Revised 1 July 1993
Edited 1 September 2003

Appendix B of the Arkansas State Plan
GUIDELINES FOR CULTURAL RESOURCES FIELDWORK AND REPORT WRITING IN ARKANSAS

INTRODUCTION

Many of the cultural resource investigations in Arkansas are done in response to the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (see 36 CFR Part 800) for consideration of impacts on any significant cultural resources which may be affected by federally funded, licensed, assisted, or permitted undertakings. The following Guidelines are particularly relevant for archeologists whose reports will be reviewed by federal agencies and by the State Historic Preservation Officer (SHPO) as required in Section 101, and the Advisory Council on Historic Preservation's regulations found in 36 CFR Part 800. They are considered part of the approved State Plan as discussed in the National Register Programs Guidelines (NPS 49), Chapter 6. However, these Guidelines are written to conform to accepted scientific procedure for investigation of archeological sites and therefore can and should also be used by all archeologists engaged in field research in Arkansas for whatever purpose.

It should be kept in mind that when archeologists agree to perform a Scope of Work calling for investigation, recording, and evaluation of cultural resources, they must pay attention to ALL CULTURAL RESOURCES, not just prehistoric sites. They must be prepared to identify, record, and evaluate prehistoric and historic archeological sites and historic and architectural properties as well.

The Arkansas Historic Preservation Program (AHPP) will provide guidelines and forms for identifying, recording, and evaluating historic and architectural properties. The Arkansas Archeological Survey will provide forms and instruction for their completion for archeological sites, and will assign state site numbers when completed forms are submitted to the Registrar's Office.

Arkansas Historic Preservation Program
1500 Tower Building
323 Center Street
Little Rock, AR 72201
Phone: (479) 324-9880
Fax: (479) 324-9184

Registrar's Office
Arkansas Archeological Survey
2475 North Hatch Avenue
Fayetteville, AR 72704
Phone: (479) 575-3556
Fax: (479) 575-5453

In all cases, data on specific site location (either in the text or on maps) must not be a part of any report which is available to the public in any way. Submit this information separately to the sponsor of the project and the reviewers.

Deviations from these Guidelines may only be made through authorized Programmatic Agreements, Memoranda of Agreement or Memoranda of Understanding among federal agencies, the SHPO, and the Advisory Council on Historic Preservation.

QUALIFICATIONS FOR CULTURAL RESOURCES PERSONNEL WORKING IN ARKANSAS

All archeologists doing cultural resource work in Arkansas must meet the Secretary of the Interior's professional qualifications standards found in 36CFR61. It is recommended that archeologists be certified by the Register of Professional Archaeologists.

The Arkansas Historic Preservation Program (AHPP) does not maintain a list of individuals or companies who have done or who may be qualified to do cultural resource work in Arkansas. The current Register of Professional Archeologists can be found at www.rpanet.org or 410-933-3486.

RECORDS CHECKS

Investigations of archeological resources in an area must begin with a review of information on sites already on record. Except in unusual circumstances, this research should be completed before doing any fieldwork since it obviously will provide guidance for the archeological work to follow.

In Arkansas there are various sources for this information. No Records Check can be considered complete without an indication of having consulted with the following sources:

Arkansas Historic Preservation Program: The AHPP office maintains the state's inventory on historic and architectural sites and structures, the list of properties on or eligible for the National Register, and those being considered for nomination. Most of the historic properties in their inventory will have archeological components. For information on consulting these records, contact AHPP (Phone: 501-324-9880).

Arkansas Archeological Survey: The Survey is the official state repository for information on prehistoric and historic archeological properties. For information on consulting these records and to receive the Site Access Form, contact the Survey Registrar (Phone: 479-575-3556). For more detailed information on archeological regions in Arkansas, refer to the South Central US overviews: Sabo et al., Ozark and Ouchita Mountains and Jeter et al., Lower Mississippi Valley and Trans-Mississippi South, Arkansas Archeological Research Series Nos. 31 and 37 in addition to more updated reports. All are available at the Registrar's office.

General Land Office (GLO) maps and notes: GLO maps and notes provide both environmental data and information on occupied or used areas in the early to mid-nineteenth century. These documents are maintained (and are available on a CD) at the Office of the Commissioner of State Lands in the Capitol Building in Little Rock. They should be requested by Township and Range for the area of the project. The Survey's Registrar's Office also has a set of the GLO maps on microfilm.

Historic sources: County histories, gazetteers, and historical journals are excellent sources for information on potential historic archeological sites. The bibliography in the Historic Archeology section of this State Plan should be consulted.

Other important historic sources: There are 30' quadrangle maps for certain parts of the State, some dating to the turn of the century, late nineteenth century county atlases for some counties, and Arkansas Highway and Transportation Department road maps starting in the 1930s. All of these will provide excellent information on distribution of buildings, outbuildings, roads, and similar features. The Sanborn Insurance Maps which date between 1870 and the 1920s are important sources for areas in towns and larger urban areas where there are likely to be historic archeological resources. The state's major streams have been the subject of numerous mapping projects in the nineteenth and early twentieth centuries. These resources, such as the nineteenth century Mississippi River Commission maps, 1871 and 1930 Ouachita River maps, and others are available from the appropriate U.S. Army Corps of Engineers District office. They may contain information on buildings, harbors, ferry crossings, and other improvements and should be consulted when appropriate. There are also detailed maps made during the Civil War for some areas of the state, and some geological publications will have information on early mining sites. Some federal agencies have data on all cultural resources under their jurisdiction on computer file and in data layers.

Local Informants: Local individuals are often excellent sources of the location and original configuration of both prehistoric and historic sites.

The files of both the Survey and AHPP are computerized and are constantly being updated. They should be consulted for every project as data may be out of date from one week to the next.

LITERATURE SEARCH

Pertinent written sources on the project area must be consulted in order to place cultural resources in their appropriate context. The Arkansas Citation Database and the Survey's Research Library can also be consulted at the Registrar's Office in Fayetteville. The bibliography of any recent archeological work in the project area should also be a guide for the background research on written sources. The AHPP also has all Section 106 reports dating after July 1, 1987.

Any report on a literature search should include a summary of previous archeological or cultural resource work in the area, a review of what is known of the prehistory and history of the project area (NOT of the whole state unless there is something relevant), and an evaluation of the usefulness of the published sources for providing information on cultural history. A literature

search report should include summary information from the Records Check, and a bibliography should be produced that is exhaustive for the project area.

OVERVIEW

All reports require some sort of background section, but a major Overview Report on a project or geographical area which involves a detailed literature search and records check may often be useful or required for large areas. Such an Overview Report normally should include, in addition to the summaries and evaluations discussed above, recommendations for areas or topics for future study. The most recent archeological reports, however large or small, may contain information which updates the cultural sequence for the area.

Unless specifically required by the sponsor, Overview Reports do not include fieldwork. For example, if information on file about a site on the National Register is 10 years old, this must be noted in the report, but the site would not necessarily be visited to update that information. Also, in most cases, an Overview Report is not written in enough detail to allow the SHPO to render a No Effect finding for a Section 106 undertaking.

Appropriate categories of information which should be included in Overview Reports are abstract, management summary, introduction and description of study, effective environment, research goals and strategy, methods of data collection and analysis, summary of current knowledge, inadequacies in current knowledge, cultural resource management options, research tools available, references.

FIELDWORK

ARCHEOLOGICAL SURVEYS

Archeological surveys collect information on the pattern of past human activity within the area of interest. Areas vary depending on the purpose of the survey and can be as different as an arbitrarily defined tract of land designated for development, a highway corridor, or a watershed defined by drainage or other physiographic factors.

