Cost Efficient Management Tools for Assessing Cultural Resources

Project US/DOT/NRTSC-03.08

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Arkansas Archeological Survey

Description of problem

The Arkansas Highway and Transportation Department (AHTD) as well as other state and federal agencies are required to identify and evaluate cultural resources that will be impacted by various kinds of projects addressed under Section 106 of the National Historic Preservation Act of 1966. Cultural resources include prehistoric and historic archeological sites as well as extant historic properties. Arkansas agencies must determine if such properties exist in their project right-of-way and consult with the State Historic Preservation Office (SHPO) in the Department of Arkansas Heritage (DAH) about the significance of those properties. By law, the SHPO consults with the Arkansas Archeological Survey (AAS) concerning archeological sites.

The AAS maintains information on archeological sites, and projects conducted to locate and investigate sites, in the AMASDA (Automated Management of Archeological Site Data in Arkansas) computerized database system. The AMASDA system contains information on more than 40,000 prehistoric and historic sites and more than 5,100 archeological projects. The AMASDA system presently consists of two Oracle databases

(Site Files and Projects), linked to a statewide Geographic Information System (GIS) that

provides environmental context for archeological sites and project areas. These

applications run on a Sun Enterprise 450 server.

At present, AHTD personnel can search only the Site Files database via FTP

(there is no way at present to search the databases remotely via the World Wide Web),

and information retrieved from those searches cannot be imported directly into other

software applications (for example, other databases, spreadsheets, GIS applications, etc.).

The AAS Registrar's Office must search the Projects database and then send the results

of those searches to AHTD via email or through other channels. Nor is other information

(archeological site form images, radiocarbon assays, and bibliographic citations)

available to AHTD personnel online. Consequently, most AHTD staff skip the online

searches and, on a daily basis, make telephone requests for information to the AAS

Registrar's Office which then executes the searches on a time-available basis. This is not

a particularly efficient system. Consequently, the AAS and the AHTD are working on

other cooperative initiatives to provide access to the Site Files, Projects, and Site Form

Images databases.

This project was designed to add new databases to the AMASDA system

containing additional information required for comprehensive environmental reviews.

Subsequent to the completion of this project, we hope to provide AHTD access to the

new databases via the World Wide Web. The long-term goal of all of these projects is to

enable AHTD personnel to search all AMASDA databases within a single, integrated

framework that supports information retrieval in formats that can be imported directly

into other applications. This will provide the AHTD and other agencies better access to

archeological information in the early planning stages of a project, thus reducing the cost of environmental review and subsequent regulatory delays.

Approach

The immediate goals of this project were to add five new databases to the AMASDA system.

Revisions and updates to two work-in-progress databases—Radiocarbon Assays and Citations—were completed. The Radiocarbon database, containing information on radiocarbon (carbon-14) determinations for sites in Arkansas, was updated to include information on 520 reports. The Citations database, containing bibliographic references to more than 8,800 archeological publications and reports for Arkansas and the mid-South region, was also brought up to date. The information contained in both databases is frequently required for determinations of site significance in terms of criteria for inclusion within the National Register of Historic Places.

Next, three new databases were created: 1) photographic images of archeological sites; 2) photographic images of representative artifacts from sites; and 3) illustrated text descriptions of over 200 archeological cultural phases/study units in Arkansas. Again, these databases provide information frequently required for determination of site significance.

Finally, we developed a web application to provide access to information from all five of these databases within a single, integrated platform. When linked to the Internet, this application should significantly improve the environmental review process mandated for the AHTD and other agencies under Section 106 of the National Historic Preservation Act of 1966 and related legislation.

<u>Methodology</u>

Procedures for accomplishing the AMASDA system upgrades are described in this section.

1. Archeological Site and Artifact Images Photographic Databases

Images for the Archeological Site Images and Artifact Images databases were obtained from ten AAS research stations and from the University of Arkansas Museum Collection. Each station archeologist submitted up to 1000 slides of their choosing to the Coordinating Office for scanning. Slides received from the stations included images of archeological sites as well as images of representative artifacts from excavated sites. From March 2003 through May 2005 graduate students scanned these slides at the Coordinating Office in Fayetteville, using a Nikon Super Coolscan 4000 ED 35mm slide scanner. A scanning log (Slide_Log.xls) was filled out for each batch of slides to be scanned, and the scanning software (Nikon Scan 3.1) was adjusted to default values. The default values are: an output size of roughly 5.6 inches by 3.82 inches (with an end result of 5 x 3 after cropping), a resolution of 300 pixels/inch, and a file size of around 5.5 megabytes. The slides were then scanned, using the SF-200 slide feeder adapter, in batches and named according to a standard convention used by all AAS research stations. Data for each slide was entered into a Microsoft Access database as the slides were scanned and images were cropped and rotated (if applicable) in Adobe Photoshop.

In all, 7877 slides were scanned and entered into the database. Database fields include: slide name, file name tiff, file name jpg, year, site number, site name, site area, county, state, project name, sponsor, contractor, conference, people, names of people,

landscape, excavation, burial, artifact(s) formal photos, illustration, historic structure, rock art, comments, image record, date recorded, database recorder, and date entered.

As part of this project, two manuals were created: 1) slide scanning protocol; 2) guide for entering data into slide scanning database. These manuals are provided as Appendices A & B.

In addition to the Slide Scanning Database, a second database was developed specifically for slides housed at the AAS Coordinating Office in Fayetteville. From May 2003 through December 2005, Dr. Charles McGimsey III and Mary McGimsey volunteered their time (750+ hours) to record data from over 14,000 slides. Each slide was carefully reviewed and detailed information including site numbers, site names, and content of the slide (people, landscape, excavation/testing, burials, artifacts, historic structures, illustration, maps, drawings, and/or type of rock art) was recorded on data entry forms. Information from these data forms has been entered into a second Microsoft Access database. The detailed information contained in this database will allow very specific searches of the Survey's slide resources.

2. Study Units Database

Study units include time periods, cultural phases, and other constructs used by archeologists to evaluate and interpret archeological sites. Over 200 study units have been identified for Arkansas in *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis 1992). A working list of currently-used study units was compiled from this publication, and information required to define and characterize these study units in terms of key sites and diagnostic artifacts was gathered from October 2004

through May 2005 from books, published archeological reports, and archeological site records (see bibliography) by graduate student Crystal Masterson.

Time periods used by archeologists include broad chronological eras (e.g., Paleoindian, Archaic, Woodland, and Mississippian), many of which are divided into more specific temporal sequences. Cultural phases represent archeological equivalents of living communities. These are defined in terms of a specified temporal duration, geographic extent, and diagnostic artifacts. Time periods and cultural phases provide contexts for interpreting the significance of individual sites. As information for each time period/cultural phase study unit was found, the data were entered into a Microsoft Access database. The database was divided into four separate tables or forms as follows: 1) Key Sites; 2) Periods; 3) Regions; and 4) Study Units.

Eleven time periods are defined within the database. These are: Paleo-Indian, Archaic, Woodland, Mississippian, 16th Century, 17th Century, 18th Century, 19th Century, 20th Century, All Prehistoric, and All Historic. Database fields include: ID number, period name, period date range, and period summary.

The Study Units database also contains information on 143 cultural phases. This covers most of the cultural phases currently used by archeologists working in the region. *State Plan* cultural phases that we did not incorporate within this database generally represent older study units for which information is available in out-of-print and hard-to-find publications and reports. Database fields include: study unit ID, study unit name, period ID, region ID, date range, definition, key artifact list, artifact image, and artifact image alternate.

A total of 158 records are housed in the key sites portion of the Study Units database, but there are only 123 sites. To reiterate, key sites are the archeological sites (usually studied fairly extensively) that provided the basic information for study unit (time period and cultural phase) definitions. Some study units share key sites, and others have multiple key sites. Database fields include: site record number, site number, site name, description, study unit ID, site image, and site image alternate.

The Study Units database also contains definitions for seven geographical regions in Arkansas. These regions are: Arkansas, Ozark Highlands, Arkansas Valley, Ouachita Mountains, Mississippi Alluvial Valley, West Gulf Coastal Plain, and Crowley's Ridge. Most cultural phases are defined in terms of these regions or their major physiographic subdivisions. Database fields include: region ID, region name, and region summary.

Following completion of the Study Units database, the next step was to locate site and artifact images that correspond to study units and key sites. This was accomplished by using the Find tool in the Access image database. A search was run for each key site to locate images associated with that site. Once the images were found, they were located on the computer's hard drive and a copy of the image was placed in a new folder under the name of the site. This was done in order to ensure that the images would be easily found when they were integrated with the rest of the databases for Internet web application.

3. Radiocarbon Database

Information for the Radiocarbon database was gathered during the 1990s from both published archeological reports and archeological site records. A data form (radiocar.wpd) was filled out for each radiocarbon assay. The data were then entered into

an INFORMIX database (radiocarbon1 & 2 & 3 data screen) within the Survey's

AMASDA database. These tasks were completed prior to the onset of this grant. For the

purposes of this grant, the Radiocarbon data was unloaded from AMASDA into a

Microsoft Excel spreadsheet. Each of the entries was doubled checked for accuracy and

additional data were added as necessary.

A total of 520 assays have been entered into the database. Fields include:

archeological site number, project number (if applicable), cultural affiliation,

provenience, context and description of the sample taken for the radiometric date, date of

the sample, and bibliographic citations for the assay.

4. Citations Database

The AAS is the official repository for all records pertaining to archeological sites

and archeological projects in Arkansas. As an archeological project is completed, all

records and reports are submitted to the AAS Registrar's Office. These reports are

considered the "grey literature" of archeology. In many cases only a few copies (usually

less than ten) are produced so most of these reports are not available in libraries. The

Survey began entering these biographic references into Oberon Citation bibliographic

software in the late 1990s. This project allowed the records to be updated with their

respective AMASDA project numbers and checked for accuracy. To date, we have 6802

reports related to Arkansas and 2037 general and Southeast US archeological references.

As part of this project, a handbook was developed to ensure consistency in data

entry. This handbook is provided in Appendix D.

5. Internet Web Application Development

        With completion of these five databases, the next task undertaken in this project was to create a web application to provide access within a single, integrated framework. This required several steps, which were completed by graduate student John Samuelsen. First, data in the separate Access, Excel, and Citation databases had to be transferred to a single database platform where it could be viewed, changed, and updated within a web format. MySQL's database was perfect for this since it has extensive, flexible, and programmable storage and retrieval capabilities. As an open-source application, it can be controlled using a variety of web-based programming languages. We chose PHP (Hypertext Preprocessor) as our programming application, given its ease of use and suitability for our purposes.

        The following is a general outline of how the data were transferred into the MySQL database:

- All of the data for the study units and radiocarbon assays were initially entered into Microsoft Access databases. These data were transferred to MySQL using Access's export functionality and the ODBC database support provided by Access and MySQL.

- The Oberon Citation database uses a proprietary format. The text output from that format was deciphered and a program was built to upload the bibliographic citations to the MySQL server from the text output.

- The site and artifact images in their original Access databases were uploaded to the MySQL server using a PHP script. These images are large for a database and required a bit of tweaking to get that much data to reside at once in the database.

As all of these data were transferred they were re-formatted for MySQL.

A modification of the citation upload program was also created to allow the Citations database to be updated as often as necessary from a remote computer. A similar program for the Radiocarbon database was created for the same purpose.

