

Archaeology in Minnesota

Annual Report of the State Archaeologist

Fiscal Year 2013



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 2013, the Office of the State Archaeologist (OSA) was involved in a wide variety of activities in order to fulfill legal obligations, protect archaeological sites, promote research, educate the public, and generally support the advancement of Minnesota archaeology.

Chapter 1 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 2013 by program area. Major FY 2013 OSA accomplishments include: reviewing 298 site inventory forms, reviewing 73 development projects, formally authenticating 10 burial sites, doing field research at 24 locations in 20 different counties, and helping to direct the *Statewide Survey of Historical and Archaeological Sites*.

Basic OSA Fiscal Year (FY) 2013 and Calendar Year (CY) 2013 statistics are:

	FY13	CY13
Licenses Approved:	76	84
Site Forms Reviewed:	298	305
Site Numbers Assigned:	264	259
Reports Added:	82	88
Projects Reviewed:	73	86
Major Burial Cases:	18	-
Burial Authentications:	10	-

Chapter 3 provides an assessment of the current state of Minnesota archaeology including a summary of projects funded in 2013 by the Legacy Amendment *Arts and Cultural Heritage Fund* for the *Statewide Survey of Historical and Archaeological Sites*. It also presents a plan for OSA activities in FY 2014.

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

Acknowledgements

Director Laurie Beyer-Kropuenske of the Department of Administration Community Services Division provides supervisory direction and essential support to OSA. Her sound advice and attention to detail are greatly appreciated. Numerous other Department of Administration staff provide daily support to the OSA for financial, technical, and personnel matters. Special thanks go to Curt Yoakum, Ryan Church, Adam Giorgi, and especially Commissioner Spencer Cronk.

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. It is a pleasure to work with Annamarie Hill and her very competent staff. Jim Jones is the long-serving point person for archaeology at MIAC, and Jim's always ready assistance and deep knowledge are much appreciated.

The Minnesota Historical Society (MHS) is another important partner of OSA. Archaeology Department Head Pat Emerson and her staff provide day-to-day support. State Historic Preservation Office (SHPO) staff, especially Sarah Beimers, Tom Cinadr, and Kelly Gragg-Johnson, provide critical environmental review information and records management assistance. The OSA leases office space from MHS at the Ft. Snelling History Center where Tom Pfannenstiel, Brenda Williams, Paul Cusick, and Kurt Shimek provide 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 daily support and advice of my wife Pat makes my job much easier and more enjoyable.

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 critical 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.

Scott Anfinson
State Archaeologist
January 2014

Table of Contents

Mission Statement	i
Abstract	ii
Acknowledgements	iii
Table of Contents	iv
Chapter 1: Introduction	
The Office of State Archaeologist – Historical Background	1
Duties of the State Archaeologist	2
Chapter 2: Summary of OSA Activities – FY 2013	
Licensing and Activities of Licensees	6
Records Maintenance	8
Development Plan Review	13
Agency Assistance	15
Archaeological Research	15
Public Education	18
Burial Sites Protection	20
Chapter 3: Minnesota Archaeology in 2013	
Statewide Survey of Historical and Archaeological Sites	36
Current Status of Minnesota Archaeology	45
A Plan for 2014	46
References Cited	50
Appendix A - Glossary of Minnesota Archaeological Terms	51

Cover Illustration: Ruins of the Halloran Stagecoach Stop near Chatfield examined by a Legacy-funded *Statewide Survey of Historical and Archaeological Sites* project in 2013.

Chapter 1: Introduction

This report summarizes the activities of the Office of the State Archaeologist (OSA) for Minnesota State Fiscal Year (FY) 2013, the period from July 1, 2012 through June 30, 2013. It also includes some statistics and information for the 2013 Calendar Year (CY).

The State Archaeologist is a civil service employee of the Minnesota Department of Administration and is considered a separate department within the Community Services Division. 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 an biennial appropriation from the state legislature for salaries and operating expenses.

Minnesota Statutes (MS) 138.38 requires that the State Archaeologist complete annual reports. The reports must be sent to the Commissioner of Administration with copies to the Minnesota Historical Society (MHS) and the Minnesota Indian Affairs Council (MIAC). Copies are also sent to the Minnesota Legislative Reference Library, the Department of Transportation (MnDOT), the Department of Natural Resources (DNR), and to other organizations and individuals upon request. The current Annual Report and all previous OSA Annual Reports are available on the OSA website (<http://www.osa.admin.state.mn.us/>).

The Office of State Archaeologist – Historical Background

In 1939, the Minnesota Legislature enacted the Minnesota Antiquities Act (MS 84.37 - .42) reserving for the state the right to license archaeological exploration at any site and claiming ownership of any artifacts recovered from such explorations. Any person who intended to excavate, explore, investigate, or survey an archaeological site in Minnesota on public or private land was required to obtain a license from the Commissioner of Conservation upon recommendation of a designated archaeologist in the Department of Anthropology at the University of Minnesota. Lloyd Wilford, the state's first professional archaeologist, was the designated archaeologist from 1939 until his retirement in 1959. Elden Johnson replaced Wilford at the University of Minnesota in 1959 and became the next designated archaeologist.

The Field Archaeology Act (MS 138.31 - .42) officially established the position of State Archaeologist in 1963. Initially, the Director of the Minnesota Historical Society (MHS) appointed the State Archaeologist to 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 at the Department of Administration and is now appointed by the Commissioner of Administration. The four year term has been eliminated.

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 worked as a federal employee based outside of the Twin Cities area.

From December of 1992 through January of 1995, there was no State Archaeologist. Mainly due to issues relating to the Private Cemeteries Act (MS 307.08), lobbying by developers, state agencies, and archaeologists resulted in the Legislature appropriating funds for the State Archaeologist in FY 1995. Mark Dudzik was appointed State Archaeologist in February 1995 and became the first State Archaeologist to be paid a salary. 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 was the archaeologist for the State Historic Preservation Office (SHPO) of the MHS (1990-2005), and prior to that, directed the County-Municipal Highway Archaeological Survey at MHS (1975-1990). 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 103F) and the Minnesota Environmental Policy Act (MS 116D). The State Archaeologist is also named in Coroner and Medical Examiner law (MS 390.25, Subd. 5). More recently, duties have been assigned under the Legacy Amendment Arts and Cultural Heritage Fund (MS 129D.17). The State Archaeologist 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 archaeologist's qualifications for licensing 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 duties including the “authentication” of historic, but legally unrecorded cemeteries. This law has been amended eight times since 1976, most recently in 2007.

The State Archaeologist's duties under MS 307.08 are:

- authenticates all unrecorded burial sites over 50 years old
- grants permission for disturbances in unrecorded non-Indian cemeteries
- allows posting and approves signs for authenticated non-Indian cemeteries
- maintains unrecorded 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 unrecorded burials

Minnesota Water Law (MS 103F) - Rules 6120

The State Archaeologist has several duties specified in Minnesota Water Law Rules, which implement MS 103F pertaining to the development of shoreland as regulated by state and local agencies. Agency reviews 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. Unrecorded cemeteries are automatically considered to be significant historic sites. The rules specify that no structure may be placed on a significant historic site in a manner that affects the values of the site unless adequate information about the site has been removed, documented, and curated in a public repository.

Under Rules 6120.2500, Subpart 15a, the State Archaeologist can determine if sites are eligible to the state or national historic registers, although under federal law formal eligibility for the National Register of Historic Places can only be determined by the Keeper of the National Register. Under 6120.3300, Subpart 3e, the State Archaeologist must approve any structure placed nearer than 50 feet from an unplatted cemetery.

Minnesota Environmental Policy Act (MS 116D) – Rules 4410.1500

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 non-public project covered by an EAW or EIS, it is the RGU that makes the decision as to whether or not this is necessary.

Minnesota Arts and Cultural Heritage Fund (MS 129D.17)

Originally established with the passage of the Clean Water, Land, and Legacy Amendment by Minnesota voters in 2008, in 2009 and again in 2011 the Legislature appropriated \$500,000 of the Arts and Cultural Heritage Fund for a *Statewide Survey of Historical and Archaeological Sites*. In 2013, the Legislature increased the funding to \$600,000 for the FY 14-15 biennium. The Legislation stipulates that the survey be governed by an Oversight Board and that one of the members be a representative of the Office of the State Archaeologist. As a member of this Board, the State Archaeologist shares responsibilities for setting priorities, writing requests for proposals (RFPs), selecting contractors, monitoring contract progress, and reporting results to the Legislature, the public, and to agencies.

Coroner, Medical Examiner Law (MS 390.25, Subd. 5)

After a coroner or medical examiner has completed the investigation of an unidentified deceased person, the coroner or medical examiner must notify the State Archaeologist of all unidentified human remains found outside of platted, recorded, or identified cemeteries and in contexts which indicate antiquity of greater than 50 years.

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 State Archaeologist is the principal archaeologist for the State of Minnesota. On a day-to-day basis, this involves seven major task areas:

- 1) approving license applications in a careful yet timely manner and monitoring the activities of the licensees;

- 2) reviewing site forms, issuing official inventory numbers, maintaining the inventory of known and suspected sites, and reviewing submitted archaeological reports;
- 3) reviewing development plans submitted by government agencies and private entities to evaluate the potential for harm to archaeological sites in project areas;
- 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; and
- 7) guiding the *Statewide Survey of Historical and Archaeological Sites*.