The survey process involves identification of the presence or absence of evidence of past human activity that is normally embodied in archeological sites, and evaluation of the potential of identified sites to provide further information about human behavior and adaptation in the past. The methods and techniques used in surveys vary with the kinds of data to be collected, the amount of information already known about the sites and the landscape, the information required by the sponsor, and the survey goals. Variables may include the intensity and pattern of observations of the surface and the number and intensity of the subsurface investigations (shovel testing or

column samples). The critical decisions as to how much area to look at, how much subsurface information is needed, and how much and what kinds of data to record are dependent upon the needs and knowledge of the researcher, the needs of the sponsor, and the recommendations of the SHPO.

If, for instance, the purpose of a survey is to determine the location of all cultural resources in a project area (inasmuch as it is technically possible to provide such an inventory), methods and techniques employed will be different from those that may be employed in a case where the survey is expected to identify the distribution or intensity of human activity in a given area. Other factors, such as the size and complexity of the archeological sites themselves and the contemporary and geomorphological landscape, affect the selection of methods and techniques to be employed. Information needs, based on such factors as the amount of information already available about past human activity in the area or in the nearby region or the amount of information about a particular site needed for evaluation of significance, also influences the method and design of the survey. How far beyond a specified project boundary it is possible or necessary to consider available information depends in part on how much is known for the project area itself.

Depending on the nature of the project, information may be collected in stages. The intensity of survey and amount of information recorded about affected cultural resources by surface or subsurface observations (i.e., testing) may increase by incremental steps in large or complex projects. A preliminary survey can assess the general nature of sites, their density, and problems of visibility that affect amounts and kinds of information collected and determinations of significance. This information is important in recommendations for subsequent work needed to establish eligibility of properties for inclusion in the National Register of Historic places.

Normally the less that is known about an area, the more potentially significant each site may be. The more information collected about sites at the survey level of investigation, both in terms of distribution and content, the more realistic and reliable will be the recommendations for further work; the greater the intensity of the survey (using whatever appropriate techniques), the more realistic and reliable will be the estimate of the number and distribution of sites, as well as the judgments of significance.

The methods and techniques to be used for a particular survey are judgments which professional archeologists must make when proposing work and should be compatible, where appropriate, with the needs of the sponsor and the recommendations of the SHPO. If a Scope of Work is written by someone without appropriate archeological experience in Arkansas, the Sponsor and the archeologist must work out any discrepancies in what is proposed, In any event, **the basis for these judgments must be made clear when reporting on research methods in the written report on the survey.** Just as it is not possible to collect all potential information about a site during excavation, it is normally not possible to conduct a "100% survey" of an area. Current site discovery techniques and the changing character of the modern landscape mean it is unlikely that ALL evidence of past human activity will be identified in any given area. In many areas in Arkansas, evidence of past activity may not be visible on the surface or even in shallow 50 cm deep shovel tests. Nevertheless, statements

about the nature of past human occupation and the significance of sites can be made with less than "100% complete" information. Archeological and historical interpretation depend upon a sample of the past. If this sample is recorded with scientific rigor, significant information will result.

Field Procedures for Archeological Surveys

I. ***Selection of areas to be surveyed***

When a survey is needed because of federal requirements, the area to be investigated is usually determined by the amount and area of potential impact of a proposed project. The sponsor's needs are reflected in the Scope of Work. If a Scope of Work is not provided on a 106 project, the archeologist should consult with the SHPO and the federal agency for guidance. An archeologist may respond with a proposal for doing the fieldwork in various ways:

A. **Sample survey:** Sampling a project area can provide estimates of site density, distribution, and character that can be used to estimate the nature of sites in the unsurveyed portion of the project area. In order to establish a statistically valid assessment of site distribution or density, the areas to be surveyed must be chosen by means compatible with the statistical tests to be used for analysis. This type of survey should result in a representative sample of sites in the area.

A method for sampling an area may also be chosen based on previous knowledge about human use of the region, topographic and geomorphic features, or other factors. The sample units drawn may not be appropriate for some statistical purposes, but may provide other kinds of useful site distribution information.

B. **Judgmental survey:** In some instances, or as an adjunct to a sample survey, other specific portions of a study area may be selected for investigation. For instance, specific topographic features or environmental zones may be surveyed based on previous knowledge of use of those features, distribution of critical resources, or other factors. This type of survey may result in recording of kinds of sites which might not be found in I.A (above).

In ANY sampling program, the choice of survey methods and techniques must be compatible with the needs of the project sponsor and with the nature of the cultural resources and the contemporary environment. The methods and techniques must be identified and explained in the written report.

C. **All previously recorded sites in a project area must be revisited** in order to update information on them. If a previously recorded site cannot be relocated, the situation should be explained. If the condition or integrity of the site has not changed, this fact and the data of the revisit should be recorded.

II. ***Intensity of coverage of area surveyed***

A. An ***intensive survey*** means an area has been walked usually with closely spaced parallel transects of one or more people. An intensive sample survey inspects all the ground in specifically selected areas.

B. The intensity of the survey coverage appropriate in a particular area will depend upon a number of variables: 1. Amount and nature of information already on record about sites; 2. Kinds and densities of ground cover; 3. Expected potential for, and density of, unrecorded sites; 4. Known or estimated minimal size of various site types in the area; 5. Specific needs of the survey project (i.e., complete inventory, sample survey, etc.); 6. Anticipated use of the survey data (e.g., if the data are to be used for a predictive model, then a higher intensity may be required).

C. In general, the less that is known about an area, the more intensive should be the survey both in terms of percentage of total area looked at and amount of ground actually inspected.

D. The spacing between individuals walking in parallel transects will depend upon the nature of the sites in the area and the needs of the project. For example, if it is known that lithic scatters are typically less than 20 m in diameter and the purpose of the survey is to inventory all sites, then the space between people and shovel tests should not be more than 20 m. If the size of sites is not known, then the space between individuals and shovel tests should start at 10 m and increase only as information about sites increases.

E. Because environmental conditions (ground cover, season of year, amount of recent rainfall, the nature of the alluvial or colluvial deposits) and modern disturbances may obscure the surface evidence, some technique of subsurface observation (e.g., shovel tests) should be a part of ***every*** survey conducted.

F. The report on an intensive survey followed by or accompanied by testing should define the amount and kinds of ground looked at and include a discussion of the nature of the sites as determined by the test excavations. ***It is normally not possible to establish the significance of an individual site without testing to determine the nature of subsurface deposits,***

III. ***Site identification***

A. Sites are identified by: ***surface features,*** such as mounds, embankments, quarry pits, remains of houses or outbuildings, wells, cellar holes; ***artifacts or refuse*** on the surface or recovered in tests; ***discoloration of the soil*** which may indicate midden or subsurface features; ***non-native or exotic vegetation, anomalous plant communities*** (clusters of native cedar or pine in hardwood forest, for example), and/or ***decorative or domestic plants*** indicating historic activity; or ***combinations*** of the above.

B. When heavy ground cover (e.g., pasture or forest) precludes normal visibility of either artifacts or features, some method (e.g., shovel tests, rakes, leaf blowers, rototiller) must be used to insure that there is a reasonable opportunity for the surface and/or subsurface deposits to be exposed (the interval for this exposure should be 10 m). Take care not to destroy the surface patterning of artifacts in the process!

C. Local informants should always be sought out for information on artifacts and features which may have been observed in the past and on historic features, buildings, or individuals known to have used or occupied the area.

IV. *Site definitions*

An ***archeological site*** in Arkansas is defined by the presence of three or more artifacts (chips, flakes, historic objects, etc.) within 5 meters of each other, or by the presence of obvious man-made features such as mounds, Civil War entrenchments, wells even when there are no artifacts.

