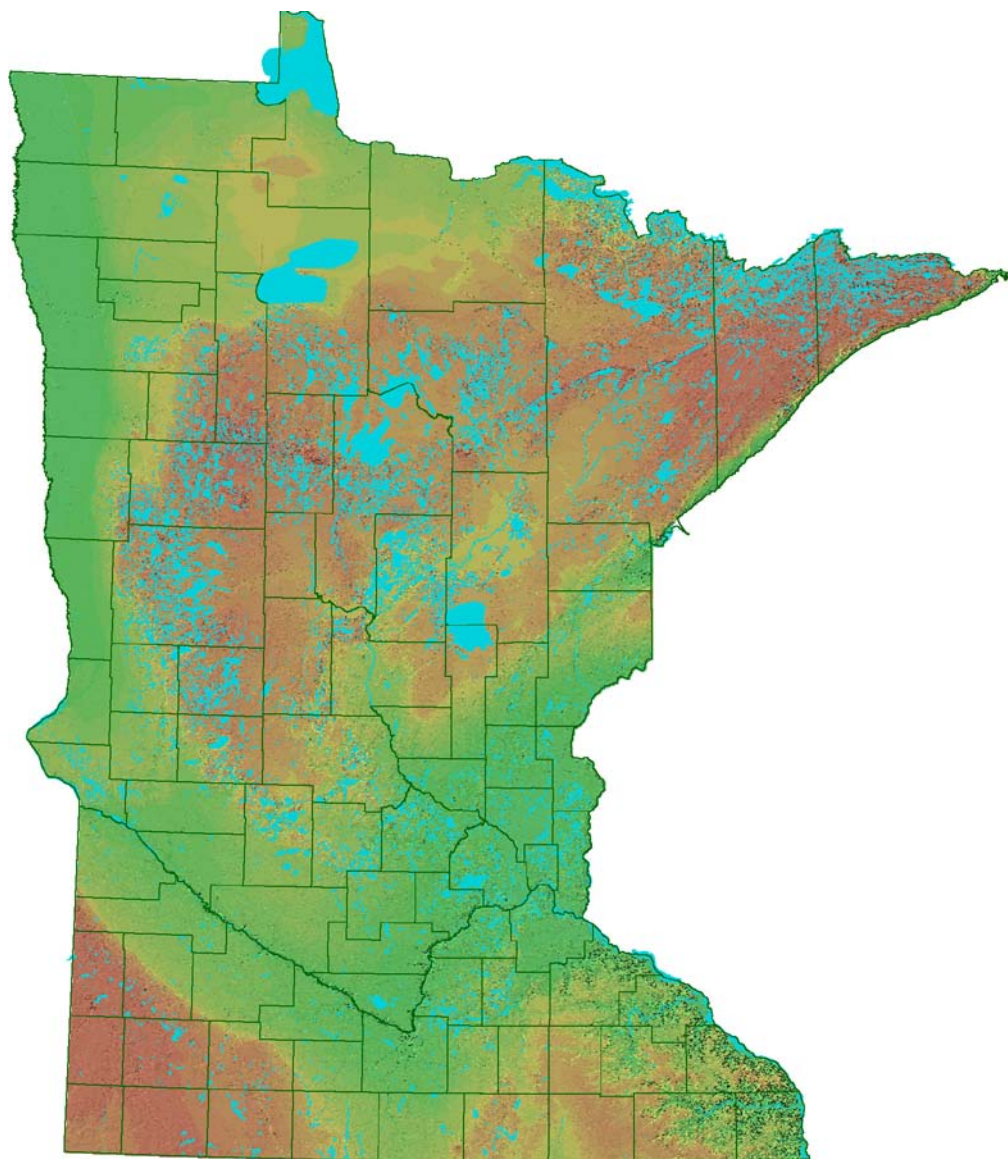


Archaeology in Minnesota

Annual Report of the State Archaeologist

Fiscal Year 2009



Mission Statement

The mission of the State Archaeologist is to promote archaeological research, share archaeological knowledge, and protect archaeological resources for the benefit of all of the people of Minnesota.

Abstract

In fiscal year 2009, the Office of the State Archaeologist (OSA) was involved in a wide variety of activities in order to fulfill legal obligations, protect archaeological sites, and support the advancement of Minnesota archaeology.

Chapter 1 of the Annual Report provides a brief history of the OSA and lists the principal duties and responsibilities of the State Archaeologist.

Chapter 2 summarizes OSA activities and other Minnesota archaeological activities in FY 2009 by program area. Major FY 2009 OSA accomplishments include: reviewing 394 site inventory forms, reviewing 132 development projects, field research on 23 major MS 308.08 burial cases, organizing another successful Minnesota Archaeology Week, and obtaining \$500,000 from the new Legacy Amendments fund for a Statewide Survey of Historic and Archaeological Sites.

Basic OSA Fiscal Year (FY) 2009 and Calendar Year (CY) 2009 statistics are:

	FY09	CY09
Licenses Approved:	68	56
Site Forms Reviewed:	394	197
Site Numbers Assigned:	324	141
Reports Added:	135	124
Projects Reviewed:	132	100
Major Burial Cases:	39	-
Burial Authentications:	14	-

Chapter 3 provides an assessment of the current state of Minnesota archaeology and a plan for OSA activities in FY 2010.

A glossary of common archaeological terms used in Minnesota is appended at the end of the report.

Acknowledgements

The Office of the State Archaeologist (OSA) is a department within the Office of Geographic and Demographic Analysis (GDA) at the Minnesota Department of Administration. David Arbeit very effectively supervises the diverse GDA and consistently provides the OSA with needed guidance and sound advice. Other Administration and GDA staff provide daily support to the OSA for financial, technical, and personnel matters. MnGeo staff John Hoshal, Jim Dickerson, and Norm Anderson are thanked for helping with the background map image for the 2009 Archaeology Week Poster. Administration Legislative liaisons Jim Rhodes and Jerod Rauk are thanked for their assistance in obtaining Legacy Amendment funding for archaeology. The past Commissioner of Administration, Dana Badgerow, and the current Commissioner of Administration, Sheila Reger, have been very supportive of the Office of the State Archaeologist and this support is much appreciated.

The Minnesota Indian Affairs Council (MIAC) is one of the most important partners of the OSA in protecting burial sites and maintaining essential communication with Minnesota's Indian communities. Jim Jones is the long-serving point person for archaeology at MIAC and Jim's always ready assistance is much appreciated.

The Minnesota Historical Society (MHS) is another important partner of OSA. Deputy Director Michael Fox co-signs license applications, Archaeology Department Head Pat Emerson and her very competent staff provide day-to-day support at the Ft. Snelling History Center, and State Historic Preservation Office (SHPO) staff including Dennis Gimmestad, David Mather, Tom Cinadr, Susan Roth, and Kelly Gragg-Johnson provide much needed advice and records management assistance. The OSA leases office space at Ft. Snelling from the MHS and they have continued to support the Joint Research Area. Brenda Williams and Kurt Shimek at Ft. Snelling provide much appreciated logistical assistance essential to the efficient operation of the OSA.

It would be impossible for the OSA to function effectively and efficiently without the assistance of the entire archaeological community in Minnesota. This includes agency archaeologists, private contract archaeologists, academic and museum archaeologists, and avocational archaeologists. The OSA intern for FY 2009, Jon Stone, is thanked for his assistance with OSA mapping initiatives and other projects. The support of my entire family, especially my wife Pat, makes my job much easier. Pat and daughter Emily also help me with graphic design issues. Emily once again designed the Archaeology Week poster.

Last, but certainly not least, Bruce Koenen has served as the very capable assistant to the State Archaeologist since 1995. Bruce carries out many of the essential daily tasks at OSA including license application processing, site form review, records maintenance, financial accounting, secondary school liaison, and avocational interaction. He serves as the institutional memory for the OSA and his wealth of knowledge and easy-going personality are absolutely essential to the State Archaeologist and the rest of the Minnesota archaeological community.

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Cover Illustration: A surface topography map of Minnesota produced from digital elevation modules by MnGeo staff John Hoshal, Jim Dickerson, and Norm Anderson.

Chapter 1: Introduction

This report summarizes the activities of the Office of the State Archaeologist (OSA) for Minnesota State Fiscal Year 2009, the period from July 1, 2008 through June 30, 2009. It also includes some statistics for the 2009 Calendar Year.

The State Archaeologist is a civil service employee of the Department of Administration and resides within the Division of Geographic and Demographic Analysis (GDA). The OSA has two staff members, the State Archaeologist and an assistant. The OSA leases office space from the Minnesota Historical Society (MHS) at the Ft. Snelling History Center. The OSA receives a biennial appropriation from the state legislature for salaries and operating expenses. The Legislative funding level has remained at \$196,000 annually since 2001.

Minnesota Statutes (MS) 138.38 requires that the State Archaeologist complete annual reports. The law states that the reports must be sent to the Commissioner of Administration with copies to the Minnesota Historical Society and the Minnesota Indian Affairs Council. Copies are also sent to the Minnesota Legislative Reference Library, the Council for Minnesota Archaeology, the Department of Transportation, the Department of Natural Resources, and to other organizations and individuals upon request. The annual report is available on the OSA website (<http://www.osa.admin.state.mn.us/>).

The Office of State Archaeologist – Historical Background

The Field Archaeology Act (MS 138.31 - .42) established the Office of the State Archaeologist (OSA) in 1963. Initially, the Director of the Minnesota Historical Society (MHS) appointed the State Archaeologist for a four-year term and the State Archaeologist was required to be a staff member at the University of Minnesota. These requirements have been altered several times over the last 30 years with the position leaving the University in 1978 and officially homeless for almost 20 years. In 1996, the State Archaeologist became a state civil service employee of the Department of Administration and is now appointed by the Commissioner of Administration.

Elden Johnson, an archaeologist and professor of anthropology at the University of Minnesota, was appointed the first State Archaeologist in 1963 and served until his resignation in 1978. Christy Hohman-Caine, a student of Johnson's and a staff member of the Anthropology Department at Hamline University was appointed State Archaeologist in 1978 and served until her resignation in late 1992. Johnson and Hohman-Caine were not paid a salary for their service as State Archaeologist and it was thus necessary for them to maintain other employment. Hohman-Caine took a job with the Chippewa National Forest in northern Minnesota in 1980 so during most of her tenure the Minnesota State Archaeologist became a federal employee based outside of the Twin Cities area.

From December of 1992 through January of 1995, there was no State Archaeologist. Mark Dudzik was appointed State Archaeologist in February 1995 and became the first to be paid a salary. Dudzik, a Wisconsin native, had been working as a highway survey archaeologist for

the MHS and then as an archaeologist for the Institute for Minnesota Archaeology (IMA) prior to his appointment. Dudzik hired Bruce Koenen as the first full-time assistant to the State Archaeologist in June 1995.

Following Dudzik's resignation in July 2005, Scott Anfinson was appointed Acting State Archaeologist in mid-August 2005 and State Archaeologist in January 2006. Anfinson had been the archaeologist for the Minnesota State Historic Preservation Office (SHPO) of the MHS from May 1990 through December 2005. Koenen continues to serve as the assistant to the State Archaeologist.

Duties of the State Archaeologist

The principal duties of the State Archaeologist are assigned by two state laws, the Field Archaeology Act (MS 138.31-.42) and the Private Cemeteries Act (MS 307.08). The State Archaeologist is given some additional duties in rules implementing Minnesota Water Law (MS 103) and the Minnesota Environmental Policy Act (MS 116D) and also carries out traditional duties that have evolved since 1963. In all, the State Archaeologist has about 30 discrete duties under law and about 10 traditional duties

Field Archaeology Act (MS 138.31 – 138.42)

While the Field Archaeology Act has been revised 10 times since 1963, the duties of the State Archaeologist specified in that law have not changed. These duties can be summarized as:

- acts as the agent of the state to administer and enforce the act
- sponsors, engages in, and directs fundamental archaeological research
- cooperates with agencies to preserve and interpret archaeological sites
- encourages protection of archaeological sites on private property
- retrieves and protects artifacts and data discovered on public property
- retrieves and protects archaeological remains disturbed by agency construction
- helps preserve artifacts and data recovered by archaeological work
- disseminates archaeological information through report publication
- approves the licensing of archaeologists to work on public property
- formulates licensing provisions for archaeological work on public property
- issues emergency licenses for archaeological work on public property
- revokes or suspends archaeological licenses due to good cause
- approves curation arrangements of artifacts and data from state sites
- repossesses artifacts from state sites that are not being properly curated
- consults with MHS and MIAC regarding significant field archaeology
- completes annual reports about OSA and licensees' activities
- reviews and comments on agency development plans that may affect state sites

Private Cemeteries Act (MS 307.08)

In 1976, the Private Cemeteries Act was amended and the State Archaeologist was given additional duties including the "authentication" of unmarked cemeteries. This law has been amended eight times since 1976, most recently in 2007.

The State Archaeologist's duties under MS 307.08 are:

- grants permission for alterations of or removals from non-Indian cemeteries
- allows posting and approves signs for authenticated non-Indian cemeteries
- authenticates all unrecorded burial sites over 50 years old
- maintains unplatted cemetery data
- provides burial sites data to MnGEO (formerly LMIC)
- determines the ethnic identity of burials over 50 years old
- helps determine tribal affiliation of Indian burials
- determines if osteological analysis should be done on recovered remains
- helps establish provisions for dealing with unaffiliated Indian remains
- reviews development plans that may impact unplatted burials

Minnesota Water Law (MS 130) - Rules 6120.250, Subpart 15a

The State Archaeologist has one duty specified in Minnesota Water Law Rules, which implement MS 103. Under these rules the State Archaeologist can determine if sites are eligible to the state or national historic registers, although formal eligibility for the National Register of Historic Places can only be determined by the Keeper of the National Register. Water law rules apply to the use of shoreland as governed by state and local agencies. Agency review of shoreland development must consider impacts on *significant* historic sites. Significant historic sites include archaeological sites listed in or determined eligible to the state or national historic registers. Unplatted cemeteries are automatically considered to be significant historic sites (MR 6120.2500, Subp. 15a).

