

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

Revised Version in effect as of 1 January 2010

INTRODUCTION

Many of the archeological 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 (i.e., historic properties) 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 of the Act, 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 procedures 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. These include all such sites that are 50 years old or older, including historic cemeteries.

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

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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.

Details of site locations must also not be part of any report published for public or professional audiences after the project is completed.

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

QUALIFICATIONS FOR ARCHEOLOGISTS WORKING IN ARKANSAS

All archeologists serving as principal investigators in Arkansas should meet the Secretary of the Interior's professional qualifications standards found in 36CFR61. It is recommended that these 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 archeological work in Arkansas. The current Register of Professional Archeologists can be found at www.rpanet.org or 410-933-3486.

CURATION

The results of archeological investigations, including artifacts, field records, laboratory records, photographs, and any other documentation, should be curated according to Federal standards in an appropriate repository where they can be consulted by future researchers and other appropriate parties. Plans and budget requirements for preparing collections and records for acceptance at an appropriate curation facility should be part of the planning process so that appropriate time and money is available to complete this process. The University of Arkansas Collections Facility accepts collections and records as part of the Archeological Survey mission to act as a central repository for archeological materials from Arkansas. Information about curation fees, standards, and procedures can be obtained from the Arkansas Archeological Survey Registrar's office at the facility in Fayetteville, or online at <https://archeology.uark.edu/forms-records/>.

CONSULTATION

The Federal Agency Officials that are responsible for Section 106 review on federal undertakings are required to consult with appropriate federally recognized Indian Tribes regarding the nature, treatment of, and documentation of those resources. This consultation should be government to government, between appropriate governing officials or their duly appointed representatives. Archeologists doing work in Arkansas are expected to be aware of the responsible parties engaged in consultation and to know what their responsibilities are with regard to communication with Federal Agency representatives, Tribal officials, and the SHPO. A list of federally recognized tribes with a historical association with Arkansas may be found on the AHPP web site.

In addition to Federal laws and regulations affecting the consultation process, Arkansas Act 753 of 1991, as amended 1999, now titles 13-6-401 through 409 of the Arkansas Code, set forth the constraints and procedures required to disinter human remains or burial furniture from unmarked graves, and to document and dispose of human remains and burial furniture. These procedures require issuance of a permit from the State Historic Preservation Officer in order to be permitted to disinter human remains, and agreements among the SHPO, landowners, archeologists, and likely descendants regarding disinterment and subsequent treatment protocols. Archeologists undertaking archeological work in Arkansas are expected to become familiar with the law before beginning work. Human remains should not be moved from their discovery location before Law Enforcement representatives, landowners, Agency representatives, and appropriate Tribal representatives are consulted. A copy of the law, permit application, and guidelines for archeologists and law enforcement officers may be found on the AHPP web site.

ARKANSAS ANTIQUITY ACT

The Arkansas Antiquity Act as amended, Act 217 of 2007, now Arkansas Code titles 13-6-301 through 308 prohibits damaging, or removing artifacts from, archeological sites on private or state lands without landowner permission. Depending on the amount of loss or damage, penalties for violating the act can rise from misdemeanor to felony levels. Archeologists should familiarize themselves with these sections of the Arkansas Code. If archeologists come upon evidence of recent or ongoing damage to archeological sites in the course of their work, they should consider this a possible crime scene and notify the appropriate landowner and agency official of the discovery. Damage should also be described on appropriate archeological site forms as part of the documentation process.

RECORDS CHECKS

Investigations of cultural resources in an area must begin with a review of information on sites and structures 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 inclusion in the National Register of Historic Places (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 Highway and Transportation Department: The AHTD maintains a database on historic bridges in Arkansas. The contact person is Ms. Kristina Boykin (Phone: 501-569-2079).

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), or consult the Survey's Website at archeology.uark.edu. For more detailed information on archeological regions in Arkansas, refer to the South Central US overviews: Sabo et al., Ozark and Ouachita

Mountains; Story et al, Gulf Coastal Plain; and Jeter et al., Lower Mississippi Valley and Trans-Mississippi South, Arkansas Archeological Research Series Nos. 31,37, and 38, respectively, in addition to more updated reports. All are available online at <https://archeology.uark.edu/learn-discover/publications/>. In addition, relevant articles published in the Handbook of North American Indians, Volume 14, Southeast (2004) should be used.