An ***isolated find*** is recorded as a site if it is a diagnostic or significant artifact. A ***diagnostic*** artifact is one which provides temporal or cultural information; an example of a ***significant*** artifact is a novaculite flake in the Delta.

The Arkansas Archeological Survey site form must be used to record information about all sites (including isolated finds). (The Survey will provide site forms without charge to anyone requesting them.) If a historic standing structure, building, or object is on an archeological site or in a project area, an AHPP Architectural Resources form must also be completed and forwarded to that office.

A. *Site size*

1. Areal extent (horizontal dimensions) of archeological sites is determined by dispersion and location of artifacts and/or features on the surface and/or by shovel or auger tests to determine horizontal extent of cultural material or subsurface features beyond or within the surface spread of artifacts. This is true for both historic and prehistoric sites.

2. Testing for vertical size or depth of archeological sites can be done with shovel or auger holes or by controlled test pits (it is often advantageous to follow the former with the latter, if the shovel or auger holes do indicate cultural attributes which could be used for establishing significance—see section on Establishing Significance). Other mechanisms, such as the use of a backhoe, may be necessary to determine presence of deeply buried deposits.

B. ***General site characteristics***

1. Shovel, soil probe, and/or auger holes and test pits on archeological sites must be made to determine the nature of the cultural and natural deposits below the surface.

2 Historic archeological sites, particularly residential (rural or urban) sites, may have successive buried ground surfaces because of filling around the structure and general grading around a house. Testing should be designed to determine this. The nature, placement, and size of such historic sheet midden scatters (whether on the surface or just below it) must be determined In relation to other above and below ground features and contexts (rock piles, rock walls, domestic flowers, etc). Historic sites may include orchards, fields, etc., which are on early maps or discovered from oral accounts or in archival sources.

3. The general nature of the soil and the matrix in which cultural material occurs should be determined and that information provided in the report.

4. The topographic and environmental setting of the site must be recorded.

C. ***Collections***

1. ***Collection of artifacts from the surface of each site is required*** (except tombstones from a cemetery!). This stipulation is contingent on having landowner permission or a federal antiquities permit. The collection strategy and the kinds and numbers of artifacts collected will depend upon the size of the site, the number and diversity of artifacts, the research goals, and the time frame of the project. Some level of spatial control is recommended for all surface collecting. The methods used must be consistent with project goals and must be described and illustrated in the report.

2. ***Observation and recording of artifacts without collecting is not an acceptable practice.*** Much of the interpretation about a site is dependent upon a study of the artifacts. If no collection is made, no confirmation of identification is possible, and the required illustration and analysis in a report would be much less complete. It is highly likely that the artifacts not collected by an archeologist will be collected by someone else and will not be available for future study. This applies equally to historic and to prehistoric sites.

3. ***Collections of material from sites known to be less than 50 years old need not be made,*** although the nature of the artifacts observed should be recorded. If an archeologist is not thoroughly familiar with historic artifacts (i.e., cannot tell what is 50 years old or older), collections must be made on all

historic sites so that proper identification may be made through consultation with a trained historic archeologist.

4. ***Collections from small sites:***

(a) Isolated finds or a few scattered flakes: An isolated artifact may be a clue to subsurface material and/or features; a single piece of ceramic with a maker's mark may help date a historic occupation. The decision as to whether to collect and record such a find must be made by the archeologist in the field and justified in the report.

(b) All flakes and diagnostic artifacts should be collected from small sites, plus a sample of any other stone raw material. If in doubt about the identity of an artifact, collect it.

5. ***Collections from large sites:*** "grab-samples" from large sites are not as useful as collections made according to a sampling strategy in which spatial control has been maintained. In controlled collection areas, it is suggested that all artifacts be collected. If this is not done, an explanation for the method used must be included in the report.

V. ***Maps***

A. A sketch map of each site recorded is required as attachments in survey reports and with the site form (the sketch map can be done by hand but it must be neat and legible, and the scale must be accurate). The map should indicate the site number (either temporary or State assigned), spread of artifacts, the location of all cultural features (modern and prehistoric), and the location of other environmental associations such as streams/creeks, fence lines, edge of woods, or roads. In some cases, it may be worthwhile to plot specific locations of artifacts. The scale, north arrow, date, recorder, and a figure caption must be indicated on each map.

B. If shovel tests, auger holes, test pits, or controlled surface collections are made, the location of these must be indicated on the above map, or a similar one, with positive and negative tests coded. When possible and appropriate, a datum point and/or two other reference points suitable for relocating test pits, controlled collection units, etc., should be indicated on the map. This is particularly important in cases where specific areas of the site might need to be relocated for more intensive testing or mitigation.

VI. ***Photographs***

A. If a site is discovered which is potentially or obviously significant, at least one black and white photograph should be made of it. If there are above ground features, including buildings, these must be photographed, and a black/white print of any structure(s) must accompany the AHPP Architectural Resources form.

TESTING SITES

Sites are tested to find out if there is any cultural material or recognizable cultural features below the surface. If there is, the nature of the structure, content, integrity, and quality of such material and/or features must be ascertained. When testing is done for compliance purposes, this activity is often called "Phase II testing" or "eligibility testing." Almost always, the significance of an archeological site cannot be established without some subsurface testing. Significant sites are those that are considered eligible for inclusion in the National Register of Historic Places.

In order to determine the significance of a site, testing must be done to establish the nature of the potential information that will answer research questions which are found in the State Plan or other research problems discussed in the research proposal. The fact that there are or are not undisturbed deposits of cultural material beneath the plowzone is not in itself enough to say the site is or is not significant (see section on Establishing Significance).

The archeologist must balance the need for obtaining adequate information concerning the potential of the site to answer research questions with avoiding a major impact on the site by the test procedure itself.

If significance is to be established, subsurface tests must be made on all sites, even if visibility of ground surface is good. Testing should also be done if ground visibility is not good, there are no surface indications of a site but the location is ideal (e.g., natural levees), or if inspection of modern landscape features suggests the possibility of buried surfaces or deposits that may contain cultural material.

Different kinds of tests can provide different kinds and amounts of information on site structure, content, integrity, and quality.

1. ***Shovel tests:*** Shovel tests may be appropriate to discover the depth of plow disturbance and the condition of deposits just below the plowzone. Shovel tests also provide similar below-surface information in areas where there is no plowzone, but where the surface of the site is obscured. These tests are usually about 30 cm in diameter and should be at least 50 cm deep (unless bedrock is found or the nature and integrity of a site can be determined before that depth is reached). Finding no cultural material below the plowzone in shovel tests does not necessarily indicate that all evidence of past human occupation is in the disturbed plowzone, for there may be many features (trash pits, storage pits, fire hearths) elsewhere on the site that might not be encountered in shovel tests. There may also be buried cultural deposits deeper than 50 cm.

When shovel testing a site where there is material on the surface, a general guide is for the space between tests to be 5 m. When shovel testing an area with heavy groundcover where a site is suspected, test holes can be farther apart (10 m). Details of the testing and justification for the spacing and number of tests must be provided in the report.

Shovel tests should be individually identified and indicated on a map. Artifacts found should be recorded separately for each test, and evidence of stratigraphy recorded in appropriate detail. Shovels tests should be screened through 1/4 inch hardware cloth, or all soil should be troweled and picked through by hand. The method used must be identified in the report.

2. ***Auger tests:*** A solid core auger, soil probe, bucket auger, or post hole digger can go deeper than a shovel (sometime with less damage to the site). One of these techniques should be employed if deeply buried deposits are suspected or if shovel testing does not get to the bottom of cultural material. Spacing should be the same as for shovel tests. Records on artifacts and stratigraphy should be made in the same detail.