The next step was to create a web application to provide access to the MySQL database via the Internet. We selected the Apache web server as our development platform, which, like MySQL, is an open-source application programmable with PHP. We created a working web interface, called "Crossroads," for the Apache/PHP/MySQL configuration using a combination of HTML (Hyper-Text Markup Language) and PHP.

An administrative login tool was also built to enable project members to update and modify the database via Internet connection. A data section of the website was created to allow logged-in users to update the content of the website, including study units, site images, and artifact images.

The prototype "Crossroads" website currently permits searches of the Study Units, Citations, and Radiocarbon databases. The Archeological Site Images and Artifact Images databases are integrated within the Study Units database, as described below.

Results

Users logged into the system go to a welcome page that provides a brief description of the Crossroads application. This page also permits users to search the Study Units, Citations, and Radiocarbon databases. To search the Study Units database, users can first specify a region of the state and/or a time period. Seven state physiographic region selections are provided along with nine time periods ranging from 11,650 B.C. to the present. So, for example, the user may select the Arkansas River

Valley during the prehistoric Woodland period (650 B.C. – 950 A.D.). The results of this search are returned in the form of a list of study units conforming to the search parameters. In this example, a single study unit—the Plum Bayou Culture—will be identified.

Next, the user can retrieve more specific information by selecting one of the study units, one at a time. This takes the user to a new page containing the following information: 1) a brief definition for the selected study unit, along with defining regional and temporal parameters; 2) a list of diagnostic artifact types; 3) a hyperlinked list of key sites; 4) diagnostic artifact images, and 5) a list of bibliographic references.

Clicking on a key site hyperlink will take the user to a Key Site page that displays additional information: 1) a site description, 2) site images, 3) artifact images, and 4) a table containing information on all radiocarbon assays for the site.

Diagnostic Artifacts

Description:	French Fork Incised bowl
From:	3LN0042

Artifact 1 of 5

Citations

Bennett, Jeyne,
Application and Standardization of the Methods of Petrographic Identification, Micrometry, and Stereology for Ceramic Technological Studies: Qualitative and Quantitative Analysis Using the Toltec Site, 3LN42, Grog-tempered Ceramics, 1980.

Brown, James A.,
The Spiro Ceremonial Center, the Archaeology of Arkansas Valley Caddoan Culture in Eastern Oklahoma, Memoir No.29. Museum of Anthropology, University of Michigan, 1996.

Davis, Hester,
Nine Days at the Toltec Site, Field Notes 20:2-6. Arkansas Archeological Society, 1966.

Fritz, Gayle; Powell, Gina,
Appendix B: Seeds, Plants, and Cultigens, In Toltec Mounds and Plum Bayou Culture: Mound D Excavations by M.A. Rolingson. Research Series 54. Arkansas Archeological Survey, 1998.

Hemmings, E.T.; House, J.H., editors,
The Alexander Site, Conway County, Arkansas, Research Series 24. Arkansas Archeological Survey, 1985.

Hoffman, Robert W.,
The Faunal Material, In Toltec Mounds and Plum Bayou Culture: Mound D Excavations pp.84-94, by M.A. Rolingson. Research Series 54. Arkansas Archeological Survey, 1998.

Hoffman, Robert W.,
Animal Resource Exploitation Patterns at the Toltec Site: A Zooarcheological Study of the Mound D sample, 1982.

Hoffman, Teresa,
Chipped Stone Tool Manufacturing Processes in Mound D at the Toltec Mounds Site (3LN42), 1982.

Hoffman, Teresa,
The Lithic Assemblage, In Toltec Mounds and Plum Bayou Culture: Mound D Excavations by M.A. Rolingson, pp.54-79. Arkansas Archeological Survey Research Series 54, 1998.

House, John H.,
East-Central Arkansas, In Prehistory of the Central Mississippi Valley, edited by C.H. McNutt, pp.137-154. The University of Alabama Press, 1996.

House, John H.,
Summary of Archeological Knowledge Updated with Newly-Gathered Data, In The Cache River Archeological Project: An Experiment in Contract Archeology, assembled by M.B. Schiffer and J.H. House, pp.153-62. Arkansas Archeological Survey Research Series 8, 1975.

Moore, Clarence B.,
Certain Mounds of Arkansas and Mississippi, Part I., Mounds and Cemeteries of the Lower Arkansas River. Journal of the Academy of Natural Sciences of Philadelphia, 13:481-563, 1908.

Searched Study Unit:	Plum Bayou Culture
Searched Period:	Woodland Period
Searched Region:	Arkansas Valley
Site Name:	Toltec Mounds - Plum Bayou Culture
Study Unit:	Plum Bayou Culture
Period:	Woodland Period
Region:	Arkansas Valley
Description:	This major civic-ceremonial center, consisting of 18 mounds and a large plaza area enclosed by an earthwork and ditch complex, was built and used by people representing the Plum Bayou Culture in the central Arkansas River Valley.

Radiocarbon Information

AMASDA #	Assay	+/-	Material	Cultural Affiliation	Association or Context	Lab Number	Submitted By	Year Submitted
301	960	50	CHARRED NUT SHELL	PLUM BAYOU	UNIT N40 E114, CONCENTRATED DEPOSIT OF MIDDEN	BETA-71810	MARTHA ROLINGSON	1994
	740	60	WOOD CHARCOAL	PLUM BAYOU	PIT SOUTH OF MOUND, PREMOUND STRATUM	BETA-39182	MARTHA ROLINGSON	1990
	650	40	MAIZE	PLUM BAYOU		BETA-151852	MARTHA ROLINGSON	2001
	1610	90	CHARRED SEEDS, TYPE X	PLUM BAYOU	MIDDEN ON BACK OF SLOPE OF STAGE II FILL. UNIT N42E108	BETA-22628	GAYLE FRITZ	1987
	1600	48	SOIL HUMATES	PLUM BAYOU	A HORIZON SOIL	SMU 1182	MICHAEL KACZOR	1983
	1280	50	WOOD CHARCOAL	PLUM BAYOU	CYLINDRICAL PIT	BETA-39183	MARTHA ROLINGSON	1990
	1280	60	WOOD CHARCOAL	PLUM BAYOU	PIT IN OVERBURDEN STRATUM, ABOVE ANIMAL BONE DEPOSIT	BETA-40317	MARTHA ROLINGSON	1990
	1266	48	WOOD CHARCOAL	PLUM BAYOU	HEARTH W/ CHARCOAL, BASE OF MOUND B	SMU 1031	MICHAEL KACZOR	1983
	1256	57	WOOD CHARCOAL	PLUM BAYOU	CHARRED POST, POSTHOLE, VISIBLE IN B HORIZON	SMU 1027	MICHAEL KACZOR	1983
	1250	100	WOOD CHARCOAL	PLUM BAYOU	MIDDEN ON THE SLOPING SURFACE OF LOW PLATFORM MOUND	BETA-40087	MARTHA ROLINGSON	1990
	1240	60	WOOD CHARCOAL	PLUM BAYOU	MASS OF CHARCOAL ADJACENT TO THE TOP OF PIT	BETA-40746	MARTHA ROLINGSON	1990
	1190	80	WOOD CHARCOAL	PLUM BAYOU		BETA-84642	MARTHA ROLINGSON	1995
	1180	50	DEER BONE	PLUM BAYOU		BETA-154863	MARTHA ROLINGSON	2001
	1164	50	WOOD CHARCOAL	PLUM BAYOU CULTURE	MIDDEN ZONE	SMU 832	MICHAEL KACZOR	1981
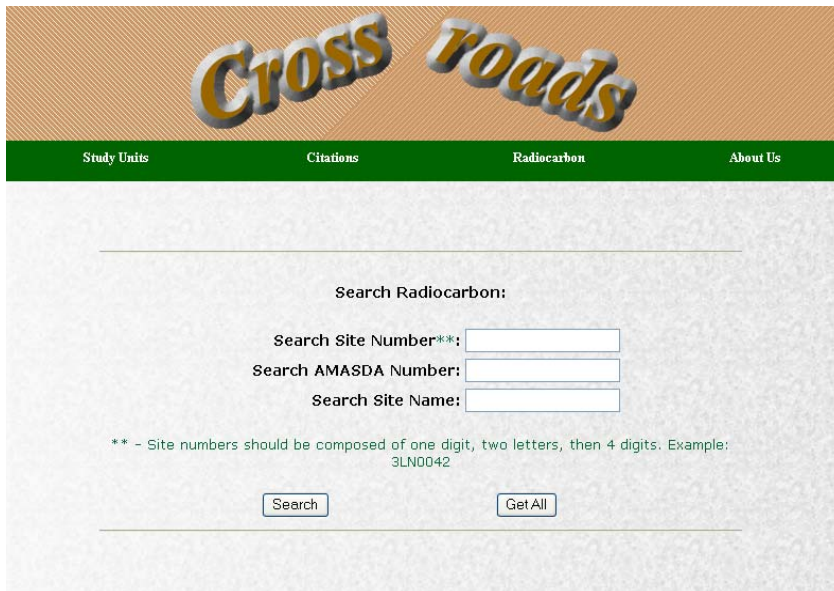
There are two other options for searching the Study Units database. One option produces a list of all study units, from which individual units may be selected. Another option produces a list of all key sites, from which individual sites may be selected.

The Citations database can be searched directly by selecting "Citations" from the Crossroads web application home page. Basic searches can be initiated by typing a text string (for example: Plum Bayou). There is also an advanced search screen where users can specify authors, dates, titles, keywords, etc. The Citations database home page also provides a keyword list and instructions for text string searches.

The Radiocarbon database can also be searched directly by first selecting it from the Crossroads home page. Three search fields are provided: site number, site name, and AMASDA number. A successful search will return 26 fields of information for each radiocarbon assay.

Conclusions

Testing of the Crossroads web application at the AAS Coordinating Office demonstrated the basic functionality of the system. The search features described above work smoothly and consistently, and Registrar's Office staff has been using the application regularly to respond to requests for bibliographic citation and radiocarbon assay queries. Use of the Study Units database, however, is presently compromised by the lack of corresponding site and artifact images for many study units and key sites. This is a result of the mechanism by which research station archeologists selected images for scanning during this project. Generally, the station archeologists selected site and artifact images that correspond to their current or recent research projects. Moreover, good photographic images are not available for many sites, especially those that have not been

investigated by the AAS. These shortcomings can be rectified by a dedicated search of existing photographic records at the various AAS facilities across the state and, in some cases, by revisiting and photo-documenting existing sites and collections. The present content of the Crossroads web application does contain, nonetheless, images of sites and artifacts representative of recent and ongoing research in the state.

Recommendations

A few remaining tasks need to be completed before the Crossroads web application can be deployed for use by the AHTD and other state and federal agencies.

First, a small number of study units and key site descriptions remain to be completed; the specific information required is located in hard-to-find sources that were unavailable to the graduate student who very capably compiled the rest of the information for the Study Units database. This remaining information can be supplied by AAS professional staff who will also review the completed descriptions for accuracy and consistency.

Second, testing of the application by AAS staff has revealed that the usability of the application can be improved with the addition of a concordance table to provide associations and links between the Study Unit time periods and cultural phases and other "cultural affiliation" categories currently used in the AMASDA Site Files database.

Third, more photographic images should be added so that more of the study units in the Study Units database will have pictures of key sites and diagnostic artifacts.

Finally, minor changes in the interface design can be made to enhance its usability.

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1983 *Archaeology of the Central Mississippi Valley*. Academic Press, Inc. San Diego, California.

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1990 *Human Adaptation in the Ozark and Ouachita Mountains*. Arkansas Archeological Survey Research Series 31. Fayetteville, Arkansas.