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. GLO Plats are also available for free viewing and printout at the Bureau of Land Management website www.gloreCORDS.blm.gov.

It is important to note that General Land Office fieldnotes may contain information about historic sites that are not depicted on the corresponding plats, including names of building owners and road destinations. It is recommended that both notes and plats be reviewed

Historic sources: County histories, gazetteers, and historical journals are useful sources for information on potential historic archeological sites. Numerous digital databases are now available as well. A comprehensive on-line index for the Arkansas Historical Quarterly, the state's premier historical journal, can be found at the University of Arkansas Fayetteville Library Special Collections webpage as https://oneseARCH.uark.edu/permalink/01UARK_INST/6np6g9/alma991000033529707336. The Arkansas Publications Index is also found on the Special Collections web page. For a quick search of Arkansas historic topics, the Encyclopedia of Arkansas History and Culture at www.encyclopediaofarkansas.net can be used. The bibliography in the Historic Archeology section of this State Plan should be consulted, but should be supplemented with more recent materials, such as Appendix I in "Farms in the Forests: A Study of Late Historic Domestic Sites on the Ozark and Ouachita National Forests, Arkansas", AAS Project 958,1996. The Arkansas Historic Preservation Program's Publications web page includes numerous historic contexts that should be consulted and used as appropriate. They are available on the AHPP website, at www.arkansaspreservation.org. In addition, the AHPP has a good collection of county histories, Civil War publications, and books on architectural resources.

Other important historic sources: There are USGS quadrangle maps for most 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 AHPP has a good collection of Civil War maps. Some Civil War military maps exist for communities and entire counties where Union and Confederate intelligence teams were collecting information in advance of anticipated confrontations. 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. Some of these maps are on file at the Arkansas Archeological Survey Registrar's Office as well. The maps 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. The Arkansas History Commission in Little Rock has an extensive archive of maps of all scales and ages, and the Arkansas Archeological Survey Registrar has a limited archive of old maps as well. Patent information is now easily available for any location in Arkansas through the Bureau of Land Management's General Land Office database. Searches at www.glorerecords.blm.gov can provide patentee information along with property location, type of purchase, and other details. Original patents can be retrieved as well. Arphax Publishing Corporation, at www.arphax.com, is making hard copy maps of patent distributions and other historic landscape features for all Arkansas counties, using the BLM digital data files and other sources.

For the Territorial Period of Arkansas History, the Territorial Papers of the United States volumes covering Missouri, Louisiana, and Arkansas between 1804 and 1835, are a rich source of information in original documents and some maps.

Cemeteries: Historic period cemeteries are considered archeological sites, and more than 2000 are in AMASDA, the statewide archeological database at present. It is estimated that there are at least 15,000 historic period cemeteries in Arkansas. At least one third of all cemeteries do not appear on USGS Quadrangle maps, or any other maps or databases. Thousands of Arkansas cemeteries have few or no commercial grave markers. Special care should be taken to search for these cemeteries during historic background research and field survey. County and local genealogical and cemetery preservation organizations may have an inventory of local cemeteries, and genealogical websites such as www.usgenweb.com have cemetery lists posted by county. All cemeteries 50 years old or older should be recorded as archeological sites.

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, as well as the AHPP library. The bibliography of any recent archeological work in the project area should also be a guide for the background research on written sources. The Survey Registrar's office can provide bibliographic lists of previous projects and reports for areas of the state where a project is being undertaken.

Any report on a literature search should include a summary of previous archeological or historic 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 historic properties affected 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 (including appropriate maps), effective environment, research goals and strategy, methods of data collection and analysis, summary of current knowledge, inadequacies in current knowledge, site 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, physical boundaries, 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. If the work is a Federal project, the SHPO is also a party to development of the Scope of work. 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 interpretations 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 undertaking, the archeologist should consult with the SHPO and the federal agency official for guidance. It should be kept in mind that surveys conducted for the purpose of Section 106 compliance should include structures as well as archeological sites. 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 federal agency official and SHPO (if it is a Section 106 undertaking) 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); 7. The nature of the federal undertaking and the area of potential effect (APE).
- 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 should be 20 meter intervals.

