

South Mountain Rock Art Project Field Manual: Recording Rock Art as Archaeology in the South Mountains, Arizona

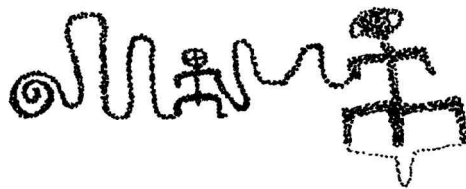
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(Revised Edition)**



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An enormous debt is owed to Dr. Peter Welsh of the Dear Valley Rock Art Center (<http://www.asu.edu/clas/shesc/dvrac/>) and to the many volunteers of the Arizona Archaeological Society and the Arizona Rock Art Coalition. Members of the coalition meet several times a year, and have spent countless hours revising and perfecting their recording forms. They generously made these available to us, and we have adapted these to our purposes at South Mountain. Hard-working volunteers from the communities in central Arizona continue to patiently work with us to make this project's goals a reality, and are a joy to work with.



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Project Introduction

The South Mountains, located on the southern edge of the City of Phoenix, Arizona, have long been considered a sacred place to Native Americans. The O'odham (Pima Indians) call these mountains *Muhadag du'ag*, or Greasy Mountains, perhaps because the granodiorite boulders turn a deep brown color when they get wet from rainstorms. The South Mountains are home to Elder Brother, one of the most important sacred personages for the O'odham, and their oral traditions include stories about these mountains. One of those stories tells how Trickster Coyote stole the heart of Rattlesnake's first victim from its cremation fire, and the Pima chased after Coyote to retrieve the heart. Coyote rested after crossing the Gila River, located south of the South Mountains, and then ate his stolen food. While eating the heart, grease dripped down from the hot meat, staining the landscape and creating Greasy Mountain.

Rising 1,500 feet (457 meters) above the urban metropolis of Phoenix, the South Mountains are a highly eroded set of mountains that are filled with beautiful and isolated canyons, springs, and outstanding elevated views of the surrounding landscape and the night sky. Numerous trails, many of which are associated with ancient rock art and broken pottery, lead from the base of the mountains into the upper reaches of the canyons. The presence of this rock art and associated artifacts indicates that the trails were created by the Hohokam people, an artistic and intelligent culture that successfully farmed the Sonoran Desert with a vast system of irrigation canals for more than a millennium. In addition, other evidence of the Hohokam is present in the South Mountains as rock shelters, pithouses, agricultural features, and cleared areas. The South Mountains apparently were important to the Hohokam for many of the same



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reasons they are important to modern day populations – for refuge from the busy and noisy urban areas, for solitude and quiet, and for opportunities to commune with nature. The South Mountains have always been and continue to be a sacred place.

However, the archaeology and rock art of the South Mountains are currently threatened because of development along the edge of the mountains, as well as a lack of awareness among the general public of the significance of the mountains' cultural and natural resources. The natural resources include interesting geological formations (Reynolds 1985) and a diversity of plants and animals (Daniels and Butterwick 1992). Some of the incredible rock art of the South Mountains has been documented over the past four decades by Ernest Snyder (1966), JJ Golio (Golio and Snyder 1993), Todd Bostwick and Peter Krocek (2002), and others (see Figure 1), but no comprehensive surveys have been undertaken of the entire mountains. In particular, no surveys have been conducted in the park that integrate the recording of the archaeological materials and natural features that are associated with the petroglyphs.

Approximately 70 square kilometers (17,000 acres) of the South Mountains are owned by the City of Phoenix. The Phoenix Parks and Recreation Department is dedicated to the preservation of the cultural and natural resources of this portion of the South Mountains, but effective management plans are dependent upon complete inventories (Thiel 1995), which have not yet been conducted. Consequently, the City of Phoenix collaborated with the School of Human Evolution and Social Change at Arizona State University to undertake a long-term program to survey and record rock art within its cultural and natural contexts. In order to initiate this program, they applied for a Heritage grant from the State Historic Preservation Office to target a specific area in the



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South Mountains Preserve where rock art recordation techniques and methods could be developed, evaluated, and refined for use within the other areas in the South Mountains, as well as elsewhere in the state. This successful grant was titled “Preserving the Petroglyphs of South Mountain Park.”

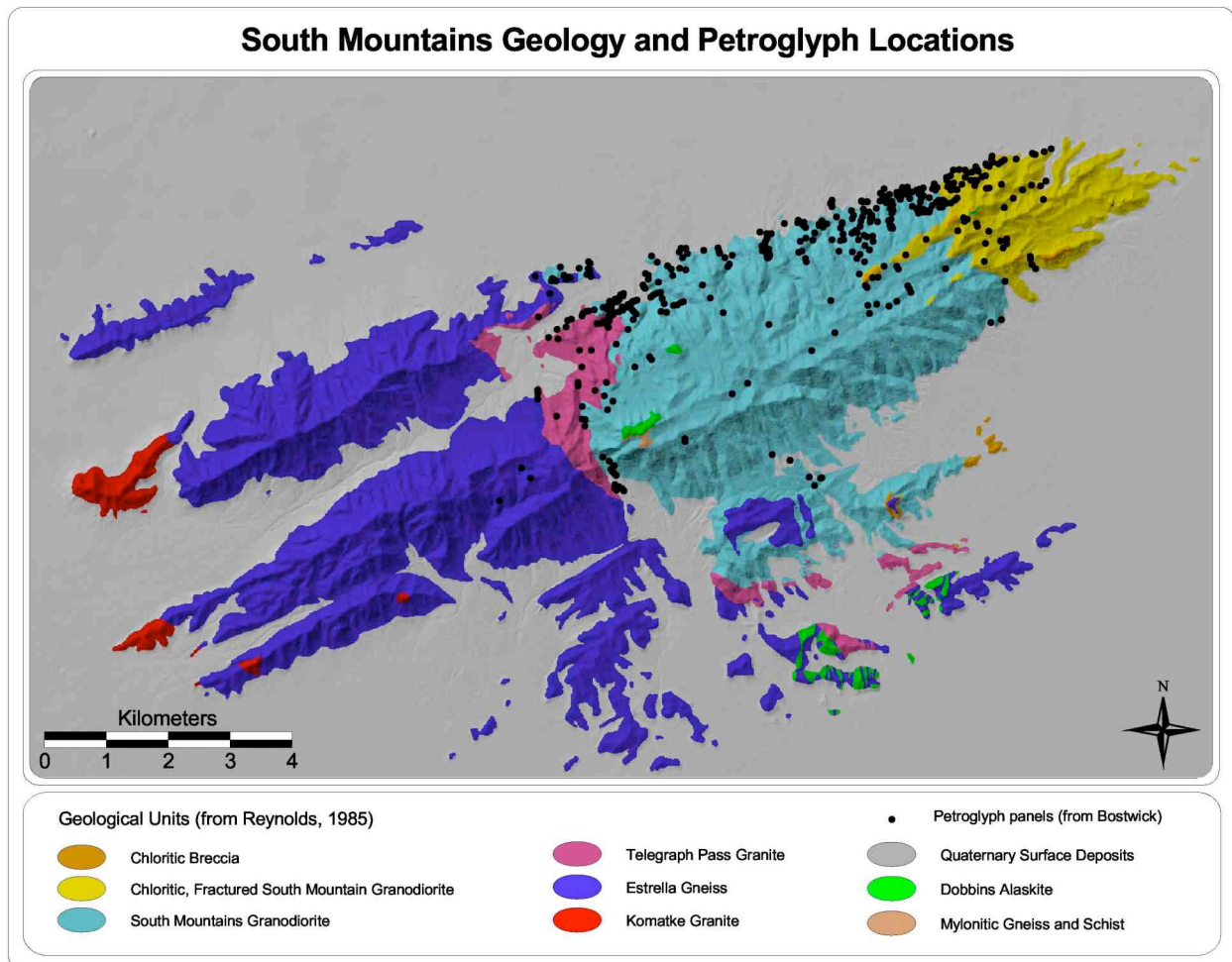


Figure 1: Geological map of the South Mountains showing locations of previously recorded rock art panels.

Preserving the Petroglyphs of South Mountains Park Grant Project

The South Mountains Rock Art Project is a multi-component, three-year long project funded by a Heritage Grant from the State Historic Preservation Office with funding matches from the City of Phoenix and Arizona State University. This project

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focuses on the recordation, interpretation, and management of archaeological sites that contain rock art in the South Mountains. The grant was designed as a comprehensive project with several major components.

These include an archaeological survey of the north side of South Mountains Preserve from 20th Street to 32nd Street (see Figure 2); putting these survey data into a geographic information system (GIS) database on the Arizona State University Archaeological Research Institute's server; creating a GIS database of trails, geology, and plant and animal communities within the South Mountains; developing recordation standards in association with the Arizona State Museum site forms; preparing a Management Plan for rock art in the South Mountains; providing training on recordation and conservation to professional and avocational archaeologists (e.g., the Arizona Archaeological Society), City rangers, and Native Americans; creating educational workshops on rock art recording; consultations with local Native American communities about the rock art in the South Mountains; and nomination of the archaeological rock art sites to the National Register of Historic Places.



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South Mountain Park Survey Area

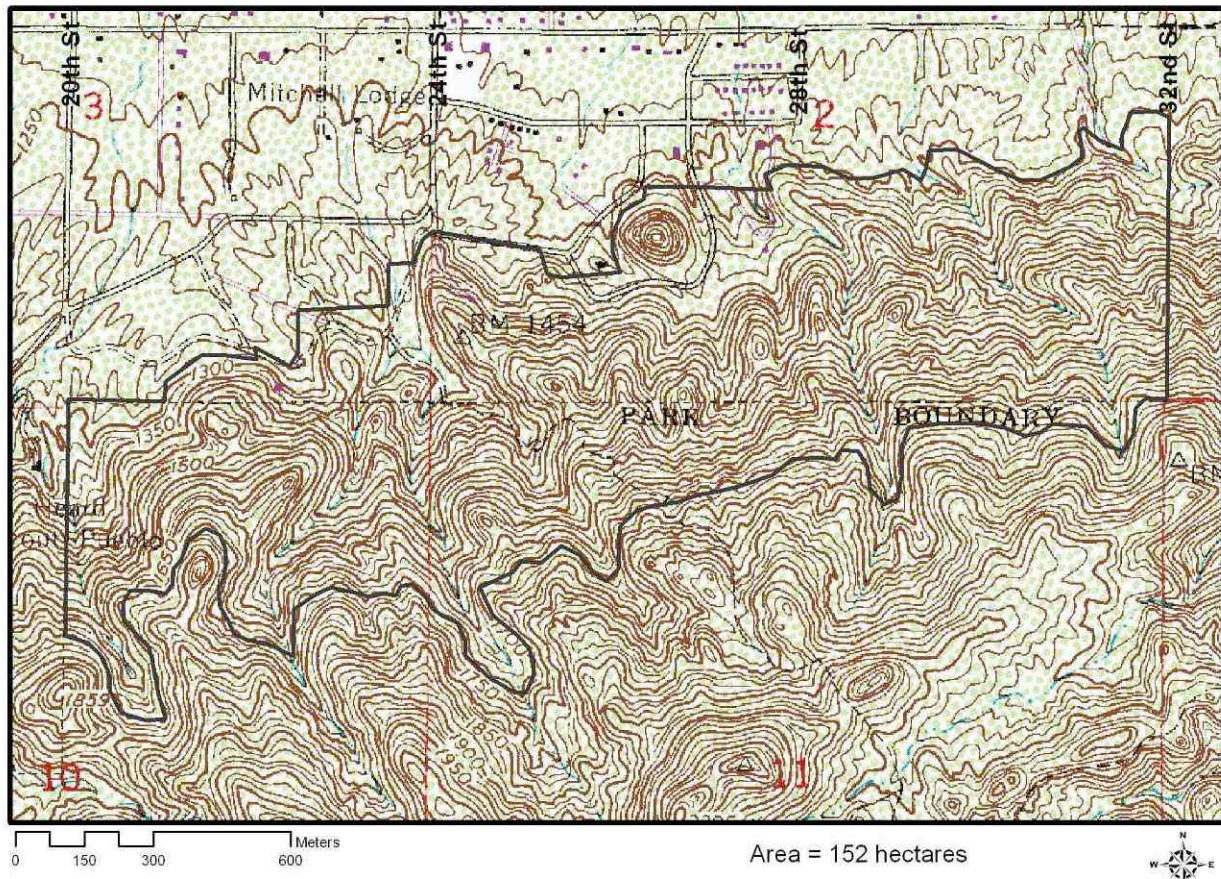


Figure 2: Initial survey area for the South Mountain Rock Art Project.

Other project objectives include the use of innovative technology and methods (such as 3-D scanning and balloon aerial photography); assessing vandalism and other forms of damage to the rock art in the South Mountains; sharing of the recordation standards with other organizations and agencies; creation of a web site; and the publication of professional and popular articles on the project. To promote standardization of terminology of rock art imagery, the project has adopted the element categories developed by Wallace and Holmlund from research at rock art sites in Central and Southern Arizona (Wallace and Holmlund 1986; Wallace 1989). Those

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codes, descriptions, and examples are shown in Appendix B. As the data set for petroglyphs at the South Mountains is developed, new categories will be added as necessary to reflect elements present at sites there.

This manual was prepared to provide detailed instructions on the project's recordation methods and process. Recordation manuals have proven to be very useful to ensure consistency and accuracy of recording, as well as to provide guidelines for other rock art researchers (e.g., Loendorf et al. 1988; Sanger and Meighan 1990). While this manual emphasizes the particular features and equipment used by this project, it is also our intention that this manual can serve as an adaptable standard for rock art recording. Promoting a standard that requires expensive equipment or highly technical skills would slow down national efforts to document rock art, as well as prevent many local volunteer groups from participating in the process. In this recordation manual, we have attempted to develop procedures that strike a balance between the ease and the thoroughness of recordation (see Swartz 2006).

Volunteering on the South Mountain Project

Training community members in the recording and preservation of rock art and associated archaeological information is a critical component of the South Mountain Rock Art Project. An active base of community members interested in rock art is an important means of preservation and conservation. Our goal is to engage as many interested participants as possible from the surrounding communities so that we can draw attention to these resources and at the same time, educate people on the importance of preserving the rock art at South Mountain Park.



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Volunteers will be actively involved in recording archaeological features and artifacts in addition to rock art, and will learn more about using a landscape-based approach to understanding prehistoric use of the area. Most of this work will involve working off-trail, in rugged terrain. Volunteers are expected to register with the City of Phoenix Parks and Recreation Department before volunteering. This can be filled out and turned in to the Pueblo Grande Museum front desk. In addition, prospective volunteers who are under the age of 18 need to have their parents sign a consent form along with their volunteer application. We also ask that volunteers submit their personal and emergency contact information to the Project Director before going into the field, so that we are aware of any medical conditions and know how to get help, in case of an emergency. Volunteers are also asked to document their work on the project by filling out a volunteer effort log, so that we can keep track of volunteer efforts. All of the necessary forms are included in Appendix C.

Project Protocols

It is important that all individuals involved in the South Mountain Rock Art Project follow certain protocols to ensure that they act in the best interests of the City of Phoenix and Arizona State University. These protocols include the following rules: City Rangers must be informed beforehand of the field locations in which project personnel will be working, since they often will be in areas off the main trails and in locations that are restricted to the public. During fieldwork, brief weekly reports will be submitted by the Project Director to the City Archaeologist. During analysis and other non-fieldwork activities, brief monthly reports will be submitted to the City Archaeologist. No private property will be surveyed without permission from the owner; land ownership at the



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edge of the South Mountain Preserve is to be determined by County Assessor's records. All field participants must sign a form acknowledging certain risks are involved in surveying and agreeing to follow Preserve regulations. Finally, Media protocol will be established for the project by ASU and the City of Phoenix and must be followed by all members of the project.

National Register of Historic Places Eligibility

A critical component of our research at South Mountain involves determining the eligibility of prehistoric sites for nomination to the National Register of Historic Places (NRHP). National Register nomination is important because it provides a means of protecting and preserving resources for future generations to enjoy. Sadly, only a very small percentage of rock art sites in Arizona have been nominated to the NRHP—about 5 percent of the 2300 rock art sites that were known in 1995 were nominated to the National Register (Thiel 1995). In order to prepare nominations for NRHP inclusion, we must evaluate both the significance and the integrity of rock art sites that we record in South Mountain Park.

NHRP Significance

The significance of rock art sites potentially falls under four different criteria. Criterion A applies to sites that provide information on historic events contributing to our nation's history. Thiel (1995) notes that certain rock art sites may be significant under this criterion if they provide information on exploration and settlement, if they are associated with significant settlements, trails, or boundaries. Alternatively, rock art sites



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deemed to have shamanic significance, or sites that served as celestial observatories might provide information on prehistoric religious beliefs.

Criterion B refers to sites that are associated with locally, regionally, or nationally famous persons. In rare cases, rock art might provide information on ethnic heritage and be associated with historic persons. This would largely be applicable to historic glyphs, and is not expected to be common for petroglyphs at South Mountain.

Significance under Criterion C refers to sites with characteristics of type, period, or method of construction, or representing the work of a master craftsman, or sites with high artistic value. Sites that have significance under this criterion would include very well executed panels, or a series of rock art in an area that conveys a strong sense of prehistoric cultural or sacred landscapes. It is likely that many of the sites that we investigate at South Mountain will be significant under this criterion.

Finally, Criterion D is applicable to sites that are likely to yield information important to our nation's history or prehistory. For rock art sites, this includes not only the rock art panels themselves, but also the other archaeological features and deposits associated with the rock art. A majority of the sites we locate at South Mountain will likely be significant under Criterion D. Investigation of the distribution of rock art and associated archaeological materials can potentially provide a great deal of information on prehistory, including human perception and depiction of nature and the cosmos, information on prehistoric interaction between people, how and why rock art was created, chronological refinement, prehistoric subsistence, and importantly, the nature of ritual activities.