Story, Dee Ann; Guy, Janice A.; Burnett, Barbara A.; Freeman, Martha Doty; Rose, Jerome C.; Steele, D. Gentry; Olive, Ben W.; Reinhard, Karl J.
1990 *The Archeology and Bioarcheology of the Gulf Coastal Plain: Volume 1*. Arkansas Archeological Survey Research Series 38. Fayetteville, Arkansas.

Trubowitz, Neal L.; Jeter, Marvin D., editors
1982 *Arkansas Archeology in Review*. Arkansas Archeological Survey Research Series 15. Fayetteville, Arkansas.

Appendices

    A - Scanning protocol

        Digital photo record

    B - Digital recording record

    C - Radiocarbon record

    D - Citation Protocol

    E - Study Unit bibliography

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AAS Digital Image Library
SLIDE SCANNING PROTOCOL

Quick Guide to Scanning

1. Open needed software: Nikon Scan 3.1, Adobe Photoshop, MS Access.
2. Remove slides from sleeves and sort by mount type.
3. Record AAS slide number on log with its corresponding file name (this sheet stays with the slide book).
4. Verify scanning information correct within the Nikon software.
5. Scan slides.
6. As scanning, enter basic information into MS Access tables and crop/rotate images in Adobe Photoshop.
7. Enter information from recording sheets/field photo record into MS Access "Index" table.

Getting Started

Log in to the computer (see Deborah Weddle for the computer's password). Start the Nikon Scan 3.1, Adobe Photoshop, and MS Access software.

Preparing the scanner
If you are scanning single slides, the scanner remains in an upright position. Turn the scanner on and wait for the status LED to return to a solid green. Open the slide cover (black), and gently insert the MA-20 slide-mount adapter into the scanner. The status LED will blink in acknowledgement and glow steadily if the adapter has been properly inserted.

Figure 1 The MA-20 Slide Mount Adapter

If you are batch scanning, the scanner needs to lie on its side with the power button on the right. Turn on the scanner and wait for the status LED to return to a solid green. Open the slide cover (black), and gently insert the SF-200 slide feeder into the scanner. The status LED on the front of the adapter will blink in acknowledgement and glow steadily if the adapter has been properly inserted. When using this adapter, the scanner needs at least 10 cm open on each side to allow for proper air circulation around it.
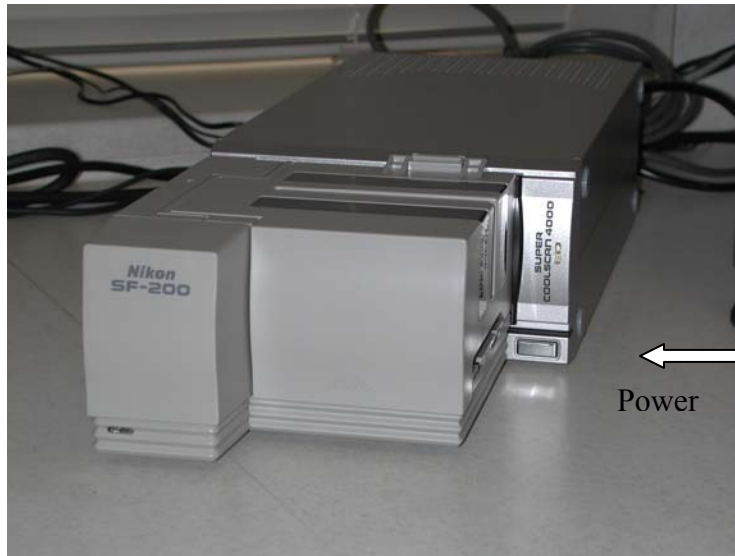
Figure 2 The SF-200 Slide Feeder

Gathering slides
Acquire slides from Lela in the Registrar's Office. She will be able to provide you either Coordinating Office slides or slides from Survey offices around the state.

Within each year, sort the slides by mounting type (round, square, plastic, etc.) and processing type (Kodachrome, Ekatchrome, etc.). Take note of any slides that are damaged, warped, strange coloration (sepia or B/W instead of RGB), or any other irregularity. Remove these slides for either individual scanning or batching by similarities. BATCH IN GROUPS OF NO MORE THAN 50 SLIDES.
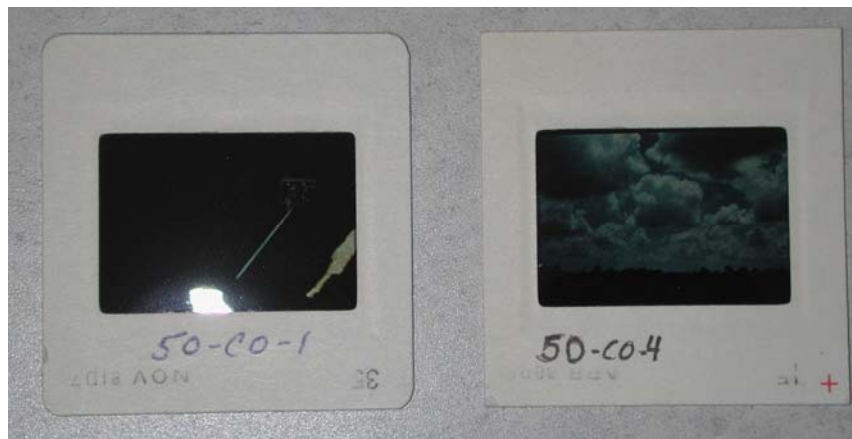
Figure 3 - Round and Square Cornered Mounts

Loading the adapter
If scanning individual slides with the MA-20 slide-mount adapter, the slides need to be inserted with the emulsion side down and the short side of the slide aperture toward the scanner. Stop when the slide contacts the rear of the film slot.

Figure 4 – Incorrect Insertion of Slide   **Figure 5 – Correct Insertion of Slide**

If batch scanning, the slides need to be inserted into the feeder with the emulsion side of the slide facing the push plate (for the plasti-mounted slides, this will usually be the non-flat side; for Kodachrome slides, this will be the side that says Kodachrome). For Kodachrome slides, generally the word "Kodachrome" will be upside down and hidden by the push plate. Do not worry if the image no longer is oriented correctly. The entire batch of slides needs to be inserted in the same direction. Do not load the feeder past the load mark (50 or less slides), as this may cause the feeder to jam.

Figure 6 - Correct Batch Scanning of Slides

FYI: Acceptable mount sizes for the scanner are: 1.0-3.2 mm thick and 49-50.8 mm wide. If in doubt check the SRP lab for calipers to be certain of the size. For thicker

mounted slide, an adapter and utility software is available for the batch feeder. Plastimounted and Kodachrome slides may become jammed in the feeder/scanner. Be sure to evaluate each slide's condition prior to scanning. Any slides that are warped, fraying, or in fair to poor condition should be scanned individually.

Prepare to Scan

Once the scanner is ready, return to the Nikon Scan 3.1 software. Before scanning, the software needs to be made aware of how to scan the images.

Figure 7 – The Scanning Window with the Tool Palette
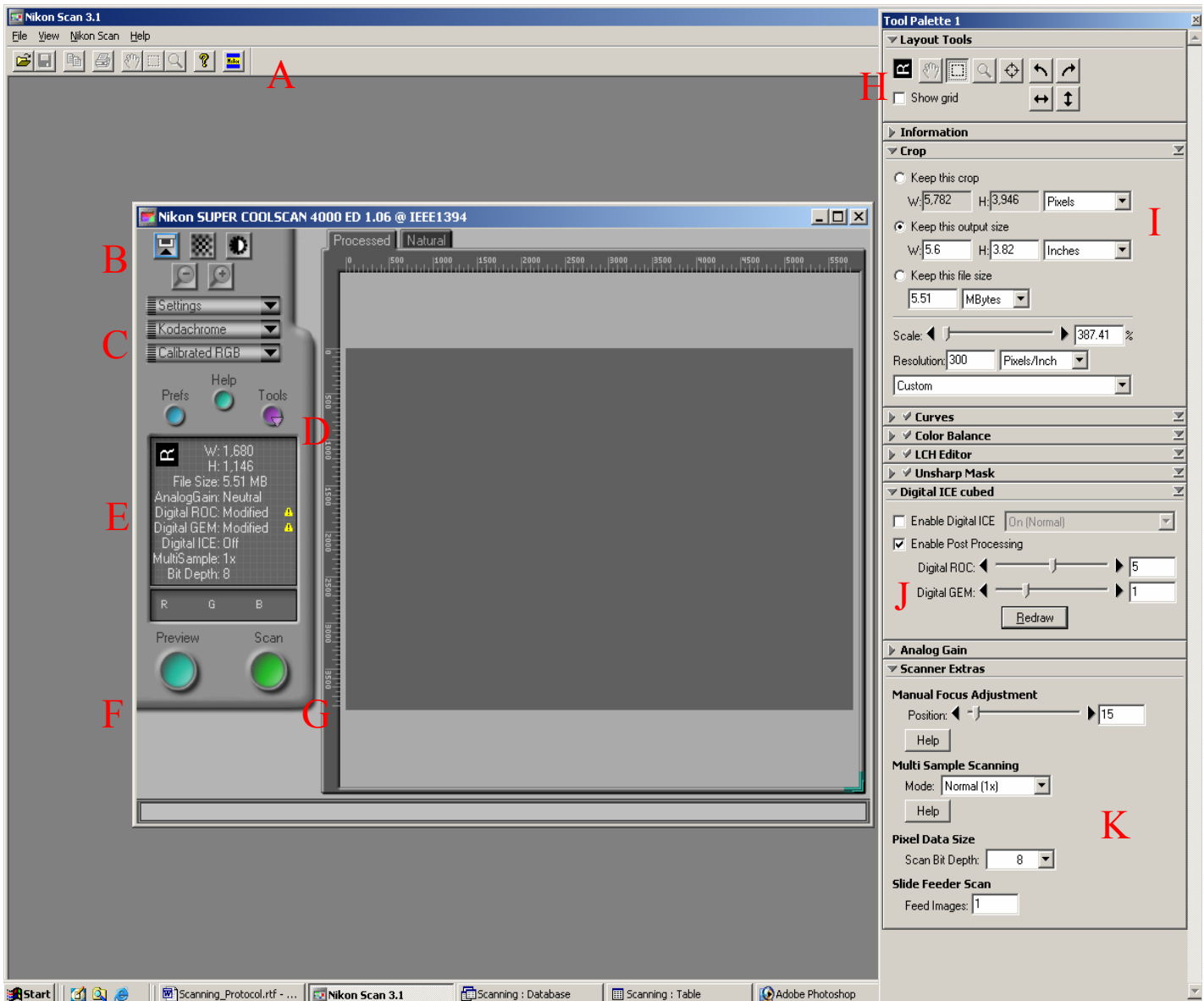
A.	To Scan	E.	Summary Screen	I.	Crop Tools
B.	Eject Slide	F.	Preview Button	J.	Post Processing Tools
C.	User Settings	G.	Scan Button	K.	Scanner Extras
D.	Tool Palette	H.	Layout Tools		

The above figure provides a look at all the useful objects within the scanning software. To begin, if the scanning window (B-G) is not open, open it by pressing the Nikon icon (A). **Select the preview button** to view the first slide image. When batch scanning, the slide will be pushed into the scanner and a temporary scan taken.

