



The Center for Desert Archaeology 2006 Preservation Fellow Program

Research Priorities & Background Information *A.D. 1350 – 1540 in the Upper Gila River Valley*

Introduction

This document is intended to provide a brief history of the Center for Desert Archaeology's research programs and pertinent information concerning the 2006 Preservation Fellow competition. Relevant publications and data are also discussed.

The Center's priority for this fellowship is to conduct a Preservation Archaeology program in the Upper Gila River and its tributaries, specifically at sites that date to the late precontact period (AD 1350-1540). Fieldwork will include survey, mapping, and (if possible) limited excavation with the goal of obtaining relevant artifact samples and specimens for tree-ring dating. Fieldwork and subsequent analysis will include the training and use of volunteers as much as possible. This project will build upon the results of extensive Center research in the Lower San Pedro Valley (LSPV) and synthetic treatment of other valleys in southern Arizona (Figure 1). These include the Safford Basin, Tonto Basin, Perry Mesa, Lower Salt Valley, and Middle Gila Valley.

The Preservation Fellow's project will be closely coordinated with a more comprehensive National Science Foundation (NSF)-funded project conducted by Center staff that examines coalescence and demographic decline associated with the last precontact settlements currently identified in the archaeological record of the southern Southwest. Preliminary ceramic evidence suggests that many of these late settlements are located in the vicinity of the Middle and Upper Gila and associated tributaries. The

proposal for the NSF project is summarized below and available upon request.

Applicants should carefully consider current Center priorities in writing their research plans. Although the project area, fieldwork, and time period are defined, there is considerable flexibility with regard to research themes that can be tailored to suit the applicant's interests. The research plan will be a critical element in the selection process. This plan should include a well-defined problem statement and feasible strategy to address this problem that is compatible with Center goals. It should also include brief theoretical and methodological statements of how the proposed project will integrate current information and identify avenues for new research. Applicants are not expected to engage in an intensive effort to formulate this plan and the document should be no more than three single-spaced (11-point font) pages in length. Copies of successful research plans from previous fellows are also available upon request.

Research plans will be evaluated for creativity, feasibility, and compatibility with specific Center research objectives and the general concept of Preservation Archaeology. As discussed in the general announcement, Preservation Archaeology strives to maximize information retrieval while minimizing impact to archaeological resources. Methods successfully employed in previous projects include analysis of existing museum and private collections, survey, mapping, and limited excavation. Establishing positive relations with local communities and site owners are also

important goals as they facilitate research and preservation. Finally, creative dissemination of project results in an accessible manner both enlightens and enthralls the public about their local archaeological resources, furthering the cause of preservation.

Background Information

Applicants should be aware of three previous and/or ongoing Center projects, funded partially or entirely by NSF, that are key components of our research: 1) The San Pedro Preservation Program, 2) the “Demographic Decline and Coalescence in the Southern Southwest” macro-regional project, 3) the “Failure of Precontact Coalescence in the Southern Southwest” macro-regional project.

The San Pedro Preservation Program

Throughout much of the 1990s, the Center’s research and preservation efforts focused on the LSPV in southeastern Arizona (see Figure 1). Fieldwork included an extensive volunteer excavation that revisited 46 previously recorded sites and identified 442 new sites from all time periods. Following the survey, controlled test excavations were conducted by supervised volunteers at 29 Classic period sites (A.D. 1200-1450). Middens and other extramural trash deposits were emphasized as these contexts provided large samples of artifacts and subsistence remains while minimizing impact to architectural features. Prominent architectural features were also mapped at each site. Important contacts were established and maintained with landowners in the region whose properties contained archaeological sites. These included various state and federal agencies, mining companies, non-profit organizations, ranchers, and homeowners.

The test excavations were conducted in conjunction with an NSF-funded project to develop a petrographic model of the entire San Pedro Valley. This model defined

numerous petrofacies or distinctive temper procurement zones throughout the region. The petrographic model and samples obtained from the test excavations allowed us to reconstruct Classic period ceramic production and exchange patterns, especially for Roosevelt Red Ware (Salado Polychrome), the dominant decorated ware during the late Classic period. In addition to petrographic sourcing, analysis of faunal and paleobotanical remains and X-ray fluorescence (XRF) sourcing of obsidian proved very productive. The project results demonstrated that a regional program of limited excavation could yield impressive results and provide a broader context in which to place previous work.

