept. to host three Afghan preservation professionals so they could learn how ruins preservation is accomplished by the National Park Service, and the Vanishing Treasures Program, in the American southwest. The Afghans stay at Salinas Pueblos was augmented with tours hosted by Bandelier, Pecos, Fort Union, the Cultural Resources/Vanishing Treasures staff at the Intermountain Regional Office in Santa Fe, and VT Structural Engineer Preston Fisher.



*The Mission Church at Abó, Salinas Pueblo Missions National Monument.
Photo: Randall Skerik*

V a n i s h i n g T r e a s u r e s

T e x a s

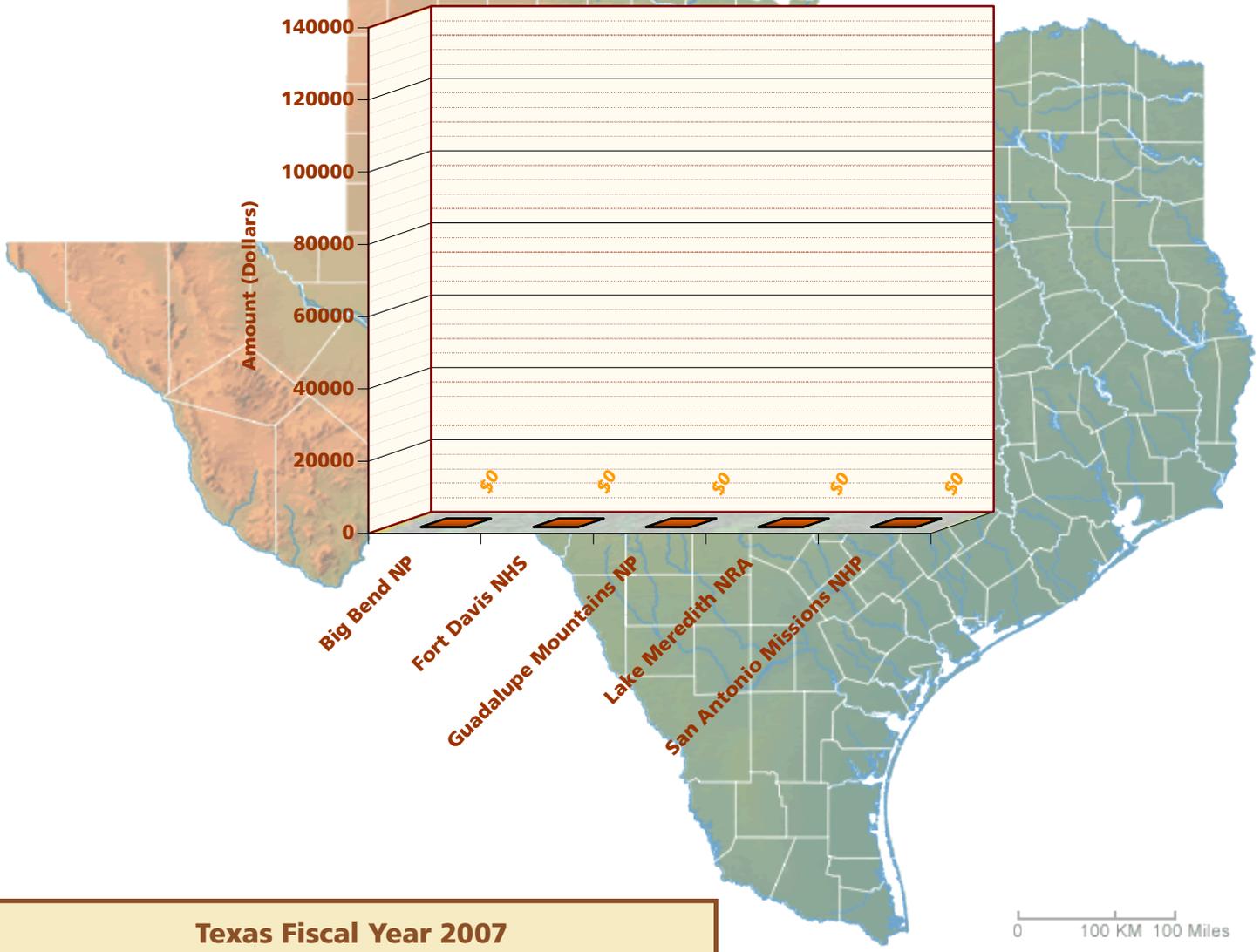


The fort hospital, Fort Davis National Historic Site.

Photo: Courtesy, Fort Davis National Historic Site

- ◆ Big Bend National Park ◆ Fort Davis National Historic Site ◆
- ◆ Guadalupe Mountains National Park ◆ Lake Meredith National Recreation Area ◆
- ◆ San Antonio Missions National Historical Park ◆

FY 2007 Vanishing Treasures Project Funding for TEXAS Parks



**Texas Fiscal Year 2007
Project Funding Summary**

Project Funds:
No Texas parks received project funding



Fort Davis National Historic Site (FODA)

VANISHING TREASURES STAFF

**Roy Catano, Masonry Worker
FY 2000 Position**

Roy functioned as one of the work leaders for preservation treatments on the Commissary (HB-37), a historic adobe structure that is a contributing component of Fort Davis, a National Historic Landmark. Roy and staff completed the project, which included finishing the installation of wood flooring, plastering and whitewashing interior walls, painting ceilings, and interior woodwork. He also assisted in building a new handicap access ramp for Officer's Quarter HB-07; repairing and painting wood shutters; and painting windows, porch railings, and columns.

Roy served as the work leader for three employees during the execution of preservation treatments on nine historic stone foundations; Officers' Quarters HB-14, three kitchen buildings (HB-267, HB-268, HB-272), and five privies (HB-255, HB-257, HB-258, HB-259, and HB-263). The project included resetting and repointing

loose stones and filling voids with a lime mortar mixture.

Roy contributed to the ongoing field school at the Post Hospital HB-46 where he assisted with the construction of doors and windows, served as work leader in rodent proofing the entire north ward using mud to fill the voids in adobe walls and to seal where the bond beam and roof meet.