- 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. This investigation should be at 20 meter intervals. Shovel tests should be screened through ¼” hardware cloth. In areas where the potential for deeply buried archeological deposits exists, techniques for exploring more deeply, such as backhoe trenches or coring, should be used.
- 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, standing structures; ***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 10m). Take care not to destroy the surface patterning of artifacts in the process! The large scale surface stripping of sites should not be conducted at this level of investigation without first consulting with the SHPO and federal agency official.
- 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. To be recorded, a site must also be 50 years old or older.

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.

UTM locations, preferably taken in the field with an appropriate GPS unit, are the recommended method of recording the location of each archeological site. Multiple recordings are

appropriate for defining the boundaries of long linear sites, or of circumscribing large irregular sites. The Datum used (e.g. NAD 27, or NAD83) should be indicated on the form.

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.
3. Remote Sensing used with some types of sites can assist in determining the distribution of features such as houses, pits, and post mold lines, as well as graves, and can assist in delineating the boundaries of some types of sites.

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. Such tests should be screened through ¼” hardware cloth.
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. Human Remains and grave associated objects should not be collected during survey projects unless a prior agreement has been established among the archeologist, the SHPO, the landowner, the federal agency official, and the potential descendant federally recognized tribe, if applicable. Survey teams should have someone in place with the skill and experience to identify human

bone in the field under most circumstances. Human remains found exposed on the surface of the ground should be left in place until consultation among all parties results in an agreement to retrieve the remains or reburial. One recommended course would be to take digital pictures of the remains in situ and send them as e-mail attachments to the SHPO and the consulting Tribe in order to facilitate a quick disposition of the situation. Human remains found on the surface may be indicators of violations of Arkansas Act 753 of 1991, as amended, and their discovery should be reported at once to the Agency archeologist or manager, the land owner, and the SHPO. The State Archeologist maintains a file of incidents of site vandalism and grave robbing, and should also be notified when disturbed human remains are encountered.

2. ***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 Archeological Resources Protection Act (ARPA) 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. The artifacts should be curated in a state approved curation facility in Arkansas (see page 2 curation).
3. ***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.
4. ***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.
5. 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.

- (a) 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.
2. *Collections from large sites:* "grab-samples" from large sites are not as useful as collections made according to a sampling strategy in which spatial or temporal control has been maintained. In controlled, areally circumscribed collection areas, it is suggested that all or some other quantifiable proportion of artifacts can be collected. A multi-phase collection strategy that recovers in sequence a quantifiable sample of objects, and subsequently a sample of diagnostic objects can also be used. Whatever methods and techniques are used, a description and explanation of collection methodology 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. *Field Notes*

- A. Field diaries and other notes describing the progress of the survey, and detailing daily events, local contacts, discoveries, and other information that can help provide context to the project are highly recommended. Responsible recordation affects the long term or subsequent use of the project results and is good general professional practice. A copy of any field diaries should be deposited with other project records in a permanent archive after the project is completed.

VII. *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 and color slides of any structure(s) must accompany the AHPP Architectural Resources form. Contact the AHPP for additional information on documentation standards.

VIII. Site and Project Forms

The Arkansas Archeological Survey site form must be used to record information about all sites (including isolated finds and cemeteries that are 50 years old or older). The preferred method of using this, as any field form, is to fill it out while actually standing on the site rather than at some later time with only notes for reference. (The Survey will provide site forms, in hard copy or digital file, 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, along with a copy of the AAS site form. In cases where eligibility is suspect, photographs can be sent to the AHPP Section 106 review staff for a determination of eligibility. However, ineligible structures may contain significant archeological deposits and need to be recorded as archeological sites. Site forms must be accepted by the Survey Registrar's Office and a Site Number assigned to each discovered site for use in the final report. Forms should be sent to the Registrar as soon after site documentation as possible so that the official site numbers can be used in the text and graphics of any written report.

A Project identification form should be submitted to the Survey Registrar's office along with the completed site forms so that the project can be entered into the Statewide Project Database.

TESTING SITES

Sites are tested to find out if there are any artifacts or recognizable cultural features below the surface. If there are, 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.

Normally eligibility testing should, at a minimum, determine the size and depth of the archeological deposits, the cultural period(s) represented, the types of activities carried out at the site, the integrity of the deposits, and whether the site contains information useful in addressing current research needs. Once sufficient work has occurred to make a well founded determination of eligibility, testing should cease. Eligibility testing should never proceed to the level of data recovery.

