Upcoming FY06 Projects

(Phase II) Implement Preservation Treatments at Three Primary Cliff Dwellings: This project will implement preservation treatments at two small cliff dwellings and 8 of 32 rooms outside the dripline at the Upper Cliff Dwelling. This project follows research and analysis that was funded in FY05. The project has two phases: (Phase I) perform baseline documentation for the creation of 3D geo-referenced, metrically accurate, high-resolution laser scans for all three sites in FY05; (Phase II) perform recommended preservation treatments which include equalizing differential fill loads, improving on-site drainage, replacing eroded mortar through capping and repointing, and mitigating cracks in prehistoric adobe walls in FY06.

Cyclic Maintenance of the Lower Cliff Dwelling Southern Annex: This project will implement treatment at the Southern Annex associated with the Lower Cliff Dwelling. The treatment work will focus on improvement in drainage, replacement of eroded mortar and mitigating cracks in prehistoric adobe plaster to provide long-term cyclic protection from erosional forces.

Backcountry Site Condition Assessments (2004 – Present): To date, formal condition assessments for 36 sites have been completed since the beginning of FY2004. The condition assessments involve identifying threats and disturbances such as erosion caused by run-off, vegetation intrusion and animal disturbance and visitor-related impacts. The assessments also include preservation or data recovery recommendations for each site. While in the field, photographs taken in 1985 are replicated which depict changes to site condition over a 20 year period. 29 sites will be monitored in FY06 to achieve 100% correction in condition assessment deficiencies and to meet national goals regarding updating site condition information. Once all condition information is updated in the Archaeological Sites Management Information System (ASMIS), treatment recommendations will be implemented to bring many of the sites into “Good” condition as defined by NPS archeological site standards.

Montezuma Castle & Tuzigoot National Monuments – Tonto National Monument –Flagstaff Area National Monuments GIS Partnership: Based upon the identified GIS needs of the three sets of monuments (FLAG, MOCA/TUZI, & TONT), the similarity in the types of monuments, and the close proximity of the parks, the three park units have developed a formal partnership to address the needs and missions of all parties. In addition, there are a number of other partners in the vicinity, including the U.S. Geological Survey and Northern Arizona University, with whom to collaborate with. Beginning in FY06, the parks will cooperatively manage and develop GIS Programs to efficiently meet the needs, goals, and core missions of the six parks represented by the three administrative park units.

Research and Record Historic Grazing Features and Roads within the Monument Boundary: TONT staff will begin recording and documenting known historic grazing features and the effects of grazing on natural and cultural resources in the Monument. Also, staff will record an undocumented historic road located in the “North 40” and all associated historic trash scatters and masonry road features such as culverts. This project is unfunded and will proceed as time and funds are available.

Assistance with Determination of Eligibility for the TONT Mission 66 Visitor Center: The park will receive assistance from a historical architect to help assess the integrity of our Mission 66 visitor center and to write a determination of eligibility if applicable. The park will begin discussions with an architect regarding adding this property to the List of Classified Structure. The park has plans and funding to revise the exhibit space in the next two years.

Catalog Pre-1987 Resource Management Files (PMIS 115564A), WACC: The park will receive assistance from the WACC archives division in cataloging all remaining resource management files.

Complete the Monument's Notice of Inventory Completion and Commence Repatriation of Six Burials and 27 Associated Funerary Objects: This will involve completing the Notice of Inventory Completion and gaining assistance from staff at WACC regarding facilitating access to items in the TONT collection. A series of tribal consultation meetings and visits to WACC for viewing TONT's collection may be required.

Assess Library Resources for Conservation Assessment: This will involve assistance from archives staff at WACC regarding condition assessments of the TONT library collection and recommendations regarding housing rare books.

Continuing Projects

High-Resolution (6mm) 3D Architectural Models using Laser Scanning Technology, Western Mapping Company (2004 –Present): This ongoing project involves Aerial Photography, Photogrammetrical Mapping and Laser Scanning of the Lower Ruin, Upper Ruin, Annex Ruin, Historic Trails Architecture, Site TONT 44 and TONT 39 to acquire architectural profiles and plan view maps. All scanning is geo-referenced so that wall heights, wall stone locations, and wall features are in the park coordinate system for integration with GIS data. A digital 3D model of each site has been created which provides a highly accurate documentation baseline. Digital 2D and 3D graphic information will make the process of future documentation, stabilization, and assessments more efficient and accurate. To date, four out of the five primary cliff dwellings have been scanned.