Minnesota Environmental Policy Act (MS 116D) – Rules 4110.1500

Responsible Governmental Units (RGUs) for Environmental Assessment Worksheets (EAWs) are required to provide a copy of all EAWs to the State Archaeologist. The State Archaeologist has 30 days to comment on the EAW. RGUs make all the important decisions for EAWs including their adequacy and the need for a full Environmental Impact Statement (EIS). If the State Archaeologist recommends archaeological survey, testing, or mitigation for a project covered by an EAW or EIS, it is the RGU that makes the decisions as to whether or not this is necessary.

Traditional Duties

Besides performing the duties assigned by Minnesota law listed above, the State Archaeologist also carries out a number of “traditional” duties:

- designs archaeological site inventory forms and reviews completed forms
- assigns official state site numbers to archaeological sites
- maintains an archaeological site inventory
- maintains archaeological research and report files
- organizes the annual Minnesota Archaeology Week
- consults with Indian tribes and federal agencies about archaeological activities
- works closely with MIAC to help develop Indian cemetery management procedures
- provides archaeological information and comments on private developments
- takes the lead in Legislative actions affecting archaeology

Summary of Duties

The most important function of the State Archaeologist is to act as the principal archaeologist for the State of Minnesota. On a day-to-day basis, this involves six major task areas:

- 1) approving license applications in a careful yet timely manner and monitoring the activities of the licensees
- 2) editing site forms, issuing official inventory numbers, maintaining the inventory of known and suspected sites, and organizing submitted archaeological reports
- 3) reviewing development plans submitted by government agencies and private entities to evaluate the potential for harm to archaeological sites
- 4) promoting and undertaking research in Minnesota archaeology
- 5) providing public education and answering archaeological questions from the public
- 6) ensuring burial sites protection through careful record keeping, development plan review, interaction with MIAC, consultation with experts, and doing fieldwork



State Archaeologist Scott Anfinson speaking at the Gustavus Adolphus Nobel Conference.

Chapter 2: Summary of OSA Activities – FY 2009

Licensing and Activities of Licensees

As specified in MS 138.36, the State Archaeologist approves the qualifications of an archaeologist applying for a license and forwards approved applications to the director of the Minnesota Historical Society (MHS). While the MHS technically “issues” the license under MS 138.36, the OSA is the entity that develops licensing procedures, reviews license applications, handles all correspondence with licensees and prospective licensees, and monitors the activities of the licensees.

Beginning in the 1960s, licenses were typically issued to qualified archaeologists on a project-by-project basis or as yearly licenses to large agency-specific survey programs such as the Trunk Highway Archaeological Survey (1968 – 1994). In response to public comments, the newly appointed State Archaeologist undertook a review of the licensing process in FY 2006. A revised licensing procedure was implemented in May of 2006, which issued yearly (calendar) licenses to individuals for the purposes of reconnaissance (Phase I) or evaluative (Phase II) archaeological surveys on non-federal public property. Licensees are required to notify the OSA of each project to be surveyed under their license, provide a separate report for each survey project, and provide a brief yearly summary of all archaeological work conducted under their license. Separate licenses are required for intensive excavation projects (Phase III) on non-federal public land and for burial authentication work on public or private land.

The licensing totals for Fiscal Year (FY) 2009 and Calendar Year (CY) 2009 are:

License:	FY09	CY09
Survey (yearly):	64	53
Excavation:	2	2
Authentication:	<u>2</u>	<u>1</u>
Total:	68	56

Most licensed projects involve reconnaissance surveys of relatively small areas and most of these surveys do not locate archaeological sites, although a few of these surveys can involve large areas and locate multiple sites. Evaluation surveys investigate the importance of individual sites located by reconnaissance surveys. Excavations involve intensive site investigations that usually involve opening large formal units at specific sites and usually produce the most valuable information about Minnesota’s archaeological past.

The majority of archaeological work done in Minnesota is not subject to state licensing, as work done on federal lands and private lands (non-burial) is excluded. The OSA is not required to receive reports on non-licensed archaeological activities. A few of the notable licensed projects carried out in FY 2009 are summarized below.

The Department of Natural Resources (DNR) continues to fund archaeological programs in several divisions and the archaeological personnel for these programs are provided through contracts with MHS. Dave Radford assisted by LeRoy Gonsior and Doug George run State

Parks Archaeology. Tim Tumberg runs the Trails and Waterways program with the assistance of Jennifer Tworzyanski. Mike Magner assisted by Stacy Allan handle DNR Forestry/Wildlife and Fisheries Program. These DNR archaeological programs do reconnaissance surveys (Phase 1), site evaluation testing (Phase 2) and occasional site mitigation (Phase 3) work. They provide a yearly summary in an annual report.

There were two extensive archaeological excavations subject to OSA licensing during FY 2009. These licenses were for a DNR mitigation at a historic town site in Two Harbors (21LA541) directed by Tim Tumberg and a University of Minnesota field school at the Old Wadena site (21WD16) directed by Katherine Hayes. Both FY 2009 burial authentication licenses were issued to Connie Arzigian of the Mississippi Valley Archaeological Center, one for work at 21WN3 and 21WN4 in Winona County and one for work at 21HE8 in Hennepin County.

Records Maintenance

Archaeological Site File

Elden Johnson started a state archaeological site file at the University of Minnesota Department of Anthropology in 1957. Johnson began the file “to facilitate future problem-oriented research” (Johnson 1957:14). The file was kept on 5” x 8” cards organized by county and containing basic locational, descriptive, and reference information. Site numbers were assigned using the Smithsonian Institution’s trinomial system with a numerical prefix based on state alphabetical position (Minnesota was 21 in 1957), then a two letter county abbreviation (e.g., AN for Anoka), and finally a one-up unique number for each site in a county. The initial compilation of sites was based on the field notes of archaeologist Lloyd Wilford and the T.H. Lewis-surveyed mound sites contained in Newton Winchell’s *The Aborigines of Minnesota* (1911). Archaeologists who found previously unrecorded sites were asked to fill out a standard form and submit it to the University’s Archaeology Lab.

The University of Minnesota’s file became the official state site file with the appointment of Johnson as the first State Archaeologist in 1963. By the late 1960s, the focus of site file use changed from research to cultural resource management (CRM) mainly due to several new federal laws including the National Historic Preservation Act (1966) and the National environmental Policy Act (1969).

A major change in site file record keeping occurred in the late 1970s with the initiation of the Statewide Archaeological Survey (SAS) by the Minnesota State Historic Preservation Office (SHPO) at MHS and the State Archaeologist (Hohman-Caine) taking a job with the U.S. Forest Service in northern Minnesota. SAS personnel made photocopies of the State Archaeologist’s site file cards and created a separate folder for each site, organizing the folders in file cabinets by county. Because so many new sites were recorded by the SAS-sponsored surveys, the SAS took over assigning the official state site numbers from 1978 through 1981.

In 1981, the Minnesota Land Management Information System (MLMIS) at the State Planning Agency created a computerized version of SAS site file, although this “data bank”

was never utilized for state planning purposes and was not available to archaeologists as it had to be accessed through a main frame computer. The MLMIS computerized data was not updated after 1981. With the demise of the SAS in late 1981, the assignment of official site numbers reverted to the State Archaeologist.

The first widely available computerization of the archaeological site file occurred in 1982 when the current State Archaeologist, then head of the MHS-based Municipal - County Highway Archaeological Survey, undertook an extensive literature search and review of the archaeological site file. The purpose of the project was to compile a more comprehensive and accurate list of archaeological sites that were recorded in basic archaeological sources so potential effects to “known” sites (many unnumbered) could immediately be considered during highway construction plan review. A major result of the project was word processor files that included five major tables: Numbered Sites, Numbered Sites Corrections, Unnumbered Sites, Unconfirmed Sites, and Find Spots. The tables were compiled in a report that was submitted to the State Archaeologist in early 1983 (Anfinson 1983). Anfinson’s word processor files were then converted into a database file combining the various tables and a few new data fields. Under the Site Number field, unnumbered and unconfirmed site were assigned “alpha” numbers (e.g., 21ANa). Over the next decade, additional fields were added to the database mainly to foster Elden Johnson’s 1957 site file research goals.

When Anfinson became the SHPO archaeologist in May of 1990, his computerized database became the SHPO’s official archaeological site database. In 1994, MnDOT provided the SHPO with a grant to refine and augment the computerized site file. Under the direction of Homer Hruby, the SHPO completed the project in 1996. The project not only expanded and made corrections to the electronic site database, it cleaned-up and added materials to the SHPO’s hard copy folders and added folders for each “alpha” (officially unnumbered) site. Universal Transverse Mercator (UTM) locational fields using approximate site centers were added to the database to facilitate Geographic Information System (GIS) applications like MnDOT’s MnModel project that began in 1995 (www.mnmodel.dot.state.mn.us/).

A new database procedure was also implemented during the Mark Dudzik tenure as State Archaeologist. Field archaeologists submitted newly completed state site forms to the OSA. The OSA carefully reviewed the forms, assigned an official site number, and sent copies of the numbered forms to the SHPO. SHPO staff added the information to the master archaeological site database and filed the paper copy in their site file. The SHPO then provided a copy of the electronic database to the OSA. The database was also made available to appropriate state and federal agencies (e.g., MnDOT, DNR, NRCS).

Because SHPO staff also maintain extensive historic building records, there was often a significant time delay in updating the archaeological site database following the assignment of new site numbers. On January 1, 2007, the OSA took over updating the master electronic archaeological site database. This means that the database is now quickly updated following the OSA review of new site forms and the assignment of new site numbers. The OSA provides copies of the database to SHPO and other appropriate government agencies.

It should be stressed that the site database maintained by the OSA is not entirely accurate or consistent with respect to certain fields of information. There are four common sources of error: 1) the original data reported on the site form may be inaccurate, 2) the data reported on the site form may be a unique interpretation or have inconsistent interpretations by archaeological investigators, 3) correct data from a site form may have been incorrectly entered into the database, and 4) different data input personnel may have used inconsistent codes for the data. A great effort has been made by the OSA, the SHPO, and MnDOT to ensure that the locational data is as accurate as possible, but fields such as *Site Function* and *Cultural Context* still have significant accuracy and consistency problems.

Besides the site database, the OSA also maintains extensive paper site files. There are several major differences between OSA and SHPO paper files besides the presence of unique data in each entity's folders. The OSA does not have individual folders for the alpha sites, although an intern project began in 2007 seeks to make copies of the SHPO alpha files, which will be filed in a single OSA folder for each county. The SHPO does not have most of the data contained in the OSA burial site files and the OSA Burial Sites database is not shared with the SHPO, although this database does not include any burial sites not contained in the OSA archaeological site database. The SHPO also depicts both numbered and unnumbered sites on a set of 7.5' USGS maps, while the OSA depicts numbered site locations on a set of county maps. In 2007, the OSA began work to produce a set of USGS maps with site locations depicted and now puts newly recorded sites on a master set of USGS maps.

The *SHPO Manual for Archaeological Projects in Minnesota* (Anfinson 2005) and OSA/MHS licensing requirements specify that professional archaeologists must submit site forms when previously unrecorded sites are located or significant new information is obtained for previously recorded sites. OSA Assistant Bruce Koenen takes primary responsibility for the review of submitted site forms and assignment of official state site numbers. Site forms are required when sites are found by professional archaeologists on non-federal public or private land. Most federal agencies, with the exception of the two National Forests, regularly submit site forms even if the sites are located on federal land.

During 2009, the OSA performed the following site file actions:

	FY09	CY09
New Forms Reviewed and Site Numbers Assigned:	324	141
Revised Forms Reviewed:	<u>70</u>	<u>56</u>
Total Forms Reviewed:	394	197

As of June 30, 2009 there were 17,577 archaeological sites listed in the archaeological site database. Of these, only 10,717 (61%) were assigned official state site numbers. The majority of unnumbered sites (alpha sites) are federal land sites in Chippewa and Superior National Forests. Some are Post-Contact Period sites documented on early historic maps (e.g., Trygg, Andreas), but as of yet unconfirmed in the field by archaeologists. As of December 31, 2009 there were 17,652 total sites in the site database of which 10,791 (61%) were numbered. The

site database is constantly being corrected so adding this year's figures from the table above to the previous year's totals does not always match current database totals.

If we compare current site totals to previous years, in 1964 there were 1,160 archaeological sites (all numbered, all prehistoric) in the OSA files and in 1983 there were 3,208 (2,999 numbered, some historic). The SHPO files in 1990 had 5,871 sites of which 3,838 were numbered. The current end of CY2009 total of 17,652 sites represents a tripling of the database since 1990, some of which is due to the addition of federal land inventories. An average of about 300 new site forms are submitted to OSA each year. The county with the most sites is St. Louis with 1,886 (1,103 numbered) sites and the county with the fewest is Red Lake with 24 (8 numbered) sites.

It is conservatively estimated that less than 1% of the total archaeological sites in the state are known and contained in the site database. This estimate is obtained by multiplying 10 groups of people making 10 unique sites per year by 10,000 years, which equals 1,000,000 sites divided by the 10,000 currently numbered sites. If we add potential historical archaeological sites that are currently unnumbered, we could include 200,000 farmsteads and hundreds of thousands of house lots in cities.