State Archaeologist Scott Anfinson excavating a test unit in Kandiyohi County in 2013 for the *Statewide Survey of Historical and Archaeological Sites*. (It was a very hot day.)

Chapter 2: Summary of OSA Activities – FY 2013

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, monitors the activities of the licensees, and maintains records of past licensees.

Beginning in the mid-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 Minnesota Trunk Highway Archaeological Reconnaissance Survey (1968 – 1994). A revised licensing procedure was implemented in May 2006, which issued yearly (calendar) licenses to individuals for the purposes of reconnaissance (Phase I) and evaluative (Phase II) archaeological surveys. Licensees were required to notify the OSA by email of each project to be surveyed under their license, to provide a separate report for each survey project, and to provide a brief yearly summary of all archaeological work conducted under their license. Separate licenses were still required for intensive excavation projects (Phase III) on non-federal public land and for burial authentication work on non-federal public or private land.

In calendar year 2011, the State Archaeologist, after coordination with the Minnesota Historical Society, once again revised licensing procedures resulting in four types of licenses: 1) a yearly license for reconnaissance (Phase I) survey, 2) a site-specific license for site evaluations (Phase II), 3) a site-specific license for major excavations (Phase III), and 4) a site-specific license for burial authentications. The reasons for separating the yearly reconnaissance license from evaluation activities were: 1) the increase in applications from out-of-state contractors who are not familiar with Minnesota historic contexts and field procedures, 2) inappropriate evaluations by some prehistoric archaeologists of historic archaeological sites and some historical archaeologists of prehistoric sites, and 3) inappropriate evaluations by some Minnesota archaeologists unfamiliar with a particular Minnesota region or specific historic context.

Revised Professional Qualifications Standards for each type of license were also issued in CY 2011. Archaeologists who have received the combined Phase I-II yearly license in the past are not necessarily qualified to receive an Evaluation License (Phase II), as receiving that license will be dependent on demonstrating appropriate personal qualifications for each site involved. This includes detailed familiarity with the historic contexts present at the site and the archaeological region where the site is located.

The DNR divisional archaeological survey programs continue to receive the combined Phase I-II licenses as there is often a need for these programs to rapidly and efficiently deal with a great variety of projects throughout the state. The principal investigators for these programs are familiar with all Minnesota contexts and they have worked in all regions of the state.

The licensing totals for Fiscal Year (FY) 2013 and Calendar Year (CY) 2013 are:

License Type:	FY13	CY13
Phase 1/Reconnaissance Survey (yearly):	62	61
Phase 2/Evaluation Survey:	9	15
Phase 3/Excavation:	4	5
Authentication:	<u>1</u>	<u>3</u>
Total:	76	84

Most licensed projects involve reconnaissance surveys of relatively small areas and most of these surveys do not locate archaeological sites, although a few 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 require opening large units and usually produce the most valuable information about Minnesota's archaeological past. Authentication projects help the State Archaeologist determine if human burials exist at particular locations.

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 sites) are 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 2013 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. The four MHS-DNR archaeological programs do reconnaissance surveys (Phase 1), site evaluation testing (Phase 2) and occasional site mitigation (Phase 3) work. They each provide a yearly summary in an annual report.

Dave Radford runs the State Parks Archaeology program assisted by LeRoy Gonsior, Douglas George, and Jacob Foss. The State Parks archaeological crew has spent considerable time over the past several years surveying the new Lake Vermilion State Park finding important prehistoric and early mining sites. In 2013, they also investigated an important early prehistoric site at McCarthy Beach State Park in St. Louis County.

Tim Tumberg runs the Trails and Waterways program with the assistance of Jennifer Tworzyanski, Mathew Finneman, and Miranda Van Vleet. They continued reconnaissance survey along the Blazing Star Trail in Freeborn County. Testing of a prehistoric site (21CW104) on the Cuyuna Trail in Crow Wing County recovered a partial Kathio ceramic vessel. In Kandiyohi County, extensive testing was undertaken at a prehistoric site (21KH46) that will be impacted by a planned boat access on Lake Kasota; some of this testing was coordinated with a *Statewide Survey of Historical and Archaeological Sites* project investigating the Woodland Period in west central Minnesota.

Mike Magner assisted by Stacy Allan handle DNR Forestry and Wildlife and Fisheries cultural resource programs. Their efforts in FY2013 included archaeological investigations of

a parking lot expansion at the important A.H. Anderson site (21AN8) in Anoka County and examination of an early milling dam on the Minnesota River near Granite Falls.

There were three extensive archaeological excavations issued OSA/MHS licenses in FY 2013. Ed Fleming (Science Museum of Minnesota) and Gilliane Monnier (University of Minnesota) continued their excavations at the Bremer Village site (21DK6) in Dakota County. (Fleming was issued two licenses for this in FY 2013, one for CY12 and one for CY13.) The State Archaeologist visited this excavation on 8/1/12 and 7/24/13. Ron Schirmer of Minnesota State University was issued a license for this work at site 21GD260 near Red Wing. The State Archaeologist visited this excavation on 5/30/13. Jeremy Nienow (Inver Hills Community College) was issued a license for excavations at 21ML6 on Lake Mille Lacs adjacent to the historic Ayer's house owned by the Minnesota Historical Society. The State Archaeologist visited this excavation on 6/11/13.

There was one burial authentication license issued in FY2013. This license was issued to geoarchaeologist Mike Kolb for his work at 21HE20 in Eden Prairie. All other burial authentications in FY 2013 were completed by OSA staff.

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 contained 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 submit information about them to the University's Archaeology Lab.

The University of Minnesota's site file became the official state site file with the appointment of Elden Johnson as the first State Archaeologist in 1963. By the late 1960s, the focus of site file use was changing from research to cultural resource management (CRM), mainly due to several new federal laws including the National Historic Preservation Act (1966), the Department of Transportation 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 LCMR-funded Statewide Archaeological Survey (SAS) by the Minnesota State Historic Preservation Office (SHPO) at MHS and concurrently 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 1979 through 1981. The SAS also developed a one-page site form that could be folded to fit in the State Archaeologist's 5"x7" card file or be left unfolded in the SAS folders.

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 most archaeologists as it had to be accessed on-site through a main-frame computer. The MLMIS computerized data was not updated after 1981 and not converted for desktop use. With the demise of the SAS in late 1981, the assignment of official site numbers reverted to the State Archaeologist. The SAS paper site files became the files of the State Historic Preservation Office (SHPO).

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 officially 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). These word processor files were converted into an electronic database file in 1984 combining the various tables and a few new data fields. Under the Site Number field, unnumbered and unconfirmed sites 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, added folders for each "alpha" (officially unnumbered) site, and drew approximate site boundaries on a set of 7.5' USGS maps. 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/).

During Mark Dudzik's tenure as State Archaeologist (1995-2005), 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 also maintains 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 Minnesota archaeological site database. This means that the database is now quickly updated following the OSA review of site forms and the assignment of new site numbers. The OSA provides copies of the database to SHPO and other appropriate government agencies.

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 different archaeological investigators, 3) correct data from a site form may have been incorrectly entered into the database, and 4) different data input personnel prior to 2007 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. The SHPO does not have most of the data contained in the OSA burial site files. The SHPO 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, although beginning in 2007, the OSA began to keep a set of USGS maps with newly-recorded sites locations depicted on these maps.

The *SHPO Manual for Archaeological Projects in Minnesota* (Anfinson 2005), the *State Archaeologist's Manual for Archaeological Projects in Minnesota* (Anfinson 2011), 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 2013, the OSA performed the following site file actions:

	FY13	CY13
New Forms Reviewed and Site Numbers Assigned:	264	259
Revised Forms Reviewed:	<u>34</u>	<u>46</u>
Total Forms Reviewed:	298	305

As of June 30, 2013 there were 18,530 archaeological sites listed in the archaeological site database. Of these, only 11,660 (63%) were assigned official state site numbers and thus have a hard-copy file at both the OSA and the SHPO. As of December 31, 2013 there were 18,648 total sites in the site database of which 11,698 (63%) were numbered. The majority of 6,950 unnumbered sites (known as alpha sites as they are assigned alpha-numeric numbers) are federal land sites in Chippewa and Superior National Forests from information obtained by the SHPO in the 1990s. Some are also Post-Contact Period sites documented on early historic maps (e.g., Trygg, Andreas), but as of yet unconfirmed in the field by archaeologists. 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 CY2013 total of 18,648 in the OSA site database represents a tripling of recorded sites since 1990, some of which is due to the addition of federal inventories (many lacking state numbers) by the SHPO in the mid-1990s.

On average about 300 site inventory forms are submitted to OSA each year. The county with the most sites is St. Louis with 1,997 (1,220 numbered) sites. The county with the fewest known sites is Mahanomen with 22 (19 numbered), although Dodge County has only 16 numbered sites along with 31 alpha sites for a total of 47.

It is conservatively estimated that less than 1% of the total prehistoric 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 that are over 100 years old.