He continued to check all crack monitors throughout the park's historic buildings and foundations, entering all inspection information into the Facility Management Software System (FMSS).

Roy can provide technical advice on stone, adobe, and welding and is skilled in the preservation of stone and adobe structures.

Roy had 16 hours of general safety training in FY 2007.

**Miguel Estrada, Program Manager for Cultural Resource and Facility Division
FY 2000 Position**

Mickey has a variety of skills, ranging from management to field trades. He has extensive knowledge of adobe and stone masonry construction and has coordinated and conducted preservation training and workshops throughout the Southwest.

In FY 2007, Mickey continued to manage the cultural resource activities and historic preservation projects in the park, supervising six permanent employees and four seasonals, overseeing the Facility Management Program (FMP) and the Facility Management Software System (FMSS) for the park. He provided preservation planning to evaluate and design treatments for future projects, oversaw the park's Youth Conservation Corps program, ensured quality control of historic preservation projects, documented historic preservation projects and treatments, evaluated and monitored over 130 historic structures at the site, implemented the park's cultural landscape program, and ensured that all park projects and treatments involving historic structures complied with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

Mickey can coordinate and conduct stone and adobe preservation workshops and provide technical advice on preservation of adobe and stone structures.

VANISHING TREASURES PROJECT FUNDING

Fort Davis National Historic Site did not receive project funding in FY 2007.



*The parade grounds at Fort Davis, Fort Davis National Historic Site.
Photo: Courtesy, Fort Davis National Historic Site*

San Antonio Missions National Historical Park (SAAN)

VANISHING TREASURES STAFF

Susan Snow, Archeologist FY 1999 Position

In FY 2007, Susan performed a variety of duties that included managing the curatorial facilities for exhibits and the artifact and archival collections, monitoring park development projects, and overseeing archeological research and reporting. She also served on the Environmental Management Systems/Compliance Improvement Management System (CIMS (eMs)) team and served as secretary for the Workforce Opportunities Council, Alamo Federal Executive Board. Susan is the co-coordinator of compliance for Section 106 of the National Historic Preservation Act and Special Emphasis Program Allocation System (SEPAS) call for the park; and she coordinates research permits for the park. Susan continued to coordinate excavations at Mission Concepción to correct drainage problems that are threatening the convento, a project that is funded through a Save America's Treasures (SAT) grant. The construction of a concrete patio to direct drainage away from the ruins and structures was conducted in summer, 2007, and will be completed in FY 2008. Between October and December, 2006, weekend volunteer excavations were conducted as part of this project; and the volunteer labor was included as part of the match for the SAT grant.

Susan provided archeological monitoring that was required for the installation of bollards and cable at both the Mission San Juan and the San Juan labores. Susan continued to serve as the NPS liaison for the archeological testing for the San Antonio River Improvement Project of several sites on NPS property, reviewing reports and proposing mitigation strategies. She was also the NPS liaison to the Archdiocese of San Antonio for a drainage project at the Mission San José sacristy and at talks for a proposed conservation project for the façade of the church.

In coordination with the San Antonio Conservation Society and Los Compadres de San Antonio Missions National Historical Park, Susan served as the park coordinator to nominate the five San Antonio missions as World Heritage sites. That nomination has been included on the U.S.

Tentative List for World Heritage Status. She has also been part of the park team for the design of new exhibits for Mission San Juan, reviewing materials and providing information on objects to be exhibited. Susan has also participated in meetings with the Stinson Airport Authority concerning overflight issues within the park boundaries.

In coordination with University of Texas at San Antonio's Center for Archeological Research (UTSA-CAR), Susan began excavations at Rancho de las Cabras, a remote unit of the San Antonio Missions, to determine the best preservation and interpretation strategies for this undeveloped site. A week-long teacher workshop/field school was conducted in July with four follow-up volunteer Saturdays. A total of 210 volunteers participated in these opportunities. Susan supervised a number of volunteers and interns in FY 2007. The summer diversity intern focused on transferring old VHS tapes of preservation maintenance from the 1980s and 1990s to archival DVDs for long-term storage. UTSA-CAR was contracted through our existing cooperative agreement to document VT structures at Mission Espada.

Dean Ferguson, Masonry Worker FY 2000 Position

In FY 2007, Dean stabilized and repointed the Daughters of the Republic of Texas monument and a stone well that sit outside the west compound walls at Mission San José. He worked with Steve Siggins on the San Juan Convento and the Tufa House re-pointing projects, and he worked on repairing, pointing, and plastering the eastern Indian quarters at Mission San José.

Dean continued to maintain the gates to the Espada Aqueduct, helping to minimize gang access to the historic landmark, and he had primary responsibility for graffiti removal in the park. Dean assisted with hazardous tree removal and trimming to prevent trees from falling, and he continues to have photo-documentation duties

for masonry projects.

Dean participated in the OSHA scaffold safety work group.

Steve Siggins, Masonry Worker FY 2003 Position

In FY 2007, Steve, along with Dean Ferguson, repointed the outer walls of the San Juan Convento following the large-scale interior restoration that was conducted by contractors. They also worked on re-pointing the masonry exterior at the Post-colonial Tufa House across the compound from the convento at Mission San Juan. Preservation work at the Tufa House included replacement of the door header and other carpentry work.

Steve also repaired wall damage at Mission San Juan after storms caused trees to fall upon the ruin walls, and he did emergency stabilization work at the grist mill at Mission San José after heavy rains caused the partial collapse of a small wall.

Steve also assists with graffiti removal, hazard tree removal, and other activities within the park, as needed.

Steve participated in forklift training and the OSHA scaffold safety work group.

VANISHING TREASURES PROJECT FUNDING

Project Name: Preservation Documentation at Mission Espada

Project Summary: This project was contracted through our cooperative agreement with UTSA-CAR.

Project Budget: \$31,600

- **Personnel:** \$0
- **Vehicles:** \$0
- **Travel/Training:** \$0
- **Supplies/Materials:** \$0
- **Equipment:** \$0
- **Services:** \$0
- **Other:** Cooperative Agreement \$31,600

Project Accomplishments: This money was not obligated until the end of the fiscal year and the project will not be executed until FY 2008.