Total intensively investigated sites in 1963 were 170 (15% of the total numbered sites), 440 (14%) in 1983, 491 (8%) in 1990, and 1,574 (9%) in 2008 (426 Phase III; 1148 Phase II). Intensively investigated sites include sites that have been the subject of university field school excavations and those subjected to extensive investigations for CRM purposes, including both Phase II (Evaluation) and Phase III (Data Recovery) projects. At least 10 square meters in formal excavation units are required to be considered "excavated" in the site database.

There are about 300 Minnesota archaeological sites listed in the National Register of Historic Places (NRHP). Individual site nominations account for 104 of these listings with perhaps another 200 sites included within 17 archaeological districts. Archaeological sites account for only about 6% of the total NRHP listed historic properties in Minnesota. Perhaps 10 times as many archaeological sites have been considered eligible to the NRHP through the federal Section 106 process. There were no Minnesota archaeological sites added to the National Register in 2009 (Calendar or Fiscal).

Minnesota also has a State Register of Historic Places established by the passage of the Historic Sites Act (MS 138.661 - 669) in 1965. There are 28 archaeological sites individually listed in the State Register (MS 138.664) of which 25 have official state site numbers. There are also State Historic Sites (MS 138.662) that are owned or managed by the Minnesota Historical Society of which 17 are archaeological sites (all numbered). State Register sites and State Historic sites are both provided some protection by MS 138.665, which requires state and local agencies to "protect" these properties (and properties listed on the National Register of Historic Places) if they are threatened by undertakings on agency land or by undertakings that agencies fund or license. Because some listed places have multiple sites, there are 63 archeological sites subject to the Historic Sites Act due to listing in MS 138.

Burial Site File

State Archaeologist Christy Hohman-Caine started a separate OSA burial site file in the early 1980s. This file now contains detailed information on burial sites examined by or subject to inquiries by State Archaeologists Hohman-Caine, Dudzik, and Anfinson. It includes both numbered and unnumbered sites. The file also contains some information on unconfirmed burial sites that have been reported to the State Archaeologist over the last 30 years. These unconfirmed sites have either not been field checked by an archaeologist or field checked but not found. The Burial Site File is not open to the general public as the data are considered *security information* (see MS 13.37) as specified in MS 307.08, Subd. 11.

In the late-1990s, the OSA parsed burial site information from the master archaeological site database and created the separate Burials Site Database. This database does not contain information on all of the unconfirmed sites in the OSA's paper burial site files, only those sites that have OSA-assigned official state site numbers or SHPO-assigned alpha numbers.

The OSA makes the Burials Site Database partially available to local governmental agencies on a webpage maintained by the Minnesota Geospatial Information Office (MnGEO). This webpage went on-line in September 2003. At that time, a letter was sent to all county governments and assigned them a password to access the site. The site provides a graphic interface allowing local governments to determine if a burial site exists within a specific quarter-quarter section of land (40 acres). If a site does exist within the quarter-quarter, the agency can contact the OSA to get more specific information about a particular burial.

As of June 30, 2009, there were 2,902 burial sites listed in the OSA's Burial Sites Database. (The end of December 2009 total was 2,910.) This includes about 12,500 mounds in over 1,600 discrete sites. Over 350 of the non-mound burials date to post-1837, the beginning of intensive White settlement. There are 751 known or suspected burial sites that do not have an official site number, although a few of these may be duplicates of numbered sites. A compilation of post-White settlement burials in Minnesota by Pope and Fee (1998) lists about 6,000 cemeteries, the majority of which are not contained in the OSA burials database. Many of the Pope and Fee cemeteries are officially recorded and managed by active cemetery associations and thus are not under the jurisdiction of the State Archaeologist, but hundreds more are subject to MS 307.08 as they were never officially recorded.

Archaeological Report Files

The OSA maintains a file of archaeological reports. Archaeologists conforming to the requirements of state licensing have submitted most of these reports. The SHPO also maintains an archaeological reports file that mainly includes reports that have been submitted as part of the federal Section 106 process. As not all SHPO-reviewed projects require state archaeological licensing and not all MS 138 licensed projects require SHPO review, the OSA and SHPO report files are far from identical, although there is significant overlap. Both the OSA and SHPO maintain databases of the reports they have on file.

In FY 2009, 135 reports were added to the OSA files. A total of 124 reports were added in CY 2009. As of the end of December 2009, the OSA had 5,138 reports listed in its files.

Since 1998, the OSA has published yearly (calendar) compilations of abstracts of reports submitted to the OSA. They are produced by Bruce Koenen, the OSA research assistant. They can be found at the OSA website (<http://www.osa.admin.state.mn.us/research.html>).

Development Plan Review

Development plan review by the OSA is principally done under three Minnesota statutes:

1) Under MS 138.40, Subd. 3, *agencies* must submit plans to the State Archaeologist and the Minnesota Historical Society (MHS) for review of developments on their lands where archaeological sites are known or scientifically predicted to exist. The State Archaeologist and MHS have 30 days to comment on the plans. “Agency” refers all to all units of government in Minnesota, not just *state* agencies. “Land” means land or water areas owned, leased or otherwise subject to “the paramount right of the state, county, township, or municipality” where archaeological sites are located.

2) MS 116d requires that an Environmental Assessment Worksheet (EAW) be prepared whenever there is a government action (e.g., building permit) that could result in significant environmental effects. If the EAW determines that there is good potential for significant effects, a more detailed Environmental Impact Statement (EIS) is prepared. The state or local agency controlling the action is designated the Responsible Governmental Unit (RGU). The RGU determines if an EAW or EIS is necessary and what actions should be carried out based on an analysis of the documents. Rules (Mn Rules 4410) for implementing the EAW/EIS process are developed by the Environmental Quality Board (EQB) and the EQB monitors EAW/EIS activities. Any citizen can comment as part of this process. Large area, multi-phased projects can be dealt with under an Alternative Urban Areawide Review (AUAR) rather than multiple EAWs. The OSA was added to the official EAW/AUAR/EIS contact list in FY 2007.

3) MS 307.08, Subd. 10, as revised in the Spring of 2007, requires that state agencies, local governments, and private developers submit development plans to the State Archaeologist when known or suspected human burial may be affected by developments on their lands. Plans must also be sent to the Minnesota Indian Affairs Council (MIAC) if the burials are thought to be Indian. OSA and MIAC have 30 days to review and comment on the plans.

The State Historic Preservation Office (SHPO) at the Minnesota Historical Society (MHS) acts as the principal environmental review agency for the state with regard to assessing the impacts of development projects on historic properties. Historic properties include both standing structures and archaeological sites. While the SHPO’s focus is on federal undertakings as specified in Section 106 of the National Historic Preservation Act, the SHPO also acts for the MHS with regard to Minnesota Statutes 138.40, 138.665, and 116d. Because

the SHPO has well-established systems and experienced staff dedicated to environmental review, the OSA has traditionally deferred to the SHPO for commenting on development projects under MS 138.40 and 116d. This allows the OSA to focus on MS 307.08 reviews and other duties.

Due to budget and staff cuts, in May 2004 the SHPO stopped reviewing EAWs submitted by local government RGUs. Thus in FY 2006, the State Archaeologist requested to be added to the EAW official comment list and this was implemented by the Environmental Quality Board (EQB) as of January 2007.

The State Archaeologist also reviews plans and reports based on informal agency or developer requests, although no official OSA action is required if the development is on private land or does not threaten burial sites. Citizens often ask the State Archaeologist for information regarding potential impacts to archaeological resources by developments in their neighborhood. This information is provided as necessary. Some of the requests result in field visits by the State Archaeologist.

During FY 2009, the OSA completed substantial review of 132 development projects, of which 98 were part of the state EAW/AUAR/EIS process. Eleven (11) of the non-EAW/AUAR/EIS project reviews were review requests for the purposes of MS 138.40 (Field Archaeology Act). The other 23 requests were part of federal environmental review processes

Because the State Archaeologist has many duties and is short-staffed, replies to EAW submittals are sent only if an archaeological survey is recommended or a known archaeological site or burial site should be avoided within the Area of Project Effect (APE). Furthermore, if the project will be reviewed under federal Section 106 or will otherwise be reviewed by the SHPO (e.g., State Agency RGU), the OSA defers review and comment to the SHPO unless unplatted burials are involved.

Of the FY 2009 development project reviews, archaeological surveys or site avoidance were recommended by OSD letter on only four (4) projects. These projects are:

<u>Project</u>	<u>Agency/RGU</u>	<u>County</u>	<u>Type</u>
257th St Development	City of Wyoming	Chisago	EAW
Lake Minnetonka Sewer	PCA	Hennepin	EAW
Hentges Mine	Scott County	Scott	EAW
Cozy Corner Campground	Stearns County	Stearns	EAW

Archaeological Research

Radiocarbon Dates File and Database – When the current State Archaeologist was the SHPO Archaeologist, he developed and maintained a database of Minnesota radiometric dates. This database is now housed and maintained at the OSA. Along with the electronic

database are paper copies of articles and laboratory reporting sheets for radiocarbon dates (also known as ^{14}C dates) from Minnesota archaeological sites.

The database currently contains 446 dates from 129 sites. The best-dated site in the state is the Late Prehistoric Bryan site (21GD4) with 26 dates. Other sites with reported dates in double digits are: Hannaford (21KC25) with 23, McKinstry (21KC2) with 21, Smith (21KC3) with 15, Donarski (21MA33) with 12, and Mooney (21NR29) and J Squared (21RW53) both with 10. Forty-two (42) sites have only a single date. The oldest reasonably accurate date from a Minnesota archaeological site is 10,390 RCYBP \pm 120 from the J Squared site (21RW53), followed by 9220 RCYBP \pm 75 from Bradbury Brook (21ML42), and 9049 RCYBP \pm 82 from Browns Valley (21TR5).

In FY 2009, only 2 new radiocarbon dates were added to the Minnesota OSA radiocarbon database. Both dates are from the Helget burial site (21BW82) in Brown County and were provided by Kathleen Blue of Minnesota State University - Mankato.

The OSA encourages archaeologists who have obtained radiocarbon dates to submit their laboratory reporting sheets to the OSA so all researchers can share in this critical information. Laboratory sheets for radiocarbon dates should always be included in final reports when contractors or agencies obtain dates as part of the environmental review process or research-driven archaeology.

Institutional Field Research - Historically, colleges, universities, and museums have been principally responsible for archaeological research in Minnesota. This began to change in the 1970s with the rapid ascent of government-mandated cultural resource management (CRM) archaeology and increased institutional sensitivity to ethnic or politically charged aspects of archaeological work.

Currently, there are five university-based archaeological programs in Minnesota affiliated with majors in Anthropology. These are at the University of Minnesota – Minneapolis, Hamline University, Minnesota State University - Moorhead, St. Cloud State University, and Minnesota State University - Mankato. The University of Minnesota-Duluth has no full-time archaeological faculty, but occasionally offers field schools in association with Superior National Forest or private contractors. Normandale Community College also offers courses in archaeology. The University of Minnesota, St. Cloud, and Mankato offer graduate programs in archaeology, with only the University of Minnesota-Minneapolis offering a PhD track in archaeology.

In FY 2009, the following university-based field research was undertaken in Minnesota:

University of Minnesota – Minneapolis

- formal field school at Old Wadena site (21WD6) led by Katherine Hayes
- urban archaeology project at Elliot Park in Minneapolis led by Kent Bakken

Minnesota State University- Moorhead

- no Minnesota field school in 2009

St. Cloud State University

- no Minnesota field school in 2009

Minnesota State University – Mankato (Ron Schirmer)

- Field school at Barton site (21GD3) and site 21NO11

Hamline University

- no Minnesota field school in 2009

Other Research - A significant amount of archaeology is done in Minnesota each year that is not reviewed by the OSA, licensed by the OSA, or sponsored by the OSA. Most of these projects are carried out by federal agencies or otherwise reviewed by federal agencies and the SHPO under Section 106 of the National Historic Preservation Act due to federal licenses, land, or funding. The OSA occasionally receives complementary copies of reports on these projects or is asked for advice on the projects. The OSA is not aware of any major Minnesota federal excavations in FY 2009.

David Mather, the SHPO archaeologist, and Jim Cummings, an archaeologist/naturalist for Kathio State Park, continued their research at the Petaga Point site (21ML11). In 2009, they excavated another 1x1 meter unit.

Public Education

Archaeology Week - The OSA has served as the major sponsor of Minnesota Archaeology Week since 1998. The first Archaeology Week was held in 1995. Major financial assistance is provided by the Minnesota Archaeological Society and the Council for Minnesota Archaeology as well as a number of state and federal agencies including the Minnesota Department of Transportation, the Minnesota Historical Society – Archaeology Department, the Minnesota Indian Affairs Council, the US Army Corps of Engineers – St. Paul District, the USDA Natural Resource Conservation Service, and the US Fish and Wildlife Service.

Minnesota Archaeology Week 2009 was held May 9-17. There were 23 officially sponsored events in 16 counties. Over 2,100 people attended the events. Some of the featured events included excavations at the Keefe farmstead in Benton County sponsored by St. Cloud State University, an archaeological tour of Grand Portage National Monument in Cook County sponsored by the National Park Service, a tour of the Jeffers Petroglyph site in Cottonwood County sponsored by the Minnesota Historical Society, an artifact identification and flint knapping demonstration in Rochester sponsored by the Olmsted County Historical Society, and the annual Ft. Snelling Archaeology Fair sponsored by the Minnesota Historical Society, the Office of the State Archaeologist, and the Minnesota Archaeological Society. The OSA sponsored an open house at our offices at Ft. Snelling during the Archaeology Fair. The annual Elden Johnson Distinguished Lecture was presented by Dr. Ernie Bozshardt of the University of Wisconsin-La Crosse at the Ft. Snelling History Center. His topic was Rock Art of the Upper Mississippi Valley.