The Defaults
The scanner should be set with the user defaults as shown in the tool palette (H-K). If the tool palette is not open, open it (D). Should the settings not be set to the default, first attempt to reset the user settings found within the Settings drop down menu (C). They are identified as AAS Slide Scanning Defaults. The default values are: an output size of roughly 5.6 inches by 3.82 inches (with an end result of 5 x 3 once cropped) (I), a resolution of 300 pixels/inch (I), a file size of around 5.5 Megabytes (I), Digital ROC at 5 (J), Digital GEM at 1 (J), Normal Mode for Multiple Sample Scanning (K), a scan bit depth of 8 (K), and the number of slides to be scanned should be tallied (K). The Digital ICE should be turned off (J). Most of the Survey's slides are Kodachrome (C), but everything else will need to be set to Positive when selecting a medium.

The Digital ICE attempts to remove any scratches or dust on the slide. Unfortunately, with Kodachrome slides this process desharpens all the edges in addition to simply removing the dust. ROC is a color enhancing tool attempting to replace the blanched out colors that often occur over time. GEM works on the graininess of the slide (theoretically, this should never be a problem for our slides). Feel free to adjust either the ROC or GEM to see if they produce a more or less improved image. Be sure to select the Redraw button at the conclusion of your experimentation. The Summary Screen (E) will no longer contain exclamation points surrounded by yellow triangles.

Once you press scan, the first box will be a series of options which should all be checked and should remain as the default. The final box indicates what you want to name the created files, where they should be stored, and what type of file you want to create. The file's prefix should be the Survey office's prefix. Select to carry the number to six places; then, double check the number already selected as being the correct one (it should remember what slide number you finished with the previous time and will select the next consecutive number to begin). Select the directory in which to save the file, e.g. C:\Slide Scanning\CO Images. Each Survey station has its own images folder. The file type needs to be a TIFF. Press OK and the scanner begins working.

Figure 8 – Scan Saving Settings
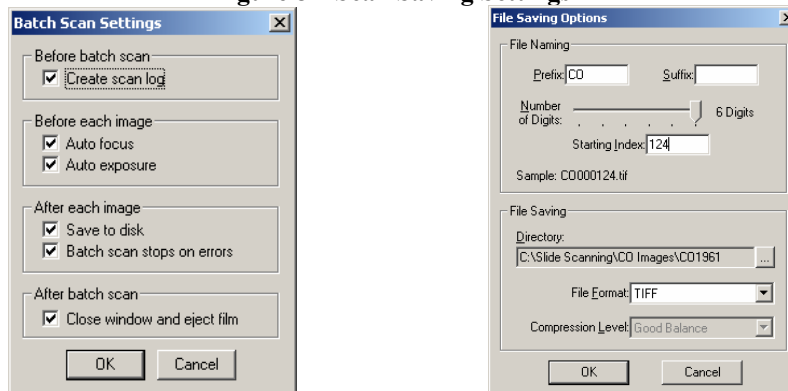
C:\Slide Scanning\CO Images\CO1960\CO000001.tif
The File Naming Convention

Files will be identified with a standard naming convention. The images will live in a folder on the C drive under "Slide Scanning." Each Station will have its own folder identified by its abbreviation (e.g. the Coordinating Office's folder is CO Images). Within each Station's image folder will be folders by Station abbreviation and year (e.g. CO1960, CO1961, etc.) The individual files will reside within these folders. They are named with the Station's abbreviation and numbered consecutively carried to six digits (e.g. CO000001). The numbers do not start over for each year, but continue sequentially. For example, CO000174 is found in folder CO1960, while CO000175 can be found under folder CO1961. By continuing the consecutive numbering, slides from different years can be scanned within a single batch.

For the Coordinating Office, the years 1950-1959 are anomalous because they were scanned prior to the naming protocol's development. They are named by the year, "CO," and sequential numbers that are restarted for each year (basically mimicking the existing AAS slide number). Starting in 1960, the files follow the above outlined protocol.

The file format is a TIFF to avoid loss of information by compression. The file size is not as great an issue as quality.

Should you accidentally assign the same number to two different images, the Nikon software will automatically rename the most recently scanned slide by adding a prefix to the file name.

Scanning

Depending on the age of the slides/type of slides, the scanner may require more or less baby-sitting. Often, simply restricting the movement of additional slides will allow for a more continuous scanning process. To restrict their movement, isolate the first slide (or the slide to be scanned) from the rest of the group by holding the second in line with a fingernail/paperclip/pencil point. By restricting its movement, only the first slide will be grabbed by the scanner.

What to do if the scanner jams
Periodically verify that the scanner has not jammed and to check its progress. To unjam the scanner, first remove any slides from the feeder and the ejection magazine. Check for slides that are visible and can be gently removed. If slides are caught inside the scanner, the attachment utility will need to be used. The utility is a shortcut on the Desktop – FDUtility.exe. Close the Nikon Scan 3.1 software and open the utility. Select the reverse button until all slides are removed from the scanner.
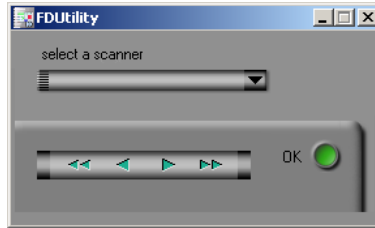
Figure 9 - FDUtility for Removing Jammed Slides

Select OK. Reopen the Nikon Scan software. Reinsert the slides to be scanned, including those caught in the scanner. Review the scanned slides in Photoshop to confirm which slides where scanned and which ones were not. Delete any files with errors (e.g. only half the image was recorded due to another slide covering it). Take note of the final file number for use when restarting the Nikon Scan software. Restart the scanning process, inserting the "new" start number in the File Saving Options box.

When completed
The adapters need to be removed at the conclusion of each scanning session. The slide cover needs to be returned to its closed position. Return the adapters to their protective box; stand the scanner back up-right.

To Remember

If the green LCD on the front of the scanner is blinking, do not move the scanner or attempt to remove any adapters attached to the scanner.

WHEN HANDLING THE SLIDE FEEDER, CARE MUST BE TAKEN AT ALL TIMES TO BE GENTLE WITH ITS INSERTION INTO THE SCANNER, THE OPENING OF THE MAGAZINE COVER, AND THE PUSH PLATE!!!

When all else fails, check the softcover manuals for the scanner and feeder or the scanner's CD-Rom manual.

The Data Entry

The data entry into MS Access is comprised of two steps: 1) entering information about the AAS image number and the newly assigned file name, including what steps were taken in scanning; and 2) entering image specific information for cataloging purposes. The database is located at C:\Slide Scanning\Scanning.mdb. Within it are all the tables and forms discussed below.

Keeping Track of the AAS Slide Number and the File Name

To help keep track of what AAS slide number equals what digital image several protocols are in place:

As you remove the slides from the notebooks, write down their AAS slide numbers and equivalent folder and file name on the Scanning Log (see examples from CO Slides book 1960 through 1961). This log will live stay with the notebook. Additional copies of the logs can be made from the MS Excel spreadsheet C:\Slide Scanning\Slide_Log.xls

As the slides are scanned, two tables in the MS Access database also keep track of the AAS slide number and the individual file names.

1. **Image_file_name_(Station abbreviation)**: This table is a simple, correlative electronic record of the AAS slide number and the newly assigned electronic file name as a hyperlink field (be sure to include the folder information in the record information, e.g.1960CO\CO000001). The AAS slide number year information should be expanded to a four digit year, rather than the two digits often notated on the slide.
2. **Scanning_Information_(Station abbreviation)**: This table provides the date scanned (auto-generated), the file name, and what scanning techniques (ICE, GEM, ROC, cropping, rotating, etc.) were applied. It also enters in the scanning personnel's last name (can be auto-generated) to assist in keeping track of who is doing what.

To avoid later confusion, it is best if this information is entered as the slides are scanning. For ease in entering the information, the two tables have associated forms of the same names.

Figure 10 – Image_File_Name and Scanning_Information Forms

The Index

The most important step of this entire process is entering the information regarding the specific image. This information is contained in one MS Access table – Index. Like the naming and scanning techniques tables, it also has a form of the same name to make it easier to fill out the information.

Some of the information entered is duplicative of existing information in AMASDA and for individual slides, especially when there are several images of the same thing.

Information entered needs to be in ALL CAPS for consistency and appearance. All the fields with drop down boxes will fill in automatically if a specific value is entered. Due to the nature of Access, abbreviations are not necessary.

An explanation of each field is found below. For examples of the field values, see attached slide file index dictionary of searchable criteria developed by the McGimseys.

- ➢ **Slide Name**: This field refers to the AAS slide number. The two-digit year found on the slide should be expanded to the four-digit year.
- ➢ **Year Taken**: This field refers to the specific year associated with the slide, i.e. the year indicated by the slide number.
- ➢ **Site Number**: If the image is associated with a specific site, it should be noted here.

- **Site Name**: If the image is associated with a specifically named site, without a number is when this field is the most significant. If a site's name is known, enter it here.
- **Site Area**: If the location of the image is completely unknown, but the image came from a specific Survey Station, take note of the Station. The Stations are identified by their abbreviations and location.
- **County**: If the location of the image is known, the associated county should be noted here. A table exists within the database providing the county abbreviations and associated AMASDA numbers, if only an abbreviation is provided.
- **State**: What seems like an unusual field for a state image library is included because some images are of sites and excavations performed in neighboring states.
- **Project Name**: If the work was performed as part of a larger project (academic or contract) it should be noted. Contract numbers are also appropriate.
- **Sponsor**: This field is for projects sponsored by an organization, like a field school, or the agency responsible for the work, like the U.S. Army Corps of Engineers.
- **Contractor**: When the project is performed due to federal or state regulations, the specific organization/contractor doing the work needs to be noted, like SRP.
- **Conference**: If the slide was taken at a conference or meeting, the event name needs to be noted.
- **People**: When people are contained within the image, who are they?
- **Name(s) of People**: When known, the name(s) of the people needs to be noted.
- **Landscape**: When the image is of not a specific location but a general view of the site as a whole
- **Excavation**: When the image is of specific excavations and what type
- **Burial(s)**: If the image contains burial(s)
- **Artifacts (formal)**: If the image is of formal artifact shots and what type of artifacts. When the image contains a multiple of categories, be sure to take note of each.
- **Illustrations**: Images of illustrations, maps, drawings used in slide shows
- **Structure(s)**: What type of architectural features are in the image?
- **Rockart**: To complement the existing rockart database, images of pictographs, petroglyphs, etc., should be noted.
- **Comments**: Any information contained on the field photo record or in the image recorders notes not captured in the above fields.
- **Image Recorder**: Who recorded the information on the image
- **Date Recorded**: When was the information recorded (recorder and date are specific to the McGimsey's records)
- **DB Recorder**: Who entered the information into the database?
- **Date Entered**: When was the information entered into the database?

That's it. If you survived the above pages, you should have no difficulties that you are not able to overcome.

Good Luck and Enjoy!

AAS Digital Image Library
Scanning Log

Photo Book: _____

Date	AAS #	Folder/File Name	Initials

ARKANSAS ARCHEOLOGICAL SURVEY
SLIDE FILE INDEX
DICTIONARY OF SEARCHABLE CRITERIA

SITE NUMBER or AREA

SITE NUMBER: If known the site number should be shown.

AREA: If there is no site or the site number is unknown, the slide will be listed under the county using the standard two letter abbreviation for each county preceded by a "3" (e.g., "3MO" for Monroe Co.); if the county is not known then it will be listed under the Ark. Acheol. Survey Station code (see below); if that is not known, then it will be listed simply under "AR". Slides from other states will be listed under the two letter postal code abbreviation, e.g., "MO" for Missouri.