*Volunteers at Rancho de las Cabras, San Antonio Missions National Historical Park.
Photo: Courtesy, San Antonio Missions National Historical Park*

V a n i s h i n g T r e a s u r e s

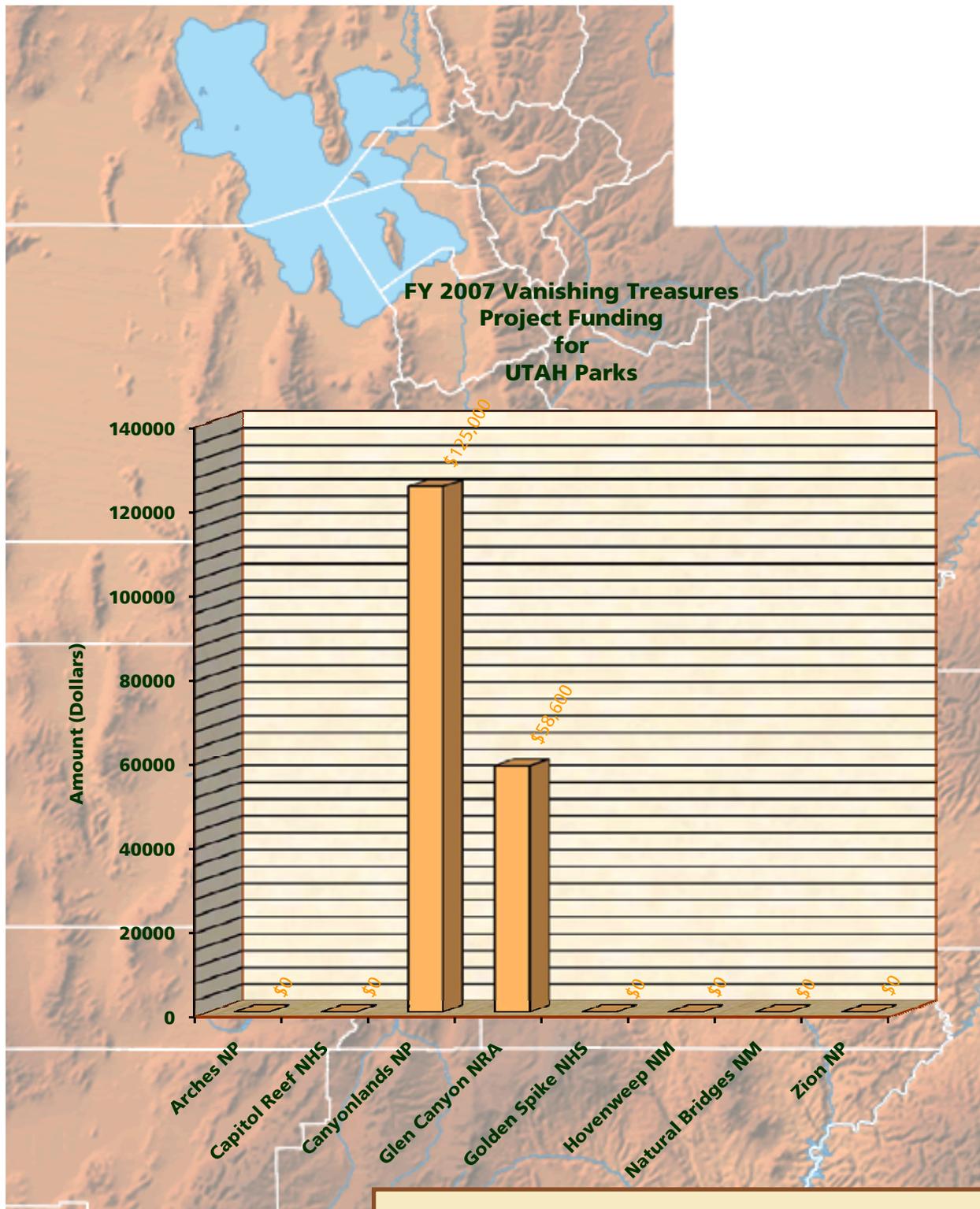
U t a h



Boulder House, part of the Holly Group in Keely Canyon, Hovenweep National Monument.

Photo: Randall Skeirik

- ◆ Arches National Park ◆ Capitol Reef National Park ◆ Canyonlands National Park ◆
- ◆ Glen Canyon National Recreation Area ◆ Golden Spike National Historic Site ◆
- ◆ Hovenweep National Monument ◆ Natural Bridges National Monument ◆ Zion National Park ◆



**Utah Fiscal Year 2007
Project Funding Summary**

Project Funds:

Canyonlands National Park: \$125,000

Glen Canyon National Recreation Area: \$58,600

Canyonlands National Park (CANY)

Canyonlands is part of the Southeast Utah Group (SEUG) that also includes Arches National Park, and Natural Bridges and Hovenweep National Monuments.

VANISHING TREASURES STAFF

Pat Flanigan, Exhibit Specialist FY 2002 Position

In FY 2007, Pat spent much of his time performing site documentation and updating condition assessments on Vanishing Treasures resources in Arches and Canyonlands National Parks as part of the Washington Office (WASO) mandated Corrective Action Plan (CAP). Pat also worked on developing a plan for rodent control, elimination of termite infestations, and correction of drainage issues at the Wolfe Ranch Cabin and Dugout at Arches National Park. This work will be carried out in FY 2008.

Pat continued the task of updating List of Classified Structure (LCS) records for WASO certification and he updated documentation and condition information for 23 previously recorded sites in the Island-in-the-Sky and Needles Districts of Canyonlands National Park and entered the

associated information into the Archeological Site Management Information System (ASMIS) and the LCS databases. He also continued to work with volunteers on documentation and condition assessment projects in both Arches and the Needles District of Canyonlands.

Pat is skilled in conducting condition assessments, ruins stabilization, Section 106 compliance, and computer data entry.

Pat completed region-sponsored training on the National Environmental Policy Act (NEPA).