Intensively investigated sites include sites that have been the subject of university field school excavations or sites subjected to detailed archaeological work for CRM purposes, including both Phase II (Evaluation) and Phase III (Data Recovery) projects. Intensive investigation means formal units (e.g. 1x1 m) were excavated or other forms of intensive examination (e.g., controlled surface collection) were used at the site. Total intensively investigated sites in 1963 was 170 (15% of the total numbered sites), 440 (14%) in 1983, 491 (8%) in 1990, and 1,620 (9%) at the end of CY 2013 (437 Phase III; 1,183 Phase II only).

There are about 300 Minnesota archaeological sites listed in the National Register of Historic Places (NRHP). Individual site nominations account for 111 of these listings with perhaps another 200 sites included within 18 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 consensus determinations for the federal Section 106 process. Two (2) archaeological sites were added to the National Register in CY 2013: Indian Mounds Park (21RA10) in Ramsey County and Fort Juleson (21OT198) in Otter Tail County.

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 alpha numbers.

In September 2003, the OSA began making the Burials Site Database partially available to local government agencies on a webpage maintained by the Minnesota Geospatial Information Office (MnGEO). At that time, a letter was sent to all county governments and assigned them a password to access the website. The website provided a graphic interface allowing local governments to determine if a burial site existed within a specific quarter-quarter section of land (40 acres). If a site did exist within the quarter-quarter, the agency could contact the OSA to get more specific information about particular burials. This website was taken down in 2013 when it was discovered that the software provided by DNR could not account for meandered land (i.e., government lots) in legal location descriptions.

As of June 30, 2013 and December 31, 2013 there were 2,938 burial sites listed in the OSA’s Burial Sites Database. This includes about 12,000 burial mounds in over 1,600 discrete sites. Over 350 of the non-mound burials post-date 1837, the beginning of intensive Euro-American settlement in Minnesota. There are 762 known or suspected burial sites that do not have an official site number, although a few of these may be duplicates of numbered sites.

In 2011, a Legacy Amendment-funded initiative for the *Statewide Survey of Historical and Archaeological Sites* compiled a comprehensive list of historic-period cemeteries following

an intensive literature search. This study (Vermeer and Terrell 2011) identified 5,876 cemeteries, of which about 2,500 appear to be officially unrecorded and are thus subject to some OSA management consistent with MS 307.08. Only 156 of these cemeteries are in the current OSA Burials database, of which only 111 have official state site numbers. An effort is being made to determine which sites in this database are subject to OSA authority and to make this database more widely available. It is the only comprehensive cemetery database.

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 listing reports they have on file.

In FY 2013, 82 reports were added to the OSA files. A total of 88 reports were added in CY 2013. As of the end of December 2013, the OSA had 5,609 reports listed in its reports database.

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 on 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. Based on a 2006 Minnesota Attorney General opinion obtained by OSA, “agency” refers 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 or may be 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 2007, requires that state agencies, local governments, and private developers submit development plans to the State Archaeologist when known or suspected human burials 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) in January 2007. 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 Potential 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 unrecorded burials or sites on non-federal public property are involved. There are also times when the OSA is simply too busy with more critical duties so EAW reviews do not get completed within 30 days and no comment is issued unless a known site is threatened. This is becoming more common mainly due to the expansion of OSA responsibilities associated with the *Statewide Survey of Historical and Archaeological Sites*.

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 neighborhoods. This information is provided as necessary. Some of the requests result in field visits by the State Archaeologist.

During FY 2013, the OSA completed substantial review of 73 development projects, most of which were part of the state EAW/AUAR/EIS process. The OSA recommended an archaeological survey on a City of Shakopee trail development near the Samuel Pond House Ruin, which is part of the Shakopee Village site (21SC2). This project was not subject to any federal or automatic SHPO review. No other archaeological surveys or site avoidance requests for EAWs were recommended by OSA in FY 2013 as most projects with impact potential were reviewed by the SHPO.

Development projects that were field review by the State Archaeologist in FY 2013 included the Bemidji Library project in Beltrami County with regard to impacts to 21BL31, the County Road 101 bridge project with regard to impacts to deeply buried sites on the north side of the Minnesota River in Carver County, the Ayers House project in Mille Lacs County with regard to sidewalk impacts to 21ML6, and the City of Shakopee trail project with regard to impacts to the Samuel Pond House and Shakopee Village site (21SC2) in Scott County. The State Archaeologist also examined a concentration of mussel shells in Crow-Hassan Park at the request of Three River Park District; the shells were determined to be of recent deposition, probably in the 1930s.

Agency Assistance

One of the principal duties of the State Archaeologist is to assist state agencies with cultural resource management issues. During FY 2013 these duties mainly included meetings and site visits associated with DNR State Park developments and MnDOT highway projects. The State Archaeologist serves on MnDOT Advisory Committees for the MnModel 4 and Cultural Resource Inventory System (CRIS) projects.

OSA also assists local agencies. OSA staff spend considerable time on email and telephone correspondence aiding cities, counties, and other local agencies with development review. In FY2013, the State Archaeologist continued to assist Winona County and Cass County with implementation of their land use ordinances as they apply to archaeological sites and unrecorded cemeteries. The State Archaeologist serves on Three Rivers Park District and Dakota County Parks advisory panels.

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 maintained at the OSA. Along with the electronic database are paper copies of reports and laboratory reporting sheets for radiocarbon dates (also known as ¹⁴C dates) from Minnesota archaeological sites. Thirty-four (34) dates from 8 sites were added in 2013. Fifteen (15) dates were from Phase 2 work on Carver County sites associated with the replacement of the Co Rd 101 bridge over the Minnesota River near Shakopee and 14 dates from a Legacy-funded study of the Late Prehistoric Period in western Minnesota.

The database currently contains 565 dates from 157 sites. The best-dated site in the state is the Late Prehistoric Bryan site (21GD4) at Red Wing with 26 dates. Other sites with reported dates in double digits are: Hannaford (21KC25) with 23, McKinstry (21KC2) with 21, Smith (21KC3) with 15, 21ML81 with 14, Donarski (21MA33) with 12, and Mooney (21NR29) and J Squared (21RW53) each with 10. Fifty-five (55) 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).

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 from archaeological sites 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, which resulted in dramatic shifts in funding and employment from cultural institutions to government agencies and private contractors. Universities remain the principal training institutions for archaeologists and principal producers of research-oriented archaeology.

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 and Inver Hills Community College also

offer courses in archaeology with some fieldwork. 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 2013, the following university-based field research was undertaken in Minnesota:



Minnesota State University – Mankato field school in Goodhue County (21GD260)

University of Minnesota – Minneapolis

- no field school at Reaume site (21WD15), but limited testing by graduate student
- Ed Fleming (SMM) and Gilliane Monnier field school at Bremer Village site (21DK6)

Minnesota State University - Moorhead (George Holley, Ranita Dalan)

- intensive remote sensing at MHS Comstock House (21CY78) in Moorhead

Minnesota State University – Mankato (Ron Schirmer)

- field school excavation at Mosquito Terrace (21GD260)
- field school testing at Silvernale mound site (21GD17)

Hamline University (Brian Hoffman)

- field school at sites near the Jeffers Petroglyph site (21CO3) in Cottonwood County

The State Archaeologist and his assistant visited the University of Minnesota - Science Museum of Minnesota excavations at the Bremer site and Minnesota State - Mankato investigations at the Mosquito Terrace and Silvernale sites.

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 permits, 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 excavations on federal land in FY 2013, although the examination of the Knife Lake quarries in Superior National Forest continues by a number of institutions.

The Minnesota Historical Society conducted extensive archaeological testing at the Ayer House (21ML6). The project was under the direction of Jeremy Nienow who was in the employment of Bolton and Menk. The purpose of the project was to better assess and mitigate adverse impacts from a proposed boardwalk.

David Mather, the SHPO archaeologist, and Jim Cummings, a DNR archaeologist/naturalist for Kathio State Park, continued their research at the Petaga Point site (21ML11) for Archaeology Day. In FY2013, they excavated another 1x1 meter unit.

In October 2012, Staffan Peterson of Indiana University did limited testing at Monson Lake State Park in Swift County examining the site of the Broberg Cabin (21SW16) that dated to the US – Dakota War of 1862. The cabin, built by Swedish immigrants in 1861, was attacked by a Dakota raiding party in August 1862. Several settlers were killed and the structures were burned. Dr. Peterson is a descendant of the Brobergs and obtained a legacy grant from the Minnesota Historical Society to do the archaeological work.

Public Education

Archaeology Week - The OSA has served as the organizer and major sponsor of Minnesota Archaeology Week since 1998. The OSA responsibilities include funding, compiling a Calendar of Events, producing a poster, determining the Elden Johnson Distinguished Lecturer, and promotion. The first Archaeology Week was held in 1995. Prior to 2012, Archaeology Week had always been held in the Spring of the year, but in 2012 it was decided to hold the event in the Fall rather than the Spring as it seemed more compatible with both secondary and post-secondary school seasons.