Survey Station Code:

UAF - Fayetteville	UAPB - Pine Bluff
UAM - Monticello	ATU - Russellville
ASU - Jonesboro	HSU - Arkadelphia
BLY - Blytheville	UAM - Magnolia

Note: the Parkin and Toltec stations will not be listed under "Area" for slides directly pertaining to those sites will be indicated by the site number.

PROJECT NAME/PROJECT NUMBER

If the slide was taken as an integral part of a specific research project which has a name the name should be recorded here, e..g., Beaver Reservoir or Field School, or Annual Meeting. If the Survey or a contractor has assigned a project number to the project with which the slide is associated, that number should appear here as well. Slides of projects out-of-state are not identified here. They are few and can be easily located or reviewed by searching for them under the relevant state.

SPONSOR; CONTRACTOR; CONFERENCE

SPONSOR: If the slide derives from a project sponsored by an organization, e.g., AASUR, AASOC, UAMUS, COE (as opposed to being done under contract) the appropriate entity should be named here and the abbreviation entered into the Dictionary.

CONTRACTOR: If the slide derives from research undertaken under a contract, the name of the contractor doing the work should be shown here, e.g., AASUR, SPEARS (Note: need to develop a standard abbreviation for all contractors who have done or are doing research in Arkansas. and enter these into the Dictionary).

CONFERENCE: If the slide is taken at a conference or meeting that event should be listed here. The abbreviation used (e.g., SEAC, AASOC) should be entered into the Dictionary. Out-of-state conferences will be identified here.

CONTENT OF THE SLIDE

PEOPLE (Use as many numbers as are appropriate.)

1 - General view containing one or more individuals who are either unidentifiable or are unidentified.

2 - View showing one or more Survey or Museum staff who are identified. Identification of such individual(s) must be shown in the "Identification" column.

3 - View showing one or more AASociety members who are identified. Identification of such individual(s) must be shown in the "Identification" column.

4 - View showing one or more non Survey/Society individual(s) who are identified. Identification of such individual(s) must be shown in the "Identification" column.

(Note: a single photograph could contain all of the above, in which case all numbers should be listed, or as many as are appropriate.)

5 - Portraiture: One or more individuals (or heads of individuals) who are posed for their picture to be taken. Identification of each individual shown must be shown in the "Identification" column. (If one or more individual in a photo is unknown put "?" or "unidentified"in the appropriate place). Number "5" should be used in addition to numbers "1", "2", "3", and/or "4" as appropriate.

LANDSCAPE "1" and "2" are mutually exclusive and "1" is exclusive from the other numbers but several of the other numbers might be sppropriate for a single slide. As an extreme example: a slide might show a historic site alongside a cemetery which were atop an open site, with the camp in the background. Almost any combination is theoretically possible but normally only one number is needed.

1 - General view - non site.

2 - Natural/cultural feature related to a site. This is interpreted rather broadly to include such things as views showing camp sites and schools used, river sites for water screening, roads or ferries to camp, etc.

3 - View of an open site (This could actually be a mound site if no mound is identified in the photograph and the presence of mounds at that site is not known to the recorder.)

4 - View of a site with one or more mounds identifiable.

5 - View of a shelter.

6 - View of a cemetery.

7. - View of a historic site (with or without visible structures).

EXCAVATION ("1" and "2" are mutually exclusive though the division between them is a judgement call. Each might be accompanied by "3", and/or "4", and/or "6".)

1 - General overview of site being excavated or large elements of the site and/or showing one or more pits from a distance. (If individuals are present there should also be an entry under "People".)

2 - Unit plan view, i.e., a fairly close up view of all or parts of one or several pits being excavated, with or without individuals in the photo. (If individuals are present there should also be an entry under "People".)

3 - Stratigraphy. Photo of a pit wall or other profile or face which shows some elements of stratigraphy. (If a good portion of the site or of a pit is shown then "1" or"2" would be appropriate as well.)

4 - Artifacts in situ. ("2" or even "1" might be appropriate as well.) There should also be an entry under "Artifacts" and the artifact(s) identified in "Comments".

5 - Artifacts photographed in the field but not in situ. (There should also be an entry under "Artifacts", and further identification in "Comments".)

6 - Features ("2" , or even "1" might be appropriate as well.) The nature of the feature(s) should be given in "Comments.

BURIAL

1 - Burial(s) in situ, with grave goods visible. The nature of the grave goods should be indicated under "Artifact(s)" and further identified in the "Comments" section.

2 - Burial(s) in situ without grave goods visible in photograph.

3 - Burial pit outline

2

ARTIFACT(S) (Use as many numbers as appropriate.)

1 - Prehist. Lithic Material	2 - Historic Lithic Material
3 - Prehist. Ceramics	4 - Historic Ceramics
5 - Prehist. Metal	6 - Historic Metal
7 - Prehist. Human Skeletal	8 - Historic Human Skeletal
9 - Prehist. Faunal	10 - Historic Faunal
11 - Prehist. Shell	12 - Historic Shell
13 - Prehist. Floral	14 - Historic Floral
15 - Prehist. Perishable Mat.	16 - Historic Perishable Mat.
17 - Prehist. Building Mat.	18 - Historic Building Mat.
19 - Prehist. Glass	20 - Historic Glass
21 - Prehist. Other	22 - Historic Other

ILLUSTRATIONS, MAPS, DRAWINGS

1 - Plan view/profile of features

2 - Artifact(s)

3 - Site plan (This includes aerial photos of the site.)

4 - Analytical table(s)

5 - Site profile

6 - Map

7 - Photograph (This is interpreted rather broadly to include slides of things that don't fall readily into any of the above six categories, e.g., a slide showing a log book, or one of a photo of a drawing of an early Indian, etc.)

HISTORIC STRUCTURE(S)

1 - General view of site showing one or more structures

2 - Close up of structure or structural detail(s)

3 - Rural domestic homestead

ROCKART (Use as many numbers as appropriate.)

1 - Pictograph(s)

2 - Petroglyph(s)

3 - Modern graffiti

IDENTIFICATION(S)

If individuals are identified they are listed here. List them from left to right and, if they are in rows, list the front row first and proceed sequentially to other rows to the rearmost row. If there are unknown individuals so indicate with a "?" in place of a name, or say "unidentified". In some slides, with multiple individuals, it may be appropriate to identify the one or more identifiable individuals with a description (e.g., "Ann Early in foreground to far left, Hester Davis standing by pit wearing a white blouse") and simply not mention the unidentified individuals in the slide.

This space should also be used to identify artifacts, structures, etc. (e.g., Folsom point. Webster House).

COMMENTS/NOTES

Place here any data which will assist the researcher in assessing the value of a slide for his/her purpose(s). The key words used here e.g., Surveying (that is, looking for sites), Mapping (i.e., with instruments), Screening, Excavating, Camp, Eating, Seminars, etc., are listed in the following Dictionary of searchable criteria. If a Recorder begins using a new searchable word or phrase, it must be added to the Dictionary, accompanied by a date showing the year the word or phrase was first used. (In this manner the researcher will know that slides of such an activity or entity cannot be searched for under that criteria in records recorded prior to that year.)

PROJECT NAME/PROJECT NUMBER

Arkansas Post
Annual Meeting (add year)
Beaver Reservoir (add year)
Bell Foley Reservoir (proposed)
Chapter Dig (add chapter and year)
Cadron
DeGrey Reservoir
Dierks Reservoir
Gillham Reservoir
Field School (add year)
Greers Ferry Reservoir
Highway Salvage (add year)
Lone Rock Reservoir (proposed)
Society Dig (add year)
Open House (add year)
Van Buren Water Supply
Water Valley Reservoir (proposed)
Zebree

SPONSOR/CONTRACTOR

AASOC (add Chapter name if appropriate)
AASUR – AR Arch. Survey
COE
Fort Smith National Military Park
UAMUS

COMMENTS

Adze(s) (1960)
Aerial view (1960)
Alpha Recoil Track dating (1975)
Amateur(s) (i.e., non-Society) (1965)
Analyzing (1960)
Archeomagnetic dating or sampling (1968)
Artifact(s) (1960)
Ash bed or ashes (1969)
Augering (1975)
Awls (1968)
Ax (1970)
Backfill, Backfilling (1975)
Backhoe (1964)
Bailing (1969)
Basket(s) (1960)
Basket loading (1965)
Baytown (1965)
Bead(s) (1970)
Bifacial (1974)
Blade (1972)
Bone awl(s) (1960)
Bottle(s) (1962)
Bulldozer, bulldozing (1962),

Burned (or Burnt) area, adobe, perishable material (1962)
Bus (1964)
Button(s) (1972)
Cache, Cache pit (1968)
Caddo, Caddoan (1964)
Camp (1950)
Celt(s) (1964)
Ceramic (1968)
Children (1970)
Chipped stone (1968)
Class or classroom (1964)
Clearing site(1965)
COE (1965)
Collection(s), Collected (1960)
Combine (1969)
Conch shell(s) (1975)
Conference, conferring (1974)
Control block (1969)
Cooking (1969)
Coring (1965)
Corn cob(s) (1960)
Cotton choppers (1964)
Crew (1962)
Cross-sectioning (1968)
Dam (1962)
Datum (1972)
Daub, (1965)
Dedication (1965)
Disc, stone (1962)
Earthquake cracks (1969)
Eating (1950)
Effigy pot(s) (1950)
Effigy, stone (1950)
Equipment (1964)
Excavating or Excavation (1960)
Exhibit(s) (1960)
Face (1974) (See also: Profile.)
Feature(s) (1964)
Figurine(s) (1964)
Flintknapping or Knapping (1969)
Flotation (1975)
Hammerstone(s) (1974)
Harpoon(s) (1969)
Head pot(s) (1962)
Firepit(s), Fireplace(s) (1960) (See also Hearth(s)
Flaked stone tool(s)s (1975)
Flotation (1971)
Fourche Maline midden (1972)
Front end loader (1965)
Grid (1975)
Hammerstone(s) (1964)
Headquarters (1950)
Hearth (1969) (See also Fireplace, Firepit)
Hoe(s) (1969)

5

House, House floor(s) (1950)
Identified vessels, sherds, or lithics (1968)
Knapping or Flintknapping (1969)
Laboratory (or Lab) work (1950)
Land leveling, Leveling, or Leveled (1960)
Land plane or leveler (1960)
Lecture, Lecturing, or Teaching (1964)
Lithic debris (1964)
Looter destruction (1969)
Mapping (with instruments) (1950)
Metate(s) (1950)
Midden (1965)
Miller Bottom (1950)
Mimbres (1964)
Mississippian (1965)
Mound (1972)
Mummy (1960)
Necklace(s) (1950)
Nutting stone(s) (1950)
Observing (1974)
Open House (1975)
Orientation (1970)
Path to site (1950)
Pendant(s) (1964)
Perishable (1960)
Photography, Photographing, Photo(s) (1964)
Pipe(s) (1950)
Pit(s) refuse, cache, or burial(1960)
Plot (1972)
Post(s) or posthole(s) (1960)
Preform(s) (1974)
Probing, prober, or probe (1960)
Processing (1969)
Profile, Profiling(1969), (also check: Face)
Projectile point(s), Point(s) (1960)
Rain (1969)
Recording, Record keeping (1960)
Resting (1969)
Restoration (1965)
School (1965)
Screening, Sifting, or Water Screening (1950)
Seminar (1972)
Shell mask(s)(1965)
Sherd(s) (1960)
Society member(s) (1972)
Spindle whorl(s) (1960)
Staff (1972)
Student(s) (1960)
Survey, Surveying (i.e., Surface surveying) (1950)
Surface collection (1960)
Test, Testing (1950)
Trench, Trenching(1960)
TV (1968)
Vehicle(s) (1969)