Sue Eininger, Archeologist FY 2002 Position

During FY 2007, Sue assumed the role of project director for the multi-year River Corridor Architectural and Rock Art Survey at Canyonlands National Park, filling in for Melissa Memory who moved on to a position at Everglades National Park. Sue was responsible for completing the post-field documentation phase of the project, which was preceded by three years of fieldwork and the documentation of 121 architectural and rock art sites. Her duties focused on finalizing the project database and graphic documentation, overseeing the compilation of the project's site forms and architectural and condition documentation packages, developing and prioritizing management recommenda-

tions to guide the future preservation of these often heavily visited back-country sites, and preparation of the final project report.

In addition to these project-specific duties, Sue worked with the SEUG park ranger staff to develop procedures for incorporating ranger patrol findings into the cultural resource site monitoring program. This included conducting site monitoring/condition assessment training sessions for park ranger staff, developing in-house monitoring forms to record ranger observations, and establishing protocols to facilitate the exchange of information between park rangers and cultural resource management (CRM) staff.

Sue also worked on finalizing the SEUG CRM database design to improve data entry, accessibility, and reporting and provided database support to SEUG CRM staff.

Sue received training in NEPA/Section 106 compliance, the Archeological Sites Management Information System, and the Project Management Information System.

VANISHING TREASURES PROJECT FUNDING

Canyonlands National Park did not receive project funding in FY 2007.



*View up the Green River, Canyonlands National Park.
Photo: Randall Skeirik*

Glen Canyon National Recreation Area (GLCA)

VANISHING TREASURES STAFF

Thann Baker, Archeologist FY 2002 Position

Since the departure of Lynn Wulf early in FY 2007, Archeological Technician Thann Baker has been providing direction for the Vanishing Treasures program at Glen Canyon.

Thann has been working to update entries in the Archeological Sites Management Information System, document repair work at the Wolverton Ranch House and condition assessments in three canyons and one historic district.

He received training in the NPS budget process, the Project Management Information System, general safety, and the use of ArcGIS and Sketchup software for proj-

ect documentation.

Thann is particularly knowledgeable about petroglyphs and pictographs of the northern Colorado Plateau.

VANISHING TREASURES PROJECT FUNDING

Project Name: Assess Condition and Perform Cyclic Maintenance at Seven Sites in Glen Canyon (VT) Year Two

Project Summary: Building on last year's work, this project will continue to assess the condition of sites throughout Glen Canyon and will begin to address identified resource deterioration through the execution of cyclical maintenance.

Project Budget: \$58,400

- **Personnel:** \$0
- **Vehicles:** \$0
- **Travel/Training:** \$0
- **Supplies/Materials:** \$0
- **Equipment:** \$0
- **Services:** \$0

- **Other:** Cooperative Agreement \$58,400

Project Accomplishments: The execution of this project was delayed because the VT archeologist, Cultural Resource Chief, and Chief of Resources all left their jobs during the year. However, the money has been obligated and the project will be executed in FY 2008.

VANISHING TREASURES ACCOMPLISHMENTS AND CHALLENGES

Consultation: We have standing consultation agreements with our associated tribes and a programmatic memorandum of agreement with the Utah SHPO on phased compliance under Sections 110 and 106. We also have ongoing NAGPRA repatriation activities.

Safety: Helicopter safety training, general safety awareness, and instituting a back-country plan and protocol were accomplished this year.



Rock formations in Wiregrass Canyon, Glen Canyon National Recreation Area.
Photo: Randall Skeirik

Hovenweep National Monument (HOVE)

Hovenweep is part of the Southeast Utah Group (SEUG) that also includes Canyonlands and Arches National Parks, and Natural Bridges National Monument.

VANISHING TREASURES STAFF

**Noreen Fritz, Archeologist
FY 2002 Position**

In FY 2007, Noreen spent a good part of her time updating the documentation and condition information for fourteen VT structures at the Square Tower and Hackberry Units of Hovenweep National Monument. All fourteen structures have now been updated and are certified in the List of Classified Structures (LCS) database. They have been updated in the Archeological Sites Management Information System as well. In addition, she performed condition assessment and pre-stabilization documentation at the Cajon Unit and supervised a group of thirteen Sierra Club Service Trip volunteers in a stabilization treatment project of Cajon Castle and Cajon House.

At Natural Bridges National Monument, Noreen instructed a Cultural Resources Diversity Intern in site documentation and condition assessment, completing the documentation of six VT sites as required by the Washington Office mandated Corrective Action Plan. In addition, they mitigated graffiti damage to Kachina Bridge Ruin.

Noreen's specialties include site stabilization, condition assessment, LCS, and site documentation.

Noreen took a course in compliance with the National Environmental Policy Act and the Nation Historic Preservation Act (NEPA/NHPA).

**Laura Martin, Exhibit Specialist
FY 2002 Position**

Laura's primary focus in FY 2007 was to complete and finalize data and to assist with the completion report for the River Corridor Architectural and Rock Art Survey project at Canyonlands, National Park. In the spring, she stabilized structures at the Cajon Unit of Hovenweep National Monument and employed close range photogrammetry to produce a baseline



Sierra Club volunteers Ron and Jean Wise and Ellen Davis repoint portions of Cajon House at Hovenweep National Monument in April, 2007.

Photo Credit: Larry Wiseman (Sierra Club)

of conditions and to document stabilization activities. She successfully produced photogrammetric images for 37 interior wall facades and five multi-story exterior facades.

Laura also conducted a workshop on photogrammetric techniques at Hovenweep National Monument in the spring at which archeologists from both Mesa Verde and Canyonlands National Parks participated. The workshop proved to be a great opportunity for exchange among VT staff.