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NRHP Integrity

While many sites at South Mountain will be significant under one or more criteria, they must also have “integrity” to be nominated to the NRHP. Integrity is a qualitative measure of site condition, and involves seven types of integrity (Thiel 1995). These are:

- *Location*: is the rock art in its original location, or has it been moved?
- *Design*: are the elements relatively intact, and visible?
- *Setting*: is the local environment relatively undisturbed? Is the archaeological context (associated features and artifacts) relatively intact?
- *Materials*: for rock art sites, the original materials of construction have not changed. However, extensive graffiti might have changed the materials enough to lose integrity in this area. Reconstructed panels also would not meet materials integrity for nomination.
- *Workmanship*: are elements preserved enough to permit examination of technique?
- *Feeling*: do the surroundings convey a sense of the prehistoric landscape, or is the rock art completely surrounded by modern development?
- *Association*: if nearby panels or boulders have been destroyed or moved, then even if some rock art remains undisturbed at a site, it might lack the necessary association integrity to understand it in its original context

Traditional Cultural Properties

A special type of cultural resource has been recognized by the State Historic Preservation Office that is called a Traditional Cultural Property (TCP). Sites identified as a TCP can also be eligible for inclusion in the National Register if they have traditional cultural significance. These types of resources are often associated with Native American locations that have special meaning to them, such as shrines where ceremonies, tribal traditions, or social activities took place (and may continue to take



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place). National Park Service Bulletin 38 provides guidelines on how to identify Traditional Cultural Properties.

Tribal members of the Gila River Indian Community have informed the City Archaeologist that Traditional Cultural Properties exist within the South Mountains. The Salt River Pima-Maricopa Indian Community and the Hopi Tribe also have identified the South Mountains as culturally significant to them. Therefore, it is important that consultation relating to Traditional Cultural Properties be undertaken as part of the South Mountain Rock Art Project. Indeed, because almost any archaeological feature or petroglyph could potentially be considered a Traditional Cultural Property, it is imperative that all individuals who are working on the South Mountains Rock Art Project show respect for the rock art and associated archaeological materials, similar to the respect that would be shown for a church, synagogue, or mosque.

Field Recording Strategy

The South Mountain Rock Art Project team recognizes that archaeological sites are recorded with varying levels of detail based on the goals of the investigator, whether for regulatory compliance or to address specific research questions. Levels of recordation can range from simple reconnaissance (noting the presence of archaeological materials) to detailed collection and mapping, to even more complex analysis of the landscape context of archaeological resources. These levels of recording are not mutually exclusive, since information recorded more quickly at lower levels of analysis can be used to prioritize and inform on subsequent, more detailed analysis of artifacts and features on the landscape. Another important factor is the highly variable visibility of rock art and other archaeological features under different



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lighting conditions, which precludes the use of single visits to a locale to adequately record all of the features present (Huang 2006). Many petroglyphs at South Mountain are virtually invisible in direct sunlight.

Unfortunately, the archaeological discipline has done a poor job in recent decades of integrating rock art into archaeological research, and rock art researchers have had varying success at integrating traditional archaeological data into their analyses. Few guidelines exist, for example, on how to define site boundaries for scattered rock art features across a landscape (Loendorf 2001), how rock art can assist in understanding adjacent archaeological features, or how to relate archaeological materials to nearby rock art. If archaeologists continue to ignore or discount the scientific value of rock art, and rock art researchers continue to examine their subject in isolation from surrounding archaeological materials, the situation will not improve. So, to promote more complete recordation and integration with the archaeological discipline, the South Mountain Rock Art Project will employ a strategy of multiple recording levels, integrating all prehistoric archaeological features and artifacts, and requiring multiple visits to site localities.

A key component of the South Mountains Rock Art Project is to document all prehistoric activity areas encountered during survey, whether they have evidence for rock art, or not. We will treat rock art methodologically as we would any other archaeological feature—a (mostly) non-portable artifact of human activity. Curation agreements with the City of Phoenix and an Arizona Antiquities project-specific permit issued to the City Archaeologist allow the project to collect artifacts. Therefore, the project team leaders will supervise the collection of (1) temporally diagnostic artifacts



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(painted ceramics and projectile points), (2) “spatially diagnostic” artifacts—plain ware ceramics whose temper can be used to document production source, and (3) functionally diagnostic artifacts (such as flake tools) that provide information on prehistoric activities. When correlated with adjacent rock art panels and other archaeological features, we hope to be able to refine stylistic chronologies for the South Mountains rock art, better understand the social context of production and use of rock art, and to investigate how they may have functioned with respect to other prehistoric human activities.

It is critical that rock art features be examined in their landscape context, including the viewshed around rock art, since the petroglyphs and their associated features may reference something near to or visible from the panel (Hartley and Vawser 1998; Loendorf 1994; Swartz and Hurlbutt 1994; Tacon 1994). There can be strong associations between rock art and prehistoric trails (e.g., Britt 1973; Hamman and Hedges 1986), agricultural fields and settlements, or physical elements of the landscape, such as springs, washes, or rock shelters (Hartley 1991). In addition, the relationship between constructed features and their viewshed (areas of the landscape visible from a place) can be important (Hartley and Vawser 1998; Loendorf 1994; Swartz and Hurlbutt 1994; Tacon 1994), as can the intervisibility of features (Shaw 1999; Swanson 2003). The documentation of archaeological features and landscape settings will permit the statistical examination of their relation to the presence and combination of various petroglyph elements, which in turn may inform on indigenous perceptions of the natural and built environment.



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Perceptions of the landscape by prehistoric people may have prompted them to encode information about social identities and individual experiences in their rock art and other constructed features (Insoll 2004). Shrines, for example, are usually embedded within their surrounding landscape, having spatial and line-of-sight connections to various features of the landscape. Although reconstructing the meanings of those connections is difficult, their recordation and analysis is very important (Layton and Ucko 1999; Thomas 2001; Tilly 1994). Many landscape studies have distinguished between sacred versus secular landscapes, but these two categories are ambiguous, difficult to operationalize, and may have limited utility for understanding the nuances and variability of a particular landscape (Bradley 2000; Insoll 2004). Ethnographic data (information collected historically from indigenous people) and modern consultation with local tribal groups are essential components of landscape studies, in part because concepts of what constitutes “sacredness” may vary considerably among (and perhaps within) different cultural groups (Hubert 1994).

Our initial field research starts with a “siteless” recording strategy (*sensu* Dunnell and Dancey 1983), allowing us to determine the nature and extent of rock art sites in their archaeological and landscape setting using a deductive approach. Since far too little research has been done to integrate traditional archaeology with rock art research, this approach allows us to avoid *a priori* notions of how site boundaries should be drawn around what may be very dispersed features. Subsequent analyses and recordation will use geographic information system (GIS) software to delineate site boundaries (necessary for National Register nomination), but will still permit spatial analyses of relationships between features and landscape elements regardless of site boundaries.



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In this project, we utilize four phases or levels of recordation, each with accompanying forms. The levels are hierarchical and proceed in order, as each builds on earlier levels of recordation.

Table 1: Recordation levels adopted for the South Mountain Rock Art Project

Recordation Level	Analytical Unit(s)	Description of Activities
1	Locus, Isolated occurrence (I/O)	Locate and define features/artifacts within 50 meters of one another as loci or isolated occurrences. Collect summary archaeological and contextual information. Prioritize subsequent recordation based on evidence for vandalism and information potential.
2	Site, Feature	Use GIS to delineate site boundaries. Photograph and record detailed locational information for features. Create site map electronically or on paper.
3	Subfeature	Photograph and record detailed information at subfeature level (e.g., panels, individual agricultural terraces).
4	Landscape or other	Specialized studies, such as solstice observations, light-shadow interactions with petroglyph features, balloon aerial photography of site localities, collecting chronometric samples

Level 1 recordation is reconnaissance survey, and is appropriate for initial surveys designed to identify locations with evidence of prehistoric human activity, for subsequent prioritization for site delineation and recording. Conceptually, it involves scanning the landscape and flagging (with a GPS) all features so that concentrations of archaeological resources can be determined in the lab using GIS software. Logistically,



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individual features and groups of features within 50 meters of one another will be recorded as a “locus” in the field. For each defined locus, crews will collect summary information on the types and numbers of features and artifacts present, landscape setting (landform, vegetation, visibility), and the presence of historic/recent trash and/or graffiti. Lone artifacts seen during survey that are temporally or functionally diagnostic (e.g., tools or painted pottery) will be recorded as isolated occurrences.

With the participation of multiple volunteers on different crews working in the survey area, it is critical after initial reconnaissance to evaluate the completeness of reconnaissance. The technique that SMRAP adopted for accomplishing this relied on the GPS track logs that were recorded during survey. After crews had covered all of the survey area, we loaded all of the GPS track logs from the previous months into the project GIS database. An examination of these linear tracks indicated that two small areas had not received coverage, which were located in rugged terrain. These “holes” in the survey coverage were mapped and loaded onto the GPS units, and crews were sent into the field to survey these areas.

Level 2 recordation builds on Level 1 reconnaissance with more traditional archaeological site recording. Using data collected during Level 1 recording, the spatial distribution of loci and isolated occurrences are evaluated using a GIS to detect clusters of loci or individual artifacts not apparent in the field to delineate “site” boundaries. In some cases, this results in the lumping of more than one locus as a site. At this stage, it is appropriate to perform artifact collections, since the location of systematic collections and artifacts can be plotted on the site map. Each site is assigned an Arizona State Museum (ASM) site number, an ASM site card is completed in the field,



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and a site map is created showing the location of features and collected artifacts. Each feature is assigned a feature number, photographed, and UTM coordinates are recorded.

Level 3 recordation builds on Level 2, recording at the level of the “subfeature” (details of features) at designated sites. Preliminary surveys in the field suggest that rock art, rock shelters, and agricultural features are the predominant features present in the survey area at South Mountain Park, so our Level 3 forms focus on these ubiquitous features. Other projects could add additional forms to record typical features present in other areas that would be important for understanding prehistoric use of the landscape and its relation to rock art.

Finally, Level 4 recording is conceptualized as specialized studies that either transcend “site-feature-subfeature” levels of analysis or focus on specific research questions that require in-field analysis. Currently, this project has developed a form for aerial photography, and several forms for systematizing the recordation of archaeoastronomical observations involving rock art and surrounding landscape elements.

Research Questions and Analysis

As the South Mountains project progresses, additional forms will be added and research questions will be developed based on earlier stages of analysis. In the planning stages, there are forms for documenting 3D scanning of petroglyphs, as well as electronic forms for systematic classification of petroglyph elements expanding on Wallace’s (1989) element classification scheme (see Appendix B). Forms for the latter will be developed following Anati’s five-stage analytical schema for rock art (1994:47):



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- 1) Thematic: figure types, ideograms;
- 2) Associative: simple to complex compositions or scenes;
- 3) Stylistic: naturalistic and realistic figures, ideographic sequences;
- 4) Technical: painting, engraving, scratches, pecking etc.; and
- 5) Locational: cultural and natural contexts of rock art.

After there are complete inventories of the rock art and archaeology of the South Mountains (or portions thereof), analyses in these five areas can proceed. In addition, experimental archaeology projects can be conducted that provide insight into the results of the various analyses, with particular relevance for technical studies (Bednarik 2001; Loendorf 1993).

Preservation and Protection

The systematic collection and analysis of field data supports one of the critical goals of the South Mountains Rock Art Project—to develop a management plan for the preservation of rock art and its associated features (Bostwick 1998). Successful preservation programs must be comprehensive but flexible, depending on the circumstances and setting at each site (Loubster 1995, 2001; Ritter 1995). Lee (1991) has outlined some important steps in the process. Four main steps in the management of rock art sites are: (1) development of a management policy, (2) assessment of the value and significance of the sites, (3) thorough documentation of the sites, and (4) a management plan that includes interpretation, maintenance, restoration, and visitor control. Loubster (2001) identifies a series of inter-related assessments (significance, condition, management) and strategies (conservation, visitor, marketing) that result in a set of management recommendations, including reassessments and strategy modifications.



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The SMRAP management plan will borrow from two recent management documents. The Archaeological Conservancy Management Plan (2007) for the Wells Petroglyph Preserve in New Mexico contains five major components:

- 1) Background and purpose
- 2) Previous research
- 3) Site security and protection
- 4) Site access (Professional, Public, and Native American), and
- 5) Erosion control

The American Rock Art Research Association has prepared the ARARA Guidelines for Managers of Rock Art Sites on Public Land” (2001). These guidelines contain ten basic categories:

- 1) Significance
- 2) Conservation policy
- 3) Public comment
- 4) Site documentation
- 5) Determination of appropriate type and level of visitation
- 6) Conservation efforts
- 7) Development of appropriate facilities
- 8) Monitoring and evaluation
- 9) Public volunteerism, and
- 10) Interpretation

The management policy should provide guidelines for controlling the use and preservation of the sites, and must be sensitive to the needs of the local community and consistent with the existing policies of the land-managing agency (i.e., City of Phoenix Parks and Recreation Department). The framework for the long-term management of cultural and environmental resources within the South Mountains was established by the City of Phoenix’s 1989 Master Plan for South Mountain Park. This Master Plan attempts to achieve a balance between protection of natural resources and providing recreational opportunities, and encourages the development of multi-dimensional,



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educational, and interpretive programs. The various components of the South Mountains Rock Art project will contribute to the goals of the Master Plan.

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Recordation Levels

The outline below describes the purposes or goals of each of these four levels of recordation, and lists the relevant forms that are to be used for that stage of analysis.

Level 1: Site/Locus Reconnaissance

- Purposes:
- Identify loci of prehistoric/historic artifacts and features
 - Plot locations of loci map to generate understanding of site extents
 - Gather preliminary archaeological, landscape, and rock art information
 - Track early data collection
 - Develop prioritization for Level 2 recording
- Forms:
- Site/Locus Reconnaissance Form
 - Photo Log
 - Team leader Daily Log
 - 7.5 minute USGS topographic map

Level 2: Site Documentation and Feature-level recording

- Purposes:
- Fill out ASM site card for inclusion in statewide database
 - Create detailed plan-view map of site with features and site boundaries
 - Establish site datum (metal spike and tag)
 - Determine nature and extent of archaeological site
 - Provide documentation for determining NRHP eligibility
 - Develop prioritization for Level 3 and Level 4 recording
- Forms:
- ASM Site Card
 - Feature Log
 - Site mapping Form
 - Photo Log
 - Team leader Daily Log

Level 3: Subfeature-level recording

- Purposes:
- Detailed recording of feature attributes



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Determine utility for answering (Level 4) research questions

Prioritize importance for preservation and management

Forms: Rock Art Panel Data Form (if applicable)

Agricultural Feature Form (if applicable)

Rock Shelter Form (if applicable)

Photo Log

Team leader Daily Log

Level 4: Specialized studies

Purposes: Most detailed level of recording to answer a specific research question

Contribute to academic research and innovative recording techniques

Contribute to detailed element-based glyph analyses

Prioritize importance for preservation and management

Forms: Archaeoastronomy Forms (if applicable):

Rock Art/Architecture Night Sky Record

Eastern Horizon Sunrise Record

Western Horizon Sunset Record

Solar Year Light and Shadow Patterns Form

Balloon Aerial Photography Form

Photo Log

Team leader Daily Log

Level 1 Recordation: Archaeological Reconnaissance Survey

The purpose of Level 1 recording is to provide a preliminary record of cultural resources in South Mountain Park so that site boundaries can be designated and intensive recording can be prioritized. The designation of site boundaries can be a challenge in rock art research, especially since there have been few efforts to integrate rock art recording into standard archaeological surveys. For the South Mountains, there appears to be a continuous distribution of petroglyphs and other archaeological features



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along the northern boundary of the park. There is little guidance available in existing publications that indicate how small or large South Mountain sites with petroglyphs should be. Where does one site start and another end? While in some cases this might be easy to determine, in others it may prove quite difficult. Although this is a challenge, it also provides us with opportunities develop a standard for determining site boundaries.

Bostwick and Krocek (2002) identified a series of rock art “loci” in the South Mountains, which they delimited partly based on geographic criteria such as canyons, valleys, and ridge tops. It was expected that these loci could later be subdivided into specific archaeological sites. For the current project, a detailed database of panel locations and areas without panels will be created and then combined with information on other archaeological materials, which should help determine how to delineate archaeological sites at the South Mountains. At the same, having our data recorded at the level of the locus also provides more freedom in splitting and recombining sites as more information comes in. It also allows a more detailed analysis of where archaeological features are located on the landscape. This will likely be very informative since South Mountain Park consists of rugged terrain.

Another pressing concern that our Level 1 recording is designed to address is the prioritization of subsequent recording. Cultural resources that are in danger of destruction through natural or cultural processes should have a higher priority for more intensive recordation. Petroglyphs in out of the way places might be in less danger, and so we may be able to wait longer to get these intensively recorded. Along the northern boundary of the park, for instance, we expect to find hundreds of panels, and many



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areas along this boundary may be impacted by residential and commercial development. We also expect to find evidence for vandalism in high traffic areas, and these areas will receive high priority for recordation and the development of protection plans, where appropriate.

Level 1 recordation is **not** designed to provide enough information to submit site forms to the Arizona State Museum or to determine the eligibility of sites for nomination to the National Register of Historic Places. It is also not designed to be an adequate level of recording for any archaeological feature. Level 1 recordation is a reconnaissance-level survey that is designed to provide a way of quickly recording the location of archaeological resources in the park, determining their extent and character, their landscape context, and whether they are in imminent danger of destruction. Once there has been the identification of several archaeological loci in an area, the project director will use the collected information to designate site boundaries, assigning one or more loci to a single ASM site number, and the site will then be placed on a list for subsequent Level 2 recordation.

Procedures for Level 1 Recordation

Preparing to go into the field

- Level 1 recording will be conducted by teams consisting of one or more official project members accompanied by students or community volunteers. Each team member must have a completed volunteer information sheet on file before going into the field. The project maintains an electronic mail “Listserv” to notify volunteers of upcoming field days.
- Each crewmember must complete the Volunteer Effort Log so that we can track people’s hours, and so that we know who is in the field. No volunteers should go



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into the field alone without prior permission from the Project Director, so that Park staff can be notified of survey activities beforehand.