Briefly summarizing these results, technological style analyses identified two distinct migrations into the LSPV during the Classic period (Clark et al. 2006). The first migration, during the late 11th and early 12th centuries, was by corrugated pottery-producing groups from the Mogollon Highlands (Clark and Lengyel 2002). These groups mingled with the local inhabitants of the central LSPV and had minimal impact on the prevailing dispersed settlement pattern, extensive subsistence strategy, and decentralized social organization (Luchetta 2005). The second migration, during the late 13th and early 14th centuries, was by groups from the Kayenta and Tusayan regions of northeast Arizona (see also Lindsay 1987; Lyons 2003). Some of these migrants formed segregated enclaves in the southern LSPV and maintained many aspects of their identity. At the same time, local groups to the north aggregated into villages, intensified food production in the vicinity of these settlements, and built platform mounds using a scaled-down Phoenix Basin template. We believe that the timing of these events is not coincidental, but part of an interrelated process we refer to as “coalescence” (Hill et al. 2004).

Petrographic evidence suggests that Kayenta-Tusayan migrants initially made Maverick Mountain series pottery that replicated ceramic traditions in their homeland on locally available raw materials. In response, local groups in the northern LSPV revived their red-on-brown pottery tradition that had been dormant for a century. By the mid-14th century, Roosevelt Red Wares dominated the decorated assemblages of both local and migrant settlements, suggesting that migrant-local social boundaries were dissolving. Petrographic and stylistic evidence indicates that Kayenta-Tusayan enclaves were the primary Roosevelt Red Ware producers until the late 14th century (Lyons and Lindsay 2006). Obsidian densities from test units also suggest that access to this valuable raw material increased dramatically during the 14th century and migrant enclaves had more obsidian than local villages. XRF-sourcing of obsidian indicates that the vast majority was obtained from sources near the Safford Basin, the destination of other Kayenta-Tusayan migrants (Neuzil 2005; Woodson 1999). Continued connections between these groups in each area allowed the San Pedro migrants to control obsidian trade. The ceramic and obsidian evidence suggests these migrants remained a potent minority in the region throughout much of the 14th century.

A new ceramic seriation of Roosevelt Red Ware (Lyons 2004) permitted substantial chronological refinement of the LSPV Classic period. This seriation suggested that coalescence ushered in a period of population decline that began gradually in the early 14th century and accelerated near the end of the century. Despite evidence for increased trade between migrants and locals, groups continued to aggregate into increasingly confined territories instead of reverting to a more sustainable dispersed settlement pattern. The final settlements, located near the Gila confluence, were occupied by the descendants of both locals

and migrants that may have formed a new identity. This mixed group produced late Roosevelt Red Ware and imported limited quantities of ceramics from Zuni and the Rio Grande. However, by the early 1400s even these last settlements were depopulated. No evidence for later human occupation has been identified in the region until the mid-17th century.

Demographic Decline and Coalescence in the Southern Southwest

The Coalescent Communities Database (Wilcox et al. 2003), a Center project in conjunction with the Museum of Northern Arizona and Western Mapping, Inc., attempts to reconstruct major demographic trends across the Southwest at 50-year intervals from A.D. 1200 to 1700 (Hill et al. 2004). Although a work in a state of perpetual refinement, this database revealed that processes of coalescence and demographic decline identified in the LSPV were occurring throughout much of the southern Southwest prior to the arrival of Europeans and associated diseases.