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, graves, 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 m.

When shovel testing a site where there is material on the surface, the space between tests should be 5 m. When shovel testing an area with heavy groundcover where a site is suspected, test holes can be farther apart (but no more than 10 m). In general, the testing interval is at the discretion of the investigator, but 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. Shovel tests should be screened through 1/4 inch hardware cloth, and this process should be documented in the report.

1. **Auger tests:** A solid core auger, soil probe, bucket auger, or post hole digger can go deeper than a shovel (sometimes 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. Sediments should be screened as if they were shovel tests.

- 2 **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. At least a sample of sediments from test pits or control columns should be screened. 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. Testing of a large site based on one 1 m x 1 m test does not provide adequate data for determining National Register eligibility, or planning mitigation measures, and developing budgets for proper mitigation and analysis.

3. **Remote Sensing.** Remote sensing technologies, e.g. ground penetrating radar, electrical resistivity/conductivity, magnetometry, etc., can provide information about the location and distribution of sub-surface features at a site in a way that is both non-destructive and efficient. Remote sensing can help focus test pit distributions on areas where intact sub-surface deposits are indicated, and where cultural materials useful for determining the research potential of a site are likely to be concentrated. Use of this methodology can thus serve as one tool in evaluating the eligibility of sites. Still, it is important to keep in mind that sub-surface features are only one category of information useful in making determinations of eligibility. Contextual integrity, stratigraphic separation of sequential occupations, and the presence of significant artifact categories outside closed context pits or post molds may be equally important variables in the eligibility of a site.

Metal Detectors have a role in locating some types of features, in some field situations. Their use should be justified by their demonstrated effectiveness in previous situations, however. Metal Detectors are not demonstrably useful or appropriate as the sole detection method for the discovery or location of historic period burials or graves. And, regardless of the type of remote sensing employed, some form of ground truthing is needed to accurately interpret the results.

Dowsing is not an acceptable remote sensing technique, as it has not been demonstrated to be a reliable and effective method for subsurface exploration.

4 **Other:** A backhoe can be an efficient and 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, and it is preferable that they be preceded by hand excavations to avoid damaging important intact deposits.

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, scrape, or backhoe trench, 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 and by sampling unit. 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, excavator's names, 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 in consultation with the SHPO.

It is also important to keep in mind that where National Register eligibility is concerned, properties can be found eligible, ineligible, or of undetermined eligibility. Terms such as "important," or "potentially eligible," although in common usage, have no real meaning in the Section 106 process and should be avoided.

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 and other background references mentioned in the Background Checks and Literature Search sections of these guidelines (pages 3-5) 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 undertaking 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 historic and archeological site 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 *whole* 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, site burial in some cases, 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. Completion of the form will require written consent of the landowner, the most likely descendant group or affiliated Indian Tribe, and the SHPO representative. Planned disposition of the remains must also be indicated, thereby necessitating consultation with all affected parties before the form is completed. An agreed-upon plan for forensic documentation of the remains, and their curation and/or potential re-interment in place before removal is recommended.

If recovery of human remains is a part of a data recovery program, the procedures must be consistent with the requirements of the Arkansas burial law dealing with unmarked graves and human skeletal burial remains (Act 753 of 1991, as amended in 1999, now established in Arkansas Code 13-6-401 through 409) and only after consultation with living descendants or tribal representatives, as the case may be. The data which must be observed and recorded in the field, the kinds of documentation and **possible** analysis required, and the information to be included in the final report should be consistent with the Standards for Data Collection from Human Skeletal Remains promulgated by the Field Museum of Natural History's 1991 Workshop on standards for the collection of osteological data, and published as "Standards for Data Collection from Human Skeletal Remains:", AAS Research Series No. 44. Reference to the "Standards" and appropriate research questions are provided in Appendix C of this State Plan (included at the end of these guidelines). 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 101601 (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, the Advisory Council on Historic Preservation, and, as appropriate, federally recognized tribes. 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:

- Consult with Tribal Authorities or Representatives if appropriate and/or mandated by the Project Scope of Work or Programmatic Agreement.