Commissioner of Administration Spencer Cronk, Director Laurie Beyer-Kropuenske, and OSA's Bruce Koenen at the 2013 Archaeology Day Fair at Fort Snelling State Park

Archaeology Week in FY 2013 was held September 8-16, 2012. There were 17 events in 12 counties. John Soderburg of the University of Minnesota presented the 17th Elden Johnson Distinguished Lecture, entitled "New Views from Jeffers: Results of the Anthropology Labs' 3-D Scanning Project at Jeffers Petroglyphs." Several hundred people attended the Archaeology Fair held at Fort Snelling State Park. The State Archaeologist appeared on two television stations discussing Minnesota archaeology and

Archaeology Week events. The CY 2012 Archaeology Week poster was titled *A Story in Clay* and describes how prehistoric ceramics are made and interpreted. The CY 2013 Archaeology Week poster was titled *A Story in Stone* and describes how prehistoric stone tools were made and interpreted.

Presentations and Meetings – During FY 2013, the State Archaeologist made the following professional presentations: a talk on cemeteries to the Minnesota Society of Professional Surveyors in Bloomington on 2/7/13 and a presentation as part of the LiDAR – Mounds session at the CMA research symposium at Inver Hills Community College on 2/8/13.

The State Archaeologist attended the following meetings in FY 2013: the Council for Minnesota Archaeology (CMA) meeting at Ft. Snelling on 10/27/12, the Gales of November shipwreck meetings in Duluth 11/2/12 – 11/3/12, and the SHPO Review and Compliance seminar on 5/7/13. OSA assistant Bruce Koenen attended Archaeology Day at Kathio State Park on 9/29/12, the Gopher State Artifact Show in Lakeville on 3/30/13, the SHPO Review

and Compliance seminar on 5/7/13, and the Pine City Knap-In on 6/28-29/13. He helped organize the CMA research symposium at Inver Hills Community College on 2/8-9/13.

OSA Archaeology in Schools and Communities – 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 2013, he put on three flint-knapping workshops at Normandale Community College (11/30/12, 12/6/12, 5/3/13), gave Hamline University and St. Cloud State University cultural resource management students and Inver Hills Community College archaeology student tours of the OSA office, and gave a talk on archaeology to the Steele County Historical Society on 3/28/13. He gave a presentation to a University of Minnesota extension class (*A Dakota Guide to Outdoor Survival*) at the Bell Museum on 10/16/12.

The State Archaeologist made a presentation on the history of landscape change at St. Anthony Falls for an Augsburg College environmental studies class on 1/24/13, gave a talk on cultural resource management to an anthropology class at Macalester College on 2/13/13, and gave a talk on Minnesota archaeology to St. Dominic's School in Northfield on 1/1/13.

The State Archaeologist continues to serve as an Instructor in the University of Minnesota Department of Anthropology. In FY 2013, 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.

Internships – The OSA sponsors unpaid internships to not only train students of archaeology in practical skills, but to accomplish needed work within the office. In FY 2013, the OSA had one intern, Cassandra Sterrett of Minnesota State University – Mankato.

Boards and Committees – The State Archaeologist serves on a number educational boards and committees. In FY2013, he served on the University of Minnesota Heritage Education Collaborative and the Society for American Archaeology (SAA) Public Education Committee. He is an editorial advisor to the *Midcontinental Journal of Archaeology*. As specified in Minnesota Statutes 129D.17, the State Archaeologist is on the Oversight Board for the Legacy Amendment-funded *Statewide Survey of Historical and Archaeological Sites*. Bruce Koenen serves on the advisory board for the Cultural Resource Management Master's Degree program at St. Cloud State University.

Writing and Publications - The State Archaeologist edited a chapter on Minnesota Archaeology for an ecology book for the Minnesota Biological Survey and edited a section on archaeology for Minnesota Master Naturalist curriculum.

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 due either to media reaction to a newsworthy situation or are generated by the media due to a perceived public interest. In many cases, the State

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

Major media exposure for the State Archaeologist in FY2013 included an interview for the *Minneapolis Star Tribune* on 7/29/12 regarding shipwrecks in Lake Minnetonka, an interview by Channel 5 on 7/31/12 regarding a burial disturbance at Ft. Snelling, an appearance on Channel 2's *Almanac* to discuss Archaeology Week on 9/7/12, an interview with Channel 5 during Archaeology Week on 9/8/12, an interview on 9/18/12 regarding the Slininger site (21NR1) for the "America Unearthed" series on the *History Channel*, an interview on KFGO Fargo on 12/11/12 regarding the Grant County cemetery disturbance, an interview by the *Mankato Free Press* on 1/2/13 regarding pioneer cemeteries, an interview on Minnesota Public Radio on 1/13/13 regarding the Grant County cemetery disturbance, an interview for the *Minneapolis Star Tribune* on 1/16/13 regarding shipwrecks in Lake Waconia and White Bear Lake, an interview on WDAY Fargo on 5/13/13 regarding the Grant County cemetery disturbance, and an interview for the *Minneapolis Star Tribune* on 5/17/13 regarding an archaeological dig at the White Bear Boatworks.

Professional Development – Due to a state agency freeze on out-of-state travel, the State Archaeologist has limited access to major professional conferences. In FY 2013, the State Archaeologist attended the Lake Superior Basin Archaeological Workshop in Duluth on 3/15-16/13. 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 Lake Superior Basin Archaeological Workshop in Duluth on 3/15-16/13.

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 agencies and landowners on legal and management requirements for unrecorded burial grounds.

In 1985, State Archaeologist Hohman-Caine and MIAC developed formal burial ground management procedures for Indian burials. These procedures were revised several times, but had not been revised after a major change in the MS 307 legislation occurred in 1993. The 1993 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 and that all land within those limits be properly treated. Human remains within the grounds 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 addressed all recent revisions of MS 307.08, including the 2007 revisions (Anfinson 2008). The major differences between the new procedures and the ones developed by State Archaeologist Hohman-Caine in the 1980s are that the new procedures apply only to the OSA and not to other “appropriate authorities” including MIAC and the procedures include both Indian and non-Indian burials. 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 2013 Activities - The OSA took action on 18 major burial cases in FY 2013. “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, an affiliation determined, and an official finding transmitted to the landowner, it is considered to be “authenticated.” There is no standard term for a negative authentication finding.

The OSA typically receives multiple emails and telephone inquiries every week relating to possible burial cases, but most of these can be dealt with quickly and without the need for fieldwork. These “minor” cases do not individually cause a significant expenditure of OSA time or resources, although minor cases as a whole and the major cases take a considerable expenditure of personnel time. Burial site protection activities account for about one-third of the workload of the OSA.

Of the 18 major burial cases in FY 2013, all but one involved some OSA fieldwork and 10 resulted in formal authentication (8 positive and 2 negative). Authentication involves four steps: 1) determining if the site is indeed a burial ground, 2) defining the limits of verified burial ground, 3) attempting to determine ethnic identity, and 4) sending official correspondence with an authentication conclusion to the landowner as well as appropriate local officials and MIAC in the case of Indian burials. All FY 2013 major cases are discussed below. One (1) of the cases resulted in the discovery of previously unrecorded burial site. Fourteen (14) of the sites involve Indian burials and three (3) involve non-Indian 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 (i.e., if they are in the vicinity of other projects being field reviewed). The known sites can be either sites that were originally documented in the distant past or sites that have been involved with recent authentication or reviewed development projects. In FY 2013, the State Archaeologist field examined 8 sites/locations that did not require immediate OSA action: 21CW8, 21HE59, 21HE60, 21HE393, a location in Houston County, 21PO1, Dundas Episcopal Church Cemetery in Rice County, and 21SC22. All of these sites were photo-documented.

MS 307.08 Major OSA Actions – FY 2013

21AK6 – Landowner Request for Burial Authentication, Aitkin County

In late July 2012, a resident from Big Sandy Lake in Aitkin County called about a “For Sale” sign on a property that she thought contained burials mounds. An OSA file search determined that the property was near 21AK6, a known mound site. The realtor representing the landowner was contacted and told that an OSA field survey would be completed to determine if the subject property indeed contained burial mounds.

Site 21AK6 had originally been reported by amateur archaeologist Jacob Brower in 1893, although no sketch map or exact location was available in OSA files. Archaeologist Lloyd Wilford of the University of Minnesota visited the site in 1940, confirming five mounds at the location. In 1977, a survey of Big Sandy Lake undertaken by the Science Museum of Minnesota for the Army Corps of Engineers, produced a rough sketch of the five mounds. There was no evidence in the OSA files that any archaeologist had visited the site since 1977.

On 11/1/12, the State Archaeologists visited site. A detailed map was made using both compass-and-tape and GPS methods. A possible sixth mound was noted at the edge of one of the previously known large mounds. On 11/7/12, the State Archaeologist sent an official authentication letter to the realtor with copies to MIAC and the Aitkin County Planning and Zoning Department. The letter confirmed the presence of the mounds, established a 20-foot perimeter around the outer edges of the mounds, and noted that any disturbances within the boundary had to be approved by MIAC. The letter also noted that the seller must notify any prospective buyer about the mounds and the disturbance restrictions.