Vessel(s) (1962)
Visitor(s) (1960)
Wall(s), Wall trench(es) (1968)
Washing or Sherd washing (1964)
Woven bag(s) (1960)

RADIOCARBON DATABASE

Site Number:_____ Site Name: _____

Location (if not associated with archeological site): _____

_____

Provenience: _____

Association/Context: _____

Cultural Affiliation: _____

Radiocarbon Assay: _____ Uncorrected date: _____

Corrected Date(s): _____ Calibration Program: _____

Radiocarbon Lab Number: _____   14C Half-life Value Used: _____years

Type of Material Dated: _____

Dating Technique: Standard_____   Extended_____   AMS _____

Special Analyses: C13/CC12 _____   O18/)16_____

Submitted by: _____   Institution: _____

Date Submitted: _____   Reference: _____

Comments:

```
Tera Term - ergaster.uark.edu VT                                          _ □ X
File  Edit  Setup  Control  Window  Help
PERFORM:   ▌Query▐ Next  Previous  View  Add  Update  Remove  Table  Screen  ...
Searches the active database table.            ** 1: radcarb table**
==============================================================================
                       *** AAS RADIOCARBON DATABASE ***              screen 1

ID#:  [     ]      data entry date:  [          ]          site no:  [      ]

site name:  [                                        ]

(NOTE: enter location below only if site is previously unrecorded)
utm easting:  [      ]      utm northing:  [        ]

archeological affiliation:  [                              ]

sample material:  [                    ]

submitted by:  [                ]      date submitted:  [          ]

institution:  [                                ]

==============================================================================
```

radiocarbon1 data screen

```
Tera Term - ergaster.uark.edu VT                                          _ □ X
File  Edit  Setup  Control  Window  Help
QUERY:  ESCAPE queries.  INTERRUPT discards query.  ARROW keys move cursor.
Searches the active database table.            ** 1: radcarb table**
==============================================================================
                       *** AAS RADIOCARBON DATABASE ***              screen 3

radiocarbon assay:  [     ] BP      +/-:  [     ] years

uncorrected date:  [     ]      BC: [ ]  or  AD: [ ]      +/-:  [█   ] years

conventional C14 date (C13 adjusted):  [     ]      BC: [ ]  or  AD: [ ]
                                                    +/-:  [     ] years

==============================================================================
```
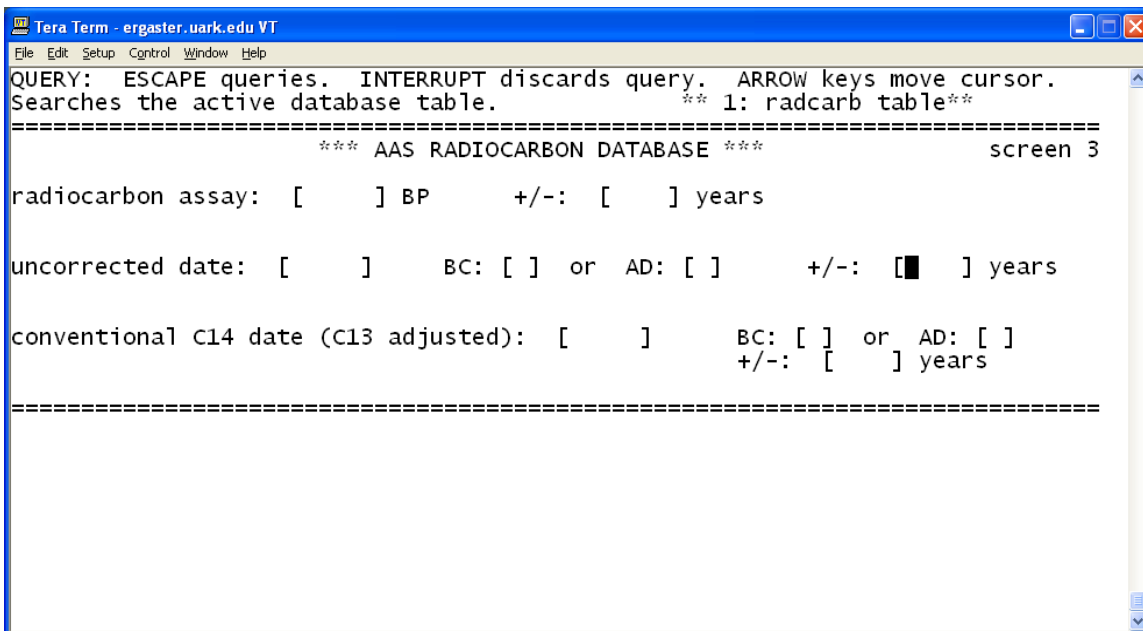
radiocarbon2 data screen

File   Edit   Setup   Control   Window   Help

```
QUERY:  ESCAPE queries.  INTERRUPT discards query.  ARROW keys move cursor.
Searches the active database table.          ** 1: radcarb table**
================================================================================
                   *** AAS RADIOCARBON DATABASE ***              screen 4

calibrated intercepts (one-sigma): [     ] [     ] [     ]
                                   [     ] [     ] [     ] BC:[ ] or AD:[ ]

one-sigma range (low):  [    ]       one-sigma range (high):  [    ]


calibrated intercepts (two-sigma): [     ] [     ] [     ]
                                   [     ] [     ] [     ] BC:[ ] or AD:[ ]

two-sigma range (low):  [    ]       two-sigma range (high):  [    ]

C13/C12 ratio: [    ]    O18/O16 ratio: [    ]    half-life (years): [█    ]
================================================================================
```

radiocarbon3 data screen

CITATION GUIDELINES

The following pages are used as a guide on how to enter information in *Citation* in a standardized way. There are three sections to the guide. *Basics* explains how to use *Citation*. Only the most commonly used functions are explained. *Specifics* discusses special instructions to follow while working in *Citation* for the Registrar Office of the Arkansas Archeological Survey. Finally, *Data Fields* gives a list of the fields, from a range of record form styles, thus far used by the Registrar Office to enter information in *Citation*.

Basics

1. Double click on *Citation* to bring the program up.
2. Go to File → Open Datafile, and then find the correct file in which the new record will be entered or a current record will be edited. Double click on the file name to open.
3. If **entering a new record**:
   Go to Edit → Add Record (the new record will be added at the end of the file) → Select Form (highlight the appropriate record form) → OK. If you would rather place the record in its appropriate filing spot, go to the record which will immediately follow the one to be entered, and then go to Edit → Insert Record (the new record will be inserted immediately preceding the record you were on) → Select Form (highlight the appropriate record form) → OK. Enter record information in appropriate fields.
4. If **editing an existing record**:
   Go to Search → Search for Record (F5 key) or Find Text (F2 key). Enter appropriate search words → OK. Once record is located, make necessary changes.
5. If you do not believe the selected form is the most appropriate for the record in hand, you may **change the type of form** by:
   Go to Edit → Change Form → Select Form (highlight the appropriate record form) → OK. Make any additions/changes in the fields.
6. If any part of the information being entered needs to be **italicized, underlined, or put in bold**,
   Highlight the needed text, and then go to Edit → Attributes → Italics/Underline/Bold.
7. Once all applicable information have been entered in the fields, **check the spelling** by:
   Go to Tools → Spell Check → Record.
8. If the records have not been entered in alphabetical order, you may **sort the datafile**.
   Go to Tools → Sort. Sort Datafile box appears: Sort Order → Ascending; Sort Type → Bibliographic (Author, Year, Title); OK. Sort Finished box appears: Save As → Save in appropriate folder → File name should end with ".dat".
9. If you need to **select a subset of the datafile**,

Go to Tools → Select. In the Select box that appears, you may choose all tagged files or choose by querying in certain fields (such as selecting all the records by a specific author). Select Finished box appears: Save As → Save in appropriate folder → File name should end with ".dat".

10. If you need to **tag a record(s)** in order to select it later,

Go to Edit → Tag/Untag (Ctrl+T). To untag a record you would do the same process. If you need to untag all records, go to Edit → Untag All.

11. If you need a **bibliography of selected records**:

Tag and Select the records needed (see above for instructions). Open the newly created datafile. Open *Microsoft Word*. In *Citation*, go to Generate → Bibliography from Datafile. Bibliography box appears. Publishing Style: standard → choose style from drop-down list → OK. Bibliography appears in *Word*.

12. To **save**:

Go to File → Save (Shift+F3) or Save As (F3 key) if this is a new datafile.

Specifics

I.   **Reports/Contract Reports**

    i.   All reports <u>with an AMASDA number</u> will be entered into a Project Report form.

    ii.   All reports <u>without an AMASDA number</u> will be entered into a Technical Report form.

    iii.   If a project is <u>conducted in the state of Arkansas</u>, it should have an AMASDA number and thus entered into a Project Report form. If no such number is written on the report, search in *ergaster* or check with the Registrar to find the number.

    iv.   <u>Enter the AMASDA number</u> on the upper right hand corner of the report cover if none has been entered and if one is available.

    v.   For reports with an AMASDA number, you may need to search through *ergaster* or check with the Registrar <u>to find any information not available on the report</u>.

    vi.   For records published in journals or <u>other forms of records AND have an AMASDA number</u>, they too will be entered into a Project Report form. For such cases, at the end of the abstract, enter in parenthesis its source. Specify journal name, volume and issue numbers, editor, publisher name, place of publication, page numbers, conference presented at, and/or any other pertinent information. It will look something like follows: (In \iArkansas Archeology 1962\i; Edited by Charles R. McGimsey III; Published in 1963 by The Arkansas Archeological Society; Pages 15-65.).

    vii.   See <u>Appendix A for detailed instructions</u> on how to enter information in a Project Report form.

II.   **Site Numbers**

    i.   If site numbers are given in the record, for any state, <u>enter them in the abstract field</u>.

ii.   For site numbers <u>in the state of Arkansas</u>, make sure that the leading zeroes are entered (all Arkansas state site numbers must have four numerical digits). For example, 3WA25 would be entered as 3WA0025 (FYI: 3=Arkansas, WA=Washington county or other county code, 0025=25th site given a number in the county).

iii.   If <u>more than 15 sites are listed</u> in a record, there is no need to enter them all. In such cases, you may just state the number of sites in a county or only list the newly recorded sites. It is up to you, the recorder, to determine how to best approach such records. Use your own judgment for each specific case!

III.   **Length/Number of Pages/Page Numbers**

i.   <u>Always enter the length</u> of a record.

ii.   If <u>a form does not have a field that prompts you to enter the length</u> or page numbers of a record, then enter this information in the *Descriptor* field. However, if the Descriptor field is being used for other purposes, then enter the record length in another seemingly appropriate field (such as the *Available/on file* field) or else at the end of the abstract in parenthesis.

IV.   **Abstract**

i.   <u>Always enter an abstract</u> in the *Abstract* field, even if one is not provided in the record.

V.   **Extended Forms**

i.   Extended record forms, such as *Article in a Journal [extended form]*, are <u>ONLY chosen when the extra fields are needed</u>.

VI.   **File Cabinet**

i.   All <u>records that will be filed in the file cabinets</u> of the Registrar Office must have the words FILE CABINET entered on the record form.

ii.   On most record form styles, FILE CABINET will be <u>entered in the *Reference* field</u>. If there is no such field, then enter it in the *Comment* field, even if other information is being entered there.

iii.   An <u>exception</u> to the above is found on the *Notecard* record form. In this case, enter FILE CABINET in the *On File* field.