- Locate and record basic information on all cultural resources 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.
- Turn in completed archeological and historic structure site forms to the Archeological Survey and AHPP, respectively. Obtain State Site Numbers from the Survey in time to use these numbers in a report. Provide information about the sites and recommended significance to the Arkansas SHPO.
- 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. Turn in a completed Project form to the Survey Registrar at the time the artifacts and documents are put into curation.
- 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 Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects; (2): PL 101-601, Native American Grave Protection and Repatriation Act; and (3): Arkansas Act 753 of 1991, as Amended (Arkansas Code 13-6-401 through 408), 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 resources 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 undertakings. 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 on Historic Preservation 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.

Authors of technical reports should remember that those who review their work, either as peer reviewers, or as part of the Section 106 process, do not have access to the raw data collected in the field, nor have they had the opportunity to visit the site(s) in person or to conduct a detailed analysis of artifact collections. Therefore, it is incumbent on researchers to include all of the information available about each site in the technical report so that reviewers can make judgments based on data collected in the field, rather than their personal assessment of the skill and integrity of the investigator. This is important regardless of the eligibility of a given property. In fact, it may be more important in the case sites thought to be ineligible, since they are frequently severely damaged or destroyed during project construction and the technical report may contain the only information available on them.

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,

Since reports may be subject to the Arkansas Freedom of Information Act, and some Archeological Firms make their reports widely available after project completion, special consideration needs to be taken that neither the maps and figures nor the text of the report itself divulge specific site location information that would lead to trespass or damage to archeological sites.

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 mayor 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 unless an existing agreement document allows an abbreviated reporting format; (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 undertaking 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), provided that proper credit is given and the document appears in the References Cited section of the report.

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 archeological sites. If prehistoric sites 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. Lay out the research problems or testable hypotheses that are to be used to help determine the significance of sites.
- B. Describe and justify the method 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.
 - 6. Laboratory methods used.
 - 7. Analytical methods used (i.e., statistical procedures, etc.).
- 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; and be included in the report. Provide as much detail as possible. Do not assume a given level of knowledge on the part of the reader. Discuss not only what is known about the site, but HOW it is known as well.
- (b) enumerate and describe artifacts. Artifacts, especially diagnostics and items with time-sensitive attributes, should be described sufficiently to reveal their significance. Generic terms like 'potsherd' or 'projectile point', may be insufficiently specific for the reviewer and subsequent readers to interpret the findings without having to go back to the original artifacts for more information. Illustrations may be used to help with these descriptions. 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 and document with photographs. In the case of standing structures, photographs are particularly important.
- (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 recommendation 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*

A. Use *American Antiquity* format.

X. *Appendices*

A. Include Scope of Services and responding technical 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 but as appendices; they must constitute a separate document and be distributed on a strict need-to-know basis. Each should be prominently 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. Graphic, Illustration Requirement, 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 prominently marked NOT FOR PUBLIC RELEASE.

B. Illustrations

1. *Typical and 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.

VI. Present archeological project

- A. Describe the goals of the fieldwork and analysis. This section should indicate the research questions or context within which significance can be evaluated.
- B. Describe and justify all methods used in the field and laboratory. Include a topographic 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).
 - 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.

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*** (as in survey reports)

X. *Appendixes* (as in survey reports)

XI. *Graphics* (as in survey reports)

DATA RECOVERY (EXCAVATION) REPORTS

Reports on 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, or other 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 mitigated*

- 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.
- B. For historic sites, discuss any relevant documentary evidence that would give identity and context to the sites.**

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, particularly as it relates to project goals.

VI. Present archeological project

- A. Discuss goals of the fieldwork and analysis. This section should indicate the research questions or context within which significance can be evaluated. Phase III archeological data recovery must entail problem oriented research.
- 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 *"Standards for Data Collection from Human Skeletal Remains"*, and topical guidelines in Appendix C.
 - 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.

REPORTS OF CONSTRUCTION MONITORING

Occasionally, the monitoring of a construction project is the only means available to protect an eligible archeological site. This may be because construction will occur dangerously near the site, or affect a portion of the site thought to be already disturbed, or for budgetary reasons. Such monitoring should always be conducted by an archeologist who meets the Secretary of the Interior (SOI) Personnel Qualifications Standards who has clear authority to halt the construction, if necessary. Persons who do not meet the Secretary of Interior Personnel Qualifications Standards may assist, but should NEVER be left to oversee the monitoring on their own.