3. ***Test Pits or Control Columns:*** Test pits (e.g., 50 cm x 50 cm, 1 m x 1 m, or 1 or 2 m x 50 cm) are appropriate for looking at the subsurface deposits of a site. If a concentration of artifacts or a historic feature is observed on the surface, a test pit in that area is appropriate. At least one such test pit should provide information on stratigraphy, depth, and a sample of artifacts in context. If there is already a pothole or a natural erosional feature, cleaning the profile of that hole or eroded area may also provide a look at the stratigraphy. Such profiling may suffice for subsurface information on small sites, thereby eliminating need to impact the site further. A single test pit, however, will not always determine the full nature of the subsurface deposits on large and/or multicomponent sites. More than one test pit in different areas of large sites may be appropriate for site evaluation and is necessary for determining adequate mitigation measures. Establishing eligibility of a large site based on one 1 m x 1 m test does not provide adequate data for planning mitigation measures or budgets.

4. ***Other:*** A backhoe can be an efficient quick way to get a trench profile where shovel and test pits seem inconclusive, and to search for suspected buried deposits too deep for shovel or auger techniques. The geomorphological information to be gained from such a trench may be important in establishing age of deposits or context of multiple components, etc. For example, the nature of some Archaic and Woodland sites in Arkansas is such that artifacts appear on the surface and in the plowzone, but shovel, auger, and test pits may not reveal any subplowzone material. Testing with a backhoe can be done when features are suspected and other methods have not revealed below ground cultural material. The amount of testing with a backhoe must be weighed against its impact on the cultural deposits or other relevant project factors.

Records must be made of all testing in the normal detailed manner used in any archeological excavations. At least one photograph should be made of each test pit, profiles drawn of at least one wall of each test pit and backhoe trench, soil matrix described, artifacts described and analyzed by stratigraphic or arbitrary levels. Placement of excavated test pits should be in relation to at least one datum, so that the pit can be relocated in the future. Scale, direction, date, datum, location of all tests, and recorder should be indicated on all maps and photographs.

ESTABLISHING SIGNIFICANCE

The most important thing to remember about significance, as the concept has developed in the context of historic preservation, is that it is a relative term. Significance in relation to what? Is it more or less significant than some other object, site, building, or structure? Does this make any difference as far as the federal laws and regulations are concerned? The answer to this last questions is no. Whatever the "degree" or "level" of significance, if significance (i.e., National Register eligibility) is agreed upon by the federal agency and the State Historic Preservation Officer (i.e., there is a consensus determination of eligibility) or if a determination is obtained from the Secretary of the Interior pursuant to applicable National Park Service regulations, then the Federal agency must assess effects, as per the Advisory Council's regulations found in 36 CFR Part 800.5.

The National Register criteria must be used in establishing the significance and eligibility of any property for nomination to the National Register (see National Register Bulletin #15, "Guidelines for Applying the National Register Criteria for Evaluation"). Criterion D, that the property has contributed or may be likely to contribute to information about history or prehistory, is the most common criteria used for establishing eligibility of archeological sites, but other criteria may also be used. To establish that an archeological site may indeed contribute information about history or prehistory, there are four attributes which should be considered: structure, content, integrity, and quality (or resolution).

Site structure refers to the overall vertical and horizontal configuration of the artifact-bearing sediments along with cultural features found within and upon those sediments (such as houses, barns, living surfaces, post mold patterns, pits, hearths, and/or noteworthy concentrations of artifacts). Within the natural strata of a site it may be possible to identify discrete cultural strata which may be defined as sediments deposited by or substantially altered as a consequence of past human activity.

Site content may be defined as the assemblage of natural and cultural materials contained within archeological sediments. Natural materials could include naturally occurring pollen, plant remains, or animal remains reflecting past environmental conditions. Cultural materials such as stone or bone tools and manufacturing debris, pottery, fire-cracked rock, and preserved plant and animal food remains, indicate the kind of human activities that once took place at the site. Natural and cultural materials found in archeological sediments may be analyzed and interpreted to provide inferences concerning past lifeways and environments. It is important to recognize, however, that a variety of natural and cultural processes may affect the preservation of materials, thus altering the structure and content of the site. In extreme cases, such alterations may effectively erase most or all traces of past human activity.

Site integrity refers to the present physical condition of the site, while site quality or resolution refers to how observable or recognizable the condition is using contemporary archeological field methods. Assessment of site condition and quality is based upon careful analysis of the potential impacts of a host of processes affecting natural and cultural materials as they ceased to be a part of

a living human ecosystem and became incorporated into an archeological context.

These attributes, common to all archeological sites, can provide a basis for evaluating significance of a specific archeological site. In making this assessment, the present condition of the site must be such that its content, along with, the context of those materials within the overall structure of the site, will permit interpretations to be made concerning past human activities and cultural processes. The likelihood must exist that any such interpretations will add substantially to the present understanding of one or more of a series of research problems (mentioned elsewhere in the archeological literature and in this State Plan) dealing with past human activities and cultural processes at the local, state, regional, or national level.

In order to be determined not significant, it must be demonstrated through adequate documentation from fieldwork and from historic sites archives that the site cannot provide this information.

When completing site and nomination forms, the National Register criteria under which a determination of eligibility has been made must be indicated.

The problem of what is important to research on the prehistory or history of Arkansas is given some firm direction by various sections of this State Plan. The research problems discussed, however, are not carved in stone; they may not be the only problems to be considered, and updating of the Study Units can only be done periodically. The Study Units should be consulted and used as a guide for determining the potential of a site to contribute information to research questions, but more recent studies in an area must also be consulted.

An archeological site is considered significant until proven otherwise. If a decision of significance or nonsignificance is required and documentation about the site's attributes, as discussed above, is inadequate, the site must be considered significant so that federal regulation will provide protection until the site's eligibility can be determined.

Archeologists required by a Scope of Work to make statements of significance and, therefore, to make judgments concerning a site's eligibility for inclusion in the National Register must provide adequate documentation and justification for their evaluations of both significance and **nonsignificance. Adequate documentation** means establishing the potential of a site to provide information relative to specific research questions mentioned in this State Plan or other questions proposed by the researchers. The amount of testing required to establish this potential depends upon the complexity of the site and the nature of the questions to be asked of the data. **For historic archeological sites, documentary research must be conducted to assist in the determination of significance.** Evidence of both kinds of research which aided in the evaluation must be provided in the written report.

Redundancy of information may occur in two sites, one of which will be impacted by a federal project and the other not impacted. This does not and must not affect the establishment of the significance of either of the sites, if each can contribute to information about the past. It is the

information in a site which makes it significant, not whether other sites contain similar information or whether another site may be impacted. How two significant sites with similar information are treated may take into consideration outside factors such as public welfare, nature of and amount of impact, funds available, and so forth.

Determination of significance of both prehistoric and historic archeological sites is an issue which is constantly being discussed. The more we do it, the better we should be at doing it—if we detail adequately in our written reports the judgments, knowledge, and experience which go into making the determinations. Research questions, upon which significance should be based, are constantly being developed, refined, added to, even changed. While these Guidelines should serve as guidelines, archeologists should be aware of current literature where these issues are aired, both in Arkansas and nationwide.

DETERMINING THE AMOUNT OF IMPACT ON A SIGNIFICANT SITE

Some projects which require a cultural resources survey and determinations of significance occur in long, linear areas. Often sites may lie both inside and outside the right-of-way and some portion of the site will be impacted and some will not. It is important that archeologists and agencies understand the scientific and practical requirements of such a situation.