21CH4 – Burial Authentication for Trail Project, City of Lindstrom, Chisago County

In April 2011, a project manager for SEH Inc. contacted the State Archaeologist regarding a trail project in the City of Lindstrom on the north side of Trunk Highway 8. This project was in the immediate vicinity of a recorded mound group, 21CH4. The site had been originally recorded by T.H. Lewis on 11/16/1885 who mapped 5 elongate mounds. A site visit by MHS- SAS personnel in the Fall of 1978 noted that the mounds had all “been destroyed by housing.” A MTHARS survey in 1990 noted that the south end of Mound 5 was still intact. A MnDOT survey by archaeologist Mike Justin of URS/BRW in 2003 also noted the south end of Mound 5 as being intact. In the Spring of 2003, OSA personnel visited the site, recording the possible Mound 5 remnant south of the highway.

In August 2007 the State Archaeologist visited the site in conjunction with MnDOT plans to upgrade TH 8 through Lindstrom. The possible remnant of Mound 5 was noted south of the highway, but there were no surficial remnants of the other four mounds north of the highway. They had apparently been destroyed or obscured by highway construction and school construction. Because the proposed trail would be located along the northern edge of TH 8 and would traverse the area once occupied by Mounds 1-4, in April 2011, the State Archaeologist recommended that MnDOT hire a geomorphological consultant to core the area to look for remnants of mound fill and burial pits. MnDOT hired Michael Kolb of Strata Morph to do the geomorphology and he completed his field work in the summer of 2011.

A verbal report from the MnDOT project archaeologist on 9/26/11 said that coring indicated the entire area had been severely disturbed with most of the natural soils truncated. There were no signs of mound fill or burial pits. The OSA did not receive a copy of the final geomorphology report in FY 2012 and thus could not issue an official authentication for 21CH4 in FY 2012.

The OSA received the authentication report for 21CH4 from MnDOT on January 23, 2013. The written report confirmed that the entire mound site within the project area had been completely disturbed. The State Archaeologist visited the project location on 6/12/13 after the project had been completed to take post-construction photographs.

21CW83 - Landowner Request for Downed Tree Removal, Crow Wing County

In October 2012, a land owner in the City of Cross Lake requested permission from the State Archaeologist to remove storm-damaged trees from a burial mound area on her property. The land owner sent pictures documenting the damage. The property was within the northern part of the known limits of mound site 21CW83. This site was first mapped by J.V. Brower in 1897 who recorded three groups of linear mounds paralleling each other. Together the groups are known as the Gordon-Schaust Embankments. The mounds were re-mapped by Douglas Birk and Douglas George of the Minnesota Historical Society in 1972. There have been numerous visits by archaeologists over the past 40 years. The site was listed in the National Register of Historic Places in 1974.

The State Archaeologist visited the location on 10/23/12, noting that no mounds had been disturbed by the storm from root ball tip-ups, although many trees had been blown down. The State Archaeologist gave the land owner email permission on 10/29/12 for downed tree removal as long as no heavy machinery was driven on the mounds and no soil disturbed. The email was copied to the City of Cross Lake and MIAC. OSA personnel re-visited the site on 6/11/13 to confirm the mounds had not been harmed and to photograph the area.

21CW83 - Landowner Request for Burial Authentication, Crow Wing County

In June 2013, a land owner in the City of Cross Lake requested confirmation from the State Archaeologist that a burial mound existed on her property. The property appeared to be within the southern part of the known limits of mound site 21CW83 discussed above.

OSA personnel visited the area on 6/11/13, to determine if any mounds were present within the subject property. This field survey and LiDAR imaging confirmed that the lot in question did contain a burial mound, but because it had been designated as an outlot in the plat, it should not be impacted by building construction. The State Archaeologist informed the landowner of this by email on 6/24/13 with copies to MIAC and the City of Cross Lake.

21CWba - County Road 3 Reconstruction, Crow Wing County

In December 2012, the Crow Wing County Highway Department contacted the State Archaeologist about possible burial mounds within the construction limits of a proposed upgrade of County Road 3 north of Cross Lake. These mounds had been reported during a Phase 1 survey of the construction area by the Duluth Archaeological Center (DAC) in September 2012. There were no previous reports of burial mounds in this vicinity and the DAC archaeologists had been unsure of the mounds so the location was given an alpha number rather than an official site number.

OSA personnel visited the site on 6/11/13 to determine if the mound features were indeed burial mounds. This field work determined they were not burial mounds. Crow Wing County was informed of the negative authentication by letter on 6/13/13.

21DK89 – Additional Survey of Ravenna Cemetery, Dakota County

In March 2011, Susan Myster, the physical anthropologist at Hamline University, called OSA to report that a metro-area high school had turned over human remains that had apparently been in the school's possession for perhaps 50 years. The remains contained a University of Minnesota accession number indicating they had been given to a U of M archaeological field school on Prairie Island in June 1957 after they had been uncovered by a grave digger at a nearby cemetery. The skeleton was examined by archaeologist Lloyd Wilford and assumed to be Euro-American due to the association with historic materials (cloth, buttons). Wilford apparently gave the skeleton to the school as a study specimen.

Myster reported that she only was given the post-cranial skeleton as the school reported that the skull had been stolen 4-5 years ago. Myster's measurements of the femur suggested that the skeleton may be of Dakota Indian affiliation.

Based on Wilford's description of the burial location, it appeared to have come from the Ravenna Cemetery near the town of Etter off the north end of Prairie Island. The State Archaeologist first visited the location on 5/6/11. There appeared to be a large burial mound in the center of the cemetery. The skeleton could have come from this mound or immediately adjacent to it. The early historic Dakota in the Red Wing area are known to have re-used prehistoric mounds for burial purposes. The remains are undergoing additional analysis at Hamline University, but no report has been given to OSA as of yet.

On 10/16/12, the State Archaeologist revisited the site to better map the mound. This surveyed located a second circular mound north of the first mound and a linear mound extending south from the first mound. The mounds were mapped made using both compass-and-tape and GPS methods. A site form was completed and the site has been assigned the number 21DK89.

21DL14 – Possible Land Sale, Douglas County

In 1891 T.H. Lewis mapped a burial mound group west of Alexandria on Lake Geneva. There were originally 15 mounds in the group, but an MHS archaeological survey in 1978

could only relocate three mounds (1-3) at the east end of the group in what is now a resort. In 2010, a landowner found human remains while mowing his lawn about 500 feet west of the west end of the mound site as mapped by Lewis. The State Archaeologist visited the locality on 5/20/10, but no additional human remains were apparent. No mounds are still visible at the west end of the mound group as the area has been disturbed by housing, road construction, and railroad construction.

When re-checking the site in early October 2012, the State Archaeologist noticed that a For Sale sign had been placed near the east end of the mound group where several mounds are still clearly visible. The State Archaeologist contacted the realtor and sent him a map of the site. The realtor had the land surveyed and found that no mounds were in the parcel that was for sale, although mound one was immediately adjacent. The realtor also noted that one of the surviving mounds appears to be in the road right-of-way.

21GD17 – Burial Authentication for Building Expansion, Goodhue County

The Silvernale Mound site (21GD17) was the largest mound group in Minnesota, originally containing over 300 mounds and perhaps as many as 500 if we add the immediately adjacent site to the south (21HE22). The Silvernale Mounds were first mapped by T.H. Lewis in April 1885. Lewis shows 226 discrete mounds and notes 50-60 in a cornfield he didn't map and that many other mounds had been obliterated by cultivation. The Red Wing Industrial Park was developed on the site beginning in the 1960s.

Over the last 40 years, industrial park developments have further impacted the mound site, and there have been numerous requests to the State Archaeologist for authentication activities. A survey sponsored by the State Archaeologist in 1988 could only find nine mounds still visible, but soil coring by Grant Goltz (Soils Consulting) on several projects in the mid-1990s suggested subsurface burial pits and mound fill still survived in a few areas where no mounds were superficially visible. Analysis of aerial photographs by Clark Dobbs in 1991 suggested that the imprecise mapping methods used by Lewis made it difficult to accurately overlay a Lewis-generated mound map on the present topography. More recently, LiDAR analysis of the site suggested that as many as 21 mounds may survive.

In February 2013, an architect based in Rochester contacted the State Archaeologist about a proposed expansion of the Capital Safety facility in the Red Wing Industrial Park. The current building is within the southeastern limits of the Silvernale Mound group. After consulting the various previous mound reconstructions and completing a new reconstruction based on LiDAR, the State Archaeologist determined that several mounds once existed near the west end of the proposed Capital Safety expansion.

On May 22, 2013, the State Archaeologist made a preliminary visit to the location and noted that a new trail had been built west of the Capital Safety Building in an area that once contained mounds; this trail had not been submitted for OSA review. No mounds were clearly visible within the proposed new building or parking lot area, but 2006 testing by Ron Schirmer of Minnesota State University - Mankato (MSU-M) in conjunction with new

construction at the Proact site immediately to the north suggested that burial pits and habitation site material could survive below the plow zone and other surface disturbances.

On May 30, 2013 OSA personnel excavated three shovel tests in the area to make a preliminary assessment as to the extent of soil disturbance and filling. What appeared to be intact soils existed towards the west end of a proposed parking lot. Ron Schirmer was contacted for assistance as he was planning an MSU-M field school near Red Wing and he was known to have a great interest in the Silvernale site. Schirmer agreed to bring his field crew to the site for several days to undertake more extensive shovel testing of the proposed construction area. Capital Safety agreed to this testing. Schirmer did not charge Capital Safety a fee for his work.