This revelation and the Center's LSPV work formed the basis for a NSF-funded project to study these processes in four additional regions in the southern Southwest: Safford Basin/Aravaipa Creek, Tonto Basin/Globe Highlands, Perry Mesa, and the Lower Salt Valley (see Figure 1). These regions were selected for their range of socioeconomic diversity and availability of existing collections. Analytical techniques that were successfully employed in the LSPV such as XRF obsidian sourcing, and petrographic, chronological, and stylistic ceramic analyses focusing on Roosevelt Red Ware, were brought to bear on large collections from each of these areas curated at the Arizona State Museum, Arizona State University, Museum of Northern Arizona, Pueblo Grande Museum, and the Western Archeological and Conservation Center. In addition, bioarchaeological data on nutritional stress was synthesized using the

large burial data sets from the Tonto Basin and Lower Salt Valley. Finally, former Center Fellow Anna Neuzil (2005) conducted surface collections and mapping at over 30 sites in the Safford Basin to augment the limited sample available from this important area as part of her dissertation research. Dr. Neuzil's project provides an excellent example of how a Center Fellow can conduct independent research that is compatible with current Center research priorities and Preservation Archaeology in general.

Results of this project suggest that each study region experienced migration, coalescence, and demographic decline at varying scales and tempos. For example, Kayenta-Tusayan migration impacted the Tonto Basin later than the LSPV, but had more dramatic consequences. On the other hand, demographic decline may have been the result of internal socioeconomic processes in the Lower Salt Valley and immigration was a consequence of decline rather than a cause. Regardless of the cultural historical specifics of each study area, common themes in all study areas with the possible exception of Perry Mesa emerged. Demographic decline was a drawn-out process rather than an abrupt event with causes ranging from natural processes; migration and social tension; and the negative effects of aggregation on health, fertility, and the local environment. Despite the latter, groups continued their implosive cycle of aggregation and decline, occupying increasingly smaller territories. Near the end of this interval, dwindling populations from adjacent valleys joined groups already living along the Upper and Middle Gila River to form nucleated villages before disappearing from the archaeological record.

Another important theme was the changing function and ultimately diminishing role of platform mounds in late settlements in the LSPV, Lower Salt Valley and Tonto Basins,

indicating the demise of related ceremonial and integrative functions. This decline coincided not only with an increase in local Roosevelt Red Ware production, but an increased emphasis on large bowls and exterior designs that suggest use in communal activities such as feasting. We believe that, similar to the LSPV, Kayenta/Tusayan migrants were closely connected with Roosevelt Red Ware production in each study area. Finally, five new types of Roosevelt Red Ware were identified that represent the very end of this prolific tradition in the southern Southwest. Regional variation in the distribution of these types suggests a breakdown of social networks during the late 14th and early 15th centuries. Three obsidian exchange spheres identified by XRF-sourcing both coincided with and crosscut the Roosevelt Red Ware subtraditions.

The Failure of Precontact Coalescence in the Southern Southwest

With the exception of the Safford Basin, all of the study areas in the previous project were outside the Gila Valley, the area where the last precontact coalescence in the southern Southwest occurred. The upcoming NSF-funded project expands the area of interest to include accessible portions of the Middle and Upper Gila Valleys. The objective is to examine the social and economic institutions that these last groups developed in a final attempt to maintain viable communities and to determine why these institutions ultimately failed. The tempo of this final collapse, the ultimate fate of these groups, and how they are related to ethnohistorically documented tribes are secondary research goals. Although many of these late settlements may have lasted into the 1400s, most if not all were probably depopulated by 1500 and certainly by 1540, when Coronado entered the region.

We address these research issues by proposing the following model to be tested by this project. After nearly a century, coalescence, economic intensification,

environmental deterioration, health problems, and conflict had taken their toll; gradually changing the socioeconomic context from one of population growth, well-defined social boundaries, and immigration to one of population decline, boundary dissolution, and emigration. As the integrative importance of platform mounds and other early institutions diminished, a new identity emerged to integrate this diverse and dwindling population in a final attempt to maintain viable communities. One of the key institutions related to the development of this identity was ritual feasting, closely linked with late Roosevelt Red Ware production. Feasting served to attract people to these final villages whose inhabitants were still practicing intensive subsistence strategies. Feasting also increased interaction and interdependency among villages.

This strategy failed as people emigrated to more attractive destinations with larger populations, including the Zuni and Hopi areas and settlements along the Rio Grande. At some point during the 15th century, a critical minimum population threshold was breached, accelerating this process and resulting in depopulation well below the ecological carry capacity. The final archaeological traces suggest a trend toward increasing regional variability and group isolation. Ultimately, these regional subtraditions were not maintained, greatly reducing the archaeological visibility of groups who may have remained in the area into the postcontact period.