Create a Digital Archive Detailing Stabilization Histories for the Upper Cliff Dwelling (TONT 85A-50), Lower Cliff Dwelling (TONT 85A-51) and Annex Cliff Dwelling (TONT 85A-52), Northern Arizona University Anthropology Department (2005 –present): This project involves examination of TONT archival files to build on Guthrie's (1994) stabilization history report, and identify stabilization work that has been done since 1992. Relevant information (archives and photos) from the ruins pertaining to all past stabilization activities will then be scanned to create a digital text and photographic archive. Descriptive information will be organized wall-by-wall to create a searchable database pertaining to past stabilization activities. Photographs will be organized into a comprehensive searchable photographic database. Descriptive information and photographs will be combined into a linked database.

Use Previously Created Digital Stabilization Archive for In-field Preservation History Recordation at a Wall by Wall Level, Northern Arizona University Anthropology Department (2005 –present): This Project involves using documentation gathered in the stabilization history research phase to identify preservation treatments conducted at every wall in the Lower Cliff Dwelling - South Annex (TONT 85A-51), Northern Annex (TONT 85A-52), TONT85A-39, TONT85A-44 and 8 of 32 rooms outside the dripline at the Upper Cliff Dwelling (TONT85A-50). Future phases of this project will include similar work at the 16 primary rooms of the Lower Cliff Dwelling and the remaining 24 rooms at the Upper Cliff Dwelling. Using photographs and/or architectural profiles created from laser scanning mapping projects, staff will annotate and record the actual stabilization events on each architectural sheet. This information will then be transferred to Adobe Illustrator files established for each wall and electronically layered. The adobe illustrator files will then be linked through ArcGIS for retrieval of a visual display of stabilization histories for each wall.

Research Past Dendrochronology Sample Locations and Findings for the Primary Cliff Dwellings, Northern Arizona University Anthropology Department (2005 –present): This project involves research into existing Monument files, the tree-ring laboratory at the University of Arizona and any other appropriate sources for locational, species identification and chronological information surrounding wooden architectural elements at the primary cliff dwellings. All information gathered from this research will be entered into an ACCESS database and all documents will be scanned. A synthesis report of the research findings will be submitted at the end of this project (February 2006).

Research Historically Altered or Replaced Wooden Elements for the Primary Cliff Dwellings, Northern Arizona University Anthropology Department (2005 –present): This project involves using the Tonto National Monument Stabilization History Database and photographs to identify all replaced or altered wooden elements in both primary cliff dwellings. Locational and descriptive information will be entered into or transferred to an ACCESS database which will identify non-prehistoric fabric for the primary cliff dwellings. The newly constructed database that will be linked to planimetric site maps in the park's geographic information system. A synthesis report of the research findings will be submitted at the end of this project (February 2006).

Establish an ACCESS Database Regarding Artifact Provenience Data for the Primary Cliff Dwellings, Northern Arizona University Anthropology Department (2005 –present): This project involves using museum management information regarding artifact provenience to establish an ACCESS database that will be linked to planimetric site maps in the park's geographic information system. All information currently in the Monument's ANCS program will be copied to an ACCESS database format and fields manipulated for future data links in ArcGIS. An inventory of artifact photographs will be completed through correspondence with staff at the Western Archeological Conservation Center in Tucson. The newly constructed database will be provided to the Monument in February 2006.

Historic Resource Study/Administrative History, Arizona State University History Department (2004 – present): The purpose of the project is to provide National Park Service managers, planners, administrators, and interpretation staff at Tonto National Monument with an expanded database of information. The final product will document significant historical events and peoples within the monument and surrounding central Arizona region. The project will entail a comprehensive examination and synthesis of all known primary and secondary source material pertaining to the history of the monument and related regional history commencing with the European contact period, through late-nineteenth earlier twentieth century activities and the establishment of the national monument on December 19, 1907, to the recent past, including the NPS Mission 66 era. The project will result in a final computer-generated report that is readable to a general audience and presented in a format that can be reproduced by the Government Printing Office, a university press, or other comparable publishers. The final report will include pertinent photographs, maps, illustrations, and other graphic material in sufficient quantity so as to enhance the personalities and events detailed in the written narrative.