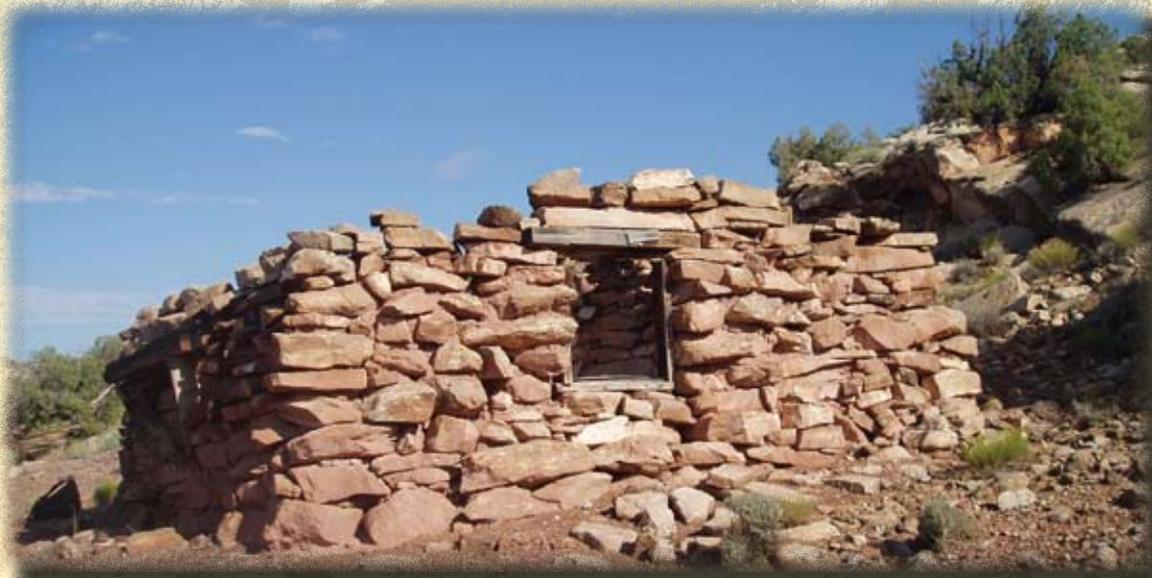
In addition to her VT duties, Laura participated in planning meetings for Hovenweep National Monument's Long-Range Interpretive Plan, and she monitored construction activities and fuel reduction projects at Hovenweep and Natural Bridges

National Monuments for compliance with NEPA and NHPA.

In March, 2007, Laura completed her Wildland Firefighter Refresher and in May she participated in a four-day workshop on High-Definition Documentation at Mesa Verde that was conducted by The College of Architecture of Texas Tech University. The workshop offered hands-on training in long-range laser scanning and 3D digital modeling of architectural ruins. Laura's specialty is mapping.

VANISHING TREASURES PROJECT FUNDING

Hovenweep National Monument did not receive project funding in FY 2007.



*A stone miner's cabin, Arches National Park.
Photo: Randall Skeirik*



*A round tower in the Hackberry Group,
Hovenweep National Monument.
Photo: Randall Skeirik*



*The Fort Bottom Cabin,
Canyonlands National Park.
Photo: Randall Skeirik*



*The Wolf Ranch House, Arches National Park.
Photo: Randall Skeirik*

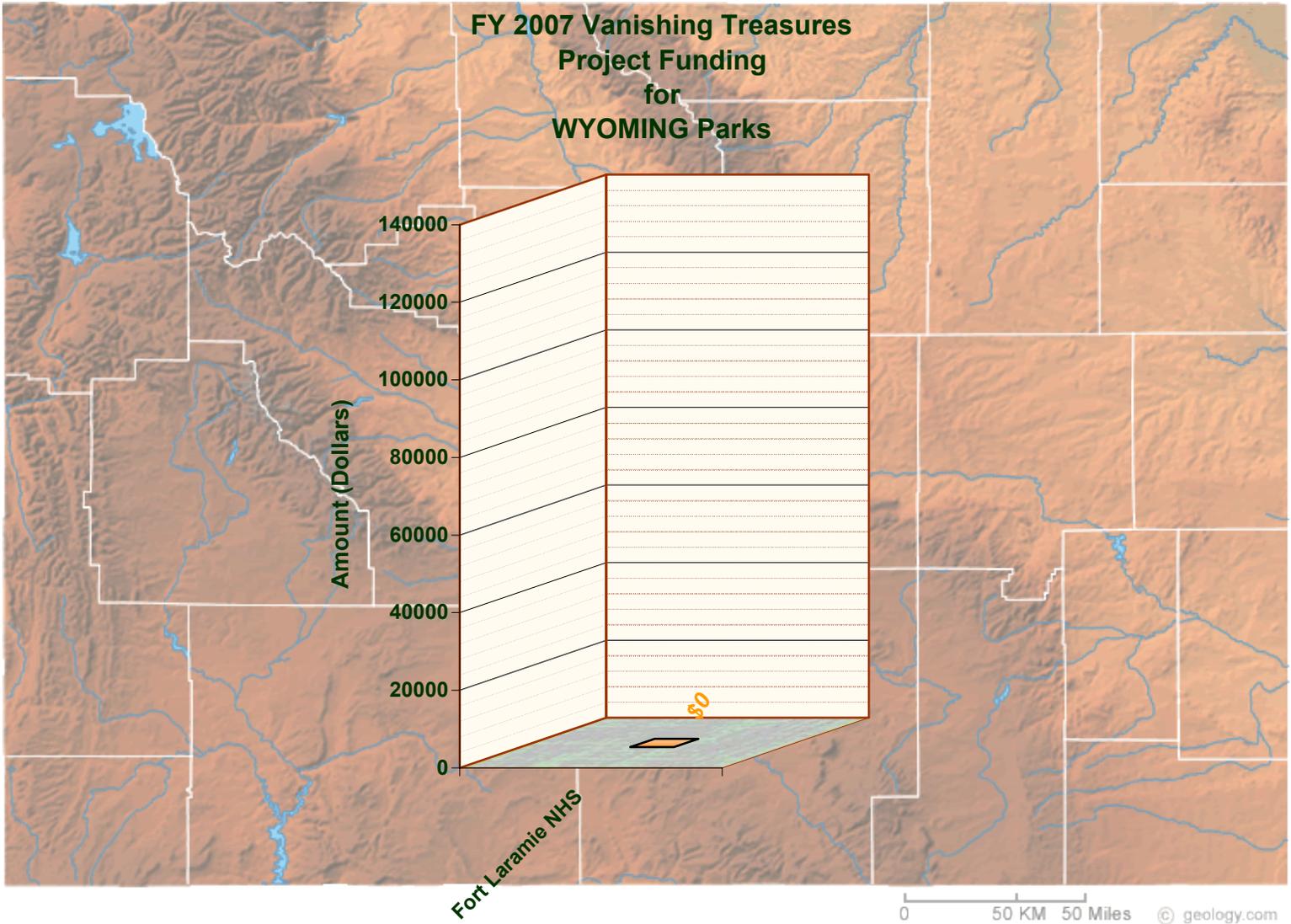
V a n i s h i n g T r e a s u r e s

W y o m i n g



*The parade grounds with the unmarried officers' quarters known as "Old Bedlam" to the right rear, Fort Laramie National Historic Site.
Photo: Courtesy, Fort Laramie National Historic Site*

◆ Fort Laramie National Historic Site ◆



Wyoming Fiscal Year 2007 Project Funding Summary

Project Funds:

No Wyoming park received project funding.