Field equipment

- The SMRAP uses large daypacks to store equipment for fieldwork, each labeled with a number (1 to 4) that corresponds with numbers on digital cameras and GPS units. This helps to keep data recorded by individual teams organized and easier to track. We have found it simple to pack the necessary equipment and forms into each backpack based on the level of recordation currently being conducted.
- Each team will take a digital camera and GPS. Again, making sure that the number on the GPS matches the number on the camera is important for linking photographs and GPS data in the lab.
- Make sure the form clipboard in the backpack has enough level one recording forms. We have found that a crew working for 6 hours in the field can record from 1 to 4 loci in a single day, depending on crew skill and the density of archaeological materials.
- Forms for Level 1 Recordation:
 - SMRAP Site/Locus Reconnaissance Form
 - SMRAP Photographic Log
 - Daily Field Log

Fieldwork

- The Project Director will assign geographic surveying areas to each crew.
- Each crew should have a detailed topographic map showing their survey area, or this should be loaded electronically onto the GPS. The team leader or designee should indicate on the Daily Log where the team intends to survey, and where they have actually surveyed.
- Before survey begins, Team Leaders should make do a last-minute check to make sure the team has all necessary equipment and forms, First Aid kit, and that the crew has plenty of water for the day.



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- The SMRAP uses a variable crew spacing to conduct systematic transects of survey areas. Depending on the complexity of the terrain, Team Leaders can opt to space crewmembers from 5 to 15 meters apart. Try to be as thorough as possible, and keep in mind that petroglyphs may not be visible under current lighting conditions. On many occasions, our surveying teams have found “new” petroglyphs at loci they had already recorded, and even new loci in areas already surveyed, due to changes in the sun’s illumination angle relative to panels. This can also be the case for subtle ground features and artifacts. This means that surveyors should always be scanning the landscape, especially when returning across previously surveyed areas.



Figure 3: City of Phoenix Archaeologist Todd Bostwick demonstrates the impact of sun illumination and shadows on petroglyph visibility.

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Recording Loci

- When a locus is found, the crew should first consult the GPS to make sure that it has not been previously recorded by another crew.
- If it is a new locus, then one person should start filling out forms while everyone else on the team starts looking in each direction for petroglyphs, artifacts and features to determine the extent of the locus. The SMRAP has adopted a 50-meter rule for defining locus boundaries: if the next feature is more than 50 meters away, it will be recorded as part of a new locus. While this number is arbitrary, survey results show that it is an appropriate scale for the survey areas we have been working in at South Mountain.
- Once the team has a good handle on the extent, kind, and number of features and artifacts, the crew should roughly locate the center point for the site and record it using the GPS.
- The Team Leader should verify that all information has been filled out on the forms before continuing with survey. Be sure to follow the instructions provided for information on how to fill out each part of the form.

Photographic Documentation

- Since the SMRAP uses GPS data to track the locations of photos taken in the field, it is critical that each team keep the GPS and digital camera together while in use.
- Make sure that you take a photograph, first thing each morning, of the clock on the GPS (see picture to right). You must use the clock that records hours, minutes, **and** seconds. Make sure that the time is visible in the photo—glare can often make this difficult.
- In the lab, we will be combining the digital



Figure 4: GPS clock is at the bottom of this screen on the Garmin eTrex™.



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photographs and the GPS data using timestamps on the photos and on the GPS track log. All you have to do is make sure that the digital camera and the GPS are in the same place for every picture you take. What this means is that the same person should be holding the camera and the GPS when pictures are being taken! Also,



Figure 5: Example of panel close-up photo with color DVRAC scale.

make sure that you point the GPS in the same direction as the photo being taken, so that the angle you are facing (recorded by the internal compass in the GPS) will be recorded when you take the photo.

- Take photos of features and interesting artifacts that you encounter at each locus. This means petroglyphs, roasting pits, rock shelter openings, bedrock mortars or grinding slicks, etc.
- For rock art panels, it may be critical to have someone hold up a shading device (provided in the back pack) to maximize contrast. Keeping in mind that digital enhancement can reveal rock art elements invisible to the naked eye, it is important to photograph areas on the rock art surface that do not appear to have glyphs, as well as those that do. This may require taking a series of overlapping photos across the feature. The SMRAP has adopted a convention of photographing these scenes from left to right.

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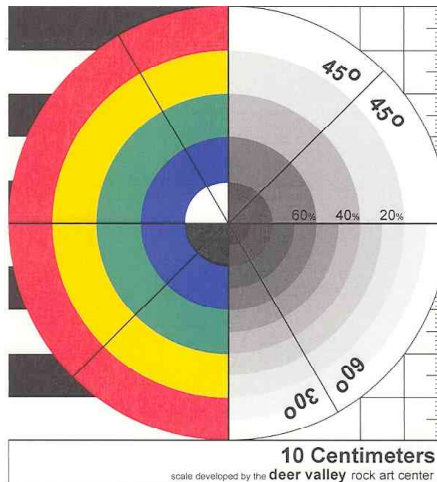


Figure 6: Rock art photo scale developed by Dr. Welsh of the Deer Valley Rock Art Center.

- Make sure that all photos of features have a North arrow and/or scale clearly visible. Close-up petroglyph panel photos must use the circular, color scale developed by the Deer Valley Rock Art Center (see Figure 5 and Figure 6), while feature overview photos must use a larger black and white 1-meter scale bar and north arrow (see Figure 7). Also, be sure to take some “viewshed” photos, showing the landscape that is visible from the locus. These do not require a scale bar.

- Along with the Site/Locus reconnaissance form, the photographs are important information at this level of recording, but they are useless if information on the subject in the photo is not recorded. Fill out the Photo Log meticulously.

Collections

- Our arrangement with the City of Phoenix Parks and Recreation Department allows only restricted artifact collection, so be sure to ask permission of the Project Director before collecting.
- Our project’s research design only requires a sample of artifacts, and these are best collected during Level 2 Site Recordation where precise positional information is



Figure 7: Example of feature overview photo, with vertical 1-meter scale bar and north arrow.

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recorded, so we avoid collecting artifacts in Level 1 reconnaissance.

- There are exceptions to accommodate unforeseen circumstances in the field. For instance, a very large painted sherd or projectile point found alongside a modern trail could provide important chronological information for interpreting features, but might be at risk of being stolen or moved by park users. In this case, the Team Leader can authorize its collection or relocation to a hidden spot nearby for future collection. In either case, it is important to document its original location with UTM coordinates, and new coordinates, if it is relocated. The Team Leader must inform the project director when this situation has arisen.

Post-fieldwork tasks

- After the field crew has completed work for the day, it is the responsibility of each Team Leader to turn in equipment and forms. Forms completed in the field should be submitted to project staff for review before leaving for the day. It is easier to clarify or fill in missing information on the same day than it is weeks later.
- We have found that with our equipment, data need to be uploaded from our 5 mega pixel digital cameras and GPS units every 1 to 2 days of field use, since their memory becomes full.
- To facilitate multiple crews in the field simultaneously, the SMRAP digital cameras are assigned an individual data upload “cradle” by matching large numbers applied to each. The cradles provide single-button uploading to pre-assigned folders on the project workstation.
- As for the cameras, each GPS is also numbered. The Garmin GPS units share a single data upload cable, so daily track-log information must be transferred manually to the appropriate folder.
- Finally, each team should be sure to document their work on the Volunteer Effort Logs. This allows the project to track the number of person hours involved in each stage of recordation, and is useful for grants such as ours that require a cost-match component.



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Level 2 Recordation: Archaeological Site Documentation

The purpose of Level 2 recording is to document the extent and nature of archaeological sites at South Mountain Park for submission to the Arizona State Museum (ASM) and for evaluating eligibility of sites for nomination to the National Register of Historic Places. Data recorded during Level 1 reconnaissance are examined in the lab to determine reasonable boundaries for archaeological sites and prioritize them for Level 2 documentation. Level 2 analyses emphasize information contained in sites at the level of the “feature,” recording the distribution of features and some of their attributes (e.g., size, condition) at individual archaeological sites. In the terminology employed here, features are understood to be non-portable records of human activity, including traditional archaeological features such as agricultural fields or roasting pits, cliff faces with rock art, or artifact scatters. To appropriately record these features the project completes several forms, including the ASM Site Card, the Site Mapping Form, and the Feature Log (available in the appendix).

The latter two forms have also been converted into electronic forms for in-field data recording using ESRI’s ArcPad™ software (version 7) for use on a GPS-enabled



Figure 8: Mapping device used during Level 2 recording, showing aerial photograph of petroglyph features and trails.

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PDA. Our project has successfully used the electronic forms in the field with the Thales MobileMapper™ CE GPS (URL as of the time of writing is <http://pro.magellangps.com>), which provides a spatial accuracy of 1 meter or lower, enabling rapid and sufficiently accurate recording of features at this stage of analysis (Figure 8). Currently, the project has only one such device, although volunteers have been able to learn its use with only a few hours of training, and we may incorporate more such units into our recording processes.

The cost of the device, around \$2500 US in 2006, may be cost prohibitive for some projects, although it does include the ArcPad software, which retails separately for \$400 US. However, at the time of purchase it was the least expensive mapping-quality device on the market, with other comparable devices ranging from double to quadruple the cost of this unit. For projects with a limited budget, a low-cost, but less precise set-up can be devised with the use of a Windows CE-based PDA (required for ArcPad) connected to an inexpensive GPS. This could provide 2-3 meter accuracy for around \$800 US.

In the course of our fieldwork, we have found that there are several advantages of using an electronic mapping device such the MobileMapper CE, including speed, spatial precision, and more complete/consistent attribute recording. Using this technology, SMRAP crews were able to record and collect a very complex site in record time. Over the course of 8 field days, with an average crew of 4 people, we point-plotted nearly 400 artifact collections, mapped dozens of agricultural terraces and three prehistoric trail segments, and recorded over 80 features during Level 2 survey. This speed was achievable not only with faster electronic forms, but also by being able to



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Specimen Comments

FS# 38 Locus 110

Material Groundstone

Type Mano

Collection Type Grab

Area 0 (sq m)

Name Swanson

Date 9/11/2007

September, 2007

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

Today: 9/11/2007

Figure 9: Example of SMRAP custom attribute form used on the MobileMapper.

display detailed aerial photography of the site on the mapping device screen. We have found the spatial precision to be sufficient for mapping objects as near to each other as 50 centimeters, by modifying the number of GPS position fixes that are averaged by ArcPad to compute location.

Attribute recording is streamlined using ArcPad, since it allows us to require that certain fields be completed before the user can save the record. For each form developed electronically, we use a combination of drop-down lists that help to standardize terminology and descriptions, as well as free-form text entry. Automatically

numbered fields (i.e., FS#) helps prevent entry of incorrect values, while carrying over information from previous records (such as locus number, date, and recorder), reduces data entry time.

Procedures for Level 2 Recordation

The procedures that SMRAP has adopted for this stage of archaeological recordation are similar to the Level 1 procedures outlined above, with some important exceptions that are outlined below.

Survey Crew Composition

- Level 2 recording teams must include at least one professional archaeologist that meets the Secretary of the Interior's Professional Qualification Standards, as

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reported in Code of Federal Regulations, 36 CFR Part 61. As in Level 1 recording, each team member must have a completed volunteer information sheet on file before going into the field.

- Our experience in the field has shown that an “ideal” crew size for Level 2 Recording consists of 4 to 5 crewmembers, including the Team Leader.

Additional equipment for Level 2 Recordation

- In addition to the equipment outlined above for Level 1 reconnaissance, crews should also bring datum stakes and aluminum tags, mapping tapes and drafting equipment (or the MobileMapper CE), and additional forms.
- Required forms for Level 2 recording are:
 - ASM Site Card
 - Site Mapping Form
 - Feature Log
 - SMRAP Photograph Log
 - Daily Field Log

Site recording assignments

- In some cases, loci recorded in Level 1 recordation will be split or combined into individual sites. The Project Director will provide a list of sites and associated loci that need to be recorded. To simplify and standardize mapping, our project prints out a customized Site Mapping Forms for each site, which adds the locus point or points to a background showing topographic lines derived from elevation data.
- The Team Leader should indicate on the daily log which site(s) the team intends to record for the day, and provide information about the process and completion of the task.

In-Field Site Documentation

- Level 2 recording is more complex than reconnaissance survey, and we have found that it is helpful to assign specific tasks to crewmembers upon arriving at



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the site to be recorded. These tasks are outlined in the following description of the process we use to record sites:

- Designate one crewmember to work on completing the ASM site card and other forms, one crewmember to begin mapping, and one crewmember to conduct photography.
- One or two crewmembers should begin an intensive survey of the area, systematically if the locus is large, to mark the locations of artifacts and features with colored pin flags. The SMRAP uses different colors for features, ceramics, and lithics. Features should be numbered sequentially either on the pin flag, or if not practical, then with a small piece of blue masking tape.
- Mark a convenient, central location as the site datum, preferably in a relatively untraveled (e.g., off-trail) location from which most features are visible. Attach an aluminum tag to the datum stake with wire and insert this into the ground. If trails are nearby, it may be necessary to cover the stake with one or more rocks to protect it from disturbance.
- The photographer, forms person, and site mapper will visit each feature in turn to photograph, describe, and record their location, plotting them on the site map. Each feature will be entered onto the Feature Log, and summarized on the ASM Site Card.

Site Mapping Notes

- Use the site mapping form to create a map showing the site datum, site boundaries, and the location of archaeological features, important artifacts, and collection areas. Be sure to include significant landscape features such as large boulders, outcrops, or cliffs whether they include rock art or not. All features must be plotted on the map and labeled with their feature number. Make sure that the artifact scatter extent and any collections/collection areas are plotted on the site map.
- When creating a paper-based site map, distances should be measured using tapes or a laser range finder, rather than by pacing, and the map should be plotted at the maximum scale possible available in the space available. Also,



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make sure that the map is plotted using true north, not magnetic north. Indicate which direction is north on the map. If possible, this should point toward the top of the form, by convention. (Note: this is not relevant when using the MobileMapper).

Photographic Documentation Notes

- Take a photograph of the datum location for future reference and get a good GPS reading of the datum location—this will go on the site form.
- Take good photos of every feature on the site with scales and north arrows, where possible, and make sure these are well documented on the photo log. Close-up petroglyph photos must use the circular, color scale. Overview photos should use the larger black and white scale pole and north arrow. Also, be sure to take some viewshed photos, which do not require a scale bar, showing the landscape that is visible from the site.
- Along with the Site/Locus recon form, the photographs are important information at this level of recording, but they are useless if we do not know what the picture is of. Fill out forms carefully!

Ceramic collection

- After the site's ground surface has been thoroughly inspected and the locations of features and artifacts plotted, the crew member(s) who marked these items can begin completing artifact tags for collection.
- If there are sherds present on the site, but there are no distinct pot-breaks or clusters of sherd types, then it is appropriate to conduct a controlled sherd collection. To do this, locate the area of densest ceramic scatter and mark this with a pin flag. This will become the center of the sherd collection area, and the UTM coordinates of this location will be recorded on the artifact collection tag. Working in a circle around the pin-flag, collect every sherd that is quarter-sized or larger (about an inch across) up to a maximum of 100 sherds. Place these sherds in a plastic bag, and fill out a paper tag for the collection. Write down the collection area measurement in square meters or the radius of the collection



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circle in meters. In the space provided on the tag, write the UTM coordinates of the center of the collection area, or in the case of a pot-break collected on a slope, the coordinates of the uppermost (highest elevation) sherd.

- If there are apparent pot-breaks—clusters of sherds that appear to be from the same vessel, these will be collected and mapped separately from other sherds. Place these sherds in a plastic bag, and fill out a paper tag for the collection. Write down the collection area measurement in square meters. For pot-breaks on level surfaces, record the UTM coordinates of the center of the collection area. For pot-breaks collected on a slope, record the coordinates of the uppermost (highest elevation) sherd.
- The SMRAP also encourages the collection of individual, temporally diagnostic sherds that are not part of a pot-break. By recording individual UTM coordinates for these, their spatial correlation with adjacent features can provide potentially useful information on when the features were constructed and/or used. This type of collection is typically reserved for painted sherds, especially those that are close to a feature. In the latter case, it is critical that such spatial associations are noted on the tag in the space provided.

Other artifact collections

- In addition to the sherd collections, we will also collect any temporally or functionally diagnostic artifacts (projectile points, axes, agave knives, spindle whorls, etc). If present, obsidian flakes can be placed into a single bag and labeled as a “grab bag,” signifying their opportunistic collection at the site outside the controlled area. Collect any projectile points, tools, or “exotic” artifacts (such as shell or turquoise) individually with their own unique coordinates and mark these on the site map. These can provide important information on the activities that occurred at a site, trade relations, and possibly ceremonial use of site localities. Caveat: at some sites, we have found literally hundreds of tools present; in these cases, do not collect all of them. At these sites, we use the Mobile Mapper to record the location and attributes of “uncollected” tools.



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Post-field activities

- Return equipment and forms to the project office as for Level 1 recording.
- All artifacts must be returned to the project office with appropriate documentation. SMRAP keeps an artifact “inbox” in the office. Make sure that delicate items are not crushed by heavier items when placing these in the box.
- It is important to double-check the artifact collections you are submitting against the Specimen Log to make sure they are all turned in. It is easy for a small artifact to be inadvertently left in the bottom of a backpack.



Figure 10: Aerial balloon photography is an example of the more in-depth recording done during Level 3 and 4.

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Levels 3 and 4 Recordation: Specialized Studies

Recordation in levels 3 and 4 involves specialized tasks, and will occur only at particular locations after levels 1 and 2 have been completed. Recording at these levels is expected to be on an *ad hoc* basis guided by research interests of project personnel, and according to the types of sites that are located during survey. The majority of recordation at this level will likely involve detailed panel drawings for classification of motifs, documenting superimposed elements, and for prioritizing preservation efforts. Level 3 and 4 recordation will be organized by project personnel, and will adhere to the protocols set out for the project.

South Mountain Rock Art Project Lab and Field Forms

In order to ensure consistent recording of observations, photographs, and artifact collections, the project employs a series of forms that are used at different levels of recordation. This is especially important for a long-term project such as this, and where field personnel and their levels of experience vary considerably over time. The pages that follow include all of the laboratory and field forms currently in use on the project and instructions for filling them out. Please make sure that you have read the relevant **instructions** before attempting to complete a form. If you have any questions after reading the instructions, please notify your team leader or the project director and they will be happy to answer your questions. It is very important that you write legibly on all forms and tags. Penmanship does count! The forms that we complete become part of the archaeological record for the South Mountains, and will be used as a resource for future researchers and park managers. Therefore, it is imperative that we follow some basic rules in filling out these forms.