The 2009 Archaeology Week poster features a detailed topographic map of Minnesota with important archaeological sites and archaeological places to visit. The back of the poster contains descriptions of the sites and places. The poster was designed to also be produced as a folded map that could be used to promote archaeological tourism (see page 39).

The poster produced for 2008 Minnesota Archaeology Week was awarded third place in the Society of American Archaeology's (SAA) annual poster contest in April 2009. This is the first time Minnesota has placed in this competition.

Public Presentations – During FY 2009, the State Archaeologist made public presentations at the Minneapolis Public Library, the Gustavus Adolphus Nobel Conference on early humans, the State Demographer's brown bag talks, the St. Paul Public Library, the University of Minnesota, and the Mill City Museum. Bruce Koenen made a public presentation at the Dassel Area Historical Society and a presentation at the Olmsted County Historical Society.

The State Archaeologist also participated in a number of agency training workshops and conferences. They included the National Resource Conservation Service archaeological workshop in St. Cloud and the Minnesota Association of Planning and Zoning Administrators in Red Wing.

OSA Archaeology in the Schools – Assistant to the State Archaeologist Bruce Koenen takes the lead in this initiative and has assembled a teaching kit of artifacts that he takes with him on school visits. In FY 2009 he made presentations at two secondary schools: Eden Lake Elementary School in Eden Prairie and Kimball Elementary in Kimball. Koenen also put on a flintknapping workshop at Normandale Community College. The OSA participated in job shadowing by an Owatonna High School student.

The State Archaeologist continues to serve as an Instructor in the University of Minnesota Department of Anthropology. In FY 2009, he taught one course on Heritage Management. He also serves on a number of graduate student committees both in the Anthropology Department and the Architecture Department at the University of Minnesota. Bruce Koenen serves on an advisory board for the Cultural Resource Management program at St. Cloud State University. Koenen also participated in a BA Honors defense at Hamline University.

Internships – The OSA sponsors internships to not only train students of archaeology in practical skills, but to accomplish needed work within the office. In FY 2009, OSA had one intern, Jon Stone, from St. Cloud State University.

Media Exposure - The State Archaeologist typically receives a certain amount of media exposure every year not only due to the controversial nature of some of the duties, but because the public has an intensive interest in archaeology and history. Most media contacts with the State Archaeologist are either media reaction to a newsworthy situation or are generated by the media due to a perceived or real public interest. In many cases, the State

Archaeologist simply provides background information, but in some cases he is interviewed and becomes part of the story.

Major media exposure for the State Archaeologist in 2009 included publication on an article in the Society for American Archaeology's (SAA) *Bulletin* on a proposed national Applied Archaeology curriculum. Electronic media exposure included an interview of the State Archaeologist by Mary Lahammer as part of Twin Cities Public Television's *Almanac at the Capitol* on January 28, an interview by former *Star Tribune* reporter Linda Mack as part of an oral history initiative concerning the redevelopment of the Minneapolis Riverfront in the 1980s, and an appearance in a TCPT production by MPR's Cathy Wurzer called *Tales of the Road*, discussing the Dakota Indian sacred site of Red Rock. FY 2009 print media exposure for OSA included an article in the *West Central Tribune* on the Granite Falls Bison site (11/17/08), an article on state workers pay in the *St. Paul Pioneer Press* (7/14/08), and an article in Normandale Community College's student newspaper *The Lions Roar* (9/21/08).

Professional Development –The State Archaeologist attended the following conferences in FY 2009: the Nobel Conference on Early Humans at Gustavus Adolphus College in St. Peter, the Gales of November Shipwreck Conference in Duluth, and the State Managers Conference in St. Paul.

The State Archaeologist serves on the Society for American Archaeology's (SAA) Committee on Government Archaeology and advises the SAA Curriculum Committee. The State Archaeologist is an editorial advisor to the *Midcontinental Journal of Archaeology*. He is a member of the National Association of State Archaeologists (NASA), the Plains Anthropology Conference, the Midwest Archaeological Conference, the Minnesota Archaeological Society, and the Society for American Archaeology.

Bruce Koenen attended the Nobel Conference, the Midwest Archaeology Conference in Iowa City, the Lake Superior Basin Conference in Pine City, and the Pine City Knap-In. Koenen attends some in-state and all out-of state conferences at his own expense.

Burial Sites Protection

A major aspect of the day-to-day work of the OSA is spent dealing with the duties assigned to the State Archaeologist by the Private Cemeteries Act (MS 307.08). These duties principally involve maintaining a file of unrecorded burial site locations, answering public and agency inquiries about known or suspected burial sites, coordination with the Minnesota Indian Affairs Council (MIAC) when Indian burials are threatened, formally determining the presence or absence of burial grounds through field work in particular areas (authentication), reviewing development plans submitted by agencies and developers, and advising landowners on management requirements of burial grounds.

Minnesota law basically treats human burials and cemeteries two ways: as Public Cemeteries under MS 306 and as Private Cemeteries under MS 307. These laws were initially passed in the first decade of the 20th century. Public cemeteries are not restrictive regarding who can be

buried there and tend to be active (i.e., open to new burials). Local units of government usually own public cemeteries.

Private cemeteries are those with restricted use governed by procedures established by a private association and they exist on private property. Most private cemeteries are affiliated with religious groups. Lands containing private cemeteries are exempt from public taxes and assessments. Some well-known and well-marked private cemeteries are no longer active primarily due to church closure.

The Public Cemeteries Law includes a section on “abandoned” cemeteries (306.243) that applies to both public and private cemeteries. An abandoned cemetery is one where the cemetery association has disbanded or the cemetery is neglected and contains graves dating prior to 1875 or graves of war veterans. County boards are in charge of abandoned cemeteries. Township boards can maintain neglected cemeteries.

In 1985, State Archaeologist Hohman-Caine and MIAC developed formal burial ground management procedures. These procedures were revised several times, but had not been revised after a major change in the MS 307 legislation occurred in 1993. That change involved only the addition of one word, “grounds”, in 308.07, Subd. 2, but it had major implications for authentication, management, and enforcement. It is now a felony to willfully disturb a “burial *ground*” not just a burial. This requires that the State Archaeologist define burial ground limits during the authentication process, that all land within those limits be properly treated, and that human remains do not have to be directly disturbed to represent a violation of the law.

In FY 2008, after careful agency consultation, the OSA issued new burial site procedures that address all recent revisions of MS 307.08, including the 2007 revisions (Anfinson 2008). The major difference between the new procedures and the ones developed by State Archaeologist Hohman-Caine in the 1980s is that the new procedures apply only to the OSA and not to other “appropriate authorities” including MIAC. This is consistent with the MS 307.08 revisions signed into law in 2007, which further separated the duties of the State Archaeologist and the MIAC and gave the MIAC the principal responsibility for managing Indian cemeteries once the State Archaeologist had authenticated them. The procedures are available on the OSA webpage.

MS 307.08 FY 2009 Activities - The OSA dealt with 39 major burial cases in FY 2009. “Major” is defined as a case where substantial OSA review is required as indicated by the need for fieldwork, extensive research, and/or official correspondence. Not all major cases result in formal authentication as defined in MS 307.08. Formal authentication involves either proving to a reasonable degree there is a burial in a particular location or proving to a reasonable degree there is not. When a burial ground or portion of a burial ground is found, mapped, and an affiliation determined, it is considered to be “authenticated.” There is no standard term for a negative authentication finding.

The OSA typically receives several email or telephone inquiries every week relating to possible burial cases, but most of these can be dealt with quickly and without the need for

fieldwork. Individually “minor” cases do not cause a significant expenditure of OSA time or resources, although as a whole and with the addition of the major cases, burial site protection accounts for over half the workload of the OSA.

Of the 39 major burial cases in FY 2009, 27 involved OSA fieldwork and 14 of these resulted in formal authentication (7 positive and 7 negative). Authentication involves four steps: 1) determining if the site is indeed a burial ground, 2) defining the limits of the burial ground, 3) attempting to determine ethnic identity, and 4) sending official correspondence with an authentication conclusion to the landowner as well as the zoning authority and/or county recorder. All FY 2009 major cases are discussed below. Four of the cases resulted in the discovery of previously unrecorded sites. Twenty-one (21) of the sites involve Indian burials, four involve non-Indian burials, and the remainder are of unknown affiliation or were not human burials.

The State Archaeologist also makes an effort to re-check known burial sites or look for reported but unthreatened burial sites when it is convenient and if they are in the vicinity of current projects. The known sites can be either sites that were originally recorded in the distant past or sites that have been involved with recent authentication or development projects. In FY 2009, the State Archaeologist field examined 9 sites that were not directly involved with current review projects: 21BK110, 21GD4, 21GD21, 21GD45, 21GD75, 21HE3, 21HE47, 21ME1, and 21OT13.

MS 307.08 Major OSA Actions – FY 2009

Near BK14 – CSAH 39 Construction, Becker County

In early August 2008, a member of the public reported a possible threat to a burial mound by a borrow pit to be used for the reconstruction of CSAH 39 near Ponsford. The project was adjacent to a known site (21BK14), a prehistoric habitation initially recorded by Jacob Brower in 1901. The area was examined by Elden Johnson of the University of Minnesota in 1965. Limited testing by Johnson found artifacts associated with multiple Woodland Period occupations. Johnson’s field notes do not mention any mounds, although a later anonymous note on the official site form notes possible mounds. These mounds may be the ones Brower reported several miles to the east.

The State Archaeologist examined the location in mid-August 2008. The road was already under construction and, although the county listed it as a “mill and overlay” project, there was extensive disturbance in and beyond previously existing ditches. Prehistoric artifacts were noted in one of these ditch cuts a quarter mile north of 21BK14, although no mounds appeared threatened by the project.

21CP64 – Lac Qui Parle Reservoir Find, Chippewa County

OSA continued to monitor the condition of a riverbank burial in Chippewa County that was uncovered by erosion in September 2007. The remains that had been removed prior to the State Archaeologist’s involvement were picked up in 2007 by the State Archaeologist at the Sheriff’s Office in Montevideo and turned over to Hamline University for analysis.

Preliminary findings do not clearly identify the ethnicity of the remains, although they are suspected to be Indian. Monitoring in FY 2009 documented continued bank erosion threatening this burial. Consultation with MIAC and Upper Sioux Dakota Reservation continue on how to find a long-term solution. The entire riverbank in this vicinity may need to be stabilized, as erosion not only threatens the gravesite, but the adjacent county road as well.

ConAgra “Mound” – Park Development, Dakota County

In April 2009, a manager for ConAgra foods in Hastings reported a possible mound east of their facility that might be impacted by proposed private park development. OSA personnel examined the location in April 2009 and confirmed that there was indeed a large mound-like landform. The presence of several large boulders partially exposed on its surface and its size (120' x 90' x 5') suggested it may not be a burial mound as it had not been previously reported and was in a highly visible location. OSA first utilized a tile probe to inspect the mound, finding a hard, rocky layer at a depth of six inches. Several shovel tests were then excavated confirming a shallow layer of cobbles followed by a limestone-sand-clay layer beneath. This demonstrated that the feature was not an Indian-constructed burial mound. The presence of reddish till suggests Superior Lobe parent material. It is either a natural feature or a pile of fill deposited over the last century by railroad or commercial construction. A negative authentication was issued on 4/21/09.

21DL1 – County Road 42 Reconstruction, Douglas County

In 1881, Theodore Lewis mapped six burial mounds west of Lake Le Homme Dieu north of Alexandria, noting that four of the mounds had been damaged by local diggers. Lloyd Wilford of the University of Minnesota visited the site in 1944, confirming illicit excavations had damaged two of the mounds (#2, #5), two mounds had been destroyed by road construction (#3, #6), one mound (#3) had been partially destroyed by road construction, and one mound (#4) was in good shape. The University's archaeological field school excavated portions of Mounds 2 and 4 in 1963. The landowner subsequently built a structure into the open excavation on the east side of Mound 4 to serve as a “museum.” This structure was removed in 1980s and the trench backfilled following a request by the State Archaeologist (Hohman-Caine) and MIAC.

In 1990, Douglas County proposed to upgrade the intersection of county roads 11, 34, and 42 at the 21DL1 location. The contract archaeological firm Soils Consulting (Grant Goltz) examined the site in April of 1992, confirming the destruction of Mound 6, but finding remnants of the other five mounds in various states of preservation. The proposed road construction was not completed at this time.

In 2006, the county's engineering consulting firm (WSP and Associates) contacted the State Archaeologist about more recent plans to upgrade the county road intersection. The State Archaeologist visited the site and recommended that all new construction be confined to existing construction limits in the mound area and that no new construction be done within 20 feet from Mound 5. A subsequent EAW confirmed that these recommendations would be followed. Construction began in the spring of 2009 and was monitored multiple times by the

State Archaeologist. As agreed, no additional disturbance of 21DL1 mounds occurred due to the construction.

21DL68 –New Home Construction, Douglas County

In 2003, the OSA investigated a burial mound group, 21DL68, associated with a residential development called Heaven in the Woods (originally Whimsical Woods). The group consists of 12 mounds and was originally mapped in 1981. In response to the proposed development, OSA in 2003 suggested a 20-foot buffer around the individual mounds be maintained, but no site limits were officially defined at that time.

At the request of the current landowner due to a Douglas County requirement that the mounds be fenced off, the State Archaeologist visited the site on August 12, 2006. Based on this visit and previous OSA work, burial ground limits were officially established by utilizing a 20-foot buffer around the outer mounds in two separate groupings within the development. The landowner was given a map of the officially authenticated boundaries and told that there was not a requirement that these areas be fenced as long as they were avoided by any development.