Historic Photograph Scanning Project, WACC/University of Arizona (2004-present): This project will perform an exhaustive comparison of the photographs and slides stored at TONT to those stored at WACC. WACC will identify any duplicate photos or originals not cataloged. Once both collections have been examined (TONT/WACC), each image will be scanned and the descriptive information entered into a TONT photographic database (ACCESS) that will contain hyperlinks to each photo. The TONT database will be used as a tool for querying images based on selected fields such as "ruins preservation", "archeology", "artifacts" and eventually "plants", "animals" etc. The focus of the scanning has targeted the following categories:

A. All ruins preservation images

B. All archeology related images

C. All artifact images

D. Any images relating to cultural resources issues

E. All scenic overviews of the park (includes images that may provide environmental data)

F. All photographs of park projects (maintenance, construction, etc.)

G. All photographs of infrastructure, visitor center, residences, and buildings.

FY05 Accomplishments

Preservation Maintenance at the Upper Cliff Dwelling (November 2004): This project preserved the physical condition of the Upper Cliff Dwelling by protecting valuable artifacts that were placed into collection piles or unearthed by digging and burrowing animals. Nearly 70 burrows/animal digging areas were filled and repaired. In addition, the repair of numerous non-historic steps mitigated safety hazards to visitors. Archeologists collected out of context cultural materials so that the artifacts could be inventoried, analyzed, and protected through conservation and curation. The artifacts were analyzed by Archaeological Research Institute (ASU) in the summer of 2005. A final report will be available on this project in 2006.

Prehistoric Wood Inventory and Condition Assessment (November 2004): The Upper and Lower Ruins at Tonto National Monument have a large number of prehistoric wooden roof support posts, roof beams, and door lintels still remaining in the structures. This wood is relatively well preserved considering the age of the ruins but deterioration has taken place. This assessment determined the type of deterioration occurring in the wood, identified the type of wood present in 49 samples obtained from throughout the structures and evaluated environmental conditions occurring at the site that influences deterioration processes. Dr. Robert Blanchette from the Department of Plant Pathology, University of Minnesota completed the assessment.

2005 Vanishing Treasures Project (PMIS 105632): Preservation Documentation/Treatment of Three Primary Cliff Dwellings at Tonto National Monument (October 2004-September 2005): The overall purpose of the project was to document and preserve three of the Monument's primary cliff dwellings (TONT 39, 44, 50). The objectives of the documentation component were to (1) document prehistoric architecture and historic alterations and; (2) use the documentation as a treatment planning tool for upcoming FY06 invasive treatments. Field condition assessments, database construction/entry, background research and reporting were undertaken by Duane Hubbard, TONT Archeologist; Matt Guebard, TONT Archeological Technician; and Northern Arizona University Anthropology Department. High quality graphics documentation including laser scanning models was completed by 4-G Consulting and Western Mapping Company.

The objectives identified for this project were accomplished in full. All pretreatment, condition assessment and architectural baseline information was accomplished for TONT 39, TONT 44. Condition assessment data was collected for TONT 50. Once Phase II is completed in FY06, the results of the project will produce an increase in the condition of the resources from Fair to Good (TONT 50) and from Poor to Good (TONT 39, 44) condition as defined by LCS condition definitions. During the fiscal year, one professional paper regarding the project was presented at The 3rd Annual Arizona Statewide Historic Preservation Partnership Conference, June 8-11, 2005, Tucson, Arizona. A final report on Phase I and II will be available in 2007.