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Forms must be completed using a **pencil**, not an ink pen. Graphite can remain legible for a very long time as long as it is not smeared and rubbed repeatedly. There are site forms at archives in the Southwest that were filled out in the 1800s in pencil that are still very legible, while more recent forms filled out in the 1940s and 1950s with ink pens have faded until they are virtually invisible. Try to minimize erasure on the forms. For artifact tags, the use of Sharpie pens is authorized. It is also important that forms be filled out **completely!** Make sure there are no blanks left empty on the forms before you leave the field, and definitely before you turn it in. It can be very hard to remember information about a site a week after being in the field, so get the information recorded while you are there, even if you have to delay the rest of your crew. It may not be popular that day, but speaking from experience, some archaeologist 100 years from now will appreciate it.



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General Forms (all levels of analysis):

Specimen Log

Leader's Daily Field Log

Photo Log



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Instructions for completing **Specimen Log**

Note: This is a lab form and does not go into the field.

Field Specimen #: This is a sequential, whole number that continues in numerical order. Make sure not to skip or repeat numbers to avoid confusion.

SMP Field #: Temporary identification number assigned to the locus in the field. Usually starts with SMP.

ASM Site Num: Write in the ASM site number, if known.

Spec Code: Typically this will be “1” for ceramics. Other codes are shown at the bottom of the sheet.

UTM: Enter the Easting and Northing readings from the artifact tag.

Collection type: this should be “controlled” for collections that are taken from a known location at a known extent, “diagnostic” for grab-bag samples of temporally or culturally diagnostic artifacts, or “opportunistic” for collection of a non-diagnostic artifact that had to be collected (with prior permission, of course) due to its intrinsic value and danger of being taken.

Collection area: For “controlled” collections, write in the area in square meters from which artifacts were collected, rounded to the nearest square meter. (Hint: the area of a circle is calculated by squaring the radius and multiplying by $\pi = 3.14$)

Feature Num: Feature numbers are assigned during mapping. Make sure the feature you record matches the assignment on the site map

Feature Type: What kind of feature did the collection come from? If it is from an artifact scatter with no visible features, write, “scatter.” If the collection was taken from a feature like a room, a field, etc. then write this in the blank.

Date (ddMMMyy): Write date artifacts were collected in the ddMMMyy format. E.g., April 19, 2006 would be: 19APR06.

Field Initials: write in the initials of the person(s) who collected the artifacts, from the tag on the bag.

Lab Bag Chk: This is for lab use only. Leave blank.

Lab Frm Chk: This is for lab use only. Leave blank.



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Instructions for completing **Team Leader's Daily Field Log**

Team Leader: write in the name of the person in charge of the crew for the day, usually the person with the most experience. They are responsible for filling in this form.

Crew Members: Write down the initials of the crewmembers.

Date (ddMMMyy): Write date in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Time (24hour): Write time of day that the crew left for the field and the time that they returned on the form. Use the 24-hour clock to avoid confusion. E.g., 1:30 pm would be 1330.

Weather Conditions: Indicate if the day was sunny, rainy, overcast, etc.

Geographic Locality of Fieldwork: Write down where the crew worked on this day, using the locality names designated on the project wall-map.

Recordation Level: Write down which recordation level(s) your crew is performing today.


Recording Strategy: The strategy you are using to locate archaeological resources. This strategy could be “regular” and involve regularly spaced transects seeking features, or “landscape-based” and involve following landscape contours/paths to locate features. Alternatively, you might be relocating previously recorded features. It is important that you indicate which you are using, especially for survey, so that the extent of coverage in an area can be determined.

Description of Field Activities


This area is critical for the project, and provides a record for future researchers to get an understanding of how well fieldwork was going on any particular day. This form, like all of the others, becomes part of the archaeological documentation of the sites. Use this space to write down **everything** that the crew did for the day. Make notes about the field conditions, features located, and indicate any problems that came up. Note any interesting artifacts that the project might want to be aware of (but might not want to collect). Was the crew working under optimal conditions? Alternatively, were they hot and tired? Was visibility bad because there was a lot of brush or other plants obscuring the ground? Were there questionable petroglyphs that were not recorded, but that we might want to revisit under better lighting conditions? Did rattlesnakes keep the crew from visiting certain areas for survey?



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South Mountain Rock Art Project Photo Log



Photographer(s): _____
 Date (ddMMMy): _____
 Weather Conditions: _____

Camera #: _____
 Format: JPEG TIFF Other _____
 Digital Resolution: _____ megapixels

For film cameras: Roll # _____
 Film Type: BW Other _____
 Film Speed: _____

IMPORTANT: if ANY of the above data changes, START A NEW FORM

Full Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					
Photo #	Facing °	Subject °	Locus: SMP _____	Feature <input type="checkbox"/>	Subfeature/Panel <input type="checkbox"/>	Artifact <input type="checkbox"/>	Panorama Series <input type="checkbox"/>	Viewshed <input type="checkbox"/>	Other: _____
				Caption: _____					

Figure 13: Photo log (front side).

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Instructions for completing **Photo Log**

Photographer(s): Write in first initial(s) and last name(s) of person shooting pictures and/or assisting with photos.

Date (ddMMMyy): Write date in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Weather Conditions: e.g., sunny, overcast, rainy, dark, etc. Helpful for interpreting image quality and feature visibility.

Camera #: Every project camera has a number on it. Write the number of the camera you are using in this space.

For Digital Photography

Format: Check appropriate box for file format of pictures being stored on camera. This will usually be JPEG format for the KODAK digital cameras, but may differ for other cameras.

Resolution: record the pixel resolution being used (e.g., 5 mega pixels)

For Film Photography

Roll #: Write in the roll number of the film in the camera.

Film Type: Check appropriate box. If not using project B/W film, check “other” and write in brand and type.

Film Speed: Write film speed (ISO).

Photo #: For digital cameras record the internal image number. For the first blank, you can write in the full number, which would be in the format 100-431, for example. This will often be your first photograph of the day, which will be the photo of the GPS Time Stamp in Hours, Minutes and Seconds. For subsequent shots, you can eliminate the prefix, and you can use number sequences if you are bracketing exposures of the same shot (E.g., #432-434). *Note that you must not record the descending “exposures remaining” that some digital cameras record. This is not a non-repeating number, so it does not uniquely identify the photograph. Digital cameras record an internal number for every picture taken. Use this number.*

For Film cameras, record just the exposure number, and as for digital photography, indicate frame number series if bracketing exposures of same shot (e.g., 22-24 indicates bracketing of the same shot in frames 22, 23, and 24).

Facing: Record the direction that the camera is facing in the photograph in degrees from True North based on the GPS internal electronic compass. If using a film camera, get the direction you are facing using a compass. For shots taken facing down (e.g., a photo of a stone scraper on the ground) you should still have a direction facing—you will have the north arrow scale bar pointing north in the photo, but still need to record the direction in degrees at the top of the photo. If you are inside a rock shelter, for instance, and



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absolutely cannot get a compass reading, then you may use cardinal direction as an estimate. In this rare case, use letters such as NW or E to distinguish from actual direction readings and do not use 315° or 90°, so that we know it is an estimate.

Locus: It is important that you write in the locus number that your photograph is associated with. Exceptions would be photographs of isolated artifacts and the photo of the GPS time stamp when you are starting out.

Subject: Check the box that best indicates the subject matter of the photo. Use the “other” category sparingly—for artifacts or plants, for example.

Caption: Provide a description of what you are photographing, as if you were writing a photo caption. An example would be “Close-up of petroglyph on rock shelter.” If you are photographing at an established site, then record the appropriate ID#(s) of the site, feature, or subfeature(s) you are photographing.



South Mountain Rock Art Project Field Manual

Level 1 Forms:

Feature/Locus Reconnaissance Form

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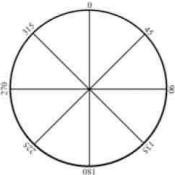
	South Mountain Rock Art Project Feature/Locus Reconnaissance Form	
Recorders: _____ Field #: _____ ASM Site #: _____ Feature/Locus Name: _____	Date (ddMMMy): _____ Time (24hour): _____ Weather Conditions: _____	
Feature/locus provenience Geographic Locality: _____ GPS Unit #: _____ Waypoint ID: _____ (center of locus) NAD83 UTM Coords: _____ East _____ North _____ Elev (m) ± _____ (m)		
Archaeological context Site Type: _____ Site Size: _____ m N-S x _____ m E-W Description: _____ _____ Features present: <input type="checkbox"/> Rockshelter <input type="checkbox"/> Agricultural <input type="checkbox"/> Residential <input type="checkbox"/> Other: _____ Pottery types present: <input type="checkbox"/> Plain/buff <input type="checkbox"/> Red <input type="checkbox"/> Red-on-buff <input type="checkbox"/> Polychrome <input type="checkbox"/> Other: _____ Other artifacts noted: _____		
Landscape context <input type="checkbox"/> Hilltop <input type="checkbox"/> Ridge/Saddle <input type="checkbox"/> Hillside/Slope <input type="checkbox"/> Valley/Flat <input type="checkbox"/> Canyon/Wash <input type="checkbox"/> Tank/Gallery Vegetation present: _____ _____ _____		Horizon visibility Shade in visible lines-of-sight from feature to distant horizon (beyond park)
		
Prehistoric Rock Art information Rock art context: <input type="checkbox"/> Rock shelter <input type="checkbox"/> Cliff Face <input type="checkbox"/> Table Rock <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Other: _____ Worked Surfaces Are Primarily: <input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal <input type="checkbox"/> Sloping <input type="checkbox"/> Overhead Panels face what direction(s): _____ Estimated No. of Panels: _____ Site has archaeoastronomy potential: <input type="checkbox"/> Likely <input type="checkbox"/> Unlikely Techniques (check all that apply) Petroglyphs: <input type="checkbox"/> Abraded <input type="checkbox"/> Incised <input type="checkbox"/> Pecked <input type="checkbox"/> Scratched <input type="checkbox"/> Other: _____ Pictographs: <input type="checkbox"/> Drawn <input type="checkbox"/> Painted <input type="checkbox"/> Blown/sprayed Colors: _____ Natural Defacements: _____ Erosion: <input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy Lichen: <input type="checkbox"/> None to light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy Patina: <input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy Vandalism: _____ Description of rock art: _____ _____		
Additional information (submit photo log and enter collections on specimen log) Photo Log Numbers: _____ Artifact collections (only with approval) list types: _____ Field Spec No.(s): _____ Master Spec No.(s): _____ Comments: _____ _____		
Revised 20 October 2006 Level 1		

Figure 14: Feature/locus reconnaissance form.

South Mountain Rock Art Project Field Manual

Instructions for completing Level 1: **Site/Locus Reconnaissance Form**

Recorders: Write down the first initial and last name of person(s) preparing the form.

Field #: Temporary identification number assigned to the locus in the field.

ASM Site #: Official site number given in lab, once we have done Level 2 recording. Do not fill this in unless directed by the team leader.

Site/Locus Name: consult with team leader to give the locus a name.

Date (ddMMMyy): Write date in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Time (24hour): Write time of day using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

Weather conditions: e.g., sunny, overcast, rainy, windy.

Geographic locality: General location on map based on Bostwick & Krocek's 2002 naming system, such as 24th Street locality.

Ownership: whose land is site located on (e.g., private property owner, SMP for south mountain park)

UTM Info: Check which datum GPS is using, and enter UTM coordinates for rough center of site, or at panels.

Site Type: what kind of site is this? Residential? Rock shelter? Agricultural?

List features present: E.g., rock art, terraces, house outline, roasting pit, etc.

Pottery/Artifacts: Check pottery types present, and note other artifacts you notice at the site.

Topographic setting: check relevant boxes that best describe the site surroundings.

Vegetation present: note the major vegetation types (trees, shrubs) and any ethnographically important plants.

Horizon visibility: shade in wedges where you have a good view of the distant horizon (beyond SMP).

Rock art information: Check the relevant surface types and orientations.

Panels face what direction(s): cardinal direction(s) that rock art panels face. Use "up" for vertical.

Number of Panels/Boulders: how many panels in total at locus, and how many individual rock surfaces?

Type of Art: check the boxes that best characterize the rock art present at the site

Natural Defacements: Check the boxes that best describe the condition of the rock art relative to other sites at SMP that you have become familiar with. As



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with other categories, consult a team leader if you are just starting out and are not sure.

Care of execution of rock art: In your opinion, how well executed is the rock art relative to other typical panels at South Mountain?

Photograph Log #s: write down the photo log numbers for the relevant camera, and make sure that these match the information you have on the photo log that accompanies this sheet.

Artifact collections: Do not collect artifacts without approval from the team leader. If you have permission and do collect artifacts, list artifact categories collected, such as decorated sherds or hammer stones, and write down the temporary field numbers given to each bag. Make sure that on each bag and/or tag that you write down the name. Note: Master specimen numbers will be assigned in the lab, so leave this space blank.

Comments: something should always be written in this section. This is the last chance on this form to indicate to the project personnel and future archaeologists whether more work should be done at this site. Is there something special about the rock art? Are there suspicious alignments between features? Is the site in imminent danger of being bulldozed? Maybe there are plants you suspect might be important but cannot identify. THIS IS WHERE YOU SHOULD PUT THIS INFORMATION!



South Mountain Rock Art Project Field Manual

Level 2 Forms:

ASM Site Card

Site Mapping Form

Feature Form

South Mountain Rock Art Project Field Manual

ARIZONA STATE MUSEUM ARCHAEOLOGICAL SITE CARD

Feature Data: (Complete one feature record for each type of feature recorded for this site.) Side D

Feature No. 3							AZ
Name	Count	Use	Culture	Age	Period/Phase		
Feature 3 Remarks:							
Feature No. 4							ARIZONA STATE MUSEUM ARCHAEOLOGICAL SITE CARD
Name	Count	Use	Culture	Age	Period/Phase		
Feature 4 Remarks:							
Feature No. 5							ARIZONA STATE MUSEUM ARCHAEOLOGICAL SITE CARD
Name	Count	Use	Culture	Age	Period/Phase		
Feature 5 Remarks:							
Feature No. 6							ARIZONA STATE MUSEUM ARCHAEOLOGICAL SITE CARD
Name	Count	Use	Culture	Age	Period/Phase		
Feature 6 Remarks:							
Feature No. 7							ARIZONA STATE MUSEUM ARCHAEOLOGICAL SITE CARD
Name	Count	Use	Culture	Age	Period/Phase		
Feature 7 Remarks:							

1. See Feature Names Keyword List.
 2. See Use, Culture, and Age Keyword List for choices for these fields.
 3. Open field, enter any appropriate Period/Phase name
 4. Attach sheets as necessary for additional features

ASM Site Card Rev. 12/3/93

Figure 17: ASM site card (page 3).



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Instructions for completing Level 2: **ASM Site Card**

This form must be completed with the assistance of a trained, professional archaeologist. Most of the information is self-explanatory, and some of the blanks have been partially filled in, where relevant.

Of particular note are the following:

Cntr UTM: write down the UTM coordinates for the site datum in this field.

Peri UTM: enter 4 UTM boundary coordinates for the site along the mapped site boundary.

BL, TWN, RNG, SEC, SUBDIVISION: These are derived from the USGS 7.5 minute topographic map. The archaeologist will assist in determining what to put in this area.

Site Description/Remarks: The archaeologist will write in comments about site type, evidence for features, function, etc.

Depositional Context: Check the appropriate blanks.

Topo Setting/Vegetation/Geology/Soils/Condition: Write in the appropriate information. Topographic setting should conform to the landscape contexts selected on the site/locus reconnaissance forms for the site.

Site Type: Check appropriate blank. Keep in mind that rock art is a feature.

Assemblage Composition: Check all that apply.

Diagnostics: follow instructions on form.

Feature Data: Keep in mind that these feature numbers will not match those from our site. These are numbers of feature types. For instance, we might have three boulders with rock art panels on them, labeled feature 1, feature 2 and feature 3. On the ASM site card these would be listed together under "Feature No. 1" which indicates under "count" the quantity of that type of feature. In this example, we would note that there are three features of that type.



South Mountain Rock Art Project Field Manual



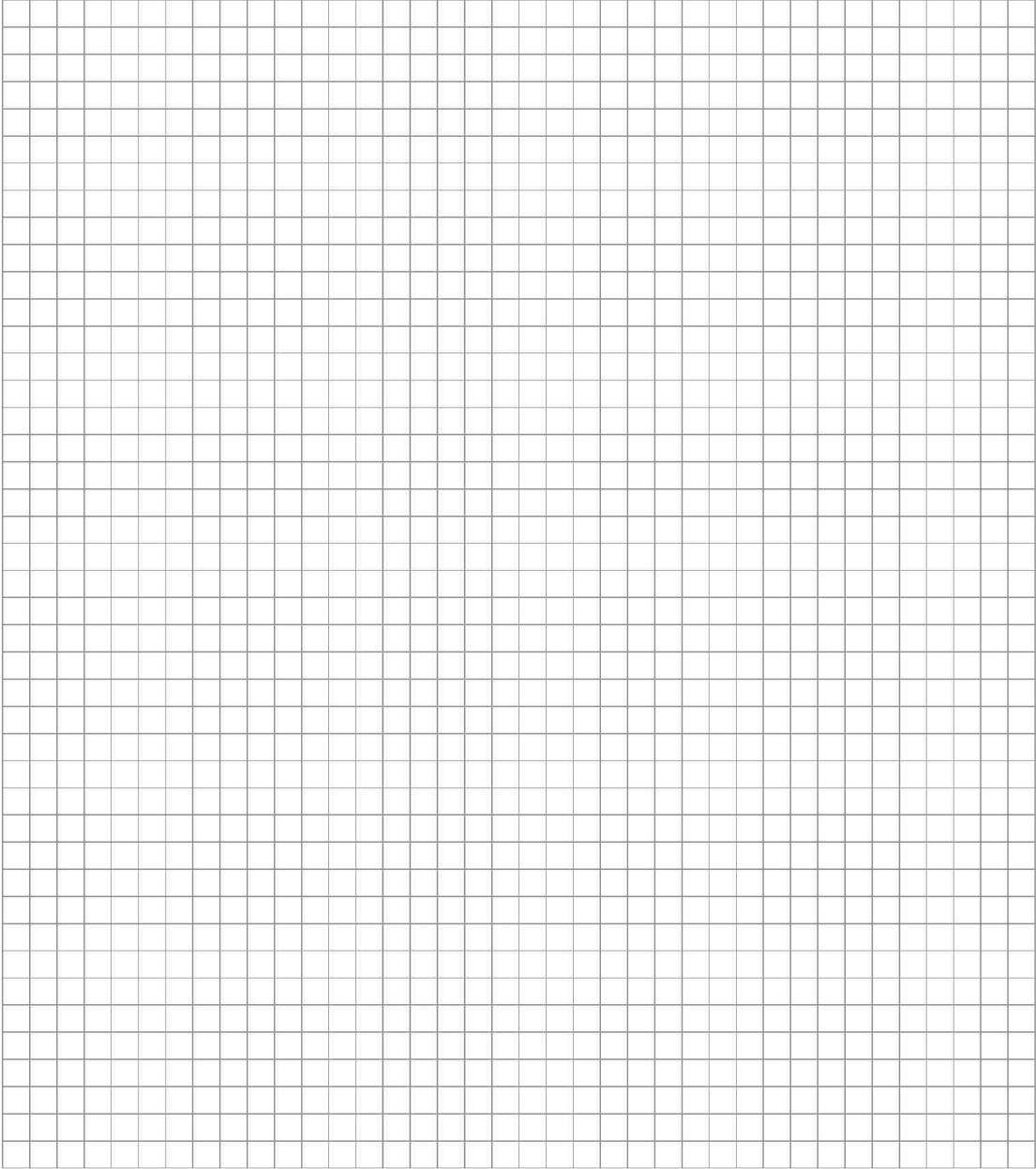
	SOUTH MOUNTAIN ROCK ART PROJECT Archaeological Site Mapping Form	
ASM Site # _____ Site Name: _____	Date (<i>ddMMyy</i>): _____ Mapped by: _____	
Site datum coordinates: _____ East _____ North _____ Elev (m) UTM Zone 12 NAD (Plot and label site datum clearly with a star.)		Scale: 1 square = __ meters
		
Revised 14 August 2006		Level 2

Figure 18: Archaeological site mapping form.