In early September 2008, a concerned citizen reported possible disturbance of the mounds by new home construction. The State Archaeologist visited the site on 9/11/08 and met with the home owner/builder. A new house was under construction, but it was about 200 feet from the nearest 21DL68 mound. It was well outside the authenticated limits of the mound site and the landowner was well aware of the mound setback requirement as he had been the proposer of the Heaven in the Woods development. He stated that he has abandoned the larger development. He has placed a number of signs in the vicinity of the mounds that read: “Indian Burial Mounds: Please Respect.”

21GD42 – County Road 1 Construction, Goodhue County

In May of 2006, an archaeologist for MnDOT contacted the State Archaeologist about a federally funded upgrade of County State Aid Highway (CSAH) 1 south of Red Wing. The project was adjacent to a known burial mound group (21GD42) that had been mapped by T.H. Lewis in 1895 and had originally contained 23 mounds. Archaeological surveys in 1995, when roadwork on CSAH 1 was first proposed, had found only one mound (Number 11) partially visible as the others had been plowed down. The State Archaeologist (Dudzik) had approved preliminary CSAH 1 plans in March of 2000 as there appeared to be no impacts to 21GD42.

New plans submitted to OSA in 2006 had some potential to impact the area of 21GD42 based on the 1995 mapping. The State Archaeologist requested that Goodhue County pull construction limits in slightly to avoid areas where mounds had been mapped. Revised plans were submitted and the area was visually inspected by OSA personnel in November 2007. The OSA still recommended construction monitoring by an archaeologist to insure that no burials were hit. MnDOT decided that they would prefer to complete a pre-construction survey rather than take the chance of construction delays once started.

MnDOT hired 10,000 Lakes Archaeology (Amanda Gronhovd, Principal Investigator) to do intensive testing in the area. In May 2008, a piece of bone, probably human, was found in a shovel test near where Mound 10 originally was located, although no convincing burial features were associated. The bone find area was outside the revised construction limits, but during a field meeting it was surprisingly apparent that Goodhue County was still using the initial not the revised plans. At the field meeting, the State Archaeologist required that the revised plans be followed and that additional testing be done within the construction zone. No burial features or human remains were found by this testing. The State Archaeologist required construction monitoring, but was unable to define cemetery limits for 21GD42 as no mounds were clearly visible.

The construction on CSAH 1 began in June 2009. 10,000 Lakes Archaeology and Tom Ross of the Upper Sioux Dakota Community monitored the grading near 21GD42. The State Archaeologist also made several visits to the site during construction. No burial features or human remains were disturbed by the construction.

21HE8 – Land Sale and Proposed Development, Hennepin County

In September 1882, Theodore Lewis mapped 24 conical mounds on top of the Minnesota River bluff in Bloomington. Most of the mounds were small (25' diameter) and low (1' high), although one large mound near the bluff edge was 70' in diameter and 5' high. The next recorded visit by professional archaeologists was by Minnesota Historical Society archaeologists in 1971 who stated on the site form "all mounds destroyed."

During the Mall of America development in the mid-1980s, MHS archaeologist again visited the site, but the mounds were outside the proposed development area so no detailed survey was undertaken. In late 2000, the landowner of 21HE8 contacted an engineering firm about the proposed sale and development of the land. The OSA got involved in July 2001 and the site was included in an AUAR for the area, but no detailed field surveys were done. In late 2006, United Properties, the proposed developer, contacted OSA about the site. The State Archaeologist visited the site on October 25, 2006 and took photographs. No mounds were visually apparent.

In late 2008, the landowner request formal OSA authentication of 21HE8. After a careful examination of the site by OSA personnel, the State Archaeologist recommended that the landowner hire a private consulting firm to make a detailed field survey. The Mississippi Valley Archaeological Center (MVAC) with Connie Arzigian as Principal Investigator undertook this investigation in October and November of 2008. A final report from MVAC was submitted on 4/25/09. This report documented that surface reconnaissance and sub-surface testing in several areas had failed to find any trace of the mounds or burial features. The large mound had apparently been destroyed by early 20th century barn construction and the smaller mounds largely destroyed by a century of cultivation.

Because this site is so near the sensitive Lincoln Mounds site (21HE7) where numerous burials were hit by building construction in 2004, OSA and MIAC agreed that additional fieldwork should be done at 21HE8 by a qualified archaeologist and geomorphologist. This

recommendation was made to the landowner and he agreed. This additional work will be completed in FY 2010.

21HE27 – County Road 101 Reconstruction, Hennepin County

In January 2008, the State Archaeologist met with Hennepin County Highway personnel and URS personnel to discuss the reconstruction of County Road 101 in Minnetonka. The project includes a traffic circle to replace a dangerous curve at the location of 21HE27, a mound site initially mapped by T.H. Lewis in 1883. The mound group originally consisted of 52 mounds that were subsequently impacted by road, railroad, and residential construction. An MHS survey in 1972 noted “some” mounds remaining, but this may have been in reference to mounds further to the east that are now part of 21HE265 (see below). An MHS Trunk Highway Archaeology crew plotted the Lewis map of the mounds on a modern map of the area in 1986 when the current county road was Trunk Highway 101, but did not complete a detailed field survey. In August 2000, OSA monitored widening of TH 101, but did not find any human remains and did not examine the site as a whole.

In April 2008, OSA personnel examined the area of the proposed county highway construction, but could see no obvious remnants of mounds in the area. Soils probes were inconclusive as to the survival of mound fill or burial pits. The OSA recommended that a private archaeological contractor be hired to complete intensive testing in the proposed construction limits. The first phase of this testing was carried out in June and July 2008 by the Mississippi Valley Archaeological Center (Connie Arzigian, principal investigator). This testing involved shovel tests and 1x1 m units. The final report was completed on 5/25/09. The testing did not find any definitive prehistoric features or artifacts, but suggested that a few areas still contain intact soil horizons. The State Archaeologist recommended additional testing including trenching the areas with the most potential prior to construction. This testing will be completed in FY 2010.

21HE29 – City of Wayzata Authentication Request, Hennepin County

Theodore Lewis had mapped a large conical mound (60' x 8') on Government Lot 1 in this area in June 1883, but this lot consisted of a quarter-quarter section (40 acres). The location of the mound was well known in the late 19th century and the MHS Committee on Archaeology may have excavated a portion of the mound in 1867. Lloyd Wilford of the University of Minnesota visited the mound in 1947, but failed to give a more exact description of its location. A re-survey of Lake Minnetonka mounds by the Minnesota Historical Society (MHS) in 1972 reported



Large mound (21HE29) in Wayzata on Lake Minnetonka.

the mound “gone” and houses in the location. In the early 1990s, two local landowners requested that the head of the MHS Archaeology Department provide them with additional information on this mound. Robert Clouse prepared a report for the landowners, but apparently did no fieldwork.

In January 2009, the City of Mound requested an OSA authentication of the 21HE29 mound near the west side of Wazata Bay on Lake Minnetonka as there were developments proposed for this quarter-quarter section. The State Archaeologist visited the location on 4/16/09 and the mound was immediately apparent adjacent to a late 20th century house. The mound was photographed. The landowners reported that they are aware of the mound and will do nothing to disturb it. The OSA plans to map the mound with sub-meter GPS in FY 2010 and provide an official authentication letter to the landowner and the city.

21HE47 – Condition Assessment, Hennepin County

In 1879, Frank Nutter, an amateur archaeologist, reported in the Smithsonian Institution’s Annual Report a group of 69 mounds on the Peter Gideon farm near Excelsior on the south side of Lake Minnetonka. (Gideon was well known for his apple orchards and developed the *Wealthy* apple.) Nutter excavated one of the mounds. In May 1883, Theodore Lewis mapped 98 mounds at this location, the largest mound group on Lake Minnetonka. The 1972 MHS Lake Minnetonka mounds survey reported that “many remain.” The site is within the limits of what are now the cities of Tonka Bay and Shorewood.

In the late 1980s, the SHPO, the State Archaeologist (Hohman-Caine), and MIAC reviewed a park development proposal by the City of Tonka Bay. MIAC’s Earl Sargent and Trunk Highway archaeologist Les Peterson visited the location. There is no correspondence in the OSA files concerning a final recommendation, but impacts to any mounds must have been avoided. In 1993 a proposal by the City of Shorewood to move the Peter Gideon house for a new housing development resulted in a field survey by Soils Consulting (Grant Goltz) with the assistance of Trunk Highway archaeologist Les Peterson. This survey mapped Mounds 63 – 69 of the 21HE47 group. The developer requested a variance for Mound 68 from MIAC as there was no State Archaeologist at that time. There is no correspondence in OSA files regarding an MIAC reply to this request, although a survey of the Mound 68 area by OSA (Koenen) in 1998 indicated that townhomes had been built on the site.

In September 2008, the State Archaeologist was driving by the 21HE47 vicinity and noted residential construction within the mound group area near where Mound 7 had been mapped by Lewis. Backdirt piles were examined, but no artifacts or human remains were noted. This site will be re-examined in FY2010, perhaps aided by the use of LIDAR.

21HE65 – Sewer Line Work and Legal Case, Hennepin County

In July of 2005, a landowner in Mound contacted the MIAC asking about requirements concerning garage reconstruction adjacent to a burial mound. MIAC forwarded the request to the OSA. The site in question was the Bartlett Mounds (21HE65). Bruce Koenen visited the site in late July and met with the landowner. The project was put on hold as the State Archaeologist (Dudzik) had just resigned.

In October 2005, Acting State Archaeologist Scott Anfinson visited the site and confirmed that the existing garage indeed abutted a burial mound. There were originally 18 mounds mapped at 21HE65 in 1883, but the area has been subjected to intensive residential development over the last 120 years. Four mounds were originally present on the lot in question, but only the mound (1) adjacent to the existing garage was still visible in 2005. Two other mounds (Mounds 6-7) were apparent just to the west on another lot, but no attempt was made to map other possible surviving mounds even further to the west. The landowner was informed by an OSA letter on 10/11/05 that disturbance of the Mound 1 was prohibited under MS 307.08. MIAC and the City of Mound were copied on the letter.

In July 2007, the landowner informed the State Archaeologist that a sewer line previously installed through Mound 1 had broken in or near the mound. The landowner said he would inform OSA when the repair crew arrived to fix the line and OSA planned to monitor the repair work. No call was received by OSA and when the site was examined in August 2007, the repair work had already been completed with obvious excavation backfilling and a new cleanout pipe evident along the eastern edge of Mound 1. No artifacts or bones were obvious on the disturbed surface and the work appeared to have been confined to the previously existing sewer line trench.

In February 2008, the Hennepin County Assessor called OSA to inquire about the burial mounds on the property, as there had been a petition by the landowner to lower the assessed value due to the presence of the mounds. Subsequently, the landowner filed a lawsuit against a title insurance company for not informing him of the mounds when he had purchased the property. On October 14, 2008, a Hennepin County attorney called the State Archaeologist to discuss legal issues regarding a 21HE65 tax re-assessment lawsuit.

On October 29, a private attorney representing the landowner called the State Archaeologist for information concerning the title insurance lawsuit. The State Archaeologist met with this private attorney on 10/30/08. The State Archaeologist appeared in Hennepin County Court on 2/5/09 to give testimony on the title insurance case.

21HE65 – Porch Addition, Hennepin County



View from front window at Mound 15, 21HE65.

In September 2008, the City of Mound informed the State Archaeologist about a building permit application for a porch addition within the limits of mound site 21HE65. In May 1883, Theodore Lewis had mapped 18 mounds that are now known as 21HE65 (see above). The proposed porch construction was near Mound 15.

In 1994, when there was no State Archaeologist, Bob Clouse of the MHS visited the location at the

request of MIAC to examine a proposed deck addition to a home. Clouse was able to re-locate Mound 15 immediately in front of the house and determined that the proposed deck would come within 12 feet of the mound. The landowner requested a variance from MIAC to build the deck and this was granted. Clouse monitored the footing construction with negative results.

On October 1, 2008, the State Archaeologist examined the proposed porch addition and determined it was smaller than the footprint of the earlier deck construction. In a letter to the landowner and the City of Mound, the State Archaeologist approved the porch addition and established the cemetery boundary at 20 feet from the base of Mound 15.

21HE74, HE81, HE82, HE83, HEr – Pipeline/Trail Reconstruction, Hennepin County

In 1881, T.H. Lewis completed mound surveys along the Crow River in western Hennepin County. He mapped a series of mounds and mound groups from Rockford to Delano. These sites included: 21HE74 (a group of 13 mounds), 21HE81 (a lone mound), 21HE82 (a group of four mounds), and 21HE83 (a group of two mounds). In addition, there was an unconfirmed report of two mounds east of 21HE83 (assigned alpha number 21Her).

In 1971, an MHS resurvey of the area failed to find any surviving mounds as they had apparently been destroyed by cultivation and roadwork. In the winter of 1988, LeRoy Gonsior, an archaeologist for the MHS who lives in Delano, noticed that snow sloping along County Road 50 had damaged the area where two of the mound groups had been mapped by Lewis (21HE74 and 21HE84). The Municipal-County Highway Archaeologist (Scott Anfinson) had not been given this project to review, but examined the area in the field in the spring of 1989. Both Gonsior and Anfinson found prehistoric lithic scatters along the damaged area, but no evidence for any mounds or burial disturbances.

In 1995, the Institute for Minnesota Archaeology (IMA) was hired by Northern Natural Gas to survey construction of the Rockford Loop pipeline. The project went through the areas of sites 21HE74 and 21HE82, but IMA surface reconnaissance and electronic soil resistivity failed to find any evidence for the mounds. (The OSA has subsequently determined that the IMA had searched for 21HE74 in the wrong location.) Construction monitoring in the winter of 1996 failed to find any evidence for burials, but the frozen ground was removed in large chunks providing poor visibility.