Consideration of significance must take into account the whole site, no matter what portion of it may be within a right-of-way. **It is imperative that significance be established on the basis of the nature of the whole site and its potential;** decisions of mitigation are then made on the basis of the potential of that portion of the site that will be impacted to add information of importance to research questions. The problem which can occur when this sequence is not followed can be explained by example.

> Archeologists were conducting a cultural resource survey of a long linear federal project. They restricted themselves to looking only within the right-of-way. A site was discovered, testing was done, undisturbed subsurface deposits were discovered which indicated potential for answering particular research questions, and significance was established. The report on this survey mentioned that other cultural material was noted to the west of the recorded site, outside the right-of-way, but no testing was done, and no determination of the size or nature of the site outside the right-of-way was made. A revisit to the site determined that this was a large site with excellent content and quality of information, the majority of which was outside the right-of-way. The nature of the whole site was defined and its significance established in relation to its research potential. On this basis, it was possible to determine that the portion of the site in the right-of-way was so small that the impact of the project would not be adverse relative to the whole site, and therefore no mitigation of that impacted portion was required. In this case, neglecting to determine the nature of the while site during the initial survey caused much more expense than would have been required otherwise.

MITIGATION

Mitigation of an adverse effect on an archeological site determined eligible for inclusion in the National Register can be accomplished through one or more of the following actions: avoidance of impact, preservation or protection in place with legal covenants if possible, or data recovery (see management and treatment sections of the State Plan). Agreement as to which mitigative action is appropriate is normally accomplished through a Memorandum of Agreement (MOA) or a Programmatic Agreement (PA), which includes a treatment plan.

The mitigative option generally recommended first is avoidance of impact through redesign of the project. While avoidance is a perfectly legitimate tool to consider in Section 106 procedures, it must be understood that avoidance, in and by itself, is NOT a protective measure. That is, avoiding direct impact on an archeological site may result in secondary or indirect impacts (for example, gas stations built at major new highway intersections).

Protection or preservation is an active category of mitigation, something that is done to a site to protect it from any future adverse impact. Protection could involve development of the property for public interpretation, security measures limiting public access, local ordinances providing city or county protection with penalties, and so forth.

Data recovery is another appropriate means of mitigation of adverse effect for archeological properties. Through data recovery, the information contained in the site which gives it its significance is removed prior to project construction and the project, therefore, will not have an adverse effect on the significant site. Its significance is no longer in the ground; it is in the records and collections being curated.

Mitigation through data recovery must begin with the development of a detailed research plan which discusses and justifies the design of the investigation to retrieve from the ground the information needed to answer research questions. The strategy of the fieldwork must be explained in detail, and the proposed analysis and expected results must be discussed.

If an eligible site is known to contain, or may contain, human remains, an ***Application for Excavation Authorization*** must be submitted to the AHPP and acknowledgment received prior to any excavation of human remains.

If recovery of human remains is a part of a data recovery program, the data which must be observed and recorded in the field, the kinds of analyses required, and the information to be included in the final report are provided in Appendix C of this State Plan (included at the end of these guidelines: C1—C10). Because it is likely that human remains will not be available for additional or future study, the observations made during each data recovery project, both in the field and in the forensic laboratory, must be as complete as current techniques and interpretations allow and consistent with the highest standards of modern forensic studies. In addition, the stipulations of PL 101-601 (Native American Grave Protection and Repatriation Act) must be followed if the project is funded through federal law or regulation.

For projects involving Section 106 review, the mitigation plan must be approved by the SHPO, the Federal agency, and the Advisory Council on Historic Preservation. In most cases, this plan becomes a part of a Memorandum of Agreement or Programmatic Agreement among these parties. Justification for the expenditure of public money on the data recovery project should be evident in the discussion of the expected results, and evidence of a signed agreement for curation of any recovered artifacts and records must be included in the plan.

SUMMARY

The sequence of work in consideration of cultural resources to be affected by federal projects should be efficient, economical, and justifiable. Briefly, the sequence is normally this:

*Locate and record basic information on all historic properties that are 50 years old or older in a project area.

*Test archeological sites to see what is below the surface.

*Decide which sites have the greatest potential for providing significant information concerning prehistoric and historic lifeways and cultural processes. Provide adequate support for these determinations, including use of documentary research for historic archeological sites.

*Test those sites to establish their significance and, thereby, their eligibility for inclusion in the National Register. Documentary research is required for historic sites.

*Arrange for appropriate curation of all artifacts and documents.

*Recommend the appropriate treatment for sites determined eligible for inclusion in the National Register.

*Mitigation in some form is required in all cases for sites in which human remains are expected or encountered, without exception (see (1): Advisory Council on Historic Preservation Policy Interpretation Memorandum 89-1, Treatment of Human Remains and Grave Goods; (2): PL 101-601, Native American Grave Protection and Repatriation Act; and (3): Arkansas Act 753, An Act to Prohibit the Desecration of Human Skeletal Burial Remains in Unregistered Cemeteries ... and for other purposes.]

*Carry out mitigation measures.

*Arrange for appropriate curation of all artifacts and records.

*Publish results.

REPORT WRITING

At all levels of archeological work, whether done to satisfy federal laws, regulations, or procedures, or for other scientific purposes, critical judgments about the nature and treatment of cultural sources must be made. In order to assure the best possible judgments, the SHPO is required to review the draft and final reports of archeological work involving Federal funds, licenses, permits, or federally assisted projects. In Arkansas, information in an archeological report written for any level of compliance must be adequate to allow the SHPO or other parties (such as the Advisory Council in the case of mitigation reports) to understand the purposes, methods, procedures, and observations upon which final interpretations, conclusions, recommendations, and judgments have been made. If the report lacks sufficient information or detail, it may be considered inadequate for compliance purposes.

Separate reports must be prepared if an archeologist is hired by an engineering firm to conduct investigations in two unrelated federal undertakings involving different federal agencies, even if the projects are in the same vicinity and the archeologist is working under a single Scope of Work,

ARCHEOLOGICAL SURVEY REPORTS

Archeological surveys done for compliance purposes are required when the SHPO believes there is a potential for cultural resources, when resources are already known within the area of project impact, or when a particular federal agency's regulations require one. Whether cultural resources are found or not during a survey, a formal report containing the items of information outlined below must be written and a draft submitted to the sponsor.

It is as important to record judgments of why no resources were found as to record what resources were found. The area walked and the nature of the ground cover must be indicated so that the results of the survey can be evaluated in light of these constraints. In addition, the factors of ground cover and survey techniques can be reviewed when or if future surveys are contemplated in the same area. Surveys vary in intensity and may or may not include testing. It is the reporting in detail on these activities, decisions, and judgments that is important.

For reports on small, short, or negative surveys, there are two important things to remember: (1) letter reports are never considered adequate and will be returned by the SHPO for further information; (2) if no cultural resources are found, a formal report must still be written.

The assumption is that if a survey is required it is because there is a likelihood that cultural resources will be present. If no resources are found, the report should reflect both why it was thought they would be and why no resources were found (e.g., modern environment, settlement patterns of the distant or recent past).

In preparing information for reports based on this outline, the amount of detail should be commensurate with the size and complexity of the project. The information should always be directly relevant to the project area. If little is known of the culture history of the area, say so, but put the area into context relative to what was being looked for in the way of cultural resources. Since fieldwork will have been accomplished, describe the environment as seen by the people in the field, using appropriate sources for fitting that into an environmental setting. It is inappropriate for the same "boilerplate" paragraphs to be used for all project reports for Arkansas.

I. ***Front matter (in this order)***

A. Title page: title (indicating project and location), author of text, principal investigator if different from author, sponsor, and date of report.