Lower Cliff Dwelling Slope Preservation Project (April 2005): This project partially stabilized the steep slope located below the Lower Cliff Dwelling with a masonry retaining wall. This section of the slope is comprised of historic backdirt material which was scattered downslope during excavation projects in 1937 and 1950 (Duffen, Pierson). Heavy rains in the last two years have created new rills and gullies on the surface of the slope. During this process, artifacts such as prehistoric ceramics and lithics are occasionally exposed and distributed within arms reach of the trail. The close proximity of the artifacts to the trail was a management concern as visitors have been observed collecting artifacts. The project was successfully completed with the assistance of the Maintenance Division and SOAR Archeologist Kevin Harper. A new retaining wall now protects the fragile slope. A final report on this project will be available in early 2006.

Tonto National Forest Request for Cliff Dwelling Condition Assessments (April 2005): On April 14-15, 2005, a meeting was held in the Sierra Ancha Wilderness, Arizona, to monitor archeological sites in Pueblo Canyon, Cold Spring, and Devils Chasm. Attendees representing the National Park Service were Bradley S. Traver, TONT Superintendent, Duane C. Hubbard, TONT Cultural Resource Program Manager, and Kevin Harper, Southern Arizona Support Office Archeologist. Three Tonto National Forest employees led by Steve Germick, Archeologist and Richard C. Lange, Arizona State Museum Archeologist provided background and tours to the impressive archeological sites. The National Park Service personnel were invited to participate in the assessment trip and to make recommendations to the Tonto National Forest.

Lower Cliff Dwelling Emergency Preservation (June 2005): This project involved an emergency preservation project that stabilized several areas in the Lower Cliff Dwelling due to visitor and animal impacts. Cultural resources staff repaired non-historic steps in the ruin, repaired damaged sections of the roof in Room 10 and performed minor plaster patches on the north wall of Room 10 and in the northwest corner of Room 9. A final report of this project will be available in 2006.

Artifact Analysis from Ruins Preservation Projects, Archaeological Research Institute/Arizona State University (Summer 2005): Over 1,000 artifacts from various ruins preservation projects were analyzed in 2005. Representative sherds from the 2004 and 2005 field collections were separated for a ceramic type collection which is available in the Cultural Resource Managers Office. Artifacts not used in the type collection were taken to WACC for cataloging and storage.

FY04 Accomplishments

Photographic Documentation and Photopoint Monitoring of Five Primary cliff Dwellings, SOAR: The focus of this project was to create a baseline of information that can be reproduced through photography with successive monitoring efforts over the next 5, 10, 15, or 20 years. Photographic documentation included medium format photography of every wall face in the five dwellings and large format photographs depicting site overviews. Archeologists established photopoints for future photography.

2004 Vanishing Treasures Project (PMIS 96307): Treat Upper Cliff Dwelling: The project was written in order to implement treatment for “adobe type resources that would minimize the loss of prehistoric fabric and integrity at the Upper Cliff Dwelling”. The objectives included (1) perform pre, during and post documentation for treatment work performed and (2) use the documentation as a treatment planning tool for upcoming invasive treatments. The money allocated for the project was spent preparing the necessary background information for treatment including architectural baseline maps, condition assessments, stabilization histories, and photographic histories.

2004 Cultural Cyclic Project (96248): Preserving Upper, Lower and Annex Dwellings: The project was written in order to “conduct preservation methods and application for adobe type resources”. The project intended to minimize the loss or impairment of prehistoric fabric and integrity. Proposed work included mortar joint repointing, filling voids in wall cores, replacing deteriorated masonry, sealing wall cracks, mud plastering wall surfaces, and vegetation removal.

Field condition assessments, database construction/entry, background research, and reporting were undertaken by Duane Hubbard (TONT Archeologist) and Michael Boley, (TONT Archeological Technician) and; Kevin Harper (SOAR Archeologist). High quality graphics documentation including laser scanning models was completed by the Western Mapping Company.

2004 Cultural Cyclic Project (96238): Preservation of Dwellings: The project was written in order to address the need for cyclic maintenance of steps and wall cappings at the primary dwellings. There were numerous walls and steps that had missing or unstable stones. Work consisted of resetting stones back in place on steps in the Upper and Lower Cliff Dwelling.

Field condition assessments, database construction/entry, background research, and reporting were undertaken by Duane Hubbard (TONT Archeologist) and Michael Boley, (TONT Archeological Technician). High quality graphics documentation including laser scanning models was completed by the Western Mapping Company prior to implementing treatment in 2004.