VII.   **Miscellaneous**

i.   When it may be <u>ambiguous under what a record is filed</u>, specify it in the *Comment* field (example: FILE CABINET under "Hardware/Nails" <u>or</u> Filed under "AR Archeological Survey-5-Year Plan"). If there is no *Comment* field, then enter this information in the *Abstract* field, following and below the abstract.

ii.   <u>Write out dates</u> (example: May 29; NOT 5/29)

iii.   Unless absolutely needed, <u>use the *Notecard* record form</u> instead of the *Notes* record form.

iv.   If <u>information is missing on your record</u>, such as a book's publisher, you can look it up on the UofA library catalog. Such information may also be looked up on the World Wide Web. However, do not spend too much time on such endeavors, and make it a quick search.

v.   <u>Not all of the fields on a record form have to be filled in</u>. Enter relevant information in the appropriate fields only.

vi.   <u>Always enter an abstract and keywords</u>.

vii. <u>Always run the spell check</u>.

viii. <u>Save your work</u> on both the hard drive and on a disk.

Data Fields

Abstract: An abstract always needs to be entered, even if one is not provided in the record. Keep in mind that the abstract should answer the basic questions of who, what, when, where, how, and why in a simple and concise manner.

   If an abstract is included in the record, you can type word for word or just part of it. If you do use the abstract provided in the record, make sure you put at the end of it "[Abstract included with *x*]".

   If the record does not have an abstract, you may use sentences from the record to make up an abstract. At the end of this type of abstract put "[Abstract extracted from *x*.]".

   If a spelling mistake was made in the abstract or extracted parts of the record as originally written, add "(sic)" immediately following the misspelled word.

   Key points to include in an abstract: type of archeological work or study; location of work; who conducted the work; any new sites recorded and number of; any previously recorded sites visited and number of; type of sites (prehistoric, historic, or multicomponent); site numbers; study results; and recommendations. All Arkansas site numbers must have a four-digit number, which means that their leading zeroes need to be included. For instance, if the site is 3MN60 it should be written as 3MN0060.

Access Phrase: This is automatically entered for you, and is a quick reference of author and year. However, make sure the spelling is correct and reads last name of authors and year of report.

   example: Riggs 1997
   example: Rose et al. 1992

Article Title: This is the title of the record. Enter the title exactly like it is on the record. If any part of the title is written incorrectly on the record, enter "[sic]" following the misspelled word.

   example: Cultural Resource Surveys in the Cossatot and Leader Mountain Areas of the Quachita (sic) National Forest

Author, Author of piece: Enter the name/s of the author/s. Spell the author's name as written exactly on the record. List all authors. For multiple authors, place a semicolon after each. All authors' names should follow this style:

last name, first name middle initial, Jr. or III. (if applicable)
      example: Kelly, A. R.; Larson, Lewis H., Jr.

Available/on file: This field is sometimes used for entering the length or page numbers of a record, if no other such fields exist on the form. In such cases, you may need to count the number of pages if they are not typed in. If appendices, figures, and/or tables are in addition add "plus appendices" or "plus figures and tables". If the latter were included in the length of the record, add "including appendices".
      example: 11 pages plus appendix
      example: 39 pages plus figures
      example: 109 pages including appendices

Bk Editor: Enter the name/s of the book's editor/s. Spell the editor's name as written exactly on the record. List all editors. For multiple editors, place a semicolon after each. All editors' names should follow this style:
      last name, first name middle initial, Jr. or III. (if applicable)
      example: Heizer, Robert F.; Cook, Sherburne F.

Bk (Collection) Ttl: Enter the title of the book or collection that the record appears in. Enter the title exactly like it is on the record.

Book Title: Enter the title of the book. Enter the title exactly like it is on the record.

Cast Description: Enter the format of the record.
      example: CD-ROM
      example: 3 ½ Floppy
      example: Microfilm (3 rolls of 8mm film)

Collection Title: Enter the title of the collection that the record appears in. Enter the title exactly like it is on the record.

Congress no.: Enter the congress number.

Congressional body: This is the author of the record, and would be the name of an entity instead of a person's.
      example: House of Representatives

DA/DAI:

DAI Year:

Day/Month/Qtr: Enter the date on which the record was published, in which monthly issue it appears, or on what day it was presented or written on. Spell out the month names.
      example: December
      example: Sunday, May 6

example: April 6-7
example: Winter

Dept/Coll: Enter the department name to which the record was submitted to, or in which the author was a member of.
example: Department of Anthropology

Descriptor: This field has different purposes on different record forms. Mostly though, it is used for entering the length or page numbers of a record, if no other such fields exist on the form. In such cases, you may need to count the number of pages if they are not typed in. If appendices, figures, and/or tables are in addition add "plus appendices" or "plus figures and tables". If the latter were included in the length of the record, add "including appendices".
example: 11 pages plus appendix
example: 39 pages plus figures
example: 109 pages including appendices
On a Dissertation record form, this field is used to specify if the record is a dissertation or a thesis, and the degree sought.
example: Dissertation, Doctor of Philosophy
example: Thesis, Master of Science
example: Internship Portfolio, Master of Arts

Director (Author): Enter the name/s of the director/s or author of the source. Spell the author's name as written exactly on the record. List all authors. For multiple authors, place a semicolon after each. All authors' names should follow this style:
last name, first name middle initial, Jr. or III. (if applicable)
example: Cooper, Judy

Document no.: Enter the number of the record.

Doc Section: Enter the section in which the record is found in.

Document type: Enter the type or format of the record.

Edition: Enter the edition, volume, and/or issue number of the source in which the record is found in.
example: Vol. 8, No.10
example: 5th

Editor: Enter the name/s of the record's editor/s. Spell the editor's name as written exactly on the record. List all editors. For multiple editors, place a semicolon after each. All editors' names should follow this style:
last name, first name middle initial, Jr. or III. (if applicable)
example: Sassaman, Kenneth E.; Anderson, David G.

Expl. note: Enter any additional comments or explanatory notes.

Issue: Enter the issue number of the journal or series in which the record is found in. Also, if there are other numbers beyond volume and issue numbers, enter such information here.
>example: 4
>example: 50, Pt. I

Journal: Enter the title of the journal that the record appears in. Enter the title exactly like it is on the record.

Keywords: List the keywords in order of importance. Typically begin with the country, area, or state under discussion, then the county or counties where the project took place, type of archeological survey, then if sites are prehistoric or historic, specific time/occupation periods, anything done with the artifacts like an inventory or analysis, etc. Use a semicolon (;) between each keyword. A list of the keywords thus far used may be seen by clicking on the arrow on the right-hand side of the keyword field. Just a note, some projects will have only a few keywords, while more detailed ones will have more.
>example: Arkansas; Craighead County; archeological identification survey; prehistoric; historic; Late Archaic; Mississippian; Anglo-American
>example: Southeast U.S.; Mississippian; symbolism
>example: site preservation; interdisciplinary research; cave deposits; rock shelters

Length/Comment: Enter the length of the record. Also enter the location of the record in this field, following the length.
>example: 46 minutes
>example: In file drawer.
>example: 3 tapes

Newspaper: Enter the name of the newspaper that the record appears in. Enter the newspaper name exactly like it is on the record.

Pages: Enter the page numbers or length of the record. You will need to count the number of pages if they are not typed in. If appendices, figures, and/or tables are in addition add "plus appendices" or "plus figures and tables". If the latter were included in the length of the report, add "including appendices".
>example: 123-139
>example: 163
>example: 110 plus tables and plates
>example: 91 including appendices

Parallel cite:JR: If the record was published in a journal, enter the journal name here. Enter the title exactly like it is on the record.

Parallel cite:PG: If the record was published in a journal or series, enter the page numbers here.

example: 123-139

Parallel cite:VO: If the record was published in a journal or series, enter the volume number of that journal here. Also enter an issue number or other if the form does not have a separate field for such information.
example: 21
example: Vol. 105, No.1

Periodical: Enter the title of the periodical that the record appears in. Enter the title exactly like it is on the record.

Place: Enter the place (city and state) where the publisher or person who wrote the record resides. Abbreviate the state.
example: Memphis, TN

Place written: Enter the place (city and state) where the person who wrote the record resides. Abbreviate the state.

Publisher: Enter the name of the company who published the record.

Reference: Thus far, this field has only two functions. 1) When the record is filed in the file cabinets of the Registrar Office, enter the words FILE CABINET in this field. 2) If the record is entered in a Film record form, and it has an AMASDA number, enter that number in this field.

Role/Publ Status:

Section (IS): Enter the section of the newspaper in which the record is found in.
example: B
example: C: World News
example: Lifestyle

Series editor: Enter the name/s of the series' editor/s. Spell the editor's name as written exactly on the record. List all editors. For multiple editors, place a semicolon after each. All editors' names should follow this style:
last name, first name middle initial, Jr. or III. (if applicable)
example: Sassaman, Kenneth E.; Anderson, David G.

Series Title: Enter the title of the publication series. Enter the title exactly like it is on the record.

Session: Enter the type of legislative session that resulted in the record.

Short Work Title: This is the title of the record. Enter the title exactly like it is on the record. If any part of the title is written incorrectly on the record, enter "[sic]" following the misspelled word.

example: Cultural Resource Surveys in the Cossatot and Leader Mountain Areas of the Quachita (sic) National Forest

State: Enter the name of the state in which the record was produced. Spell out the state; do not use its abbreviation. example: Arkansas

State leg. body: Enter the name of the state entity responsible for the record.
example: General Assembly of the State of Arkansas

Status: Enter the status of the legislative record in question. For example, has it been passed or denied.

Studio (Publisher): Enter the name of the company who published the record.

Subsequent Cite Ttl: This is any secondary title that may be given to a record. For example, in Attachment 1, "A vast array of human remains, vertebrate and invertebrate fossils, and artifacts are preserved." would be entered in this field. Enter the subsequent cite title exactly like it is on the record. If any part of it is written incorrectly on the record, enter "[sic]" following the misspelled word. This field is also used to enter chapter numbers -- example: Chapter 8

Title: This is the title of the record. Enter the title exactly like it is on the record. If any part of the title is written incorrectly on the record, enter "[sic]" following the misspelled word.

Translator: Enter the name/s of the record's translator/s. Spell the translator's name as written exactly on the record. List all translators. For multiple translators, place a semicolon after each. All translators' names should follow this style:
last name, first name middle initial, Jr. or III. (if applicable)
example: O'Donnell, Walter J.

University: Enter the name of the university to which the record was submitted to, or in which the author was a member of.
example: Harvard University
example: University of Arkansas, Fayetteville

Volume No.: Enter the volume number of the journal or series in which the record is found in. Also enter an issue number or other if the form does not have a separate field for such information.
example: 21
example: Vol. 105, No.1

Year/ Year completed: Enter the year in which the record was published or submitted. If the year is unknown, enter "n.d.". If the year is questionable, enter a question mark in parenthesis following the year -- example: 1966 (?)   If the exact year is unknown but can be placed in a specific decade, write it as such -- example: 1960s

APPENDIX A:

PROJECT REPORT FORM

The Project Report form was created by the Registrar Office of the Arkansas Archeological Survey for inclusion in *Citation*. Such a form, not originally available in *Citation*, is needed for the Registrar Office's vast number of archeological project reports. This Project Report form reflects the unique types of information gathered from such records and that are of importance to the Registrar Office. The following pages are to be consulted when entering information into a Project Report form. They outline what type of information and how they should be entered in each field.