**Fort Laramie National
Historic Site
(FOLA)**

VANISHING TREASURES STAFF

**Vacant
FY 2007 Position**

This new permanent position was not filled during FY 2007; and seasonal labor was utilized to perform historic ruins preservation. During FY 2007, staff with previous experience at Fort Laramie were trained on-site in historic ruins preservation through projects that required preservation skills. These skills included the use of historic masonry techniques such as hand troweling, repointing, and custom mixing of natural hydraulic lime cements and mortars that are consistent with the existing historic materials. These employees also applied water-repellent chemical mixtures on historic ruins located at various locations at Fort Laramie in order to slow down the decay process.

A significant accomplishment of preservation staff this year was the stabilization of the historic ice house ruin. The ruin, located below grade, was in danger of collapse as the earth surrounding it was pushing on the stone masonry walls, forcing them inwards. Using money from VT, the staff fabricated a temporary shoring system that will prevent further movement of the walls until a permanent method of stabilization can be devised. This may require



The Ice House, before the bracing was installed, showing the bowed walls and collapsing walls near doorway.

Photo: Preston Fisher

trenching behind the walls and installing a drainage system that will help to alleviate the pressure on the walls.

Other accomplishments of the preservation staff were the application of a silicon-based water-repellent designed to penetrate the lime-based concrete of some of the Fort ruins. This repellent was applied to all of Fort Laramie's existing cement

ruins in order to slow down the decay process and reduce the need to demolish unstable portions of the walls.

**VANISHING TREASURES PROJECT
FUNDING**

Fort Laramie National Historic Site did not receive project funding for FY 2007.



The parade grounds with the unmarried officers quarters known as "Old Bedlam" to the right rear, Fort Laramie National Historic Site.
Photo: Courtesy, Fort Laramie National Historic Site

V a n i s h i n g T r e a s u r e s

A p p e n d i c e s



Appendix A:
Definition of Vanishing Treasures Resources *i*

¹con·di·tion \ken-'di-shen\noun
Etymology: Middle English condicion, from Anglo-French, from Latin condicio-, condicio terms of agreement, condition, from condicere to agree, from com- + dicere to say, determine -- more at DICTION
1 a : a state of being <the human condition> b : social status : RANK c : a usually defective state of health <a serious heart condition> d : a state of physical fitness or readiness for use <the car was in good condition> <exercising to get into condition> e plural : attendant circumstances <poor living conditions>

Appendix B:
Terminology *i*



Appendix C:
Leadership Committee *ii*

Appendix D:
Advisory Group *iii*



Appendix E:
Annual and Cumulative Funding *iii*

Appendix F:
VT Fiscal Year 2008 Project Funding *iv*

Appendix A: Definition of Vanishing Treasures Resources

Vanishing Treasures Resources are defined as a structure or grouping of related structures that:

- Are in a “ruined” state.
- Have exposed intact fabric (earthen, stone, wood, etc.).
- Are not being used for their original function.
- Occupation and utilization have been interrupted or discontinued for an extended period of time.
- Are located in the arid West.
- Are the resources, or part of the resources, for which the park was created, are a National Historic Landmark, or listed on, or eligible for listing on, the National Register of Historic Places.

Examples of Vanishing Treasures Resources:

- Architectural remains that have intact historic fabric exposed at or above grade including: wall alignments, upright slabs, foundations, bins, cists, constructed hearths.
- Sub-grade architecture exposed through excavation or erosion (i.e., pithouses, dugouts, cists, etc.).
- Native American architectural structures (i.e., pueblos, cliff dwellings, hogans, wickiups, ramadas, corrals, earthen architecture, etc.).
- EuroAmerican architectural structures (i.e., churches, convents, forts, ranch-farm structures/homesteads, mine buildings, acequias or related features, kilns, etc.).

Examples of Non-Vanishing Treasures Resources:

- Sites with no exposed architecture or structural remains, (i.e., collapsed, buried, mounded, or otherwise not evident).
- Archeological or other sites with no architectural remains (i.e., lithic scatters, dumps, campsites, etc).
- Civilian Conservation Corps (CCC) and Civil Works Administration (CWA) buildings and features.
- Historic structures that are regularly maintained, and/or adaptively used, and fit within the Historic Structures/List of Classified Structures (LCS) definitions.
- Structures in use as National Park Service facilities (i.e., administrative buildings, trails, bridges, ditches, canals, etc).
- Mineshafts or caves, that do not have architectural/structural features.
- Pictographs, petroglyphs, rock art, etc., except if found in or on architectural structures.
- National Park Service or other reconstructed buildings or ruins (i.e., Aztec Great Kiva, Bents Old Fort).

Note: Many of the traditionally associated communities to whom Vanishing Treasures resources/archeological sites hold importance, do not consider those sites to be unoccupied, out of use, or abandoned. “Ruins” are considered by some groups to be spiritually inhabited and are considered to be “in use” by virtue of being invoked in prayers, songs, stories, etc. They are considered dynamic parts of active cultural systems. While we use the term “ruins” and the associated definition, it is recognized that some communities do not use the term “ruin” nor consider the places to be unoccupied or out of use.

Appendix B: Terminology

Condition

Good - The site shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The site’s archeological values remain well-preserved, and no site treatment actions required in the near future to maintain its condition.

Fair - The site shows clear evidence of minor disturbance and deterioration by natural and/or human forces, and some degree of corrective action should be carried out fairly soon to protect the site.

Poor - The site shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces, and immediate corrective action is required to protect and preserve the site.