In the spring of 2008, OSA was independently informed of both pipeline reconstruction and trail reconstruction in the vicinity of the Crow River mound sites. Northern Natural Gas was planning to upgrade their pipeline as part of the Zone EF expansion and Three River Park District was going to rebuild their Lake Rebecca Park trail. The pipeline had originally been built in the 1960s and the trail originally built in the late 1980s, although neither had been surveyed for archaeological impacts. The Zone EF pipeline project was required by federal regulations to assess cultural resource impacts and the trail reconstruction was reported to OSA by local resident and MHS archaeologist LeRoy Gonsior.

Because the pipeline and the trail paralleled each other in close proximity, it was determined that detailed survey of the pipeline construction would be able to assess potential impacts of

the trail reconstruction. Summit Envirosolutions (Andrea Vermeer, principal investigator) undertook the pipeline survey. This survey was completed in June 2008. It included intensive shovel testing of all mound areas within the pipeline corridor, but no burial pits or mound features were apparent. The State Archaeologist visited the sites several times during the archaeological survey.

After receiving the archaeological survey report, the OSA issued a negative authentication letter on March 20, 2009 addressed to the pipeline consultant (NRG) regarding mound sites 21HE74 and 21HE82. (Sites 21HE81 and 21HEr are apparently outside the construction limits and could not be relocated.) The State Archaeologist did request that archaeological construction monitoring of the pipeline work be completed in the mound site areas. Construction is set to begin in the fall of 2009.

21HE265 – House Construction, Hennepin County

In May 1883, Theodore Lewis mapped a group of 10 mounds in the City of Minnetonka south of Grays Bay. The southern five mounds were later destroyed by a borrow pit. Homes were built among the northern five mounds. The MHS Minnetonka Mound Survey in 1972 noted that “some mounds remain.” During the 1980s and 1990s, OSA and MIAC were involved in various home improvement activities within the northern portion of the mound group. Variances were granted by MIAC for a number of projects and OSA personnel made several visits to the site.

In August 2008, a landowner asked for OSA comments on a proposal to demolish a home adjacent to Mound 4 and 5 in 21HE265 and to build a new home in the same basic location. Because this site had been previously authenticated by the OSA (Hohman-Caine), the State Archaeologist referred the matter to MIAC, but suggested to the landowner that previous setbacks be maintained. MIAC agreed with this and construction was completed in summer 2009. The State Archaeologist visited the site several times during the construction.

21LE74 (Okaman Cemetery) – Status Report, Le Sueur County



Headstone in Okaman cemetery (21LE74).

In 1998 the OSA was contacted by the Le Sueur County Historical Society about the possible restoration of a historic cemetery near Elysian that had originally been platted in 1859. The cemetery is on private land and it was not the owner who was proposing the restoration. The OSA visited the site in November 1998 and photo-documented it. The cemetery had been overgrown with woody vegetation, but did not appear to have been disturbed. Under MS 306.243, county boards are authorized to appropriate funds for maintenance of *abandoned*

cemeteries. Under MS 306.244, township boards may maintain *neglected* cemeteries.

In February 2009, a private individual called concerned about the continuing deterioration of the cemetery and reported that someone was removing headstones. The State Archaeologist visited the site on 4/17/09 and took additional photos. The condition had not changed greatly since 1998 and there was no evidence for headstone removal. The caller was told to find out who the owner was and contact the county or township board to ask about public funds and authorization to restore the cemetery.

Marysburg Cemetery – Report of Unmarked Grave, Le Sueur County

In February 2009, the OSA received a letter from a member of Marysburg Parish concerned that an unmarked grave existed on the edge of the platted Catholic cemetery. The grave was suspected to be Indian. The individual was concerned because a portion of the grave not within the cemetery was being cultivated. The suspicion of the unmarked grave was based on a 1989 ground penetrating radar survey of the cemetery and adjacent land. The identification of the grave as Indian is based on local hearsay only and no written records.

On 4/17/09 the State Archaeologist visited the location, but could find no evidence that a grave existed in the reported location. This was based on surface inspection only. Because the adjacent field had been cultivated for many years and is not apparently disturbing a grave, no action was taken. The area was photographed and MIAC was informed.

21MA74 – Construction Disturbance, Marshall County

On 6/18/09, the Bureau of Criminal Apprehension (BCA) in Bemidji contacted the State Archaeologist to report the disturbance of human remains in Warren. The BCA had responded to a call from the Marshall County Sheriff. Trenching for a housing project on the north edge of Warren had hit a human skull, long bones, and vertebrae at a depth of about four feet. Work in the location was immediately halted. There were historic artifacts (e.g., glass, leather) in the same vicinity of the human remains.

The State Archaeologist gave permission for the BCA to remove the disturbed remains and send them to a forensic anthropologist. MIAC was immediately contacted and Jim Jones went to the site to inspect it and direct the removal. The removed bones were sent to the University of North Dakota where cranial measurements suggested Indian affinity. MIAC then took the lead in what to do with the site and the disposition of the remains. OSA has not received a final report from MIAC regarding this burial.

Tietje Cemetery – Status Report, Martin County

In May 2008, a local resident called the OSA to report the disturbance of a small pioneer cemetery near Wilbert in Martin County. The cemetery was in the middle of a farm field and the farmer reportedly took down headstones and then plowed and planted the area as part of the surrounding field. The State Archaeologist called the county sheriff and determined that the cemetery was still owned by the church, but may be considered an “abandoned” cemetery under MS 306. County Boards have some jurisdiction over abandoned cemeteries. The sheriff said the landowner had permission from one relative to move a headstone and had

previous permission from the church board to plow to the edge of the graves. The landowner did not have permission to remove all the headstones or plow the entire area.

The Tietje Cemetery had originally been affiliated with a German Evangelical Church in the 1890s. Some of the graves in the cemetery were moved when the church relocated to Ceylon in 1905. At least three headstones and perhaps eight occupied graves remained in place until May 2008. The Martin County Board had the area resurveyed in 2008 and determined that the area in question had an earlier survey error and that the farmer actually owned the cemetery area. The final disposition of the cemetery has not been reported to the State Archaeologist, but members of the public who contacted to State Archaeologist in FY2009 have suggested that the area is being restored and grave markers replaced.

21ML133 – Construction Disturbance, Mille Lacs County



OSA assistant Bruce Koenen examines burial pit near new septic tank at 21ML133.

On July 24, 2008 the Mille Lacs County Sherriff's Department contacted the State Archaeologist to report the disturbance of human remains by private septic system construction near the south shore of Lake Mille Lacs. Because the remains were suspected to be Indian as glass seed beads were also recovered, MIAC excavated the disturbed portion of the site and removed all the remains for analysis.

OSA personnel examined the location on 7/29/08 after all the remains had been removed by MIAC. A large septic tank had been installed and the cleanout

cap on this tank was used as a datum to map the site. The MIAC excavation pit was about seven feet in diameter and almost three feet deep. The center of the pit was nine feet from the cleanout cap. MIAC personnel suspect that other graves may be in the vicinity, but this has not been confirmed.

A forensic anthropologist at Hamline University has confirmed that the remains are Indian-affiliated (probably historic Ojibwe) so MIAC has taken over official responsibility for their final disposition. Mille Lacs Ojibwe band officials would prefer that the removed remains be re-buried in the same location from where they came, but the landowner has not agreed to this. The OSA does not know final disposition of the remains and OSA has not yet received a final report from MIAC.

Racine Township – Development Threat, Mower County

In October 2008, an adjacent landowner called about a possible threat to burial mounds by a proposed housing development in Racine Township of Mower County. Because mounds had been previously reported about one-half mile to the west of the development site, the county was contacted and they confirmed the development. The State Archaeologist visited the location in early November 2008 and walked the parcel, which was largely agricultural with some old borrow pits. No mounds were located and no artifacts were noted in occasional patches of soil exposure in the plowed fields. Mower County was informed that no burials should be affected by this project, but OSA would recommend a comprehensive archaeological survey if the project was the subject of an EAW. No EAW has been received to date.

21RA1 – Construction Clearance, Ramsey County

In April 2009, an engineering consultant contacted the State Archaeologist about the construction of a proposed sewer line and lift station near a burial mounds site (21RA1) on Lower Afton Road in St. Paul. Theodore Lewis originally mapped 21RA1 in 1882 and recorded two mounds. MHS archaeologists in 1975 noted that two mounds were still visible in the vicinity. In 1980, Les Peterson, the Trunk Highway Archaeologist, reviewed MnDOT plans to upgrade TH 61 near the mounds and noted that the mounds would not be affected. In 1991, Peterson reviewed MnDOT plans to upgrade a nearby TH 61 intersection and, although the two mounds visible along TH 61 would not be affected, Peterson noted that the mounds' location, sizes, shapes, and distance between did not fit the Lewis description.

On 4/7/09 the State Archaeologist met the construction supervisor at the site. Both mounds were relocated, although Mound 1 appeared to be much larger than the Lewis notes suggest. The area around the mounds appears to have been extensively graded sometime in the past. There is a good chance that both mounds have been impacted by past disturbances and that the two existing mounds are all or partially recent fill and may not be burial mounds, but no coring of the mounds was attempted. As a precaution, lathe stakes were placed every 25' in a 50' diameter around both mounds so construction could safely avoid impacting them. The area was digitally photographed.

21RA6 – Construction Clearance, Ramsey County

In October 2008, a member of the Cultural Resources Unit at MnDOT contacted the State Archaeologist about plans to upgrade Trunk Highway 61 in the vicinity of mound site 21RA6. Theodore Lewis had originally mapped this site in September 1882 recording two mounds on the east side of Keller Lake. Minnesota Historical Society archaeologists visited the site in 1974 and noted one surviving mound, but they did not make a detailed map of the site. The area today is within Keller Lake Park.

OSA personnel visited the location on 10/21/08 and were able to relocate the surviving mound (Lewis Mound 2). No mound was apparent in the Lewis-projected location of Mound 1 and soil cores in this area suggested extensive disturbance to the extent that any burial pits were probably completely destroyed by past grading. The reconstruction of Highway 61 will not impact either mound location.

Mountain Iron Pioneer Cemetery – Proposed Restoration, St. Louis County

In June 2009, a citizen living in Mountain Iron contacted the State Archaeologist about restoring a pioneer cemetery in that town. The cemetery was located on state land managed by the DNR Division of Forestry. The State Archaeologist had no objections to the restoration as long as it met the approval of DNR and that the following conditions were observed: 1) no ground disturbance, 2) no removal of any structures or grave related objects, and 3) no removal of any original vegetation. DNR agreed to the work and it was carried out in the summer of 2009. It mainly consisted of brush removal. The State Archaeologist was sent before and after photos of the work.

21SC24 – Trail Construction, Scott County

In May 2009, a Scott County planning official contacted the State Archaeologist about plans to construct a trail along the north side of Trunk Highway 101 in Shakopee. This trail would pass through the original mapped limits of a mound group (21SC24). Theodore Lewis mapped this mound group in 1882, recording 111 mounds. In 1940, the Department of Highways constructed TH 101 through the southern portion of the mound group destroying numerous mounds, although the University of Minnesota salvaged a few prior to destruction. In 1965, TH 101 was again upgraded and the University returned to the site to conduct salvage excavations on 17 mounds.

In 1967, work began on the Minnesota Valley Restoration Project that was later known as Murphy's Landing and is now known as The Landing. All of the surviving mounds were incorporated into the park area. Various projects on TH 101 and in The Landing over the next 40 years resulted in various archaeological surveys by the Trunk Highway program and private consultants. Some of these surveys have attempted to re-map the surviving mounds, although there are discrepancies between the maps.

The State Archaeologist examined the location on 5/20/09 noting a number of surviving mounds within The Landing. He digitally photographed the entire mound area. The State Archaeologist then met with representatives of Scott County, Three Rivers Park District, the Shakopee Dakota, MIAC, and the Minnesota SHPO. It was determined the proposed trail would not impact any surviving mounds or intact burial areas.

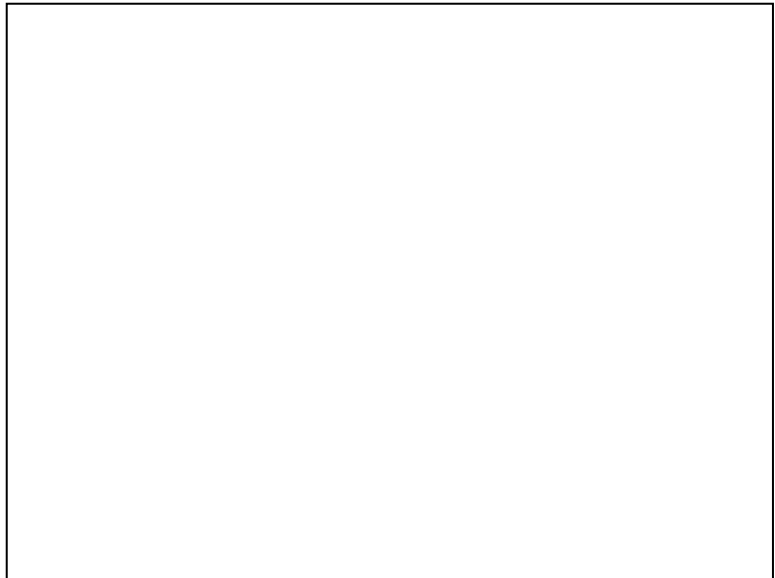
21WA18 – Pipeline Construction, Washington County

In October 2008, DNR State Parks archaeologists contacted the State Archaeologist about possible impacts to mound site 21WA18 by pipeline reconstruction in William O'Brien State Park. Theodore Lewis first mapped the mound site in November 1885. Lewis recorded 27 mounds with most of them of the small (30' x 1') variety with one large mound (78' x 10') at the north end of the group. In 1949 the site was examined by Lloyd Wilford of the University of Minnesota who noted that the large mound was still partially intact and two mounds were still visible in the field to the south of the large mound (Mound 1).