Schirmer's field school examined the proposed construction area June 6 through June 21, 2013, concentrating on the building footprint. A total of 392 shovel tests were excavated. Only 16 prehistoric artifacts were recovered, consisting of grit-tempered pottery sherds, lithic waste flakes, a shaft abrader, a triangular projectile point, and a hammer stone. Many of the shovel tests had partially intact soils with a plowzone followed by a B horizon. They noted a possible mound remnant (Lewis Mound 115?) in an area west of the proposed construction area. While no clear mound remnants or pits were discovered within the proposed construction area, the presence of partially intact natural soils suggested such could survive.

Based on the results of the MSU-M field school, the State Archaeologist encouraged Capital Safety officials to hire a qualified geoarchaeologist to extensively core the construction area in order to analyze the soils to better assess the probability of burial feature survival. Capital Safety subsequently hired Mike Kolb of Strata Morph Geoexploration. Kolb conducted his work in November 2013 and this will be summarized in the FY 2014 Annual Report.

21GR53 – Boerner Family Cemetery Destruction, Grant County

In late November 2012, a member of the Boerner family contacted the State Archaeologist about the destruction of a German Pioneer cemetery in Grant County near Herman. Apparently a local farmer had bulldozed the cemetery and then plowed it up as it was in the middle of his field. A basic literature search, aerial photographs, and family photographs supplied by the Boerner family confirmed the presence of the cemetery in the recently disturbed location. The State Archaeologist contacted the Grant County Sheriff's Department and they confirmed they were investigating the farmer's actions as a violation of Minnesota Statutes 307.

The State Archaeologist visited the location on 11/20/12 confirming the cemetery destruction and photographing the area. The Grant County Sherriff discovered that the farmer had hired a heavy equipment operator to cut down the trees in the cemetery, knock down the headstones, excavate a large pit, deposit the headstones in the pit, backfill the pit, and bulldoze the area. The farmer then plowed the area. The sheriff required that the pit be excavated and the headstones retrieved. A surface walkover by members of the sheriff's department in late 2012 recovered a number of bones, but the State Archaeologist identified these as non-human.

The Grant County Sheriff and the Boerner family requested that OSA help with a thorough surface examination of the area to determine if any human remains had been disturbed, re-establish the original cemetery boundaries, and attempt to relocate actual grave locations within the cemetery. OSA staff returned to the site on May 2, 2013 and were met there by sheriff's department personnel and a member of the Boerner family. The sheriff had re-erected one of the damaged headstones in the approximate area of the cemetery; the headstone had been recovered from the contractor's pit. Using aerial photographs, OSA staff were able to determine the UTM coordinates of the cemetery corners and these points were then located in the field using a sub-meter GPS unit. An attempt was made with hand-pushed soil cores to determine grave locations within the boundaries, but the heavy soil prevented the coring tools from penetrating deeply. A careful surface reconnaissance of the area recovered additional fragments of headstones and a human phalange.

Options for cemetery restoration were then discussed with the Boerner family representative and the sheriff. All agreed the cemetery should be re-established, the headstones re-erected, and trees planted. The main difficulty was if an attempt should be made to return the headstones to their original locations above individual graves. This would be a very difficult task without actually excavating all or part of the area. The easiest way to find the graves would be to use heavy equipment to strip off the topsoil, but this was also very intrusive. The least intrusive option would be to use mechanical soil coring and/or remote sensing to attempt to find individual graves, but this would require an expensive outside contractor and could not guarantee success. The third option was to have archaeologists hand-excavate narrow trenches across the site. The Boerner family representative preferred the third option.



Scott Boerner at his family cemetery with restored headstone.

In June 2013, the Boerner family contacted Rebecca Dean, an archaeologist at the University of Minnesota – Morris. Professor Dean agreed to assist the family with her archaeological field school in the fall of 2013. The results of this investigation will be discussed in the 2014 OSA Annual Report.

21HE3 – Authentication Request, Orono, Hennepin County

In June 2013, the State Archaeologist was contacted by a septic system contractor who had applied for a city permit to do some work on a house lot near Orono Point on Lake Minnetonka. The owner was upgrading his septic system so the house could be sold. The City of Orono required him to contact the State Archaeologist as they were aware burials

mounds might be on the property. The State Archaeologist contacted the landowner and arranged to visit the property.

Theodore Lewis had mapped 20 mounds in the vicinity in May 1883. The mounds were called the Starvation Point group and are now assigned state number 21HE3. Two of the mounds had been dug into by St. Paul druggist Robert Sweeney in 1867. Sweeney encountered human burials and aboriginal artifacts, as documented in Winchell (1911:230-234). Lloyd Wilford of the University of Minnesota excavated Lewis mounds 10 and 11 in 1947, finding burials in Mound 11. A survey for proposed county roadwork in 1996 re-plotted the mounds on a current map, but the mounds were not re-located and mapped in the field. LiDAR analysis of the mound group in 2012 suggested 12 mounds were still present, 6 were uncertain, and 11 were undetected.

OSA personnel visited the location on 6/25/13. The six easternmost mounds have been split from the rest of the group by County Road 15. The property in question was directly west of Co Rd 15 and contains six mounds (8, 9, 10, 11, 12, 13) and a portion of a seventh (14). Mound 9 is a large conical mound and clearly visible at the northeast end of the property. Five more mounds are clearly visible in the woods south of Mound 9. Mound 14 was originally a linear mound and has been partially destroyed, but the west end of the mound still appears to be visible in the front yard of the subject property.

Based on the OSA field work, LiDAR reconstruction, and original survey notes of Lewis, on 6/26/13 the State Archaeologist issued an official authentication letter for the mounds on the subject property. A 20-foot buffer was established around two discrete groups of mounds: Mounds 11 and 12 near the southeast edge of the property and the other five mounds on the north and northeast edge. MIAC and the City of Orono were copied by letter.

21HE17 – Authentication Request, Bloomington, Hennepin County

In January 2012, the State Archaeologist received an authentication request from a realtor representing a landowner in Bloomington. The landowner was considering selling some of his property that was within a large mound group known as the Bloomington Ferry Mounds (21HE17). In October 1882, surveyor Theodore Lewis had mapped 95 mounds that extended along the Minnesota River bluff from what is now Highway 169 east to Bloomington Ferry Road, a distance of about 3,150 feet. When the State Archaeologist had been Municipal – County Highway Archaeologist, he had examined this mound group in 1977 for the proposed replacement of the Bloomington Ferry Bridge and the re-alignment of the approach road, which was called County Road 18 (now Trunk Highway 169). In 1981, he re-mapped these mounds and was able to document remnants of over 30 surviving mounds.

In the 1980s, this area was platted for housing development and the State Archaeologist (Hohman-Caine) worked closely with the City of Bloomington to develop management strategies to preserve areas where mounds were still apparent or probably had surviving burial features. The four lots subject to the 2012 authentication request were not included in these management plans. This was indeed the last portion of the 21HE17 mound group that had not been authenticated. It is within the Westwind Bluffs addition in the City of

Bloomington. The property appeared to include up to 37 of the 95 mounds mapped by Lewis in 1882, including Mound 26, and Mounds 28 – 62.

The Office of the State Archaeologist completed a preliminary field assessment of the property on 4/24/12. There appeared to be seven mounds that were still intact or partially intact (34, 39, 40, 44, 45, 58, 62). Mound 58 was the most apparent as a small hill feature in a grassy field. Some areas within the parcel had been completely disturbed, while other areas had no visible mounds, but mound features could have survived below the current ground surface.

In a letter dated 5/1/12, the State Archeologist provided the landowner with a map showing the approximate locations of the mounds mapped by Lewis, noting the still visible mounds, mounds that had probably been completely destroyed, and areas where sub-surface mound features may remain. On this map, circles were drawn around the visible mounds, which represented a 20-foot setback for the actual burial ground boundary. The OSA letter required avoidance of all the visible and unknown areas and recommended that the landowner hire a qualified archaeologist or geomorphologist to examine the entire area for the presence of mound fill and burial pits.

The landowner complied with the additional work request and hired geoarchaeologist Michael Kolb of Strata Morph Geoexploration. in June 2012. Kolb completed his work in late June, and submitted a final report to the State Archaeologist on August 23, 2012. The Kolb report showed evidence of six surviving mounds on the subject property – Lewis Mounds 39, 40, 44, 45, 58, and 60. On 9/17/12, the State Archaeologist issued an official authentication letter for these six mounds. A 20-foot No Disturb buffer was established around each of these mounds.

At the request of the landowner, OSA personnel marked the six mounds in field on 9/27/12. The State Archaeologist issued a revised authentication letter on 10/1/12 noting that it was Lewis Mound 62 that still survived, not Mound 60 as described in the previous authentication letter. The State Archaeologist will continue to monitor this property to make sure any development does not disturb the authenticated mounds.