South Mountain Rock Art Project Field Manual

Instructions for completing Level 2: **Site Mapping Form**

ASM Site #: This is pre-assigned and must match the ASM Site card for the site.

Site Name: This will be filled in by the project director.

Date (ddMMMyy): Write the data in the format shown.


Mapped by: write down first initial and last name of person in charge of mapping.

Site Datum Coordinates: Fill in the UTM coordinates and elevation of the site datum stake. Make sure it matches the center UTM coordinates for the ASM Site Card. Indicate the correct mapping datum (NAD27 or NAD83).


Site Mapping: This needs to be done with the assistance of a trained archaeologist. Use the site mapping form to create a map showing relevant natural and cultural features, site extent and datum, and any collection area, if applicable. All features must be numbered and shown clearly on the map. Map should be plotted at the maximum scale possible in the available space on the form. Plot the map using True North, preferably with north at the top of the page.



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project Feature Recording Form



Recorder(s): _____

Field #: _____ ASM Site #: _____

Site/Locus Name: _____

Date (dd/MM/yyyy): _____ Time (24hour): _____

GPS Unit#: _____ Camera ID #: _____

Page _____ of _____

<p>Feature Number: _____ Feature Type: _____ UTM: _____ East: _____ North: _____</p> <p>Distance to Datum: _____ (m) Bearing from Datum: _____° Feature Size: L: _____ m × W: _____ m × H: _____ m</p> <p>Description of Feature: _____</p> <p>Erosion/Weathering/Vandalism/Threats: Feature condition is: <input type="checkbox"/> Stable <input type="checkbox"/> Eroding/deteriorating <input type="checkbox"/> Seriously Endangered (check one)</p> <p>Describe: _____</p> <p>Photos: <input type="checkbox"/> Feature overview <input type="checkbox"/> Feature closeup <input type="checkbox"/> Other _____ Photo #s: _____</p> <p>Subfeatures/Panels: A through _____ # of Petroglyphs: _____ (or N/A) Comments: _____</p> <p>Associated Artifacts: _____</p>	<p>Quick Sketch: <input type="checkbox"/> Plan View <input type="checkbox"/> Profile</p>
<p>Feature Number: _____ Feature Type: _____ UTM: _____ East: _____ North: _____</p> <p>Distance to Datum: _____ (m) Bearing from Datum: _____° Feature Size: L: _____ m × W: _____ m × H: _____ m</p> <p>Description of Feature: _____</p> <p>Erosion/Weathering/Vandalism/Threats: Feature condition is: <input type="checkbox"/> Stable <input type="checkbox"/> Eroding/deteriorating <input type="checkbox"/> Seriously Endangered (check one)</p> <p>Describe: _____</p> <p>Photos: <input type="checkbox"/> Feature overview <input type="checkbox"/> Feature closeup <input type="checkbox"/> Other _____ Photo #s: _____</p> <p>Subfeatures/Panels: A through _____ # of Petroglyphs: _____ (or N/A) Comments: _____</p> <p>Associated Artifacts: _____</p>	<p>Quick Sketch: <input type="checkbox"/> Plan View <input type="checkbox"/> Profile</p>
<p>Feature Number: _____ Feature Type: _____ UTM: _____ East: _____ North: _____</p> <p>Distance to Datum: _____ (m) Bearing from Datum: _____° Feature Size: L: _____ m × W: _____ m × H: _____ m</p> <p>Description of Feature: _____</p> <p>Erosion/Weathering/Vandalism/Threats: Feature condition is: <input type="checkbox"/> Stable <input type="checkbox"/> Eroding/deteriorating <input type="checkbox"/> Seriously Endangered (check one)</p> <p>Describe: _____</p> <p>Photos: <input type="checkbox"/> Feature overview <input type="checkbox"/> Feature closeup <input type="checkbox"/> Other _____ Photo #s: _____</p> <p>Subfeatures/Panels: A through _____ # of Petroglyphs: _____ (or N/A) Comments: _____</p> <p>Associated Artifacts: _____</p>	<p>Quick Sketch: <input type="checkbox"/> Plan View <input type="checkbox"/> Profile</p>

Revised 12 November 2006

Adapted from ARAC Rock Art Panel Data Form

Level 2

Figure 19: Feature recording form.

South Mountain Rock Art Project Field Manual

Instructions for completing Level 2: **Feature Form**

Recorders: Write down the first initial and last name of person(s) preparing the form.

Field #: Temporary identification number assigned to the locus in the field.

ASM Site #: Official site number given in lab, once we have done Level 2 recording. Do not fill this in unless directed by the team leader.

Site/Locus Name: consult with team leader to give the locus a name.

Date (ddMMMy): Write date in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Time (24hour): Write time of day using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

GPS Unit #: Enter the GPS ID # from the back of the GPS on this form. Make sure it matches the camera ID#.

Camera ID #: Enter the Camera ID # from the back of the GPS on this form. Make sure it matches the GPS #.

Page: Write in the correct page number and total number of pages for features recorded on feature forms at this site.

Feature Information (Fill out one row for each feature, using the back of the sheet, and continuation pages if necessary.)

Feature Number: Feature numbers are assigned during mapping. Make sure the feature that you record matches the assignment on the site mapping form.

Feature Type: A feature is an object created in the past that cannot be moved, such as a rock alignment, a building, a roasting pit, a petroglyph, etc. This is distinct from an artifact, which is portable.

UTM: Enter the Easting and Northing readings from your GPS unit.

Distance to Datum: Measure distance between feature and datum in meters.

Bearing from Datum: Measure in compass degrees **from** the Datum to the center of the feature.

Feature Size: Dimensions are measured in **meters** to an accuracy of two decimal points (centimeters). Length is the longest horizontal dimension; width is shorter and perpendicular to length. Height is vertical distance the feature extends above present ground surface.

Description of Feature: Describe the feature, including method of construction, material type, distinctive elements, etc.

Deterioration/Weathering/Lichen/Vandalism/Threats: a subjective assessment of the stability of the Feature. "Stable" indicates no evidence of recent or ongoing deterioration, such as erosion, spalling, lichen, cracking, flaking, etc. Seriously endangered means that you feel there is a strong likelihood that the feature will be destroyed in the near future. Notify the Project Director of all



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evidence of serious deterioration, and be sure to make an entry about this in the Team Leader's Daily Field Log.

Describe: Describe the source/type of endangerment of the feature. Note any threats to the feature such as instability, water seepage, tree roots, proximity to roads or trails, and potential fire danger due to available fuels.

Photos: Identify the types of photographs of the feature, and record photo numbers. Check all that apply. Be sure to completely fill out the photo log for each picture, and make sure that there is a scale bar in each photo.

Panels: Specify the number of subfeatures or panels included in the feature using letters. For instance, a water control feature consisting of three adjacent check dams would have a letter "C" filled in (for subfeatures A, B, and C). A boulder with 6 petroglyph panels would have a letter "F" here.

Number of Petroglyphs: For petroglyph features, count the total number of glyphs present.

Comments about panels/elements/photos: Record information about the rock-art or other features. Pay particular attention to relationships among elements and qualities that might not appear in a photograph or drawing. Comment about panel/element visibility. Explain estimations of numbers of elements.

Associated Artifacts: Identify any artifacts on or adjacent to the feature.

Feature Quick Sketch: Make a quick sketch of the feature, and note whether it is a plan view (from above) or a profile view (from the side). Note whether this is a Plan View (from above) or Elevation from Datum (how the Feature would look when in line with the datum. In Plan View, note direction to Datum and North. Show location of panels on sketch.



South Mountain Rock Art Project Field Manual

Level 3 Forms:


Rock Art Panel Recording Form

Agricultural Feature Form


Rock Shelter Form



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project Rock Art Panel Form



Recorder(s): _____	Date (ddMMMy): _____
Field #: _____ ASM Site # _____	Time (24hour): _____
Site/Locus Name: _____	Weather Conditions: _____
Feat No.: _____ Feat Type: <input type="checkbox"/> Rock shelter <input type="checkbox"/> Cliff Face <input type="checkbox"/> Table Rock <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Other: _____	

Panel Letter: _____ Recorder(s): _____ Time: _____

Panel Size: H: • m × W: • m H from PGS: • m Est? Y / N

Panel Facing: _____ ° Inclination (from horizontal): _____ °

Visibility: Easy to See Hard to see/Protected/Hidden (comment below)

Rock Coating (check one): Heavy Light Variable None

Condition (check one): Stable – *OR* – Deterioration is: Active Serious

Deterioration/Weathering/Lichen/Vandalism/Threats: _____

Petroglyph Technique (all that apply): Abraded Incised Pecked Scratched

Repainting (check one): Heavy Medium Light Variable

Comments: _____

Pictograph Technique (all that apply): Painted Drawn Blown (sprayed)

Comments/Colors: _____

Superimpositions? _____ Rock incorporation? _____

Comments about Panel and Elements: _____

QUICK SKETCH

Panel Letter: _____ Recorder(s): _____ Time: _____

Panel Size: H: • m × W: • m H from PGS: • m Est? Y / N

Panel Facing: _____ ° Inclination (from horizontal): _____ °

Visibility: Easy to See Hard to see/Protected/Hidden (comment below)

Rock Coating (check one): Heavy Light Variable None

Condition (check one): Stable – *OR* – Deterioration is: Active Serious

Deterioration/Weathering/Lichen/Vandalism/Threats: _____

Petroglyph Technique (all that apply): Abraded Incised Pecked Scratched

Repainting (check one): Heavy Medium Light Variable

Comments: _____

Pictograph Technique (all that apply): Painted Drawn Blown (sprayed)

Comments/Colors: _____

Superimpositions? _____ Rock incorporation? _____

Comments about Panel and Elements: _____

QUICK SKETCH

Panel Letter: _____ Recorder(s): _____ Time: _____

Panel Size: H: • m × W: • m H from PGS: • m Est? Y / N

Panel Facing: _____ ° Inclination (from horizontal): _____ °

Visibility: Easy to See Hard to see/Protected/Hidden (comment below)

Rock Coating (check one): Heavy Light Variable None

Condition (check one): Stable – *OR* – Deterioration is: Active Serious

Deterioration/Weathering/Lichen/Vandalism/Threats: _____

Petroglyph Technique (all that apply): Abraded Incised Pecked Scratched

Repainting (check one): Heavy Medium Light Variable

Comments: _____

Pictograph Technique (all that apply): Painted Drawn Blown (sprayed)

Comments/Colors: _____

Superimpositions? _____ Rock incorporation? _____

Comments about Panel and Elements: _____

QUICK SKETCH

Revised 12 November 2006
Adapted from ARAC Rock Art Panel Data Form
Level 3

Figure 20: Rock art panel recording form (front side).

South Mountain Rock Art Project Field Manual

Instructions for completing Level 3: **Rock Art Panel Recording Form**

Recorders: Write down the first initial and last name of person(s) preparing the form.

Field #: Temporary identification number assigned to the locus in the field.

ASM Site #: Official site number assigned after Level 2 recording. This will probably be entered already.

Site/Locus Name: consult with team leader to give the locus a name.

Date (ddMMMy): Write date in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Time (24hour): Write time of day using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

Weather Conditions: e.g., sunny, overcast, rainy, dark, etc.

Feature Number: Feature numbers are assigned in Level 2 recording when the site is recorded, and information on features is recorded in the feature log. Each separate rock, whether a boulder, bedrock, or a cliff face, receives a separate feature number. Make sure that you enter the correct feature number, and that its' location on the site map is accurate. Only one feature's panels are to be recorded on each sheet, so you can only enter one feature number here. Start a new sheet for panels on another feature.

Feature Type: Check the appropriate feature type. Check with the team leader if you need to enter a new type in the "other" blank.

Panel Letter: Panels are identified with CAPITAL letters.

Recorder(s): use first initials and last name of person(s) recording this panel.

Sketch: Draw the panel, indicating the positions of elements, the presence of cracks and similar features, and any areas in which deterioration is evident. Take care to show particularly prominent elements and their position on the panel. Indicate adjacent panels. Write on your sketch to indicate cracks, lichen, deterioration, faint marks, use of natural features, and any other observations that might not be clear in a photo.

Panel Size: measure in meters to an accuracy of two decimal points (centimeters). Height is the vertical dimension from lowest rock-art element to the highest. Width is the horizontal extent of rock-art elements. H and W are measured directly on the panel, and are perpendicular to each other. For horizontal panels, consult with the Field director to establish a viewing/measuring point, and make a note of it.

H from PGS: measure vertically on the panel from PGS (Present Ground Surface) to lowest element.

Est.? Y / N: Circle one. If estimated, indicate the reason— inaccessible? Haste?



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Panel Facing: The compass direction you are facing when looking **away** from the panel.

Inclination: The slope of the panel face in degrees, from 0° (facing straight up) to 180° (facing straight down in an overhang).

Visibility: A subjective assessment, but an extremely important one for identifying difficult-to-see features and panels. Use the Comments area to describe anything that affects the visibility of the feature/panel, such as lighting, time of day, vegetation, or unusual locations.

Rock Coating: refer to the panel's **unmodified** sections. Identify the qualities that predominate on the panel. Check only one box.

Condition: a subjective assessment of the stability of the panel surface. A Stable panel is free of lichen and evidence of recent spalling, cracking, and flaking, etc. SERIOUS deterioration means that there is strong likelihood that rock-art will be lost in the near future. Notify the Field Director of all evidence of serious deterioration.

Deterioration/Weathering/Lichen/Vandalism/Threats: Describe deterioration. Also, note any treats to the panel, such as instability, water seepage, tree roots, and proximity to roads, trails, or other high activity areas. Indicate concerns on sketch.

Petroglyph Technique AND Pictograph Technique: Check all that apply. This pertains to all elements on the panel.

Petroglyph Repatination: Assess the degree of re-coating of petroglyphs. A relative judgment made in comparison to surrounding Features.

Comments: Comments on technique. Particularly important when more than one technique is evident on a panel or when different elements show variable amounts of repatination.


Superimpositions? Natural Rock Features: Comment on evidence of element superpositioning, reworking of elements or inclusion of rock features.

Comments about Panel and Elements: Make any additional observations about the panel and Elements in this area. Note visibility issues here. Record information about the elements on the panel. Pay particular attention to relationships among elements and qualities that might not appear in a photograph or drawing.


Repeat this information for each panel on the feature. Make sure to use the backside of the form, and a continuation sheet, if necessary (i.e., greater than 6 panels present on the feature.)