A natural gas pipeline was built through the south end of the mound group in the early 1960s, but no archaeological survey was done prior to the construction. In July 1975, Minnesota Historical Society archaeologists visited the site and noted that Lewis mounds 1, 7, 10, and 12 still were visible. A Trunk Highway archaeological survey in the early 1980s made a map

re-scaled from the Lewis notes, but did not do a detailed field survey to determine what mounds still were visible.

On 10/14/08, OSA and DNR State Parks archaeology personnel assisted by personnel from Northern Natural Gas (including a soil scientist) made a thorough examination of the proposed pipeline construction area. Soil coring and trenching determined that the entire construction limits had been previously disturbed by the trenching of the original pipeline. The State Archaeologist determined that construction could proceed as long as it remained within the earlier trench limits and that an archaeologist monitors the construction. Construction took place in late October 2008 monitored by a DNR State Parks archaeologist. No human remains, burial features, or artifacts were noted by the monitoring.



OSA Assistant Bruce Koenen excavates a test trench within the pipeline route at 21WA18 watched by DNR and NNG personnel.

21WN69 – Development Threat, Winona County

In late July 2008, several local residents in Winona contacted the State Archaeologist concerned that a proposed housing development was threatening a burial mound. The mound was supposedly located near a previously reported prehistoric lithic scatter, 21WN69. The development (Applewood Point) was also reported to MIAC and various representatives of the Dakota. The State Archaeologist visited the location in late July 2008 and could see no obvious burial mound within the development area. Soil cores were taken at several prominent locations and these cores documented that the area had been extensively disturbed. There was little chance of intact burials even if a mound had existed on the property. The State Archaeologist issued a negative authentication for the property on 8/5/08.

Chapter 3: Minnesota Archaeology in 2009

In the 2006, 2007, and 2008 OSA Annual Reports, the State Archaeologist discussed in detail the status of Minnesota archaeology highlighting some recent improvements and current problems and suggesting courses of action that could improve Minnesota archaeology. The FY 2009 status of archaeology in Minnesota has not changed greatly with regard to the numbers of archaeologists working in the state, the programs at the State Universities, laws, and cultural resource management activities. However, the realization of major funding through the Legacy Amendment passed by the voters of Minnesota in November 2008 and the re-establishment of a Minnesota archaeological field school at the University of Minnesota have the potential to make major improvements to Minnesota archaeology.

Current Status

Archaeologists

There are currently perhaps 100 archaeologists living and working in Minnesota. More than 60 of these archaeologists have advanced degrees and practice archaeology full-time in the state. Over 50 of the advanced degree archaeologists work in cultural resource management (CRM) with 12 at Federal agencies, 11 at State agencies, 3 at Indian reservations (Bois Forte, Leech Lake), and about 30 at private contracting firms based in Minnesota. A number of out-of-state contracting firms also occasionally do archaeological work in Minnesota. Advanced degree archaeologists generally meet federal and state standards required to be a principal investigator on a public archaeological project and to obtain a state license.

There are perhaps an equal number of Bachelor's Degree-level archaeologists living in Minnesota who work on the CRM field crews and do much of the analysis and record keeping for CRM contracting firms and agencies. Some of these jobs are seasonal.

There are 10 full-time academic archaeologists in Minnesota who have advanced degrees and practice North American Archaeology. The University of Minnesota – Minneapolis has six full-time staff archaeologists in the Anthropology Department, but only one specializes in North American archaeology (Katherine Hayes). There are three North American archaeologists at Minnesota State University - Moorhead (Mike Michlovic, George Holley, Rinita Dalan), two at St. Cloud State (Mark Muniz, Debra Gold), two at Hamline University (Skip Messenger, Brian Hoffman), and one at Minnesota State – Mankato (Ron Schirmer). There is also one North American archaeologist at the Science Museum of Minnesota (Ed Fleming), although his duties are primarily curatorial. Several recent graduates of advanced degree archaeology programs also reside in the state and do not have full-time employment as archaeologists, although they have intermittent teaching and contract archaeology jobs.

Education

The University of Minnesota Department of Anthropology hired a tenure-track North American archaeologist, Katherine Hayes, in 2009. She replaces an existing North American archaeologist (Guy Gibbon) who retired from full-time work in 2009, although Gibbon will continue to teach at least one class (Minnesota Archaeology) and do research. The

Department fulfilled its a commitment to once again offer *local* summer field schools in archaeology. Professor Hayes led a historical archaeological field school at the Old Wadena site (21WD6) in June 2009. Dr. Hayes also directs the Heritage Management/Applied Archaeology graduate program at the University of Minnesota.

Archaeological programs at the state universities at Moorhead, St. Cloud, and Mankato continue to have robust archaeological programs and the addition of new faculty members in recent years at several of these institutions bodes well for the future of archaeological research and education. This is also true at Hamline University. About half of these university archaeologists mainly work outside of Minnesota, however, and efforts are being made to encourage them to stay closer to home. The recent loss of archaeological programs at Bemidji State University and the University of Minnesota – Duluth leaves a void in post-secondary archaeological education in north central and northeastern Minnesota, although some courses are still offered at UMD utilizing local contract archaeologists and Superior National Forest personnel.

OSA Budget

The OSA has not had a budget increase since FY2001. The budget is currently \$196,000 per annum, which covers two staff members, office rent, and operational expenses. As costs for benefits, salaries, travel, and supplies have steadily increased, the funds available for accomplishing the mandatory duties of the State Archaeologist have decreased. As listed in Chapter 1, the State Archaeologist's duties are of both a regulatory and leadership nature. These duties cannot be accomplished by sitting in the office answering the telephone, sending emails, and answering letters. Effective site protection, research, and education require traveling around the entire state and active participation in fieldwork, professional meetings, and public events.

Minnesota Statutes 307.08, Subd. 5 states that “the cost of authentication, recording, surveying, and marking burial grounds and the cost of identification, analysis, rescue, and reburial of human remains” on private property “shall be borne by the state.” The entity of state government responsible for these costs is not specified in the law, but because *authentication* is clearly the unique responsibility of the State Archaeologist, it is assumed that OSA must bear the costs of this activity. Because authentication of actual remains also involves ethnic identification, this cost too is the inferred responsibility of OSA.

There are instances when OSA staff are unable to complete authentication fieldwork due to the scope of a private lands project, the need for technical expertise and equipment not available at OSA, or due to time constraints. OSA staff are also not forensic anthropologists and thus cannot make ethnic identifications based on subtleties of skeletal morphology. In these instances, the OSA needs the assistance of outside consultants. In the past, OSA has paid for these services, but current budget constraints no longer allow this. Thus if private landowners are not willing to voluntarily pay for independent contractor authentication and identification costs, some private development projects may not be completed.

Minnesota Statutes 138.35, Subd. 2 states that the State Archaeologist shall “sponsor, engage in, and direct fundamental research into the archaeology of this state.” Fundamental research cannot just be done by the State Archaeologist, volunteers, and unpaid interns. Fundamental research requires funding for such things as radiocarbon dates, equipment, technical expertise, and large field projects. Research is worthless without public dissemination of the results and publication of monographs also requires funding. Based on the current budget, the State Archaeologist’s ability *to further fundamental research* is very limited.

MS 138.40, Subd. 3 requires that the State Archaeologist review public agency plans that may affect archaeological sites on public lands and MS 307.08, Subd. 10 requires that the State Archaeologist review public and private development plans that may affect burial sites. If agencies and private developers fully complied with these laws, the OSA would be overwhelmed. Clearly another full-time staff person would be needed at OSA if agencies and developers fully complied with plan submittal requirements.

It is clear that the ability of the OSA to carry out MS 307 and 138 obligations will continue to be limited and will even decrease if the OSA budget remains at a level established a decade ago. The very survival of a functioning State Archaeologist’s Office will be threatened without a budget increase within the next few years.

Legislation: The Minnesota Legacy Amendment passed in November 2008. Of the sale tax funds dedicated to Legacy Amendment projects, 19.75% will go to a newly created *Arts and Cultural Heritage Fund* to be spent only for arts, arts education, and arts access, and “to preserve Minnesota’s history and cultural heritage.” The OSA’s Legislative focus in FY2009 was on obtaining Legacy Amendment funds for archaeology.

The State Archaeologist, assisted by Administration Legislative liaison’s Jim Rhodes and Jerod Rauk, spent considerable time at the Legislature in FY 2009 lobbying for up to a million dollars in FY10-11 for archaeology. This effort was successful with \$500,000 obtained for a *Statewide Survey of Historical and Archaeological Sites*. The funds are administered by the Minnesota Historical Society and must be distributed through competitive bid contracts. An Oversight Board determines how the money is spent and monitors progress on funded projects. The Oversight Board is made up of the State Archaeologist, the head of the MHS Archaeology Department (Pat Emerson), and Jim Jones of MIAC. The first Requests for Proposals (RFPs) will be released in the Fall of 2009.

The Minnesota Historical Society also obtained over \$9,000,000 for other history and cultural resource preservation initiatives. About a third of this money will be made available to organizations through MHS-administered grants. MHS will keep the other two-thirds for internal programs. The OSA has encouraged archaeologists to apply for the grants.

A Plan for 2010

Legislation

The OSA intended to begin a major legislative initiative in FY 2009 to address problems with the Field Archaeology Act (MS 138.31 - .42), but the state's budget crisis and several unresolved wording issues will require postponement of this initiative until 2010.

The Field Archaeology Act has a number of problem areas including: 1) the *Legislative Intent* section emphasizes regulation of archaeology rather than preservation of sites; 2) the *Definition* section lacks several key concepts such as *agency*, *paramount right of the state*, *significant site*, and *undertaking*, as well as needing revision of certain words (e.g., *object* should eliminate "skeleton" and add "artifact" and *state site* should only refer to sites on non-federal public land and should eliminate the 1875 bottle/ceramic exclusion); 3) the MHS role in licensing should be eliminated as it unnecessary; 4) environmental review sections should be more consistent with federal legislation (e.g., review of *all state sponsored* undertakings that could harm *significant* sites); 5) it should be coordinated with and refer to other pertinent statutes such as 307 and environmental laws that involve archaeological matters and the State Archaeologist; and 6) the roles of various agencies should be clarified and expanded (e.g., agencies should submit development plans to MHS-SHPO, OSA, and when appropriate to MIAC). This initiative will be done in careful consultation with all major stakeholders including MIAC, MnDOT, DNR, MHS, and the Council for Minnesota Archaeology (CMA). An increase in the OSA budget could also be an element of the legislative initiative.

Development Plan Review

The OSA began officially reviewing Environmental Assessment Worksheets (EAWs) in 2007, but there is still a major deficiency in the environmental review process with respect to archaeological sites on public property. MS 138.40, Subd. 3 requires all public agencies, not just state agencies, to submit their development plans to OSA and MHS if known or scientifically predicted archaeological sites may be affected on lands they control. The majority of local governments do not conform to this requirement unless the project is required to have historic impact review under federal law (e.g., Section 106, NEPA) or under the Minnesota Environmental Policy Act (MS 116d). For instance, counties and cities rarely submit non-federal highway projects for review, although such projects represent the majority of local highway development activity in the state.

The OSA will work with state and local agencies to make them more aware of impacts to archaeological sites by various types of projects and will attempt to help agencies efficiently and effectively fulfill their review obligations. The most effective way to accomplish a basic archaeological project review is to provide secure access to the archaeological site database and to predictive models for unrecorded sites. OSA will work with the Minnesota Geospatial Information Office (MnGeo) to try to accomplish these objectives in FY 2010.

Information Management

Because effective agency plan review, response to calls from the public requesting information, and even many aspects of research rely on accurate and easily accessible knowledge of site distribution and site type, the site databases maintained by the OSA are essential. Yet the current databases are neither comprehensive nor widely accessible.

The *Site* and *Report* databases do not include boundaries of sites and survey areas. The *Burial Site Database* does not include many reported or suspected burial sites contained in OSA paper files if these sites have not been confirmed by professional archaeologists or are not listed in the *Archaeological Site* database. In addition, a compilation of historic era burials by Pope and Fee (1998) lists about 6,000 cemeteries, some unplatted, the majority of which are not contained in the OSA burials database.

Most agencies and all contract archaeologists in Minnesota do not have direct access to the OSA databases. To obtain complete site information they must visit the OSA offices, but OSA has limited ability to handle large numbers of visitors, requests for extensive photocopies, or complicated database searches.

Burials Site Database - As all confirmed burial sites subject to State Archaeologist review are defined as archaeological sites under both state and federal law, an effort will be made in FY 2010 to assign official state site numbers to any confirmed but unnumbered sites. Alpha numbers may be assigned to burial sites that are unconfirmed, but are based on relatively reliable information. All such sites will be added to the database.

Archaeological Site Database - As of January 1, 2007, the OSA took over updating the master archaeological site database that is shared with the SHPO. The OSA is working with the MnGEO to attempt to provide access to the site database on-line both for data input and output. This on-line access should be available to appropriate agencies and contract archaeologists. Iowa, South Dakota, and Wisconsin already have access to their site databases on-line. The OSA will also attempt to add site boundaries in GIS format by re-designing the site inventory form.

Archaeological Survey Manual

Agencies and contract archaeologists in Minnesota must follow various guidelines to insure their fieldwork and reporting is completed in a comprehensive and professional manner. Some of these guidelines are agency specific, while others apply to all projects reviewed under federal and state authorities. The current State Archaeologist while at the SHPO wrote the guidelines used in Minnesota for archaeological projects reviewed by the OSA and the SHPO (Anfinson 2005). Due to information that has been obtained from the MnDOT-sponsored Deep Testing, Farmstead, and Woodland Context projects as well other insights and advances over the last few years, the Survey Manual is in need of an update. The State Archaeologist will take the lead in this effort, but will coordinate with the SHPO, state agencies, contract archaeologists, and the Council for Minnesota Archaeology (CMA).