B. Abstract.

C. Management Summary (unless the Abstract is adequate, as may be the case for small projects or short reports).

D. Table of Contents (required if the report is more than 10 pages double spaced).

II. ***Introduction***

A. Describe the project area and its setting (e.g., do buildings exist in the area; has there been clear cutting, etc.). Provide the size of project area; if this is a federal undertaking for Section 106, provide detail on the nature of the federal project itself; name the project sponsor and sponsor of archeological work (if different from project sponsor). Include a project location map.

B. Summarize the archeological work to be performed.

C. Note the actual commitment of personnel time in the fieldwork, analysis, and report preparation.

D. Discuss the constraints upon the field and documentary research (environmental, climatic, temporal, fiscal).

III. ***Previous archeological research in the project area***

A. Discuss any known fieldwork and/or any written information on the history or prehistory.

B. Discuss known sites including those found in documentary sources.

IV. ***Summary of project area culture history***

A. Describe the past human occupation of the area as known from a search of the literature. If it is not pertinent to the culture history of the project area, there is no need

to include the prehistoric sequence of the eastern United States or a complete history of Arkansas. If an Overview or major mitigation report or some other areal summary of culture history has been published in the last five years, this section on culture history can be a summary with reference to that overview (e.g., the several Overviews published by the Arkansas Archeological Survey for the Southwest Division of the US Army Corps of Engineers).

V. ***Environmental Setting***

A. Describe the present environment of the project area as it affects both the archeologist's ability to perform the archeological work and as it is thought to affect the location, integrity, and visibility of the cultural resources. If prehistoric resources have been found, a brief discussion of the soils and geomorphology is appropriate,

B. Discuss the historic or prehistoric environment (if possible and/or appropriate) and how it may have differed from the contemporary environment. Discuss how this difference might have affected the settlement of people in the area in both historic and prehistoric times.

VI. ***Present archeological project***

A. Describe the goals of the fieldwork and analysis.

B. Describe and justify the methods used in the field and laboratory:

1. Survey methods used (transect; zigzag; random; other).

2. Testing methods used (shovel tests—number, spacing, depth; screen size; size; raking; clearing; coring; pits; other).

3. Collection methods used (all artifacts collected; controlled over a specific area; recovery methods used in testing).

4. Informant interviews if appropriate.

5. Include a map of the project area, indicating in detail the locations examined, area NOT surveyed, and methods used in different areas, e.g., pedestrian and collection survey in plowed fields; with shovel tests; shovel tests only in pasture, and so forth.

C. Results of fieldwork and analysis

1. If no cultural resources were found, discuss why (previously destroyed, environmental conditions precluded finding, testing methods inadequate to find buried sites, not present, or known only from informant interviews but no evidence found).

2. If cultural resources were found:

(a) describe the nature of each site in short narrative form (size, both vertical and horizontal if known; quantity of artifacts, features or potential features; topographic location, site integrity, and the like. State site numbers MUST be included in the final report). DO NOT GIVE EXACT LOCATION. Include a discussion of location of shovel tests, cores, cleared areas, test pits as appropriate. A map indicating where these are placed should accompany the site records; it can be included in the report if appropriate.

(b) enumerate and describe artifacts. A summary table or tables of artifact totals by class and provenience should be included. For example, if 10 of 25 shovel tests used to define the boundaries of a site produced artifacts, information showing which tests produced the artifacts and how many were in each test should be provided. Summary tables of artifacts collected from general contexts, such as plowed field surfaces, should also be included.

(c) describe all features including those above ground.

(d) include illustrations or photographs of diagnostic artifacts.

(e) if human remains are encountered, the scientific information to be reported is found in Appendix C (added at the end of these guidelines: C1—C10).

(f) discuss the information recovered in relation to research problems in the area as presented in this State Plan and any others developed by the researcher.

(g) discuss problems in defining nature of sites, materials, or nature of occupation; that is, what influence have constraints mentioned above had on ability to find or interpret the data.

(h) evaluate the reliability and value of the information recovered.

(i) provide predictions for locations, density, and nature of additional archeological sites and historical information as appropriate, or as required by the sponsor.

(j) indicate where artifacts and records will be curated.

VII. ***Statements on significance*** for determining National Register eligibility, if required by the contract (see section on Establishing Significance)

Significance must be stated in relation to potential of the property to contribute information on research questions in the appropriate Study Units or other research questions developed by the researcher.

Methods of arriving at the conclusions for that potential must be provided in sufficient detail for the reader to judge how these conclusions were reached. A statement on potential significance should be made, whether required by the contract or not.

VIII. ***Recommendations***

A. Make and justify recommendations with regard to the following:

1. Resources discovered

(a) explain fully any recommendation for no further work on any individual site that will be impacted. A recommendation for no further work would indicate that a site is not eligible for inclusion in the National Register. This must be justified in relation to the criteria for eligibility and in relation to research problems in this State Plan or elsewhere.

(b) explain fully any recommendations for further archeological investigations in individual sites, referring to the stated research problems. If archeological work performed is a reconnaissance level survey, further work may be to test certain sites for eligibility for inclusion in the National Register. This must be fully justified, as must the determination not to test a site further. If this is an intensive survey and/or testing project, further work might be for mitigation of adverse affect on eligible properties and thus must be fully documented and justified.

2. Additional archeological survey work in portions of the project area not surveyed in present fieldwork.

(a) fully detail and justify degree of intensity of further survey work. For example, if predictions are for areas of low density of sites, suggest survey method and percent of area to be looked at.

IX. ***References Cited***

X. ***Appendices***

A. Include Scope of Services and responding proposal.

B. Include a short biographical sketch of the Principal Investigator and Project Archeologist (if different from Principal Investigator); summarize both academic training and field experience.

C. Include detailed artifact tabulations by site and by provenience within the site with accession numbers for each site and catalogue numbers for those illustrated.

D. Include documentation of a curation agreement.

E. If this is a large project, individual site descriptions (again without exact locations) might be put in an appendix.

XI. ***Attachments***

A. Submit separately from the report a project area map with detailed site locations if these are necessary for sponsor decisions. These are never included in the body of the report 91 as appendices; they must constitute a separate document, and each should be appropriately marked NOT FOR PUBLIC RELEASE. The Sponsor as well as the archeologist must understand the problem of releasing site location data except for management, compliance, or research purposes.

XII. ***Graphics. Illustration Requirements,. Binding, and Style Guide***

A. Maps

1. Project location maps are taken preferably from USGS quadrangle maps, state highway maps, or those provided by the sponsor. These maps must identify the Arkansas vicinity area, have a north arrow, a scale, a legend and date identifying the project, and name of the person drawing the map.

2. Field methods maps must show clearly what ground area was walked, where tests or cores were made, and relevant field information.

3. Site maps should show topographic features, placement of shovel or core tests, areas of systematic collecting strategies, and so on. EXACT LOCATIONS of sites should not be indicated, e.g., highway numbers or "3 miles to Ola." These maps must include a north arrow, scale, legend, site number, date, and recorder.

4. Detailed site location maps for sponsor submitted as attachments to the report should include the site locations with site numbers plotted directly on the project maps (either on copies of USGS maps or maps supplied by the sponsor) and should be appropriately marked NOT FOR PUBLIC RELEASE.

B. Illustrations

1. *Typical and/or diagnostic artifacts:* Either line drawings or photographs (either original prints or halftones—photocopied photos are unacceptable) are required, particularly if temporal and cultural interpretations have been made based on the identification of the artifacts as a particular cultural/temporal type. This will aid the reviewer in following the interpretations of the author.

2. *Other photographs* are appropriate if they supplement the text in such a way as to aid the reader. For example, if environmental constraints hampered the investigations,

a photograph of conditions would be helpful. Documentation of impacts to sites would also be useful.