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project
 Agricultural Feature Form



Recorder(s): _____ Date (*ddMMMy*): _____
 Field #: _____ ASM Site #: _____ Time (24hour): _____
 Site/Locus Name: _____ Weather Conditions: _____

NAD83 UTM Coordinates: _____ East _____ North _____ Elev (m) ± _____ (m)

Feat No.: _____ Feat Type: Rock pile Rock Alignment Terrace Grid garden Other: _____

Feature Context

Landform type: Arroyo Piedmont Alluvial fan Hillside/Slope Valley/Flat Other: _____
 General Landform: Slope _____° Aspect _____°
 Material type: _____ Local Non-local Modified Unmodified
 Associated artifacts: Lithics Groundstone Ceramics: Plain Red Red-on-buff Polychrome

Feature Type

Rock Pile

<input type="checkbox"/> Small (< 1m)	<input type="checkbox"/> Compact	<input type="checkbox"/> Intact	<input type="checkbox"/> Mulched	Cobble sizes	Size (cm)
<input type="checkbox"/> Medium (1-2m)	<input type="checkbox"/> Dispersed	<input type="checkbox"/> Disrupted	<input type="checkbox"/> Not mulched	<input type="checkbox"/> Uniform	0 <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> +
<input type="checkbox"/> Large (> 2m)			<input type="checkbox"/> Charcoal present	<input type="checkbox"/> Variable	0 <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> +

Rock Alignment

<input type="checkbox"/> Short (< 2m)	<input type="checkbox"/> Across drainage	<input type="checkbox"/> Parallel to slope	Cobble sizes	Size (cm)
<input type="checkbox"/> Medium (2-4m)	<input type="checkbox"/> Perpendicular	<input type="checkbox"/> Angled with	<input type="checkbox"/> Intact	<input type="checkbox"/> Uniform
<input type="checkbox"/> Long (> 4m)	to slope	respect to slope	<input type="checkbox"/> Disrupted	<input type="checkbox"/> Variable
				0 <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> +

Artificial Terrace

<input type="checkbox"/> Small (< 5m ²)	No. of Rock courses _____	Terrace surface	Cobble sizes	Size (cm)
<input type="checkbox"/> Medium (5-10m ²)	Height (cm) _____	Slope _____°	<input type="checkbox"/> Uniform	0 <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> +
<input type="checkbox"/> Large (> 10m ²)	Wall length (m) _____	Aspect _____°	<input type="checkbox"/> Variable	0 <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> +

Grid Garden

No. of cells _____	Grid Interior	Garden surface	Cobble sizes	Size (cm)
Total length _____ m	<input type="checkbox"/> Mulched	Slope _____°	<input type="checkbox"/> Uniform	0 <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> +
Total area _____ m ²	<input type="checkbox"/> Not mulched	Aspect _____°	<input type="checkbox"/> Variable	0 <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> +

Other Agricultural Feature(s)

<input type="checkbox"/> Berm	<input type="checkbox"/> Cleared field area	Length _____ m	Slope _____°
<input type="checkbox"/> Ditch	<input type="checkbox"/> Field marker(s)	Area _____ m ²	Aspect _____°
<input type="checkbox"/> Catchment basin	<input type="checkbox"/> Other _____	Depth _____ cm	Count _____

Soil and Vegetation

----ON Feature----	----OFF Feature----
Soil type: _____	Soil type: _____
Munsell code: _____	Munsell code: _____
Vegetation: _____	Vegetation: _____
_____	_____

Additional information (*submit photo log and enter collections on specimen log*)

Photo Log Numbers: _____

Soil sample: FS# _____ Pollen sample FS# _____ Artifacts: FS#(s) _____

Master Spec # _____ Master Spec #: _____ Master Spec #(s): _____

Comments: _____

Revised 20 October 2006

Level 3

Figure 21: Agricultural feature form (page 1).

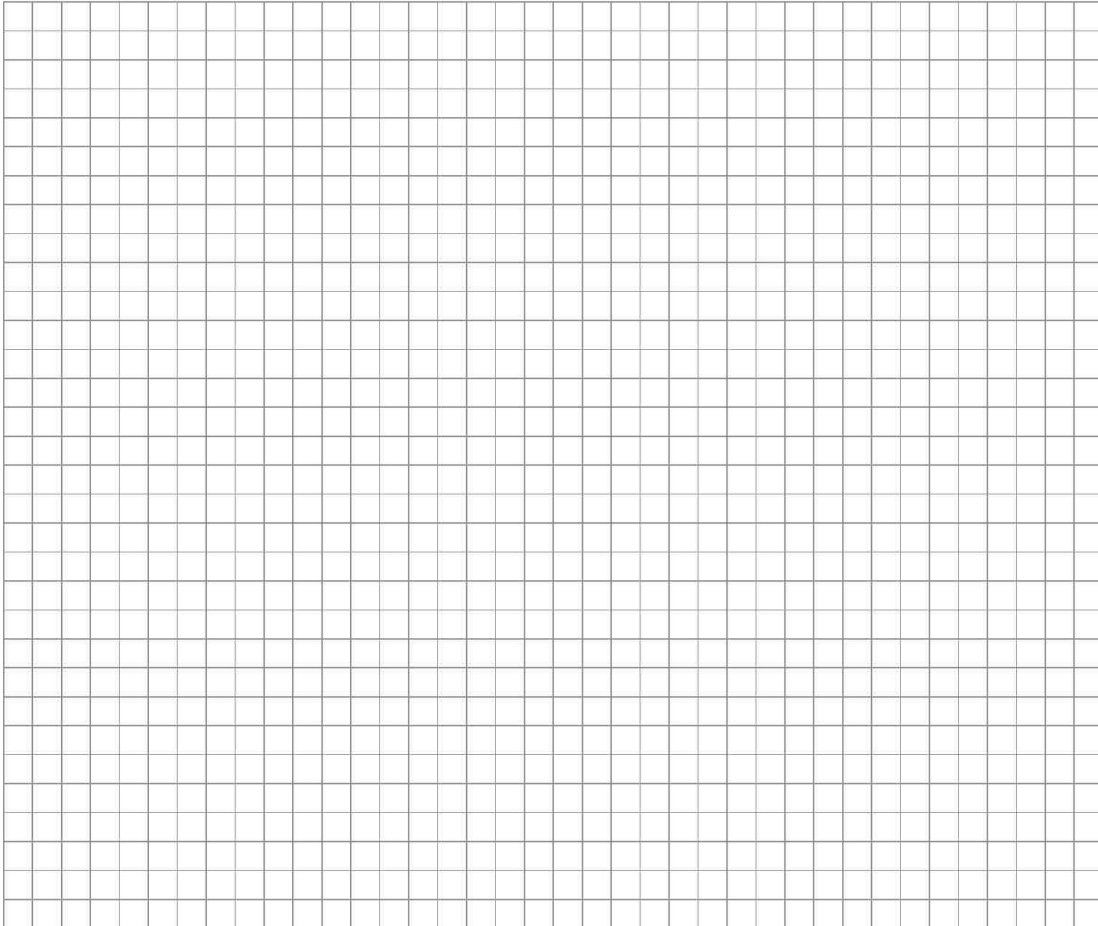
South Mountain Rock Art Project Field Manual

Agricultural Feature/Field Scale Drawing

ASM Site # _____	Date (ddMMyy): _____
Feature #: _____	Drawn by: _____

(Plot location where GPS reading taken)

Scale: 1 square = _____



Detailed description of feature(s)

Revised 20 October 2006

Level 3

Figure 22: Agricultural feature form (page 2).

South Mountain Rock Art Project Field Manual

Instructions for completing Level 3: **Agricultural Feature Form**

Top of Form

Recorders: Write down the first initial and last name of person(s) preparing the form.

Field #: Temporary identification number assigned to the locus in the field. Usually starts with SMP.

ASM Site #: Write in the Arizona State Museum Site Number, if known.

Site/Locus Name: consult with team leader to give the locus a name.

Date (ddMMMy): Write date in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Time (24hour): Write time of day using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

Weather Conditions: e.g., sunny, overcast, rainy, dark, etc.

NAD83UTM Coordinates: Enter the UTM coordinates for the center of the feature- easting, northing, elevation, and accuracy for the waypoint. All GPS units used on the project are set to the NAD83 datum.

Feat No.: write in the feature number, as shown in the site map.

Feat Type: Check the appropriate feature type represented by the agricultural feature(s). A series of rock alignments and rock piles, for instance, can be recorded on the same form, if it is believed they functioned together in a single field system.

Feature Context

Landform Type: Check the appropriate box best representing the type of landform the features are located on.

General Landform: Record the general slope and aspect, in degrees, of the landform the feature is located on.

Material Type: Write in the type of rock used in the construction of the feature, whether these are locally available, and whether these have been modified (shaped) by humans.

Associated artifacts: Check the appropriate boxes to indicate what, if any, artifacts are found on or within a few meters of the feature.

Feature Type

Most typical agricultural features encountered in South Mountain Park should consist of one of the categories present. Agricultural Rock Piles should consist of 10 or more rocks to be considered an agricultural feature (though simple rock cairns can consist of as few as 3 stacked stones). Rock Alignments can include check dams (across drainage), field borders (often parallel and perpendicular to slope), contour terraces (parallel to slope), and water diverters (angled with respect to slope). Terraces should be reserved for linear or curvilinear rock alignments on slopes with evidence for a flat, cleared area behind the rock alignment. Terraces include the rock alignment and the level area behind the alignment, which is used for planting. Grid gardens are a somewhat rare, more complex feature type, which may be encountered at



South Mountain Rock Art Project Field Manual

South Mountain. These consist of a “checkerboard” of cleared areas with rocks piled into lines between them, forming a grid pattern.

Rock Pile

Check the appropriate size, based on average diameter. If most stones are touching one or more adjacent stones, check “Compact,” otherwise check “Dispersed.” If it looks like the pile used to be more concentrated, but has been disturbed, causing movement and disruption of the original pile, then check “Disrupted,” otherwise check “Intact.” In some cases, small, gravel sized stones are used in and among larger stones, often as a central feature of a pile. If this is the case, then the rock pile is “Mulched.” If cobble size is fairly uniform, then check “Uniform” and check the appropriate size category for the individual construction stones. If cobble size is variable, then record the most common size range in the upper size category, and the second most common size range in the bottom, next to “Variable.”

Rock Alignment

Check the appropriate size, based on average length (or actual length if only one present). Record the orientation of the alignment with respect to slope. If most stones are touching one or more adjacent stones, check “Compact,” otherwise check “Dispersed.” If it looks like the alignment used to be more continuous, but has been disturbed, causing movement and disruption of the original alignment, then check “Disrupted,” otherwise check “Intact.” Record cobble size(s) as for rock piles (above).

Artificial Terrace

Check the appropriate size, based on average area of level planting surface. Indicate the number of rock courses used in its construction, the height of the terrace wall at its maximum height (usually the center), and the total length of the terrace wall. Record the slope and aspect of the planting surface. Finally, record cobble size(s) as for rock piles (above).

Grid Garden

Indicate the number of individual cells in the grid garden. (Note: if this is not more than one, it is not a grid garden!) Total length is a measure of the total linear length of walls used in construction, and Total area is the size in square meters covered by the garden. As for rock piles, indicate whether the interior or the grid cells appear to be mulched with gravel. Record the average slope and aspect of the grid cells. Record cobble size(s) as for rock piles (above).

Other Agricultural Features

If there are any other agricultural features present, but not recorded above, then mark the appropriate category here. Use the blanks to the right to record any appropriate information for these (e.g., count # for field markers, measure Area and Depth for a catchment basin).



South Mountain Rock Art Project Field Manual

Soil and Vegetation

This section requires examination of soil and vegetation both on and off the feature, which can be important for documenting function.

Soil Type: Use the soil identification key to determine the USDA soil classification (e.g., silty-sand, or gravelly-clay loam), which is based on a simple, in field grain-size assessment. You should be trained by the Field Director before doing this, unless you have a background in soil science or agronomy!

Munsell Code: Use a damp soil sample, and write in the alphanumeric Munsell code that best represents the color.

Vegetation present: note the major vegetation types and any ethnographically important plants, emphasizing vegetation differences between on- versus off-feature areas.

Additional Information

Photo Log Numbers: write down the photo log numbers for photographs taken while recording- take close-up, overview, and viewshed photographs.

Collections: Do not collect artifact without approval from the team leader! If you have permission and do collect artifacts, check the appropriate artifact types collected, and list the temporary field numbers given to each bag. Also, take separate UTM readings for each collection and write these on the tag.

Note: Master specimen numbers will be assigned in the lab, so leave this space blank.

Comments: something should always be written in this section. This is the last chance on this form to indicate to the project personnel and future archaeologists whether more work should be done with these features.

Rear of Form


Top of form: note the ASM number, Feature number, and date, from the front of the form, and write down the name of the person in charge of creating the map of the agricultural features.

Agricultural feature map:


This should be prepared with the assistance of a trained archaeologist. Use the space provided to create a map showing relevant natural and agricultural features, location where UTM reading was taken for the feature(s), and any collection area, if applicable. All agricultural features must be numbered and shown clearly on the map, and must match the feature number listed on the site map. The agricultural feature(s) should be plotted at the maximum scale possible in the available space on the form. Plot the map using True North, preferably with north at the top of the page.



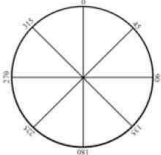
South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project
 Rock Shelter Form



Recorder(s): _____	Date (ddMMMy): _____
Field #: _____ ASM Site # _____	Time (24hour) _____
Site/Locus Name: _____	Weather Conditions: _____
Feat No.: _____ NAD83 UTM Coords: _____ East _____ North _____	Elev (m) ± ____ (m)

Shelter Information	Shelter formed by:	Capacity _____	Shade provided	<i>Horizon visible from opening</i>
Shelter height _____ m	<input type="checkbox"/> Bedrock	<input type="checkbox"/> Standing	<input type="checkbox"/> Morning	
Shelter width _____ m	<input type="checkbox"/> Single boulder	<input type="checkbox"/> Sitting	<input type="checkbox"/> Midday	
Shelter depth _____ m	<input type="checkbox"/> Multi-boulder	<input type="checkbox"/> Lying	<input type="checkbox"/> Evening	

Disturbance	Interior deposits	Petroglyphs	Opening Height/Width
<input type="checkbox"/> Trash/Fire	Area _____ m ²	<input type="checkbox"/> Interior	Primary: _____ m x _____ m
<input type="checkbox"/> Graffiti	Depth _____ cm	<input type="checkbox"/> Exterior	Secondary: _____ m x _____ m
<input type="checkbox"/> Animal			

Interior Artifacts: Lithics Groundstone Ceramics: Plain Red Red-on-buff Poly Other: _____

Exterior Artifacts: Lithics Groundstone Ceramics: Plain Red Red-on-buff Poly Other: _____

Describe feature, vegetation, artifacts, and view from shelter

Plan and Profile sketch (*Plot location where GPS reading taken*) **Scale: 1 square =** _____

Additional information (*submit photo log and enter collections on specimen log*)

Photo Log Numbers: _____

Artifacts collected: FS# _____ Master Spec # _____

Revised 20 October 2006
Level 3

Figure 23: Rock shelter form.

South Mountain Rock Art Project Field Manual

Instructions for completing Level 3: **Rock Shelter Form**

Top of Form

Recorders: Write down the first initial and last name of person(s) preparing the form.

Field #: Temporary identification number assigned to the locus in the field. Usually starts with SMP.

ASM Site #: Write in the Arizona State Museum Site Number, if known.

Site/Locus Name: consult with team leader to give the locus a name.

Date (ddMMMyy): Write date in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Time (24hour): Write time of day using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

Weather Conditions: e.g., sunny, overcast, rainy, dark, etc.

Feat No.: write in the feature number, as shown in the site map.

NAD83UTM Coordinates: Enter the UTM coordinates for the center of the feature- easting, northing, elevation, and accuracy for the waypoint. All GPS units used on the project are set to the NAD83 datum.

Shelter Information

Height: record the maximum height inside the shelter, in meters (e.g., 2.4)

Width: record the maximum width inside the shelter, also in meters.

Depth: record the maximum depth of the shelter from the entry “drip line” to the rear of the shelter.

Shelter formed by: Check all appropriate boxes that represent floor, wall or ceiling of the shelter.

Capacity: Either using best judgment, or by testing with field members, indicate the number of people that can fit into the shelter without touching. (No contortions necessary). Also, check whether this is based on people standing up, sitting, or lying down.

Shade Provided: What time of day does the shelter provide shade? Indicate the correct box or boxes.

Horizon visibility: shade in wedges where you have a good view of the distant horizon (beyond South Mountain Park) from the center of the rock shelter opening.

Disturbance: Check the appropriate box to indicate sources of modern or historic disturbance of prehistoric materials in the shelter.



South Mountain Rock Art Project Field Manual

Interior Deposits: Rock shelters with sediment deposits on the floor have a better chance of yielding information on past activities and environment. Indicate the area of the deposits, and an estimate of their depth.

Petroglyphs: indicate whether there are petroglyphs on the interior or exterior of the shelter (or both).

Opening Height/Width: Enter the size of the main (largest or most easily accessible) rock shelter opening. If there is a secondary opening (a tunnel, for instance), then enter the size of the second (smaller or less accessible) opening.

Artifacts: indicate the relevant artifacts that are present inside and outside the shelter—record these separately using the boxes provided.

Description: Describe any artifacts, vegetation in or immediately outside the rock shelter, and what can be seen (the landscape, as well as other archaeological features) from the shelter. If there is a level “patio” area in front of the shelter, note its presence and size here.

Plan and Profile Sketch:

Use the grid provided to make an accurate sketch of both the plan view and profile (or cross section) of the interior of the shelter. The plan view should show the outline of the floor of the shelter, to scale. It should also indicate locations of any artifacts, as well as the beginning and end of the profile line used to sketch the cross section, from the front to the rear of the shelter. The profile should show a side view of the interior of the shelter, as if the shelter were split down the middle. This helps to document the height and depth of the shelter. These should be drawn at the maximum scale possible in the available space on the form, making sure to use the same scale for both. Plot the map using True North, preferably with north towards the top of the page.

Additional Information

Photo Log Numbers: write down the photo log numbers for photos of the inside, outside, and view from the rock shelter.

Artifact collections: Do not collect artifacts without approval from the team leader! If you have permission and do collect artifacts, write down the temporary field numbers given to each bag. Note: Master specimen numbers will be assigned in the lab, so leave this space blank.