Intensity of On-Site Erosion

Severe - The site will be significantly damaged or lost if action is not taken immediately.

Moderate - For an impact to be considered moderate, it must meet at least one of the following criteria:

The site will be significantly damaged or lost if action is not taken in the immediate future.

The site has been damaged and some integrity has been lost.

Low - The continuing effect of the impact is known but it will not result in significant or irreparable damage to the site.

None - The site has not been obviously impacted.

Integrity - Integrity refers to how much of the structure remains standing and intact. For example, a structure with only one intact, standing wall, would be given a value of 20% . A structure with all four walls standing and intact, plus an intact roof and floor, a 100% value would be given.

Stability - Stability refers to a wall or structures’ state of equilibrium.

Stable - A structure that maintains consistency of composition and components with little or no sign of erosion that would lead to any form of structural degradation. The term stable can also be applied to structures that have essentially deteriorated to grade and thus have little or no standing structural remains above the ground surface that would be subject to further deterioration.

Partially Stable - A structure that exhibits signs of whole or partial degradation of the existing composition and components such that structural stability is threatened.

Unstable - A structure that has suffered damage from erosion such that structural collapse or complete degradation is imminent.

Appendix C: Leadership Committee

Vanishing Treasures Leadership Committee: 2006				
Representing	Name	Term	Start Date	End Date
AZ	Brad Traver	3 Years	1/24/2006	May 2009
AZ	Lee Baiza, Chair	3 Years	5/25/2005	May 2008
CA/NV	Curt Sauer	3 Years	5/25/2005	May 2008
CO/UT/WY	Bruce Noble	2 Years	5/25/2005	May 2007
CO/UT/WY	Corky Hays	3 Years	5/25/2005	May 2008
NM/TX	Kayci Cook Collins	3 Years	1/24/2006	May 2009
NM/TX	Todd Brindle	2 Years	1/24/2006	August 2006
NM/TX	Darlene Koontz	2 Years	8/2006	
IMR	Sande McDermott	Permanent		
PWR	Stephanie Toothman	Permanent		
VT Program	Virginia Salazar-Halfmoon	Permanent		

Vanishing Treasures Leadership Committee: 2007				
Representing	Name	Term	Start Date	End Date
AZ	Brad Traver	3 Years	2006	May 2009
AZ	Lee Baiza, Chair	3 Years	2005	May 2008
CA/NV	Curt Sauer	3 Years	2005	May 2008
CO/UT/WY	Corky Hays	3 Years	2005	May 2008
NM/TX	Kayci Cook Collins	3 Years	2006	May 2009
CO/UT/WY	Mitzi Frank	3 Years	2007	May 2010
IMR	Sande McDermott	Permanent		
PWR	Stephanie Toothman	Permanent		
VT Program	Virginia Salazar-Halfmoon	Permanent		

Vanishing Treasures Leadership Committee: 2008				
Representing	Name	Term	Start Date	End Date
CO/UT/WY	Corky Hays, Chair	3 Years	May 2008	May 2011
AZ	Jason Lott	1 Year	May 2008	May 2009
AZ	Lisa Carrico	3 Years	May 2008	May 2011
CA/NV	Curt Sauer	3 Years	May 2008	May 2011
CO/UT/WY	Mitzi Frank	3 Years	May 2007	May 2010
NM/TX	Kayci Cook	3 Years	May 2006	May 2009
NM/TX	Marie Frias	3 Years	May 2008	May 2011
IMR	Sande McDermott	Permanent		
PWR	Stephanie Toothman	Permanent		
VT Program	Virginia Salazar-Halfmoon	Permanent		
VT Program	Preston Fisher	Ex-officio		
VT Program	Randall Skeirik	Ex-officio		
VT Program	Jake Barrow	Ex-officio		

Appendix D: Advisory Group

Vanishing Treasures Advisory Group: 2005 - 2008				
Name	Representing	Start Date	Term	End Date
Jennifer Lavris	Arizona	November 2005	3 years	November 2008
Angelyn Rivera	New Mexico	November 2005	3 years	November 2008
Dave Evans	Arizona	November 2005	2 years	November 2007
Robert Bryson	California and Nevada	November 2005	2 years	November 2007
Sarah Horton	Utah	November 2005	2 years	November 2007
Donald LaDeaux	Wyoming	November 2005	2 years	November 2007
Virginia Salazar-Halfmoon	Chair		Permanent	
Preston Fisher	Ex-Officio		Permanent	
Randy Skeirik	Ex-Officio		Permanent	
Jake Barrow	Ex-Officio		Permanent	

Appendix E: Annual and Cumulative Funding

Vanishing Treasures Annual and Cumulative Funding
FY 1998 through FY 2007

		VT Program Components			Total VT Program Expenditures	VT Park Base Increases		Total Base Increases	One-Year Personnel Funding ³	Grand Total (Program plus Base)
		Projects	Training ²	Management		Personnel ⁴	Additional ¹			
FY 1998	Annual Budget	505,300	31,700	10,000	547,000	453,000	0	453,000	0	1,000,000
	Cumulative Total	505,300	31,700	10,000	547,000	453,000	0	453,000	0	1,000,000
FY 1999	Annual Budget	627,600	40,000	44,000	711,600	585,000	237,000	822,000	0	1,533,600
	Cumulative Total	1,132,900	71,700	54,000	1,258,600	1,038,000	237,000	1,275,000	0	2,533,600
FY 2000	Annual Budget	814,600	0	56,000	870,600	795,000	0	795,000	0	1,665,600
	Cumulative Total	1,947,500	71,700	110,000	2,129,200	1,833,000	237,000	2,070,000	0	4,199,200
FY 2001	Annual Budget	973,000	0	60,000	1,033,000	236,000	0	236,000	0	1,269,000
	Cumulative Total	2,920,500	71,700	170,000	3,162,200	2,069,000	237,000	2,306,000	0	5,468,200
FY 2002	Annual Budget	1,038,000	0	60,000	1,098,000	435,000	0	435,000	0	1,533,000
	Cumulative Total	3,958,500	71,700	230,000	4,260,200	2,504,000	237,000	2,741,000	0	7,001,200
FY 2003	Annual Budget	1,031,000	0	60,000	1,091,000	600,000	0	600,000	0	1,691,000
	Cumulative Total	4,989,500	71,700	290,000	5,351,200	3,104,000	237,000	3,341,000	0	8,692,200
FY 2004	Annual Budget	997,400	0	60,000	1,057,400	375,000	0	375,000	0	1,432,400
	Cumulative Total	5,986,900	71,700	350,000	6,408,600	3,479,000	237,000	3,716,000	0	10,124,600
FY 2005	Annual Budget	1,030,700	0	60,000	1,090,700	0	0	0	300,000	1,390,700
	Cumulative Total	7,017,600	71,700	410,000	7,499,300	3,479,000	237,000	3,716,000	300,000	11,515,300
FY 2006	Annual Budget	1,024,000	0	60,000	1,084,000	0	0	0	260,000	1,344,000
	Cumulative Total	8,041,600	71,700	470,000	8,583,300	3,479,000	237,000	3,716,000	560,000	12,856,300
FY 2007	Annual Budget	1,024,000	0	60,000	1,084,000	0	0	0	0	1,344,000
	Cumulative Total	9,065,600	71,700	530,000	9,667,300	3,479,000	237,000	3,716,000	560,000	13,943,300