If intact archeological deposits are encountered, construction work should stop long enough to recover and document the deposits. Construction may continue in other areas, as long as an SOI-qualified archeologist is available to conduct monitoring. When human remains are encountered, construction should be halted immediately and the discovery area secured. Again, work may continue in other areas, provided that such work is monitored by an SOI-qualified archeologist. This applies, even if the remains are badly disturbed and in fragmentary form. Local law enforcement and the SHPO should be contacted immediately, and consultation should be initiated with interested federally recognized tribes or other potential descendant groups.

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, or other sponsor of archeological work if different from project sponsor. **Describe the events that led to the decision to conduct monitoring. Include the Scope of Work and relevant correspondence (including that generated during the Section 106 review process) as an appendix to the report.**
- B. Include a project location map, but do not reveal the precise location of any archeological site through maps, site sketches or descriptions in the report.
- C. Note the actual commitment of personnel and time to the different aspects of fieldwork, laboratory analysis, and report preparation. Provide the dates on which monitoring activity occurred. Provide a biographical summary of participating personnel as an appendix to the report.
- D. Discuss constraints encountered in the field and how they affected the work.

III. *Previous research on sites to be monitored*

- A. Discuss any previous research done at the site(s) in question.

IV. *Summary of culture history*

- A. Describe how the archeological remains at the site fit into the past human occupation of the project area.

V. *Environmental setting*

- A. Describe the present environment of the site.
- B. Discuss the historic and prehistoric environment in as much detail as is appropriate, particularly as it relates to project goals.

VI. *Present archeological project*

- A. Discuss the goals of the monitoring.
- B. Describe and justify the methods used and any analyses conducted.
 - 1 Special methods used to either protect or recover cultural deposits (e.g., mechanical equipment, water screening and/or flotation in the field or lab, etc.).
 - 2 Describe special samples collected for analysis.
- C. Results of fieldwork and analysis
 - 1 Describe the progress of the monitoring and any actions necessary to protect or retrieve cultural remains. Photographic documentation is of particular importance, but should not depict human remains, unless approved by the descendant population.
 - 2 Describe any artifacts or features (function, relationships, etc.), if any, and discuss their analysis. Provide illustrations and photographs of any features discovered.
 - 3 If human remains were encountered, discuss any actions taken to secure the location and initiate consultation.
 - 4 Discuss any special analyses (computer manipulation, osteological, floral, faunal, historic, etc.)
 - 5 Any artifacts recovered 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.
 - 7. Any profile or planview drawings made in the field should be presented and accompanied by photographs.

VII. *Summary and Conclusions*

- A. Summarize archeological knowledge gained (or lost) as a result of the monitoring activity and how it might be used to address current research goals.

- B. Address whether the monitoring produced new evidence about the site(s) that might change previous findings of NRHP eligibility.
- C. Address whether the monitoring was successful and render an effect judgment (i.e., no effect, no adverse effect, or adverse effect), as defined in 36 CFR Part 800.16(i).

Appendix C of the Arkansas State Plan

Revised Version In Effect As Of 1 January 2010

GUIDELINES FOR BIOARCHEOLOGICAL RESEARCH

Forensic Documentation of human remains that have been discovered during archeological field projects and other ground disturbing activities, and bioarcheological studies that use forensic information, have the potential to reveal many kinds of information about past populations. Today, however, Federal and State laws and regulations require that descendent groups as well as others who may not be forensic specialists play significant roles in determining kinds and manner of investigation of human remains. The likelihood that human remains will be reburied after a project is completed is an additional factor that should be taken into consideration in choosing the kinds of information gathered during documentation procedures, and the manner in which the data are archived.

Bioarcheological studies are most fruitful as population studies. Since human remains are often discovered as individual burials or small group cemeteries, the importance of any information gathered during any single forensic study is significantly enhanced with the use of comparative data gathered previously from other studies. Each individual study also has the potential to contribute to future studies, even if the human remains have been reburied, if the data are comparable.

In order to enhance the value of each forensic study and lay the groundwork for future synthetic work that can draw on previous studies, forensic documentation in Arkansas should follow a standard and through protocol laid out in *Standards for Data Collection from Human Skeletal Remains*, assembled by Buikstra and Ubelaker (1994). Raw data collected during documentation should be preserved and made fully accessible through appropriate archival means. Copies of data sets, including photographs when allowed, should be deposited with the project data when it is archived with the Archeological Surveyor or other appropriate repository, and the location of original data should be indicated in the written report.