South Mountain Rock Art Project Field Manual

Level 4 Forms:

Rock Art/Architecture Night Sky Record

Eastern/Western Horizon Sunrise/Sunset Forms

Solar Year Light and Shadow Patterns Form

Balloon Aerial Photography Form



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project Archaeoastronomy Rock Art/Architecture Night Sky Record

Recorder(s): _____	Dates Recorded (<i>ddMMMyy</i>): _____
ASM Site # _____	Site/Locus Name: _____
Panels/Elements: _____	Time(s) of Event: _____
NAD83 UTM Coordinates: _____ East _____ North _____	Elev (m) ± _____ (m)
Azimuth (Compass Bearing) from Place of Observation to Star Cluster: _____	
Describe Star Cluster(s) [Constellation] and Alignment(s) with Archaeological Feature(s): _____	

Sketch Map of Night Sky

Describe Place of Observation: _____

Revised 6 November 2006

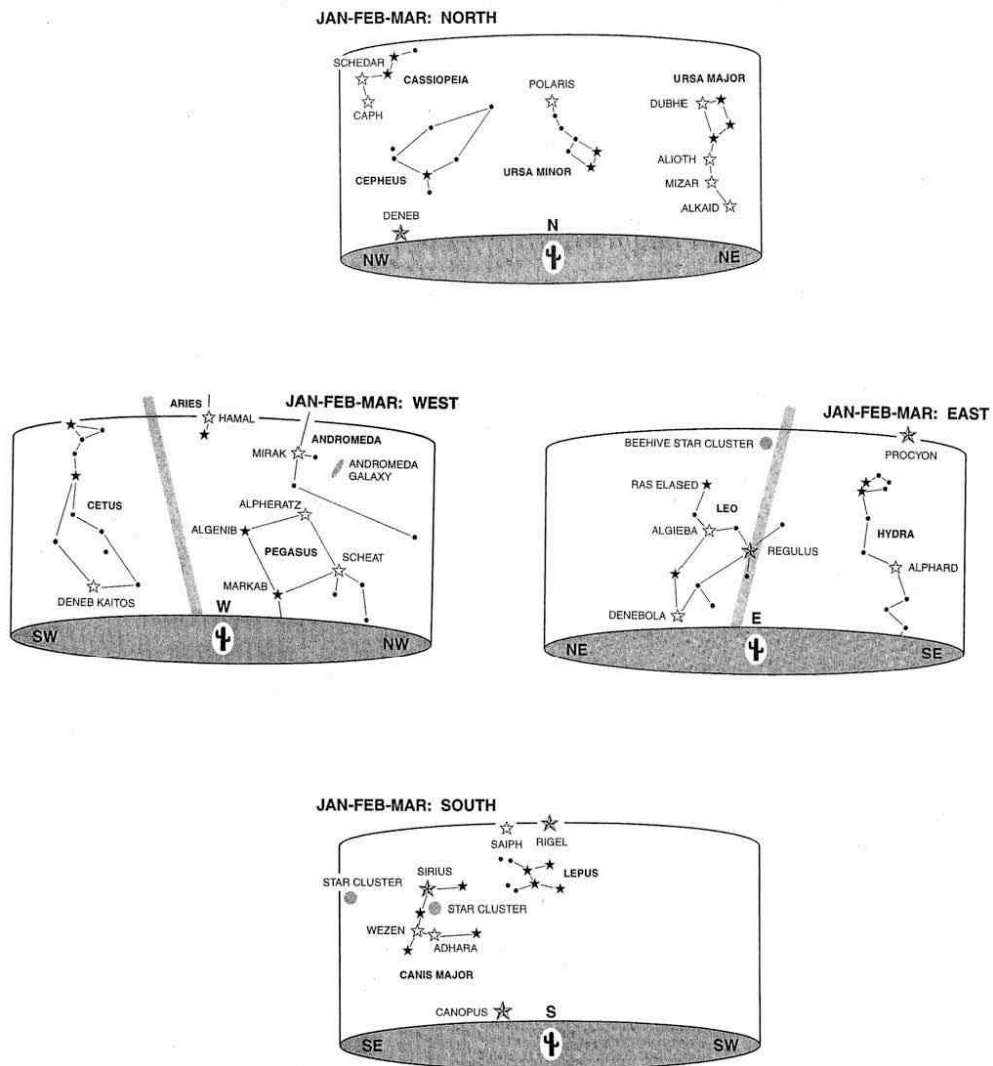
Level 4

Figure 24: Rock art/architecture night sky record (page 1).



South Mountain Rock Art Project Field Manual

South Mountain Rock Art Project The Southwestern Night Sky: JAN-MAR *(from Dan Heim, 1997)*



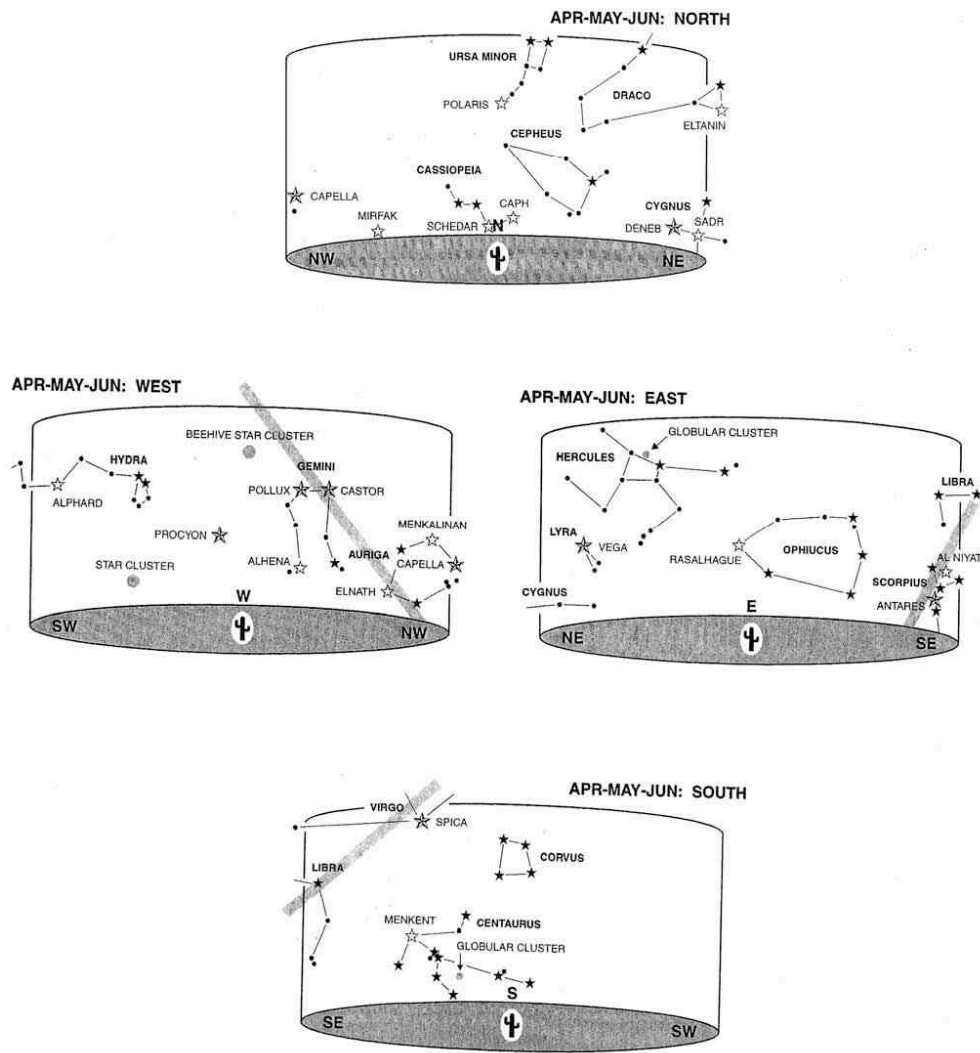
Revised 6 November 2006

Level 4

Figure 25: Rock art/architecture night sky record (page 2).

South Mountain Rock Art Project Field Manual

South Mountain Rock Art Project
 The Southwestern Night Sky: APR-MAY
(from Dan Heim, 1997)



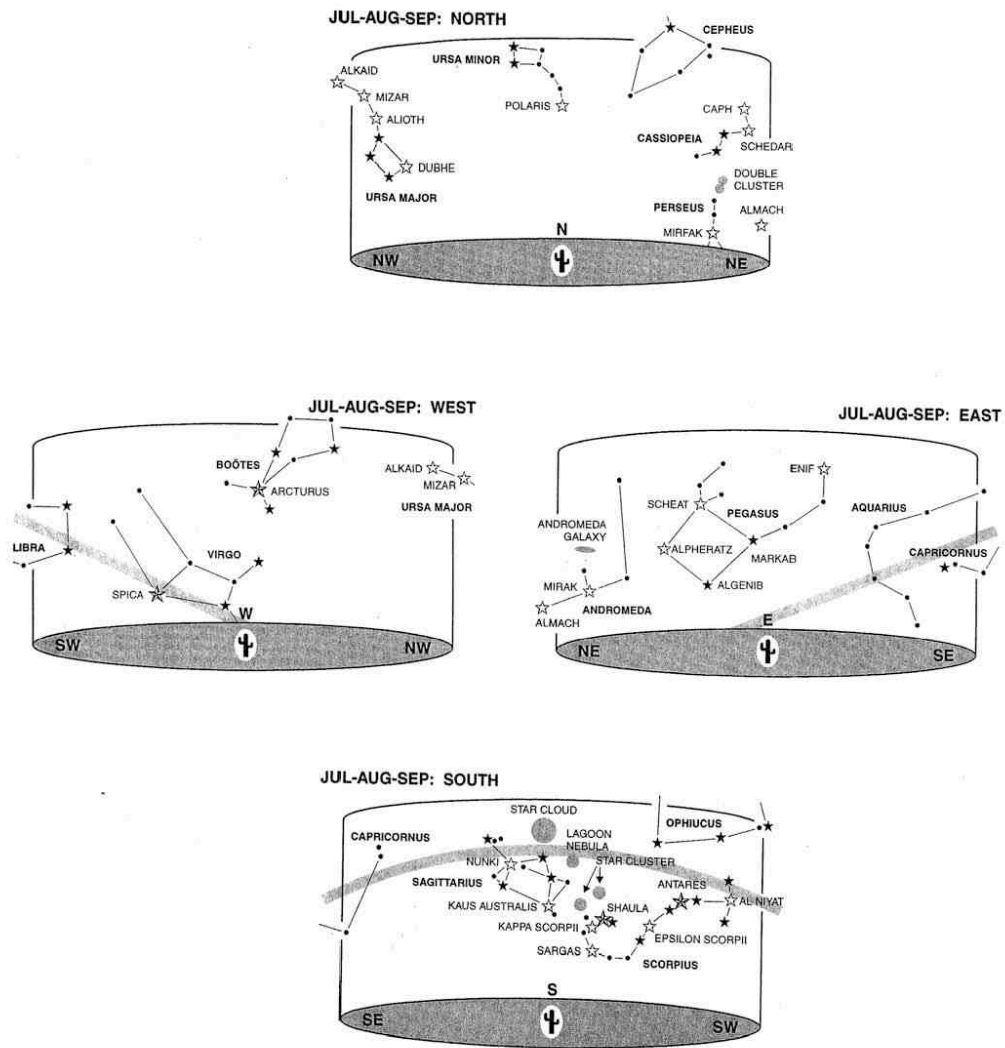
Revised 6 November 2006

Level 4

Figure 26: Rock art/architecture night sky record (page 3).

South Mountain Rock Art Project Field Manual

South Mountain Rock Art Project The Southwestern Night Sky: JUL-SEP *(from Dan Heim, 1997)*



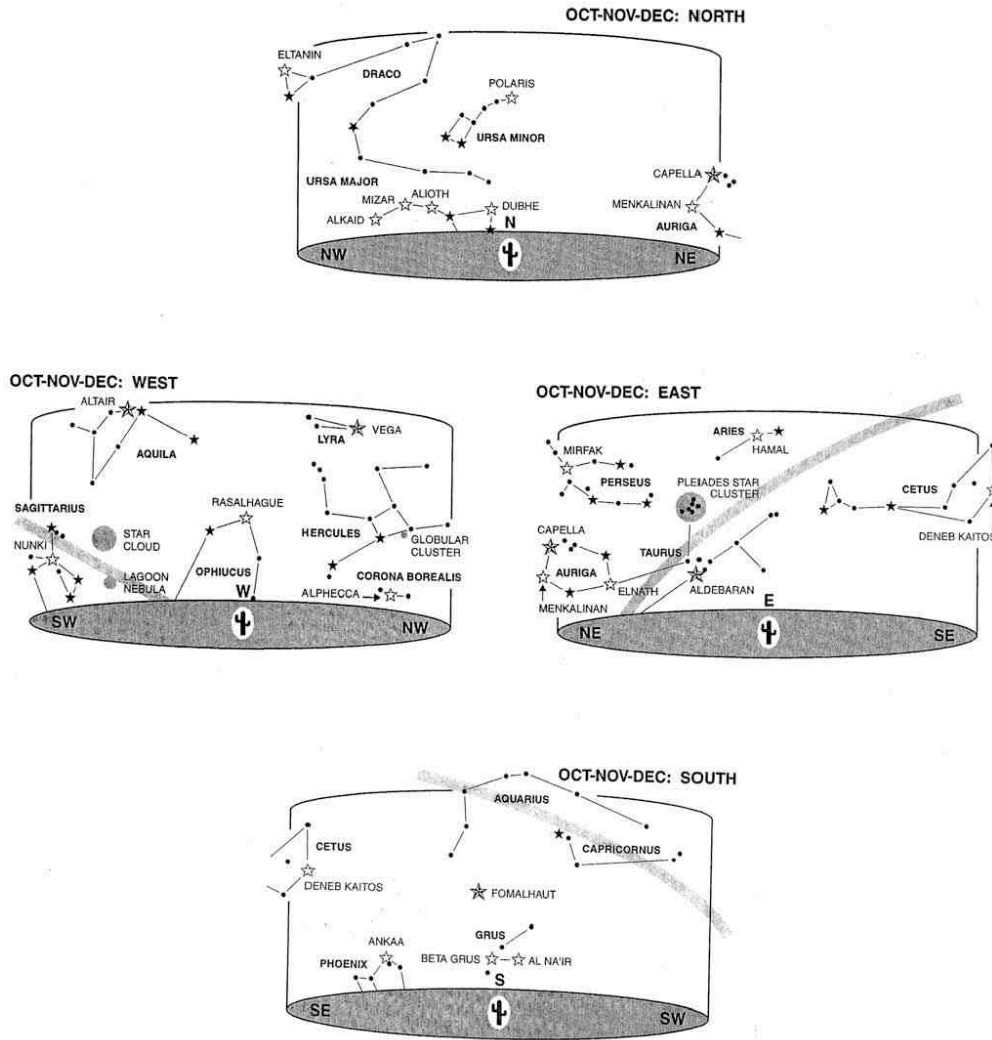
Revised 6 November 2006

Level 4

Figure 27: Rock art/architecture night sky record (page 4).

South Mountain Rock Art Project Field Manual

South Mountain Rock Art Project The Southwestern Night Sky: OCT-DEC *(from Dan Heim, 1997)*



Revised 6 November 2006

Level 4

Figure 28: Rock art/architecture night sky record (page 5).

South Mountain Rock Art Project Field Manual

Instructions for completing Level 4: Rock Art/Architecture Night Sky Record

Top of Form

Recorders: Write down the first initial and last name of person(s) preparing the form.

ASM Site #: Write in the Arizona State Museum Site Number.

Panels/elements: use Panel number and elements are recorded in Site and Feature data forms.

Dates Recorded (ddMMMyy): Write date(s) of observations in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Site/Locus Name: write in the relevant name of the site or locus

Time(s) of Event: Write time(s) of observation(s) using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

NAD83UTM Coordinates: Enter the UTM coordinates for the center of the feature- easting, northing, elevation, and accuracy for the waypoint. All GPS units used on the project are set to the NAD83 datum.

Azimuth (Compass Bearing) from Place of Observation to Star Cluster: use a compass to determine this value, and write it in degrees, based on True North.

Describe Star Cluster(s) [Constellation] and Alignment(s) with Archaeological Feature(s): Write a description of any observations you make that deal with alignments of stars or star clusters and any archaeological features, including the feature number. Use the attached Star Charts as a reference for naming constellations.

Sketch Map of Night Sky

In the box provided, sketch the horizon, celestial features visible above the horizon, and plot the location of relevant rock art or other features in the foreground.

In the space provided at the bottom, describe the setting from which your observations are made, including archaeological features as well as any apparent landscape modifications (e.g., rock alignments or upright stones, spaces cleared of rock).



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project Archaeoastronomy Eastern Horizon Sunrise Record



Recorder(s): _____	Dates Recorded (<i>ddMMMyy</i>): _____
ASM Site # _____	Site/Locus Name: _____
Panels/Elements: _____	Time(s) of Event: _____
NAD83 UTM Coordinates: _____ East _____ North _____	Elev (m) ± ____ (m)
Azimuth (Compass Bearing) from Place of Observation to Horizon Event: _____	
Comments: _____	

Sketch Map

Eastern Horizon

Summer Solstice
Sunrise

Equinox
Sunrise

Winter Solstice
Sunrise

Describe Horizon: _____

Describe Place of Observation: _____

Revised 6 November 2006

Level 4

Figure 29: Eastern horizon sunrise record.



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project Archaeoastronomy Western Horizon Sunset Record



Recorder(s): _____	Dates Recorded (<i>ddMMMyy</i>): _____
ASM Site #: _____	Site/Locus Name: _____
Panels/Elements: _____	Time(s) of Event: _____
NAD83 UTM Coordinates: _____ East _____ North _____	Elev (m) ± ____ (m)
Azimuth (Compass Bearing) from Place of Observation to Horizon Event: _____	
Comments: _____	

Sketch Map

<i>Western Horizon</i>		
Summer Solstice Sunset	Equinox Sunset	Winter Solstice Sunset
Describe Horizon: _____		

Describe Place of Observation: _____		

Revised 6 November 2006

Level 4

Figure 30: Western horizon sunset record.



South Mountain Rock Art Project Field Manual

Instructions for completing Level 4: **Eastern/Western Horizon Sunrise/Sunset Forms**

Recorders: Write down the first initial and last name of person(s) preparing the form.

ASM Site #: Write in the Arizona State Museum Site Number.

Panels/elements: use Panel number and elements are recorded in Site and Feature data forms.

Dates Recorded (ddMMMyy): Write date(s) of observations in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Site/Locus Name: write in the relevant name of the site or locus

Time(s) of Event: Write time(s) of observation(s) using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

NAD83UTM Coordinates: Enter the UTM coordinates for the center of the feature- easting, northing, elevation, and accuracy for the waypoint. All GPS units used on the project are set to the NAD83 datum.

Azimuth (Compass Bearing) from Place of Observation to Horizon Event: use a compass to determine this value, and write it in degrees, based on True North.

Comments: Write a description of your observations of sunrise or sunset events, emphasizing solar interaction with local or distant landscape elements, and rock art or other archaeological features.

Sketch Map of Horizon

In the box provided, sketch the horizon, and note the location of sunrise/sunset events for dates observed. It is helpful to take bearings to distant landmarks on the horizon from your observation point, and to note these azimuths on the sketch map along the horizon. Also, be sure to plot the location of relevant rock art or other features in the foreground. In the space provided at the bottom, describe visible landmarks on the horizon (these should be labeled in the drawing, where possible) and the setting from which your observations are made, including archaeological features as well as any apparent landscape modifications (e.g., rock alignments or upright stones, spaces cleared of rock).