21HE20 – Authentication Request, Eden Prairie, Hennepin County

On 4/5/13, a representative of Pulte Homes contacted the State Archaeologist with a request to authenticate a known mound site (21HE20) in Eden Prairie as the property was in the process of being sold to Pulte Homes for residential development. This mound site had first been mapped by Theodore Lewis in 1882 and 1884. It originally consisted of 53 mounds and was known as the Kempton Group. In the 1970s, it was visited by several archaeologists who noted many smaller mounds had been destroyed by cultivation, but a number of larger mounds survived as well a few small mounds in a wooded area.

In the 1980s, State Archaeologist Christy Hohman-Caine dealt with a number of proposals to develop the property containing the mounds, but these developments never came to fruition. Another development proposal occurred in 2001 and was dealt with by State Archaeologist

Mark Dudzik. This development too never occurred. Neither Hohman-Caine nor Dudzik officially authenticated the mound site as the development threats were not implemented.

Current OSA personnel made a preliminary visit to the site on 4/25/13. LiDAR analysis had suggested that 19 of the 53 mounds still existed, while 14 were uncertain and 20 were probably destroyed. The entire site was field examined and it was clear that a number of mounds survived along the southeastern edge of the property and at the extreme northwest end. A house and buildings dating to the mid-20th century were present near the west end of the property and these developments had destroyed a number of mounds. Former agricultural fields were present along the north-central and northeastern portions of the property and, as suggested in the 1970s, the smaller mounds here were no longer visible.

Based on the literature review, LiDAR analysis, and preliminary fieldwork, the State Archaeologist suggested that Pulte Homes hire a geoarchaeologist to examine the disturbed areas to see if any mound fill or burial pits survived. Pulte Homes agreed and Michael Kolb of Strata Morph Geoexploration was hired to do the work. Kolb's field investigation took place in early June 2013. Kolb submitted a preliminary report to the State Archaeologist on June 14, 2013.

Based on extensive soil coring, this report concluded that all mounds that were no longer visible had been completely destroyed except for Lewis Mound 2 where soil coring suggested the possible survival of sub-surface features. There were

still 15 visible mounds: 1, 8, 9, 14, 15, 21, 22, 30, 31, 40, 41, 42, 43, 47, and 48.



Strata Morph personnel doing mechanical soil coring at 21HE20.

On 6/17/13, the State Archaeologist issued an official authentication letter for 21HE20. This letter established five discrete mound areas and placed a 20-foot buffer around these areas: Mounds 1,8,9; Mound 2; Mound 14, 15, 21, 22; Mounds 30-31, and Mounds 40, 41, 42, 43, 47, and 48. MIAC and the City of Eden Prairie were copied on the letter. The State Archaeologist will continue to monitor the housing development near these mounds, but management authority is now vested with MIAC.

Nevis Township Road – Report of Possible Mound Threat, Hubbard County

In March 2013, Jim Jones of MIAC contacted the State Archaeologist to request assistance with a possible threat to burial mounds in Hubbard County. Jones had been called by a Nevis Township Supervisor because a local resident was concerned that burials mounds might be impacted by proposed road construction. The State Archaeologist contacted the township

official and determined the location of concern. There were no recorded mound sites at that location, but a nearby site reported as “Indian ovens” had appeared on a 1940s tourist map.

The State Archaeologist visited the road location on 5/22/13. No mounds were found adjacent to the road, although some spoil piles associated with borrow pits were apparent. The State Archaeologist talked to the landowner who had originally reported the possible mounds to the township and assured her that no burial mounds would be impacted.

21KH59 – Report of Possible Impact from New House Construction, Kandiyohi County

In August 2012, Lee Radzak, a former archaeologist for the Minnesota Historic Society, contacted the State Archaeologist to report a possible threat to a mound site (21KH59) north of Willmar. Radzak had originally mapped the mound group in 1980 while working for the SHPO’s survey of Kandiyohi County. The site consisted of three mounds on a prominent hill above a small lake. Radzak had been contacted by a local resident who had told him of the land being sold and a new access road constructed.

The State Archaeologist visited the location on 8/15/12. There was indeed a new house being constructed in the immediate vicinity, but it was on a terrace overlooking the lake. The three mounds were relocated on the hill significantly away from the construction. They appeared to be in the same condition as recorded in 1980.

21KC2 – ATV Impact to McKinstry Mounds, Koochiching County

In July 2013, MnDOT officials in Koochiching County alerted the MnDOT Cultural Resources Unit (CRU) about impacts to the McKinstry Mounds from all-terrain vehicles (ATV). Archaeologist Craig Johnson of MnDOT CRU passed this information on to the State Archaeologist. The McKinstry mounds had been purchased by MnDOT in 1993 as part of the mitigation for a new bridge on Trunk Highway 11 that was adversely impacting part of the habitation component of the McKinstry site.

The State Archaeologist and Johnson agreed that signs should be put up near the mounds to warn ATV riders that it was against the law to drive over the mounds. MnDOT implemented this in August 2012, placing several sign that cited Minnesota Statutes 307.08 and 138.31-.42. The location should be occasionally monitored to determine the effectiveness of the signs.

Angell/Bennington Cemetery – Possible Farming Disturbance, Mower County

In July of 2006, the State Archaeologist received a call from a person in the Waseca County Planning and Zoning Office reporting that a friend in Mower County was concerned about a small private cemetery in Bennington Township. She reported that 15-20 years ago a farmer had removed some headstones that were in his field and moved them to the edge of the field so he could plow the cemetery area. A literature search indicated this cemetery had originally been associated with the Angell family, but was later called the Bennington Cemetery. It is unknown if it was ever officially recorded.

On 7/23/09, the State Archaeologist first visited the location noting a small patch of brushy vegetation near the north end of a soybean field. Upon investigation of the brush, a number of headstones were found stacked there. They were photographed. On 12/7/09, a descendent of the Angell family who now lives in Springfield, Oregon called the State Archaeologist about this cemetery. He was asked if the cemetery had ever been recorded in order to determine if the County (*Recorded, but Abandoned*) or the State Archaeologist (*Unrecorded*) had jurisdiction. He has not yet provided the OSA with additional information.

The State Archaeologist re-checked the location 6/18/13. There had been no significant change of condition with the small remnant of the cemetery still extant near the edge of a cultivated field. Measurements were taken at the edges of the cultivation around the cemetery so comparisons of impact can be accurately assessed by future visits.

21NL8 – Mound Disturbance at Ft. Ridgely Cemetery, Nicollet County

In 1887, T.H. Lewis mapped four mounds just east of the ruins of Ft. Ridgely, just south of the fort's cemetery established in 1850s. A private cemetery was also established at Ft. Ridgely in the early 1900s and this too was just south of the historic cemetery. Ft. Ridgely State Park was established in 1911, but the private cemetery remained as an inholding and is still actively used. Three of the mounds mapped by Lewis are within the limits of the private cemetery with the fourth mound just east of the cemetery on State Park land.

The mound (Lewis Mound 4) on State Park land was excavated by archaeologists working for the WPA in 1935. These archaeologists mapped the area showing one mound (Lewis Mound 2) within the private cemetery and noted recent grave digging had uncovered bone (non-human?) and pottery in an area northwest of Lewis Mound 1, the mound farthest to the northwest. The WPA excavations in Mound 4 had encountered a human burial. The entire area of Ft. Ridgely was given the official state site number of 21NL8.

In May 2006, DNR State Parks archaeology staff informed the State Archaeologist that privately-owned maintenance vehicles had been driving over one of the burial mounds (Lewis Mound 2) in the private cemetery. The State Archaeologist first examined the location on 6/1/06 noting fresh tire tracks across the mound. An attempt to contact cemetery management was unsuccessful due to the lack of a contact person and address.

In early May 2011, DNR State Parks personnel once again contacted the State Archaeologist about a possible disturbance of Mound 2 by the placement of a recent grave. The State Archaeologist visited the location on 5/13/11 noting that the mound had indeed been disturbed by a grave excavated in May 2011 near the western edge of the mound. A list of cemetery officials was obtained from DNR, and in a letter dated 5/18/11, the State Archaeologist asked that no more graves be placed within the mound area and that a plot map be sent to the State Archaeologist so a "no disturbance area" could be exactly defined. The cemetery officials replied by letter on 5/30/11 and included a plot map, but the map did not have a scale or a reference datum. A map with a scale and datum was then requested by the State Archaeologist.

The State Archaeologist visited the location on 9/20/11. Mound 2 and the new grave were mapped. Pin flags were then placed in the mound center and around the mound establishing a preliminary 20-foot “no disturbance” buffer around the mound. A second smaller mound (Lewis Mound 3) was noted at the east edge of the cemetery and Mound 4 was noted just southeast of the cemetery on State Park land. The cemetery association was informed of this in a letter dated 9/22/11. A detailed map was once again requested by the State Archaeologist and the cemetery association was asked to mark the southeastern corner of their property so a detailed sketch map could be made showing the mounds in relation to recent graves.

The State Archaeologist visited the site on 11/9/12 after the datum had been established by the cemetery association. A detailed map was made of the surviving mounds in relation to plotted graves, noting the grave that had been excavated in the mound in May 2011. In a letter dated November 11, 2012, the State Archaeologist officially authenticated the three remaining mounds of 21NL8, establishing a 5-foot buffer around the 2 mounds within the cemetery and 10-foot buffer around the mound on state park land. This letter was copied to MIAC and the State Parks archaeologist. OSA management responsibilities were therefore turned over to MIAC.