The Project Report form is saved under FORMS.DEF of the working *Citation* program. For those installing *Citation* onto their computers, follow these simple steps:
  i. Retrieve and install the *Citation* CD.
  ii. Copy FORMS.DEF from the *Citation* program folder, of one that currently has the Project Report form, onto a disc.
  iii. Take this disc to your computer and move or copy & paste FORMS.DEF into your *Citation* program folder.
  iv. You will be asked if you want to replace the current FORMS.DEF. Say **yes**.
  v. You are now ready to go! "citation.exe" in that same folder will bring up *Citation* for you to work in.

Note: Please update and replace this and any of the following pages when needed.

APPENDIX A:

PROJECT REPORT FORM

Author: Spell the author's name as written exactly on the report. List all authors. For multiple authors, place a semicolon after each. All authors' names should follow this style:

> last name, first name middle initial, Jr. or III. (if applicable)
>> example: Kelly, A. R.; Larson, Lewis H., Jr.

Year: Enter the year in which the report was published. If the year is unknown, enter "n.d.". If the year is questionable, enter a question mark in parenthesis following the year -- example: 1966 (?) . If the exact year is unknown but can be placed in a specific decade, write it as such -- example: 1960s .

Report Title: Spell the title exactly as it is written on the report. If a spelling mistake was made in the title as originally written, add "(sic)" immediately following the misspelled word.

> example: Cultural Resource Surveys in the Cossatot and Leader Mountain Areas of the Quachita (sic) National Forest

Descriptor: This field is for a report number, a volume number, or a secondary title.

> For AAS projects, the number should be "AAS Sponsored Research Program Project, then number".
>> example: AAS Sponsored Research Program Project No. 899

> For forest service reports, they have Cultural Resource Inventory Report Series, then the number. This should be entered as "F.S. Project, then the number".
>> example: FS Project Number 08-09-07-422

> For other contractors, it should be whatever they have entered as a project or report number.
>> example: AHTD Job# R10062
>> example: PCI Project #24011.000
>> example: SPEARS Project 127
>> example: MCRA Report No. 90-8
>> example: Historic Preservation Associates Report 84-5

Place: Enter the place (city and state) where the company or person who wrote the report resides. Abbreviate the state.

> example: Memphis, TN

Publisher: Enter the name of the company who published the report.

Length/Comment: Enter the page length of the report. You will need to count the number of pages if they are not typed in. If appendices, figures, and/or tables are in

addition add "plus appendices" or "plus figures and tables". If the latter were included in the length of the report, add "including appendices". If the report is located in the Registrar's file cabinet, add "FILE CABINET" following the report length.

> example: 11 pages plus appendix
> example: 39 pages plus figures
> example: 109 pages including appendices
> example: 5 pages. FILE CABINET

Keywords: List the keywords in order of importance. Typically begin with "Arkansas", then the county or counties where the project took place, type of archeological survey, then if sites are prehistoric or historic, specific time/occupation periods, anything done with the artifacts like an inventory or analysis, etc. Use a semicolon (;) between each keyword. A list of the keywords thus far used may be seen by clicking on the arrow on the right-hand side of the keyword field. Just a note, some projects will have only a few keywords, while more detailed ones will have more.

> example: Arkansas; Craighead County; archeological identification survey; prehistoric; historic; Late Archaic; Mississippian; Anglo-American

Access Phase: This is automatically entered for you, and is a quick reference of author and year. However, make sure the spelling is correct and reads last name of authors and year of report.

> example: Riggs 1997
> example: Rose et al. 1992

Abstract: An abstract always needs to be entered, even if one is not provided in the report. Keep in mind that the abstract should answer the basic questions of who, what, when, where, how, and why in a simple and concise manner.

> If an abstract is included in the report, you can type word for word or just part of it. If you do use the abstract provided in the report, make sure you put at the end of it "[Abstract included with report]".

> If the report does not have an abstract, you may use sentences from the report to make up an abstract. At the end of this type of abstract put "[Abstract extracted from report.]".

> If a spelling mistake was made in the abstract or extracted parts of the report as originally written, add "(sic)" immediately following the misspelled word.

> Key points to include in an abstract: type of archeological work; location of archeological work; who conducted the work; any new sites recorded and number of; any previously recorded sites visited and number of; type of sites (prehistoric, historic, or multicomponent); site numbers; and recommendations. All site numbers must have a four-digit number, which means that their leading zeroes need to be included. For instance, if the site is 3MN60 it should be written as 3MN0060.

Agency/ Project #: This field is for whom the project was done for or submitted to. Do not enter that agency's place of business or residence, i.e. it's location. Certain agencies, such as the National Park Service, might have districts that need to be specified.

Enter a project number if one is provided after the agency name. Some notes to remember:

- "COE" is for the Corps of Engineers. Specify district. The Corps reports also have a contract number. Example: COE-Little Rock/DACW03-78-M-0835
- "SCS" is for the Soil Conservation Services.
- "AHTD" is for the Arkansas Highway and Transportation Department.
- FS is for the Forest Service. Specify forest. Example: FS-Ouachita National Forest
- NPS is for the National Park Service. Specify district/region. Example: NPS-Southeast Region/14-10-0131-1664
- AAS is for the Arkansas Archeological Survey

Site #: This field is reserved for those sites recommended in the report for inclusion (i.e. eligible) in the National Register of Historic Places. Remember, all site numbers must have a four-digit number, which means that their leading zeroes need to be included. For instance, if the site is 3MN60 it should be written as 3MN0060. If more than one site is listed, separate them with a semicolon (;).

example: 3CW0248; 3CW0291; 3CW0294

AMASDA #: Enter the AMASDA number of the report here.

RECORD FORMS:

From Articles to Unpublished Papers

Following is a checklist with a corresponding selection of record forms, representing each type of form thus far used by the Registrar Office of the Arkansas Archeological Survey. The record forms are to be consulted and used as examples on how to enter information on different types of forms, from Articles to Unpublished Papers. They are filed alphabetically by record form type. In certain cases, more than one example may be given for a specific type of record form, showcasing various entry possibilities.

Note: Please update and replace this and any of the following pages when needed. Also check off from the list any new type of record form added in the following pages.

SCREEN CAPTURE:

Jasc Paint Shop Pro

The preceding printed record forms were made through the help of *Jasc Paint Shop Pro*. The following pages explain how this can be done. Briefly stated, the Screen Capture option in *Paint Shop Pro* allows one to seize an area, window, or screen, from which it can then be printed easily.

Simply, you will need to follow these steps:
1. Open *Jasc Paint Shop Pro*.
2. Open *Citation*.
3. Open the desired database in *Citation* and go to the record that you want printed.
4. In *Paint Shop Pro*, after you have set the Screen Capture preferences (see next page), go to Start Capture (Shift+C; camera icon on toolbar; see following pages).
5. With *Citation* up and at the desired record, capture the window (by right-clicking or other specified means; see following pages).
6. The captured window will appear in Paint Shop Pro.
7. Go to Page Setup under File.
   i. Choose Landscape for your Orientation.
   ii. Type 126 in the scale box.
   iii. Click OK.
8. Go to File → Print.

Note: Please update and replace this and any of the following pages when needed.

Appendix E

Bibliography of selected cultural phases/study units

East Phase

Early, Ann M.
1982 Caddoan Settlement Systems in the Ouachita River Basin. In Arkansas Archeology in Review, edited by Neal L. Trubowitz and Marvin D. Jeter, pp. 198-232. Arkansas Archeological Survey Research Series 15. Fayetteville, Arkansas.

Early, Ann M. ed.,
1993 Caddoan Saltmakers in the Ouachita Valley. Arkansas Archeological Survey Research Series 43. Fayetteville, Arkansas.

Hoffman, Michael P.
1967 Ceramic Pipe Chronology Along the Red River Drainage in Southwestern Arkansas. Arkansas Archeologist 8:4-14. Fayetteville, Arkansas.

Newell, H. Perry; Krieger, Alex D.
1949 The George C. Davis Site, Cherokee County, Texas. Society for American Archaeology Memoirs 5. Menasha, Wisconsin. Soon available as a reprint.

Suhm, Dee Ann; Krieger, Alex D.; Jelks, Edward B.
1954 An Introductory Handbook of Texas Archeology. Texas Archeological Society Bulletin 24. Austin, Texas.

Suhm, Dee Ann; Jelks, Edward B.
1962 Handbook of Texas Archeology: Type Descriptions. The Texas Archeological Society and the Texas Memorial Museum. Austin, Texas.

Weber, J. Cynthia
1972 Ceramics of the East Mounds (3CL21). Fayetteville, Arkansas. Manuscript on file, AAS.

Mid-Ouachita Phase

Early, Ann M.
1988 Standridge and Caddoan Culture in the Ouachita River Basin. In Standridge: Caddoan Settlement in a Mountain Environment, by Ann M. Early, pp. 157-166. AAS Research Series 29. Fayetteville, Arkansas.

Early, Ann M.
1993 Cultural Context; Hardman and Caddoan Saltmaking. In Caddoan Saltmakers in the Ouachita Valley, Edited by Ann M. Early, pp 1-14, 223-234. AAS Research Series 43. Fayetteville, Arkansas.

Hodges, T. L.; Hodges, Mrs.
1963 Suggestion for Identification of Certain Mid-Ouachita Pottery as Cahinnio Caddo. The Arkansas Archeologist IV (8):1-12. Fayetteville, Arkansas. Reprint of an article that appeared in Texas Archeological and Paleontological Society Bulletin 16:98-116, 1945.

Hodges, T. L.; Hodges, Mrs.
1964 The Watermelon Island Site in Arkansas. The Arkansas Archeologist III (3):9-16. Fayetteville, Arkansas. Reprint of an article that appeared in Texas Archeological and Paleontological Society Bulleting 15:66-79, 1943.

Schambach, Frank F.
1998 Pre-Caddoan Cultures in the Trans-Mississippi South. Arkansas Archeological Survey Research Series 53. Fayetteville, Arkansas.

Scholtz, James A.; Davis, Hester A.
1967 Five Auxiliary Techniques for Archeological Research plus A Compilation of Radiocarbon Dates for Arkansas Through 1966. Special Publication for Life, Contributing, and Supporting Members. Arkansas Archeological Society. Fayetteville, Arkansas.

Suhm, Dee Ann; Krieger, Alex D.; Jelks, Edward B.
1954 An Introductory Handbook of Texas Archeology. Bulletin of The Texas Archeological Society 25:209-211. Austin, Texas.

Suhm, Dee Ann; Jelks, Edward B.
1962 Handbook of Texas Archeology: Type Descriptions. The Texas Archeological Society and the Texas Memorial Museum. Austin, Texas.

Wood, W. Raymond
1963 The Denham Mound: A Mid-Ouachita Focus Temple Mound in Hot Spring County, Arkansas. University of Arkansas Museum Anthropology Series 1. Fayetteville, Arkansas.

Social Hill Phase

Early, Ann M.
1974 Winter Archeology, the Hedges Site, 3HS60. Field Notes 116:3-5. Arkansas Archeological Society. Fayetteville, Arkansas.

Early, Ann M.
1993 Caddoan Saltmakers. Arkansas Archeological Survey Research Series 43. Fayetteville, Arkansas.

Schambach, Frank F.
1998 Pre-Caddoan Cultures of the Trans-Mississippi South. Arkansas Archeological Survey Research Series 53. Fayetteville, Arkansas.

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