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project
 Rock Art Panel/Element
 Report of Light and Shadow Patterns
 For the Solar Day and Year



Recorder(s): _____	First Observation Date (d/M/My): _____
Field #: _____ ASM Site #: _____	Feature #(s): _____
Site/Locus Name: _____	
NAD83 UTM Coordinates: _____ East _____ North _____ Elev (m) ± _____ (m)	

Observation date(s)	
Summer Solstice (SS): _____	August Crossquarter (Acq): _____
Autumn Equinox (AE): _____	November Crossquarter (Ncq): _____
Winter Solstice (WS): _____	February Crossquarter (Fcq): _____
Vernal Equinox (VE): _____	May Crossquarter (Mcq): _____
Other Days: _____	

Light and Shadow Movements

Hour	5 AM	6	7	8	9	10	11	12 PM	1	2	3	4	5	6	7	8
SS																
Acq																
AE																
Ncq																
WS																
Fcq																
VE																
Mcq																
Other																
Other																

[X] Dark (Shadow) [O] Lit [--] Both Shadow and Light on Element(s) [no] No observation

Sketch Map

Scale:

North: _____

Light and Shadow Shapes observed on Petroglyph(s): [use terms on reverse] (enter date/time)

_____	()	_____	()	_____	()
_____	()	_____	()	_____	()
_____	()	_____	()	_____	()
_____	()	_____	()	_____	()

Figure 31: Solar year light/shadow patterns form (page 1).



South Mountain Rock Art Project Field Manual

Sunlight and Shadow Form Terms (From C. Johnson, *Utah Rock Art* 10, 1992)



Revised 20 October 2006

Level 4

Figure 32: Solar year light/shadow patterns form (page 2).

South Mountain Rock Art Project Field Manual

Instructions for completing Level 4: **Solar Year Light and Shadow Patterns Form**

Recorders: Write down the first initial and last name of person(s) preparing the form.

ASM Site #: Write in the Arizona State Museum Site Number.

Feature #(s): use Panel number and elements as recorded in Site and Feature data forms.

Site/Locus Name: write in the relevant name of the site or locus

First Observation Date: Write date of first observation in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Dates Recorded (ddMMMyy): Write date(s) of observations in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

NAD83UTM Coordinates: Enter the UTM coordinates for the center of the feature- easting, northing, elevation, and accuracy for the waypoint. All GPS units used on the project are set to the NAD83 datum.

Observation Dates

In this box, write in the date(s) of observation adjacent to the relevant solar event that you observe.

Light and Shadow Movements

In this box, you will record the presence or absence of light and shadow movements across the panel/elements, using the notations described below the box (**X** for a shadow, **O** for a light, **--** for both, and **no** for neither. Times for which there is no observation should be left blank.

Sketch Map


In this box, sketch the feature you are observing, and any interesting light/shadow movements you observe.

Light and Shadow Shapes Observed on Petroglyph(s)

Using the light and shadow shape terms provided on the back of the form, record any of these shapes that are observed on petroglyphs and the date they were observed.



South Mountain Rock Art Project Field Manual



South Mountain Rock Art Project
Balloon Aerial Photography Form




Photo Crew: _____	Date (ddMMMyy): _____
Location: _____	Time (24hour): _____
Site #s: _____	GPS Model/No.: _____

Weather Forecast (retrieve Sky Harbor Terminal Forecast KPHX from <http://adds.aviationweather.gov/tafs/index.php>)

Forecast valid for time period: _____ to _____ Zulu UTC

Wind direction _____ Ceiling (ft): _____ AGL

Wind speed (knots) _____ Gusts: _____ Visibility (miles): _____

Payload Information

Camera Model/No.: _____ Wind Speed from NOAA (mph) : _____

Intervalometer frequency (sec): _____ Height Range (ft): _____ to _____

Other equipment sent aloft: _____

Aerial Targets (use UTM Zone 12 NAD 83 WGS 84):

Target No.	Waypoint ID	UTM Easting	UTM Northing	Elevation (m)	Accuracy (m)

Site/Subject Information

Site elements flagged (check and write color):

Site boundaries _____ Site datum _____ Artifacts _____

Petroglyph panels _____ Features _____ Other _____

Major features in photographs: _____

Flight/Photography Information

Start Photo ID: _____ End Photo ID: _____ Total # taken: _____

Purpose for performing aerial photography: _____

Personnel notified: _____

Describe flight process, including number of times sent aloft, problems, etc. _____

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Level 2

Figure 33: Balloon aerial photography form.

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Instructions for completing Level 4: **Balloon Aerial Photography Form**

Photo Crew: Write down the first initial and last name of person(s) assisting with the balloon aerial photography.

Location: Write in the name of the locality (after Bostwick and Krocek, 2002)

Site #s: Write in the Arizona State Museum Site Number(s) for site(s) being photographed.

Date (ddMMMyy): Write date that aerial photographs were taken in format shown, to avoid confusion. E.g., April 19, 2006 would be: 19APR06.

Time (24 hour): Write in the start and stop time of fieldwork using 24-hour clock to avoid confusion. E.g., 1:30pm would be 1330

GPS Model/No.: Write in the model and number of the GPS used to record aerial targets.

Weather Forecast In the spaces provided, record the relevant weather forecast information by consulting the Sky Harbor Terminal Forecast, the morning of the planned balloon flight.

Payload Information In the spaces provided, record the equipment used for the photography, the wind speed during the flight, and the height range in feet over which photographs were taken.

Aerial Targets In the spaces provided, record the UTM coordinates for the center of each aerial target deployed during the exercise, including elevation and GPS accuracy. All GPS units used on the project are set to the NAD83 datum.

Site/Subject Information In the spaces provided, note any features that are flagged in the photographs, and record the color of the flags used for each. Efforts should be made to use different colors for different kinds of features on the ground.

Major features in photographs: note major landscape and archaeological features that should be present in the photographs.

Flight/Photography Information

Start Photo ID: Enter the first photo number taken, from the camera

End Photo ID: Enter the last photo number taken, from the camera

Total # Taken: Enter the total number of frames recorded aloft

Purpose for performing aerial photography: write in reason for recording aerial imagery at this location.

Personnel notified: write in the names of FAA officials that were notified of this flight

Describe flight process: write about the process of conducting the flight for future reference



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Appendix A: Bibliography of Rock Art Publications for the Sonoran Desert

This bibliography was compiled by Dr. Todd Bostwick, and is provided as a resource for those who would like to learn more about the rock art of the area within and beyond the South Mountains.



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Appendix B: Petroglyph Classification

The following pages included in this appendix show graphic images, verbal descriptions, and codes for different categories of petroglyph elements that Wallace encountered while recording petroglyphs in the Hohokam area (1989). As our research uncovers new, repeated elements that are not found in Wallace's classification scheme, these will be added. It is important to note that the classification scheme is somewhat arbitrary, and based on image forms that are found repeatedly. The use of this classification scheme is designed to permit a more systematic means of tallying different petroglyph elements that are encountered in the field.

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Wallace Code	Element Type Name	Example
1	Anthropomorph	
2	Unfinished Anthropomorph	
200	Invertebrate	
201	Lizard	
202	Tortoise	
203	Extended Snake	
204	Coiled Snake	
205	Sheep	
206	Deer	
207	Misc Warm-Blooded Zoomorph	
208	Turkey	
209	Pelican	
211	Uncategorizable Life Form	
212	Botanical	
213	Stylized Thunderbird	
301	Atlatl	
302	Bow and Arrow	
303	Handprint Human	
304	Footprint Human	
400	Centipede Cornstalk	

Glyph classification

Adapted from Wallace, 1983

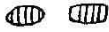

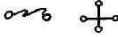





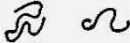
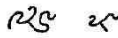










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401	Bird Track	
402	Candelabra	
403	Circle	
404	Paired Circles Figure Eight	
405	Circle Chain	
406	Opposed Intersecting Wavy Lines	
407	Circle Pattern	
408	Circle Cluster	
409	Concentric Circles 2 Rings	
409	Concentric Circles 4 Rings	
410	Concentric Circles 3 Rings	
412	Concentric Circle 5 Rings	
413	Spoked Concentric Circles	
414	Bulls Eye 1 Ring	
415	Bulls Eye 2 Rings	
416	Bulls Eye 3 Plus Rings	
417	Sun Disk	
418	Asterisk	
419	Tailed Circle	
420	Doubled Tailed Circle	
421	Miscellaneous Tailed Circle	

Glyph classification

Adapted from Wallace, 1989





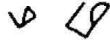














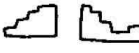

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422	Shell Gridiron	
423	Sectioned Circle	
424	Circles with Connecting Lines	
425	Barbell	
426	Circles with Concentric Arcs	
427	Grid Dint Pattern	
428	Dint Framing	
429	Dint Line or Meander	
430	Miscellaneous Dint Patterns	
433	Curvilinear Meander	
434	Curvilinear Mender Branching	
435	Curvilinear Abstract	
436	Single Arc Semicircle	
437	Concentric Arcs	
438	Counterclockwise Scroll Curvilinear	
439	Counterclockwise Scroll Rectilinear	
440	Clockwise Scroll Curvilinear	
441	Clockwise Scroll Rectilinear	
442	Connected Scroll Curvilinear	
443	Connected Scroll Rectilinear	
444	Interlocking Scroll Curvilinear	

Glyph classification

Adapted from Wallace, 1989

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445	Interlocking Scroll Rectilinear	
446	Running Connected Scroll Curvilinear	
447	Running Connected Scroll Rectilinear	
448	Butterfly	
449	Rectilinear Abstract	
450	Pipette	
451	Pseudo-Pipette	
452	Cross	
453	Outlined Cross	
454	Negative Cross	
455	X	
456	Outlined X	
457	Rake	
458	Double Rake	
459	Ladder	
460	Rain Cloud	
461	Rain	
462	Serrated Barbed Line	
463	Swastika	
464	Terraced Element	
465	Rectilinear Meander	

Glyph classification

Adapted from Wallace, 1989

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466	Propeller	
467	Chevron Triangle Motifs	
468	Square	
469	Diamond	
470	Broken Diamond	
471	Straigh or Curved Line	
472	Single Zigzag or Wavy Line	
473	Zigzag Or-Wavy Lines	
474	Parallel Lines	
475	Diamond Crosshatch	
476	Grid Crosshatch	
477	Grid at Least Partly Framed	
478	Reticulate	
479	1-2Curvilinear 1-2 Rectilinear Abstract	
481	Square Wave	
482	Filled Circle	
483	Pinwheel	
700	Scratched Chevron Triangle Motif	
701	Scratched Crosshatch	
702	Scratched Hatchure Band	
703	Scratched Straight Zigzag or Wavy Lines	

Glyph classification

Adapted from Wallace, 1989

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Appendix C: Volunteer Forms

Before volunteering on the South Mountain Project, please complete the following forms. All volunteers must submit a completed volunteer application to Pueblo Grande Museum. You should specify that you would like to work on the South Mountain Rock Art Project. Volunteers under 18 must also submit the parental consent form along with that application. The volunteer information and emergency contact form should be brought to the project director before or on the first day that you volunteer, so that we have this information in our files. This information will be kept confidential. The volunteer effort log will be kept at the SMRAP project office at the Community Services Building.



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EXHIBIT B



CITY OF PHOENIX
PARKS AND RECREATION DEPARTMENT

**VOLUNTEER APPLICATION
INDIVIDUAL**

FOR OFFICE USE ONLY

Date Interviewed: _____ By: _____

Start Date: _____ End Date: _____

Placement: _____

Fingerprint Required: Yes No

Date: _____ Status: _____

Accepted (circle) Yes No

Volunteers are IMPORTANT to the success of programs and to the City of Phoenix. Your decision to volunteer is appreciated! Please complete this application and submit it to any parks and recreation office or center. Due to the nature of many of the volunteer positions (i.e., working with youths), the Department makes significant efforts to screen volunteers for the safety of the participants and other volunteers. The information provided will be used to evaluate the volunteer's experience and background history. Some sensitive placements may require a formal background check.

INSTRUCTIONS: Write legibly. Fill in all spaces. Be accurate and complete.

LAST NAME	FIRST NAME	MIDDLE NAME
ADDRESS: _____ APT. #: _____ CITY: _____ ZIP: _____		
HOME PHONE: _____	WORK PHONE: _____	EMERGENCY CONTACT/PHONE _____
Circle last grade completed: _____ Grade School: 6 7 8 High School: 9 10 11 12 College: 1 2 3 4 MORE		
E-MAIL ADDRESS: _____		

Volunteer Program Area of Interest - please check

<input type="checkbox"/> Youth Coaching	<input type="checkbox"/> Mountain Parks	<input type="checkbox"/> Sporting Events
<input type="checkbox"/> Teen Volunteer Program	<input type="checkbox"/> Senior Center Work	<input type="checkbox"/> Instruction
<input type="checkbox"/> Adaptive Recreation	<input type="checkbox"/> Clerical / Office	<input type="checkbox"/> Aquatics
<input type="checkbox"/> Tutoring	<input type="checkbox"/> Archaeology/Museum	<input type="checkbox"/> Special Events
<input type="checkbox"/> General - Community Centers	<input type="checkbox"/> Park Based Program	<input type="checkbox"/> Undecided
<input type="checkbox"/> Other (specify): _____	<input type="checkbox"/> School Based Afterschool or Summer Programs	

Is there a geographic area(s) of the City where you would prefer to work? (Please check)

Northwest East West Central Northeast South Ahwatukee Area No preference

Specific: _____

Please list name of current or most recent employer:

Employer _____ Phone Number _____ Supervisor _____

Address _____ Zip _____

Your Position _____ May we contact this employer? Y ___ N ___

Please list (1) one personal reference:

Figure 34: City of Phoenix volunteer form (page 1).

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Contact Name _____ Phone Number _____

Please list your special skills, interests, or hobbies that would help in your volunteer placement.

Please describe any previous volunteer experience. Provide work location and contact number.

Have you volunteered with the Phoenix Parks and Recreation Department before? Yes No
If yes, provide work location, dates and types of assignment.

Why do you want to volunteer?

Have you ever been convicted of a misdemeanor, a felony, placed on probation, or given a suspended sentence in court? Include any convictions by military trial, and any criminal charges for which you are awaiting trial. Upon offer of employment, your fingerprints may be sent to local and federal agencies for record verification. Full disclosure is to your advantage because your record does not automatically disqualify you for volunteering. Failure to admit convictions will result in disqualification from the volunteer process or discharge from the City of Phoenix volunteer service. Yes _____ No _____. IF you answered "YES", explain all cases below.

I certify that all information contained herein is true to the best of my knowledge. I consent to having a background history check, which may include fingerprinting. I understand that all omissions or misstatements may result in termination of my volunteer work. I will keep the Parks and Recreation Department advised of changes in my address and/or phone numbers or status.

Applicant Signature _____ Date _____

Print Name _____

If under age 18, print name or parent or guardian: _____ Phone _____

Parent / Guardian Signature: _____

To request a reasonable accommodation or this publication in an alternative format Call 602-262-6862 (voice) or 602-262-6713 (TTY). 602-534-3787 (FAX). E-mail: Receptionist.PKS@phoenix.gov. The City of Phoenix prohibits discrimination on the basis of race, ethnicity, national origin, sex, religion, age, sexual orientation, or disability in its services, programs and activities. Anyone who believes he or she has been discriminated against may file a complaint with the City of Phoenix Equal Opportunity Department.

Figure 35: City of Phoenix volunteer form (page 2).

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PARENTAL / GUARDIAN CONSENT FORM

In order for your child / teen to become a volunteer with the City of Phoenix Parks and Recreation Department, we need your consent and your involvement in helping him/her to have a productive experience. Please read and sign this parental consent form in order for us to continue our process of considering your child / teen to be a volunteer.

Name of Agency: **City of Phoenix Parks and Recreation Department**

District / Section: South Mountain Park/Pueblo Grande

Name of prospective youth volunteer: _____ Birth Date _____

Address _____ Phone _____

Event / Activity / Program Name: _____

Description of anticipated volunteer work: _____ Check if description is attached.

I understand that my child, named above, wishes to be considered for the volunteer experience described and I hereby give my permission for him/her to serve in that capacity, if accepted by the City of Phoenix. I understand that he/she will be provided with orientation and training necessary to assist in the performance of the volunteer duties and that he/she will be expected to meet all of the requirements of the position, including attendance and adherence to City of Phoenix policies and procedures. I understand that he/she will not receive monetary compensation for the services contributed or be guaranteed of any future position with the City of Phoenix. The City of Phoenix provides Workers' Compensation Benefits for volunteer workers if he/she should sustain an injury or illness arising out of and in the course and scope of his/her volunteer work.

By initialing and by signing, I also acknowledge that this consent gives my child/teen permission to be transported by City staff on field trips necessary to the volunteer work.

____ Initialing, provides my approval and permission for my child/teen to volunteer with the described activity / program.

NA Initialing, gives my approval and permission to provide transportation for my child / teen for field trips associated with the volunteer responsibilities.

Parent / Guardian: Print Name _____

Parent / Guardian Signature _____ Date: _____

Parent / Guardian Address, if different from volunteer:

City: _____ Day Phone: _____ Evening Phone _____

The City of Phoenix prohibits discrimination on the basis of race, ethnicity, national origin, sex, religion, age, sexual orientation, or disability in its services, programs and activities. Anyone who believes he or she has been discriminated against may file a complaint with the City of Phoenix Equal Opportunity Department. This publication can be provided in an alternate format upon request. Call 602-262-6862 (voice) or 602-262-6713 (TTY). 602-534-3787 (FAX). E-mail: Receptionist.PKS@phoenix.gov .

Figure 36: City of Phoenix volunteer form (parental consent form for minors).

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SOUTH MOUNTAIN ROCK ART PROJECT
ARIZONA STATE UNIVERSITY—CITY OF PHOENIX

VOLUNTEER INFORMATION SHEET
(Please complete and submit before volunteering in field)

NAME: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

PHONE: _____

EMAIL: _____

EMERGENCY INFORMATION

EMERGENCY CONTACT NAME: _____

RELATIONSHIP: _____

EMERGENCY NUMBER: _____

DO YOU HAVE ANY MEDICAL CONDITIONS OR ALLERGIES WE SHOULD BE AWARE OF IN THE FIELD?

Figure 37: Volunteer information and emergency contact form.