Osteological data collection. Information categories that at minimum should be collected in a forensic documentation study include but are not limited to age and sex, likely racial or cultural group (not all human remains in Arkansas are likely to be easily identified as Native American or other cultural or ethnic group on the basis of artifacts alone), traumatic injuries, pathological lesions, measures of childhood stress, indicators of life experiences and work patterns such as unusual muscle development or skeletal anomalies, dental wear and caries frequencies. Unanticipated skeletal and dental anomalies should also be documented, and photographed if possible. These kinds of information can be collected in a manner that is non-destructive to human remains.

Baseline information should be collected and described in a standardized format accessible to future researchers and presented in standard tabular and descriptive formats in the final report. Examples of such data presentations are found in Rose 1984, Burnett 1993a, and Tine and Tieszen 1997. The methodology used in collecting information should be described in the report, and each individual should be accorded a full skeletal and dental inventory.

Synthetic Analysis: Dietary regimes, adaptation patterns, population and individual life histories are all research domains that are appropriate areas of inquiry in Arkansas. The findings from each individual

study should be compared to and synthesized with previous studies. Some recent examples can be found in Tine and Tieszen 1997 and Burnett 1993b. Information from the bioarcheological study should also be integrated into the results of the investigation in the final report.

Information about previous bioarcheological studies and the archeological populations from Arkansas and neighboring states is available in part in two bioarcheological overviews (Rose 1999; Owsley and Rose 1997). Both published and unpublished studies, including appropriate graduate theses and contract reports, that have been completed since the overviews were assembled in the early 1990s should be consulted. The Arkansas Archeological Survey's AMASDA database also includes information about human remains.

Special analytical techniques . Various isotope and element analyses, including carbon 14, strontium and oxygen, and stable carbon, are important techniques for addressing these and other questions about past cultures. Since these measures require the destruction of some human tissue, it is important that consultations among the responsible parties, including descendant groups, clarify whether these kinds of analyses might be permitted early in the consultation period. This will help provide that recovery methods and analyses protocols applied to human remains are appropriate if such remains are encountered.

At present, DNA analysis of archeological human populations is in its infancy in North American archeology. However, since DNA studies may be useful for a wide range of inquiries in the future, it may be appropriate for the responsible parties to enter into consultation over the possibility of establishing data banks under certain conditions in anticipation of future use.

Summary

When documentation and analysis of human remains is part of an archeological project, it is important that basic information is gathered in a comprehensive, uniform, and standardized manner and preserved for future reference and use. The results of any documentation should be integrated into the report on the larger study, and should be synthesized with previously gathered information. Bioarcheology is an evolving discipline and it is appropriate to provide for the likelihood that research methods and goals will change in the future.

APPENDIX C: REFERENCES CITED

Buikstra, Jane E. and Douglas H. Ubelaker (eds.)

1994 *Standards for Data Collection from Human Skeletal Remains: Proceeding of a Seminar at the Field Museum of Natural History, organized by Jonathan Haas*. Arkansas Archeological Survey Research Series 44.

Burnett, Barbara

1993a Bioarcheology. In *Caddoan Saltmakers*, edited by Ann M. Early, pp 169-186. Arkansas Archeological Survey Research Series 43.

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1993b Adaptive Efficiency of Arkansas Populations. In *Caddoan Saltmakers*, edited by Ann M. Early, pp. 187-222. Arkansas Archeological Survey Research Series 43.

Owsley, Douglas W. and Jerome C. Rose, (eds)

1997 *Bioarcheology of the North Central United States*. Arkansas Archeological Survey Research Series 49.

Rose, Jerome C.

1984 Bioarcheology of the Cedar Grove Site. In *The Cedar Grove Site*, edited by Neal L. Trubowitz, pp227-256. Arkansas Archeological Survey Research Series No. 23.

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1999 *Bioarcheology of the South Central United States*. Arkansas Archeological Survey Research Series 55.

Tine, Angela and Larry Tieszen

1997 Bioarcheology, In *Two Caddoan Farmsteads in the Red River Valley*, edited by David B. Kelley, pp 121-137. Arkansas Archeological Survey Research Series 51.