C. Binding

Reports should be bound in some fashion when submitted to the SHPO for review. Reports fastened with paper clips or held together with rubber bands are not acceptable.

B. Style Guide

All reports should follow the most recent American Antiquity style guide.

TESTING REPORTS

By and large, the detail needed for reports on testing of sites is the same as that outlined for survey reports. The important thing to remember is that any reader, but most particularly the SHPO and the sponsor, must be able to understand the basis upon which decisions and recommendations are made.

I ***Front matter*** (as in survey reports)

II. ***Introduction***

A. Describe the project area and its setting (e.g., do buildings or structures exist in the area). Provide a description of the project, giving specific details on the nature of the project; name project sponsor and sponsor of archeological work if different from project sponsor. Include a project location map.

B. Summarize archeological work performed.

C. Note the actual commitment of personnel and time to the different aspects of the fieldwork, laboratory analysis, and report preparation.

D. Discuss the constraints upon the field and documentary research.

III. ***Previous research on sites to be tested***

A. Briefly discuss the survey work which located each site and the basis for the decisions to test.

B. Discuss any other research done in the area that would affect the archeologist's ability to establish the significance of the sites to be tested.

IV. ***Summary of culture history***

A. Describe the past human occupation of the project area in sufficient detail that those aspects which relate to the sites to be tested are known to the reader. The nature of the gaps in knowledge that may be filled by information in the sites can be suggested.

V. ***Environmental Setting***

A. Describe the present environment of each site to be tested and its relationship to the general topography and physiographic environmental setting.

B. Discuss the historic and prehistoric environment in enough detail that additional information which may be in the sites to be tested can be related to present knowledge.

IV. ***Present archeological project***

A. Describe the goals of the fieldwork and analysis.

B. Describe and justify all methods used in the field and laboratory. Include a map of each site indicating location and nature of tests, and specific identification (by number, letters, or some other identifier) of each test unit. Scaled profile drawings of at least one wall of each test pit and trench must be included, with nature of soil matrix and cultural content indicated.

C. Results of the fieldwork and analysis:

1. Summarize the nature of each site tested: stratigraphy, features, artifact content and contexts, unusual associations, degree of preservation of perishable material, and so forth.

2. If human remains are encountered, the information which must be recorded in the field and reported in the text is in Appendix C of this State Plan (added at the end of these guidelines: C-1—C10).

3. Artifacts from each site should be described and discussed by class (stone, ceramics, etc.) and morphology and/or function. Totals should be presented by class/morphology, by provenience, and by site in tabular form.

4. Illustrate diagnostic artifacts.

VII. ***Discuss conclusions as to the significance of each site tested***

A. Determination of significance must be related to potential information in the site, to research questions from the State Plan or elsewhere, and to National Register criteria.

B. If tested sites are not considered significant, justify this conclusion in relation to the same research potential.

VIII. ***Recommendations***

A. If a tested site is not considered significant, explain in detail why no further archeological work is recommended.

B. If a tested site is considered significant, recommendations for appropriate mitigation are normally required by the sponsor. The amount of detail in those recommendations is usually specified in the contract, i.e., it may be that the archeologist is asked only to recommend avoidance, preservation, or data recovery, with no further detail required, or it may be that all the specifics for the recommended mitigation are required, including a suggested budget. Justification for recommended actions must be clear. For information on recommendations relative to treatment of human remains, consult with the SHPO.

IX. ***References cited***

X. ***Appendices*** (as in survey reports)

XI. ***Graphics*** (as in survey reports)

DATA RECOVERY (EXCAVATION) REPORTS

Reports on a data recovery project must follow the same outline as for the TESTING REPORTS.

I. ***Front Matter*** (as in survey reports)

II. ***Introduction***

A. Describe the project area and its setting. Provide a description of the project, giving specific details on the nature of the project, project sponsor, sponsor of archeological work if different from project sponsor. Include a project location map.

B. Summarize the archeological work performed.

C. Note the actual commitment of personnel and time to the different aspects of fieldwork, laboratory analysis, and report preparation.

D. Discuss constraints on the field and documentary research.

III. ***Previous research on sites to be tested***

A. Briefly discuss the survey work which located each site and the basis for the decisions to excavate.

B. Discuss any other research done in the area that affects the interpretation of the data recovered in this project.

IV. ***Summary of culture history***

A. Describe the past human occupation of the project area in sufficient detail that those aspects which relate to the site(s) excavated are known to the reader.

V. ***Environmental setting***

A. Describe the present environment of the site(s) excavated and its relationship to the general topography, geomorphology (if appropriate), and physiographic environmental setting.

B. Discuss the historic and prehistoric environment in as much detail as is appropriate, particular as it relates to project goals.

VI. ***Present archeological Project***

A. Discuss goals of the fieldwork and analysis, reviewing site significance in relation to regional or specific research problems.

B. Describe and justify the methods used in the field, laboratory, and in archival research, if appropriate, relating them to the project goals.

1. Nature and number of excavation units.

2. Special methods of data recovery, e.g., mechanical equipment, water screening and/or flotation in the field or lab, etc.

3. Collection of special or unusual material for analysis.

4. Nature and usefulness of documentary material used.

C. Results of fieldwork and analysis

1. Describe artifacts and discuss analysis and other data.

2. Describe features (function, relationships, etc.)

3. If human remains are recovered, discuss results of the bioarcheological study using the Guidelines for Reporting On Bioarcheological Research provided in Appendix C and included at the end of these guidelines: C-1—C-10).

4. Discuss any special analyses (computer manipulation, floral, faunal, historic, etc.)

5. Artifacts from each site should be described and discussed by class, morphology, and function. Totals should be presented by class/morphology, by provenience, and by site in tabular form.

6. Illustrate diagnostic artifacts.

VII. ***Summary and Conclusions***

A. Address the research questions posed in VI.A., and success in achieving stated goals.

B. Address contribution of various analyses in advancing the state of knowledge about the research questions posed for the project.

VIII. ***References cited***

IX. ***Appendices***

X ***Graphics***

Annex 1 to Appendix B

Guidelines For Cultural Resources Fieldwork

Annex 2 to Appendix B

Guidelines For Report Writing

July 1993
Edited 1 September 2003

Appendix C of the Arkansas State Plan
GUIDELINES FOR REPORTING ON BIOARCHEOLOGICAL RESEARCH

MINIMUM DATA SETS

The traditional forensic information in archeological reports is comprised of age, sex, pathology, and stature. These data are not sufficient to address most contemporary bioarcheological research domains. In addition, bioarcheological syntheses cannot be accomplished without comparable data being recorded in archeological reports. The minimum information and interpretive frameworks which must be addressed in all projects where human remains are present is presented below.

It should be mentioned that the specific methodologies contained in the citations are to serve as examples of what is available and will have to be updated or modified as new methodologies and techniques are developed by bioarcheologists. Other data sets should be added to this list depending upon the specific research questions being addressed by the project. In the following paragraphs, specific citations provide examples of the appropriate procedures.

More specific information on the following can be found in *Standards for Data Collection from Human Skeletal Remains,* Buikstra and Ubelaker (1994) and two bioarcheological overviews (Rose 1999; Owsley and Rose 1997).

Age at Death

Determination of age at death should employ the best methodologies available, including dental development (Ubelaker 1978), epiphyseal closure (Krogman and Iscan 1986), changes in the pubic surface (Meindl et al. 1985), changes in the auricular surface (Lovejoy et al. 1985a), and other appropriate techniques. When skeletal series are sufficiently large, multifactorial seriation methods should be employed (Lovejoy et al. 1985b; Mensforth and Lovejoy 1985).