Notes:

- ¹ \$156,000 base increase for one park for personnel and an \$81,000 park base increase.
- ² Between FY 1999 and FY 2004 training costs were added to the total cost for personnel and included in base increases. Beginning in FY2005 training funds will be deducted from project funds.
- ³ In FY 2005 and FY 2006 personnel funding was for one year only and did not represent a permanent increase in park base funding.
- ⁴ Beginning in FY 2007 no funding for personnel, either one-year or permanent, is being provided.

Appendix F: FY 2008 Project Funding

Vanishing Treasures Fiscal Year 2008 Project Funding						
FY 2008 PROGRAM STATUS:						
VANISHING TREASURES PROGRAM FUND 01						
TOTAL PROGRAM PROJECTED ALLOCATION					\$1,095,000	
Less Region Reappropriation of 1% (\$1,095 x .01 = \$10,950)					\$11,000	
TOTAL AVAILABLE					\$1,084,000	
PARK	ACCOUNT NUMBER	PMIS NUMBER	PROJECT NAME	PMIS ALLOCATION	AJUSTMENT Increase/Decrease	
IMRO	7841-0503-CYA	136825	VT Project Management	\$20,000		
IMRO	7841-0504-CYA	136825	VT Leadership/Advisory Group Coordination	\$20,000		
IMRO	7841-0505-CYA	136825	VT Support Staff	\$20,000		
MANZ	8760-0711-CYA	52861	Excavate, Document and Stabilize Features in Accordance with CLR Recommendations	\$83,000	Continuing	
PECO	7500-0701-CYA	73055A	Stabilize Architecture at Pigeon's Ranch	\$9,100	Continuing	
CANY	1344-0801-CYA	115478A	Stabilize Threatened VT Sites in the River Corridors	\$125,000		
SAPU	7260-0801-CYA	37683A	Implement Preservation Treatments at the San Buenaventura Mission Complex	\$125,000		
WACA	7470-0801-CYA	107402A	Architectural Condition Assessment of Fifth Fort (WACA 279)	\$110,800		
TONT	8680-0801-CYA	115466A	Implement Preservation Treatments at the Upper and Lower Cliff Dwellings, (Phase II)	\$109,000		
GRCA	8213-0801-CYA	115236A	Complete Condition Assessments of Architectural Sites in the Deer Creek and Tapeats Creek Drainages	\$53,200		
PECO	7500-0801-CYA	116377A	Repair Pigeon's Ranch Structures	\$67,700		
GLCA	1445-0801-CYA	116048A	Assess Condition and Perform Cyclic Maintenance at Six Sites in Cow Canyon (VT)	\$58,600		
BAND	7127-0801-CYA	115760A	Condition Assessment of Tsankawi Cavates FY08	\$121,400		
WUPA	7470-0802-CYA	107389A	Perform Emergency Treatment/Repairs for Antelope House Pueblo	\$113,300		
AZRU	7380-0801-CYA	116535A	Replace Three Protective Roofs at West Ruin	\$47,900	Requested \$56,500	
TOTAL ALLOCATED				\$1,084,000		
AMOUNT UNALLOCATED				0		
TOTAL PROJECT FUNDING FOR FY 2007				\$1,084,000		





Arizona

1. Canyon de Chelly National Monument
2. Casa Grande Ruins National Monument
3. Coronado National Memorial
4. Fort Bowie National Historic Site
5. Grand Canyon National Park
6. Montezuma Castle National Monument
7. Navajo National Monument
8. Organ Pipe Cactus National Monument
9. Petrified Forest National Park
10. Saguaro National Park
11. Tonto National Monument
12. Tumacacori National Historical Park
13. Tuzigoot National Monument
14. Walnut Canyon National Monument
15. Wupatki National Monument

California / Nevada

16. Death Valley National Park
17. Joshua Tree National Park
18. Mojave National Preserve
19. Manzanar National Historic Site

Colorado

20. Colorado National Monument
21. Dinosaur National Monument (Also Utah)
22. Mesa Verde National Park

New Mexico

23. Aztec Ruins National Monument
24. Bandelier National Monument
25. Chaco Culture National Historical Park
26. El Malpais National Monument
27. El Morro National Monument
28. Fort Union National Monument
29. Gila Cliff Dwellings National Monument
30. Pecos National Historical Park
31. Salinas Pueblo Missions National Monument

Texas

32. Big Bend National Park
33. Fort Davis National Historic Site
34. Guadalupe Mountains National Park
35. Lake Meredith National Recreation Area
36. San Antonio Missions National Historical Park

Utah

37. Arches National Park
38. Capitol Reef National Park
39. Canyonlands National Park
40. Glen Canyon National Recreation Area (Also Arizona)
41. Golden Spike National Historic Site (Also Arizona)
42. Hovenweep National Monument (Also Colorado)
43. Natural Bridges National Monument
44. Zion National Park

Wyoming

45. Fort Laramie National Historic Site



*If you have questions regarding the Vanishing Treasures Program,
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Vanishing Treasures Parks