Archaeological Research

Critical research needs include radiocarbon dates for certain sites and complexes, a mounds status survey, site locational surveys and site excavations in poorly known regions to establish the basic cultural sequence and fine-tune predictive models, and investigations of the Early Prehistoric Period including finding and excavating well-preserved Paleoindian sites. University-based research will still have to take the lead in some of these investigations, especially those involving major excavations, but state level initiatives are essential to fulfilling others. The OSA will contribute staff time and other resources to further these research goals. Many of these initiatives will be funded through the *Statewide Survey of Historical and Archaeological Sites* noted above.

Radiocarbon Dating Needs

Elden Johnson in the late 1960s first defined Brainerd ceramics following excavations at the Gull Lake Dam site (21CA37). They were originally thought to date between AD 600 – 800, but more recent radiocarbon dates from charred material on Brainerd sherds have suggested that Brainerd may be as old as 1400 BC. This would make Brainerd ceramics some of the oldest in North America. However, there is some evidence that dates taken from pot scrapings may date older than they should due to carbonate contamination. A Legacy Amendment initiative in 2010 will seek to shed light on the age of Brainerd ceramics and the carbonate contamination question. A number of radiocarbon dates need to be obtained from animal bone and other organics other than ceramic residues to help define the chronological limits of Brainerd Ware ceramics. An alternative strategy could date ceramic residues from parts of the state where high carbonate tills do not exist.

Mound Status Survey

Another key Minnesota research need is a Mound Status Survey. Theodore Lewis and Jacob Brower first mapped most of Minnesota's 12,500 known burial mounds in the late 19th century. Some of these mound sites have not been visited by an archaeologist in over 100 years. The actual current condition of most mound sites is not known and very few have been officially authenticated by the State Archaeologist. While it is against the law to willfully disturb a burial ground, most land owners are unaware that mounds were mapped on their property and thus they do not know what to avoid disturbing.

A major effort should be undertaken to assess the status of mound sites in Minnesota. While a site-by-site field assessment of the status would be the preferred method, some basic research can be done without time-consuming and costly field research. Utilizing land use data maintained by MnGEO, known mound site locations could be compared to current land use and the probability of various site disturbances evaluated. For instance, if land containing a mound site was in an agricultural field, residential area, or industrial park, it is likely that significant disturbance has taken place. On wooded land, mounds may be in good condition.

Another method of remotely assessing mound condition utilizes recently perfected LIDAR surveys. LIDAR stands for Light Detection and Ranging. It basically is like RADAR except laser light pulses from an airplane are used instead of radio waves. Current LIDAR technology can achieve vertical elevation resolutions of six inches (15 cm) or better thus resulting in Digital Elevation Modules (DEMs) that show surface topography that is accurate

to within a foot. Several state agencies and some Minnesota counties have already sponsored LIDAR surveys of many areas in Minnesota. Because most burial mounds in Minnesota were originally higher than one-foot and even mounds in long-cultivated areas can still be evident at a 6" vertical resolution, a fine-scale LIDAR survey could be very useful in remotely and efficiently assessing mound condition. The OSA will investigate cooperative LIDAR ventures in FY 2010 with local units of government.

Statewide Archaeological Survey and Site Locational Models

It is estimated that less than one-tenth of one percent of the archaeological sites in the state have been recorded by archaeologists. Many of the state's sites have already been destroyed or damaged by residential development, highway construction, commercial enterprises, and intensive cultivation. Because archaeological survey can't be required on every project and in every disturbance situation and because recorded sites represent only a small fraction of the states' archaeological resources, it is essential that accurate and comprehensive site locational models be developed to efficiently assist agencies with project reviews. The critical basis for these models is a representative archaeological sample of the entire landscape in every region of the state.

In the FY 2008, the State Archaeologist's Annual Report discussed the history of statewide surveys and site locational modeling in Minnesota, beginning with the Hill-Lewis surveys in the late 19th century and ending with MnDOT's innovative MnModel project that began in the mid-1990s. The great need now is to provide local governments and other agencies that do not have staff archaeologists with a simple yet effective method of assessing site potentials in proposed development areas. The most practical way to do this is to map known sites and develop regional or county-based narrative models. These narratives would briefly describe the cultural history of a given area and suggest where different types of site should be located based on known site locations and resource-use hypotheses. Using funding from the Legacy Amendment, archaeological surveys will be initiated in poorly known areas to improve archaeological knowledge and site locational modeling in these areas.

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FINDING MINNESOTA

Minnesota Archaeology Week, May 9–17, 2009



Major Sponsors of Minnesota Archaeology Week 2009: Office of the State Archaeologist, Council for Minnesota Archaeology, Minnesota Historical Society, U.S. Army Corps of Engineers – St. Paul District, USDA Natural Resources Conservation Service, U.S. Fish and Wildlife Service, Minnesota Department of Administration.

Produced by Office of the State Archaeologist. Background map provided by Minnesota Land Management Information Center (LMIC). The map is a topographic image of the state created by adding Digital Elevation Modules (DEM) at a 30 meter resolution and surface waters.



Minnesota's 2009 Archaeology Week Poster
(Design by Emily Anfinson)

Appendix A: Glossary of Minnesota Archaeological Terms

Agency – any agency, department, board, office or other instrumentality of the state, any political subdivision of the state, any public corporation, any municipality, and any other local unit of government (MS 114c.02).

Archaic Tradition – The post-Paleoindian cultural tradition characterized by the disappearance of lanceolate projectile points and the appearance of stemmed and notched points beginning about 8000 B.C. Other Archaic developments include ground stone tools, domestic dogs, cemeteries, copper tools, and diverse hunting-gathering economies. The Archaic lasts until about 500 B.C.

Archaeological Site – a discrete location containing evidence of past human activity that holds significance for archaeologists.

Archaeology - the scientific study of important physical remnants of the cultural past.

Artifacts - natural or artificial articles, objects, tools, or other items manufactured, modified, or used by humans that are of archaeological interest.

Authenticate - to establish the presence of or high potential of human burials or human skeletal remains being located in a discrete area, to delimit the boundaries of human burial grounds or graves, and to attempt to determine the ethnic, cultural, or religious affiliation of individuals interred.

BP – Before Present; this is an expression of age measured by radiocarbon dating with “present” set at 1950, the first year radiocarbon dating became available. It is more correctly stated as “radiocarbon years before present” or RCYBP. It does not mean the same as “years ago” because raw radiocarbon dates need to be corrected for several inherent errors in order to be converted to actual calendar years.

Burial - the organic remnants of the human body that were intentionally interred as part of a mortuary process.

Burial Ground - a discrete location that is known to contain or has high potential to contain human remains based on physical evidence, historical records, or reliable informant accounts.

Cemetery - a discrete location that is known to contain or intended to be used for the interment of human remains.

Complex - a group of sites or phases linked by trade or behavioral similarities, but not necessarily of the same ethnic, linguistic, or cultural grouping (e.g., Hopewell)

Component - a discrete cultural entity at a particular site; one site can have multiple components (e.g., prehistoric and historic, multiple prehistoric)

Contact Period – the initial period of intensive Euroamerican and Indian interaction prior to the signing of any major treaties (1650 – 1837)

Context – the relationship between artifacts and where they are found, such as depth from surface, association with soil or cultural features, or cultural component assignment. Not the same as *historic context*.

Disturb - any activity that significantly harms the physical integrity or setting of an archaeological site or human burial ground.

Feature – non-artifactual evidence of human activity at an archaeological site usually expressed as noticeable soil disturbances such as pits and hearths. It can also refer to masonry walls and other structures at historical archaeological sites.

Field Archaeology - the study of the traces of human culture at any land or water site by means of surveying, digging, sampling, excavating, or removing objects, or going on a site with that intent (MS 138.31).

Geomorphology – the study of the earth’s surface and how it has evolved generally with regard to soils and sediments.

Grave Goods – objects or artifacts directly associated with human burials or human burial grounds that were placed as part of a mortuary ritual at the time of internment.

Historic Context – an organizational construct that groups related property types (e.g., *archaeological sites*) together based on a similar culture, geographical distribution, and time period. The Minnesota SHPO has developed a number of statewide historic contexts for the Precontact, Contact, and Post-Contact periods. An example of a Precontact context is Clovis. Not the same as *context* used in a purely archaeological sense.

Historic Period – synonymous with the *Contact* and *Post-Contact* periods when artifacts of Euroamerican manufacture are present or written records available; begins about 1650 in the Upper Midwest.

Horizon - a technological or behavioral attribute with broad geographical distribution, but not necessarily at the same time (e.g., fluted point horizon); also a particular layer within an archaeological site.

Human Remains - the calcified portion of the human body, not including isolated teeth, or cremated remains deposited in a container or discrete feature.

Lithic – made of stone; lithic artifacts are generally manufactured by either chipping or flaking high quality materials (e.g., chert, chalcedony) to produce tools such as knives, scrapers, and projectile points or by grinding or pecking granular rocks (e.g., sandstone, granite) to produce tools such as mauls, hammerstones, or axes.

Lithic Scatter – an archaeological site evidenced almost exclusively by the presence of stone tools or stone tool manufacture.

Mississippian Tradition – A Late Prehistoric cultural tradition associated with developments originating at the Cahokia site on the Mississippi River across from St. Louis. Characteristics include the use of shell-tempered pottery, intensive corn horticulture, settled village life, and small triangular arrowheads. Mainly found in southern Minnesota, it lasts from about A.D. 1000 to A.D. 1650.

Qualified Professional Archaeologist - an archaeologist who meets the United States Secretary of the Interior's professional qualification standards in Code of Federal Regulations, title 36, part 61, appendix A, or subsequent revisions. These standards require that the archaeologist has a graduate degree in archaeology or a closely related field, has at least one year's full-time experience doing archaeology at the supervisory level, and has a demonstrated ability to carry research to completion. There are specific additional standards for prehistoric, historic, and underwater archaeologists.

Paleoindian Tradition – The earliest major cultural tradition in the New World characterized by the use of well-made lanceolate projectile points and the hunting of now extinct animals such as mammoth and giant bison. It is dated to 12,000 B.C. – 8000 B.C.

Period - a temporal span often associated with a particular cultural tradition (e.g., Woodland)

Petroglyph - a design inscribed into a rock face by grinding, pecking or incising; examples can be seen at the Jeffers site in Cottonwood County and Pipestone National Monument.

Phase - a geographically discrete taxonomic unit represented by a group of sites with cultural and temporal similarity (e.g., *Fox Lake* in southwestern Minnesota)

Phase I Survey – synonymous with a reconnaissance survey; a survey whose objective is to find archaeological sites, map the horizontal limits of the sites, and define the basic historic periods present.

Phase II Survey – synonymous with an evaluation survey; intensive fieldwork whose objective is to determine the significance of an archaeological site by assessing the site's research potential as demonstrated by the robustness of the identifiable historic contexts present and the integrity of artifacts and features associated with those contexts. Significance is generally equated with eligibility to the National Register of Historic Places.

Phase III Project – synonymous with a treatment activity or site excavation; very intensive fieldwork generally done to mitigate the adverse effects of development upon a significant archaeological site through data recovery utilizing numerous formal excavation units or other intensive investigative methods.

Pictograph – a design painted or drawn on a rock face.

Plains Village Tradition - A Late Prehistoric cultural tradition associated with the establishment of settled village life along major river valleys in the Great Plains. Characteristics include the use of globular pots that are smooth surfaced and grit tempered as well as intensive corn horticulture and fortifications. Found in western Minnesota, the tradition lasts from about A.D. 1000 to A.D. 1500.

Post-Contact Period – the period of Euroamerican as opposed to Indian dominance in Minnesota beginning with the first major land cession treaties in 1837.

Precontact Period –the time period dating from the earliest human occupation up to the significant incursion of European culture usually dated to about 1650 in the Upper Midwest; synonymous with *Prehistoric Period*.

Prehistoric Period – synonymous with the *Precontact Period* (see above); sometimes divided into Early (12,000 – 5000 B.C.), Middle (5000 B.C. – A.D. 1000), and Late (A.D. 1000 – 1650).

RCYBP – Radiocarbon Years Before Present means the measured aged of a radiocarbon sample with Present set at 1950, the first year of extensive radiocarbon dating. Because all dates are subject to inherent errors, the actual age of any sample needs to be corrected. The error can be thousands of years for dates over 10,000 RCYBP.

Recorded Cemetery - a cemetery that has a surveyed plat filed in a county recorder's office.

Section 106 – refers to Section 106 of the National Historic Preservation Act of 1966, which states that federal agencies must *consider* the impacts their undertaking have on significant historic properties and *consult* with knowledgeable entities (e.g., SHPO) about these impacts.

State site or state archaeological site - a land or water area, owned or leased by or subject to the paramount right of the state, county, township, or municipality where there are objects or other evidence of archaeological interest. This term includes all aboriginal mounds and earthworks, ancient burial grounds, prehistoric ruins, historical remains, and other archaeological features on state land or on land subject to the paramount rights of the state (MS 138.31).

Tradition - a prehistoric culture based on lasting artifact types or archaeological features (e.g., *Paleoindian*)

Woodland Tradition – The post-*Archaic* cultural tradition first identified in the Eastern Woodlands of the United States. It is characterized by the appearance of pottery and burial mounds. Wild rice use becomes intensive in northern Minnesota with limited corn horticulture eventually appearing in the southern part of the state. Woodland begins about 500 B.C. and lasts until A.D. 1650 in northern Minnesota, but is replaced by Plains Village and Mississippian cultures in southern Minnesota about A.D. 1000.