Sex of Individual

The determination of sex should use pelvic criteria whenever available, but should always employ all available techniques and skeletal remains (Meindl et al. 1985).

Pathological Lesions

All pathological lesions should be described in detail and should include the following information: individual designation and description, bones involved, extent of lesion, and healed or active condition. These data will permit future researchers to reanalyze the data for new syntheses and rediagnosis (e.g., Ortner and Putschar 1981).

Measures of Childhood Stress

The most efficient technique for estimating the extent of childhood stress (see Goodman et al. 1984) from adult individuals is the collection of enamel hypoplasia frequencies. These must be collected in such a way that single stress episodes and their age of occurrence can be determined (Goodman et al. 1980). It may, at times, be necessary to employ the histological technique (i.e., Wilson bands) for determining childhood stress from teeth, especially when sample sizes are consistently small (Rose et al. 1985a). Harris lines (i.e., radiographic transverse lines), although controversial in interpretation (see Cohen and Armelagos 1984), can be used beneficially under the proper circumstances (see Hummert and Van Gerven 1983; Martin et al. 1985). When large numbers of well preserved subadult skeletons are present, long bone growth rates (age determined from dentition) are useful in estimating total childhood stress (Huss-Ashmore et al. 1982; Hummert and Van Gerven 1983; Jantz and Owsley 1984). Measures of childhood stress are the most effective means for estimating adaptive efficiency, and the choice of specific techniques must be determined on a project-by-project basis.

Dental Caries

The frequency of dental caries should be designated by individual, tooth type, and tooth surface (e.g., Moore and Corbett 1971; Powell 1985). This data structure is necessary to factor out the dietary impact on this disease process.

Dental Attrition Measures

Measures of dental attrition are the most easily obtained indicators of changes in food consistency and food preparation technology (Powell 1985). The recommended methodology is that introduced by Scott (1979). Additional information can be obtained by scanning electron microscope observation of dental microwear (Rose 1984; Rose et al. 1985b). This technique could be utilized when questions of dietary change, seasonality of occupation, and physical consistency of the diet are addressed. Dental microwear is a supplemental technique to be employed where effective.

Stable Carbon Isotope Analysis

one of the most important research questions in bioarcheological studies in the eastern U.S. is when and where dependency upon maize appeared. It is thus essential to employ stable carbon isotope analysis upon samples of all semi-sedentary and sedentary adaptation type skeletal series until these questions are answered (Bumsted 1984; Lynott et al. 1986).

Trace Element Analysis

Another dietary question that has been identified is variation in the proportion of meat and plant products incorporated into the diet. The most efficient method for measuring this parameter is analysis of bone strontium content (see Sillen and Kavanagh 1982; Gilbert 1985). Because trace element analysis is expensive, it should be employed only when the data can contribute to specific research questions.

INTERPRETIVE FRAMEWORKS

Genetic Variability

There are a number of problem domains, for example, changes in social isolation and population movement, which can be addressed by measures of biological distance and genetic variability. Since skeletal remains are often fragmentary, the most readily available data for genetic reconstruction are the nonmetric skeletal traits (Loveland 1980; Powell and Rogers 1980; Rose 1984). When human crania are intact, appropriate craniometric data sets should be collected (Loveland 1980; Key 1983).

Paleodemography

Paleodemographic analysis is the most sensitive measure of adaptive efficiency (Cohen and Armelagos 1984), especially when large series of subadults are available. Despite the many cautionary statements concerning the application of demographic methods to prehistoric populations (Bocquet-Appel and Masset 1982; Howell 1982), it has been demonstrated that paleodemography is a valid and productive methodology (Lovejoy et al. 1977; Owsley and Bass 1979; Van Gerven and Armelagos 1983). When skeletal series are reasonably large (50 or more) or smaller series can be integrated, demographic parameters (age and sex) should be interpreted using the life table (Weiss 1972; Swedlund and Armelagos 1976).

Paleoepidemiology

Paleoepidemiology, which is the analysis of prehistoric disease patterns, is the appropriate analytical framework for measuring adaptive efficiency utilizing the frequency of pathological lesions observed on prehistoric skeletons (Buikstra and Cook 1980; Cohen and Armelagos 1984). Paleopathological data should be interpreted within the analytical framework of paleoepidemiology (e.g., Powell and Rogers 1980).

Dietary Reconstruction

Human foodways can best be understood by dividing them into three conceptual categories: (1) diet as composition of foods eaten, (2) nutrition as a measure of physiological adequacy of the diet, and (3) subsistence as consisting of the activities to procure the dietary materials. The reconstruction of prehistoric foodways is a complex process which requires the integrated interpretation of many data categories. Dietary reconstruction attempts to identify the particular foods which were eaten by analyzing fecal material (Fry 1985), bone trace element content (Gilbert 1985), bone content proportions of stable isotopes (Bumsted 1985), caries frequencies, and dental attrition (Powell 1985). Nutritional reconstruction requires that the adequacy of the diet be assessed using a large number of integrated biological parameters such as growth rates (Stini 1985), skeletal lesions and markers (Huss-Ashmore et al. 1982; Martin et al. 1985), dental defects (Rose et al. 1985a), and demography (Buikstra and Mielke 1985). Bioarcheological studies should include the reconstruction of diet and nutrition within the context of subsistence reconstruction, which includes the analysis of plant remains (Carbone and Keel 1985; Smith 1985), animal remains (Parmalee 1985), and the ecological relationships between humans and their environment (Styles 1985; Keene 1985).

BIOLOGICAL REPORT FORMAT

There are normally two major flaws in the available bioarcheological literature. First, synthesis of previously reported data is hindered by the failure of authors to report data in a format that permits compilation and syntheses. Secondly, there is an absence of minimum standards for the presentation of bioarcheological data. Establishing minimum criteria for bioarcheological data reporting and adequate interpretation will contribute to decreased research cost and increased report quality.

Reporting of Raw Data

In the rush to be synthetic and processual, many bioarcheologists have abandoned the reporting of basic data on individuals and only summarize their data. This practice makes it impossible for future projects to reanalyze the previous data for use in the interpretation of newly acquired knowledge. This situation requires that each new project expend considerable time and effort obtaining the original data records or repeating the analysis of curated skeletal material. Since in the future the skeletal material may not be available for restudy, all data should be presented in tabular form and identified by individual. In particular, the number of observations (e.g., number of tibiae examined for infectious lesions) must be reported. This practice is also useful if, for example, it was learned, subsequent to the publication of the results, that several members of a mortuary assemblage belonged to a different time period from the one to which it was originally assigned.

If the data were reported by individuals, subsequent researchers could correct this flaw and reassemble the data by appropriate temporal and cultural categories.

Compilation and Synthesis of All Pertinent Bioarcheological Data

The ability to address pertinent research questions and test hypotheses requires that all pertinent data and knowledge be compiled and synthesized. Within the context of a specific project, this can be a monumental task which seldom can be adequately funded. However, if each project contributes syntheses of the relevant information, then each project will build upon its predecessors. Additionally, the current paucity of syntheses allows, indeed, most frequently forces, bioarcheology contractors to employ, inappropriately, paradigms developed for other archeological regions.

Definition of Research Questions and Hypotheses Formulation

Each project must define the appropriate research questions and identify hypotheses to be tested during the course of the research. Guaranteeing growth of the bioarcheological knowledge base requires that each project contribute both to the testing of existing hypotheses and the formulation of new hypotheses generated by the completed analysis. Neither effective management of bioarcheological resources nor assessment of adequate mitigation can be accomplished without this process. For example, relevant and realistic Scopes of Work cannot be produced without the availability of updated compendiums of research questions and hypotheses. Cost-efficient management can be implemented only when this set of tasks is accomplished.

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