This model includes processual, ideological, environmental, and cultural-historical components, requiring multiple analytical strategies to test. These strategies include 1) further chronological refinement of demographic and material culture trends, 2) analyses (particularly ceramic) that inform on feasting behavior, 3) reconstruction of interaction and exchange among late

precontact settlements (especially ceramic petrography and obsidian XRF sourcing), 4) attempts to establish material culture connections between late precontact settlements and possible destination areas for their inhabitants, 5) detailed environmental studies in the vicinity of late precontact settlements, and 6) a thorough review of published Native American oral traditions relevant to the model.

Fieldwork Priorities

Previous research has focused on isolated segments of the Gila River Valley or included portions of it within larger study areas defined on the basis of topography (the Phoenix Basin), CRM projects, or research questions (e.g., Kayenta migration). We will examine the Upper and Middle Gila Valley and other late-occupied areas in the vicinity within a single analytical framework.

Research in the Middle Gila Valley will focus on existing collections from earlier excavations. However, with the exception of Ormand Village (Wallace 1998), few late Classic sites along the Upper Gila and its tributaries have been excavated and published by professional archaeologists. Several late sites have been identified that are relatively intact and collections from avocational excavations may be available. Given the paucity of data from the Upper Gila and its high research potential with respect to the current project, important field objectives for the 2006 Preservation Fellow will include:

- Examining existing museum collections from late precontact sites
- Establishing contacts with private and public landowners to gain access to late precontact sites and collections in the Upper Gila not curated in museums. The Center has already initiated this process and will continue to provide support in this critical and difficult task.
- Selection of 5-10 late precontact sites for survey, mapping, surface

collection, and possible limited excavation

- Mapping of basic site layout and where possible construction techniques and bond-abut patterns
- Systematic and judgemental surface collection emphasizing Roosevelt Red Ware, late northern ceramics (e.g., Zuni Glaze Ware, Rio Grande Glaze Ware), and obsidian
- Limited excavation to obtain specimens for tree-ring dating and possibly volumetric samples of artifacts and subsistence remains

Although the research area, time period, and fieldwork priorities are set, the Preservation

Fellow will be able pursue follow his or her particular research interests within these parameters. The Fellow may also conduct additional fieldwork and collect and record other types of data relevant to his or her specific project.

Center Staff

Applicants are encouraged to contact Center staff directly if they have further questions or need help obtaining unpublished materials. The Preservation Fellow will be working closely with this staff in accomplishing his or her dissertation project. Short staff bios as they relate to this project are provided below.

Name/Title	Involvement
William Doelle, Ph.D. Executive Director bill@desert.com	Participated in LSPV survey, test excavation, and preservation program; Co-PI for NSF-funded San Pedro petrography grant; project synthesis
Jeffery J. Clark, Ph.D. Preservation Archaeologist jclark@cdarc.org	Directed LSPV test excavations; Co-PI on both macro-regional NSF-funded projects; coordination of obsidian XRF-analysis; project synthesis
Patrick D. Lyons, Ph.D. Preservation Archaeologist plyons@cdarc.org	Participated in the LSPV test excavations; Co PI on both macro-regional NSF-funded projects; ceramic analysis and synthesis; ethnographic research; legal and law enforcement aspects of preservation
J. Brett Hill, Ph.D. Preservation Archaeologist bhill@cdarc.org	Co-PI on both macro-regional NSF-funded projects; Coalescent Community Database manager; GIS analyst and coordinator of environmental studies; project synthesis
Fred Nials Geomorphologist fnials@earthlink.net	Co-PI of Center’s Early Agricultural Settlement in Southern Southwest project; environmental studies from this project will be applicable to Preservation Fellow’s research
Doug Gann, Ph.D. Preservation Archaeologist dgann@cdarc.org	Creation of computer models and three dimensional reconstructions of sites
Anna Neuzil, Ph.D. Preservation Archaeologist aneuzil@cdarc.org	Previous Center Research Fellow; conducted Ph.D. dissertation research and fieldwork in the Safford/Aravaipa region in conjunction with the Center’s first NSF-funded macro-regional project

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