MIAC then began discussing options with the family of the person buried within Mound 2 in 2011. On May 23, 2013, Jim Jones of MIAC sent a letter to family stating that the grave would not have to be moved, but no additional disturbances would be permitted within the mound including a foundation for a headstone and that no new burials would be allowed in plots immediately adjacent to grave.

21OT13 – Trail Construction, Otter Tail County

In November 1883, T.H. Lewis mapped 63 mounds on the east side of Otter Tail Lake as well as noting that additional mounds in the area were no longer visible. In 1986, State Archaeologist Christy Hohman-Caine reviewed a residential development within the southern portion of the mound group in the area of Mounds 21-51. The development was allowed to proceed as long as there was no ground disturbance within 50 feet of any individual mound. The mounds and setbacks were added to the plat.

Since 1986, there have been multiple developments within the larger limits of 21OT13 including road construction on two trunk highways, utility development, and resort development. In September 2005, the City of Ottertail contacted Acting State Archaeologist Scott Anfinson to report the possible disturbance of a mound in the residential development previously investigated in 1986. Jim Jones of MIAC visited the location and reported the landowner was staying at least 50 feet away from the mound on his property. In July 2008, the State Archaeologist visited the site to update the photo-documentation of the southern area.

In July 2009, the City of Ottertail contacted the State Archaeologist about the possible relocation of the city’s otter statue to the north side of Trunk Highway within the site limits of 21OT13. A mound (Lewis 18) was still visible on the north side of the highway. In addition, Lewis had noted “Chippewa Graves” in the same vicinity. Pin flags were put in-

place by the State Archaeologist outlining the mound. On 7/13/09, the State Archaeologist informed the city they should find another location for the otter statue.

At about the same time, the city was proposing a trail along the north side of Trunk Highway 78. The mayor of the City of Ottertail contacted the State Archaeologist on 7/28/09 about the trail and he was informed about the complications due to the mounds along the north side of Highway 78. The City was told to keep the trail in the existing trunk highway ditch and not allow any soil disturbance along the northern edge of the trail. Because the trail was partially within the highway right-of-way, MnDOT got involved in the trail review and informed the State Archaeologist of this by letter dated 1/21/11.

On 9/24/12, a MnDOT archaeologist contacted the State Archaeologist about a report of bones being found by the trail construction. The State Archaeologist informed MnDOT to tell the contractors to immediately halt all construction. OSA personnel visited the site the next day and noted that the backslope cuts from the trail construction had extended into Mound 18 and the area noted as containing early historic Ojibwe graves. Human remains as well as what appeared to be coffin materials were scattered in the disturbed soil. The ridge through the area was very sandy and therefore subject to slumping due to the steep new cut.



OSA's Bruce Koenen examines the grading damage to 21OT13 in Otter Tail County.

As the remains were clearly of Indian origin, the State Archaeologist immediately called Jim Jones of MIAC to report the disturbance. The State Archaeologist then met with construction company, MnDOT, and City of Ottertail personnel and they were told not to permit any additional construction in that area without MIAC and OSA approval. The exposed bones were covered with soil by OSA personnel before they left the site.

On 9/28/12, the State Archaeologist met MIAC's Jones and an archaeological crew from Hamline University led by forensic anthropologist Susan Myster and archaeologist Brian Hoffman. The Hamline crew began recovering the disturbed remains and associated artifacts. Ottertail city officials, a MnDOT representative, and construction company personnel also arrived so a plan could be developed to deal with the human remains and site restoration.

It was decided that the exposed sandy slope on the north side of the trail must be immediately stabilized and the trail construction moved as far south as possible, although the presence of

the nearby trunk highway restricted the southern trail limits due to safety concerns. The City and MnDOT agreed to this and began implementing the stabilization as soon as MIAC and the Hamline crew finished their recovery operations.

The State Archaeologist returned to the site on 10/11/12 and confirmed that the slope had been stabilized and the trail was once more under construction. Heavy clay soil had been placed on the slope and grass matting laid down to prevent erosion. The State Archaeologist visited the site again on 11/20/12 to photograph the area after completion of construction.



Damaged area of 21OT13 after restoration.

This unfortunate and very preventable disturbance demonstrates the need for constant vigilance by OSA and MIAC to monitor construction areas near even well-documented burial grounds. Furthermore, it is not enough for supervisory officials to be informed of the adjacent presence of burial grounds, but these burials grounds must be fenced off during construction and actual equipment operators must be informed of the situation.

21SL1 – Report of Land Sale with Burial Mounds, St. Louis County

In September 2012, a member of the public called to report the possible sale of a piece of property at the west end of Lake Vermilion that was thought to contain burial mounds. In 1940, the University of Minnesota excavated a burial mound at about this location. The University notes do not provide an exact location for the mound. All they say is it was directly across from the state fish hatchery near the crest of a ridge. In 1940, the land was owned by someone from Washington State, but landowner's name is not included in the University report.

The State Archaeologist visited the location on 11/1/12. A mound was no longer clearly visible, but it appeared to have been near the east end of the lot. There was a slight rise beneath a shed at the location that may be the mound remnant. By email, the State Archaeologist contacted the realtor listed on the For Sale sign informing him that the seller is obligated to tell any buyer of the possible location of a mound on the property and the immediate mound area cannot be disturbed without State Archaeologist and MIAC approval. In order to better determine the exact location of the mound and whether or not it was indeed on this lot, the realtor was asked to forward any information he had about that lot regarding a possible burial mound and to examine the deed for an owner with a Washington State address in the 1930s or 1940s. No reply was received from the realtor.

Chapter 3: Minnesota Archaeology in 2013

In previous Annual Reports, the current State Archaeologist has discussed the status of Minnesota archaeology, highlighting recent developments and current problems, and suggesting courses of action that could improve Minnesota archaeology. The FY 2013 status of archaeology in Minnesota has not changed greatly over the past year with regard to the numbers of archaeologists working in the state, the programs at state Universities, state laws, and basic cultural resource management activities. The principal exception is that substantial funding through the 2008 Legacy Amendment continues to have major positive implications for Minnesota archaeology with regard to research, management, and education.

Statewide Survey of Historical and Archaeological Sites

In November 2008, the voters of Minnesota approved a constitutional amendment that increased the state sales tax by three-eighths of one percent for 25 years with the revenue dedicated to four funds whose primary purpose is to preserve the natural and cultural legacy of the state. The amendment is commonly referred to as the Legacy Amendment. One of the four funds is the *Arts and Cultural Heritage Fund*, which receives 19.75% of this sales tax revenue and is dedicated to the preservation of the state's arts and cultural heritage.



Following intensive lobbying by the State Archaeologist and MHS in May 2009, the Minnesota Legislature allocated \$500,000 from the biennial budget of 2010 - 2011 Arts and Cultural Heritage Fund for a *Statewide Survey of Historical and Archaeological Sites*. This survey was to be accomplished by competitive bid contracts to conduct a statewide survey of Minnesota's sites of historical, archaeological, and cultural significance. The law specified that the Office of the State Archaeologist, the Minnesota Historical Society, and the Minnesota Indian Affairs Council each appoint a representative to an Oversight Board that would select contractors and direct the conduct of the survey. The funds were allocated to the Minnesota Historical Society for contracting purposes.

The Minnesota Historical Society appointed the head of their Archaeology Department, Patricia Emerson, to the Oversight Board. The other two members were Scott Anfinson, the State Archaeologist, and Jim Jones from Minnesota Indian Affairs. At their initial meeting, the Oversight Board determined that archaeological resources rather than standing structures should receive the principal survey emphasis because archaeological resources are much less well known, are largely invisible on the surface, and are not taken into account by most local planning agencies so they are more vulnerable. Furthermore, substantial separate funding from the Arts and Cultural Heritage Fund had been provided to the MHS for grants that realistically would be focused on non-archaeological aspects of the state's cultural heritage because most grants would go to local historical societies unfamiliar with archaeological resources and needs. The Board also determined that the general survey strategy to be employed should: 1) examine poorly known areas of the state, 2) examine poorly known

statewide historic contexts and property types, and 3) undertake projects that would assist both state and local agencies with protecting and managing cultural resources.

Final reports for all completed contracts can be found on the State Archaeologist's webpage, although exact locational information for sites has been removed from the on-line reports in order to protect landowner's rights, reduce site vandalism, and comply with state law regarding security data. Exact site locational information will be given to appropriate state and local agencies for planning and management purposes or to professional archaeologists for research and management purposes. This information is also available to site landowners.

A total of eight competitive bid contracts were implemented in the FY 2010-11 biennium to address the strategy adopted by the Oversight Board. These contracts were: Poorly Known Areas - *An Archaeological Survey of Swift County, An Archaeological Survey of Olmsted County, and An Archaeological Survey of the Lake Superior Region (in Cook, Lake, and St. Louis Counties)*; Poorly Known Contexts - *A Survey to Find Minnesota's Earliest Archaeological Sites and The Age of Brainerd Ceramics*. Poorly Known Property Types - *Survey to Assess the Status of Burial Mound Sites in Scott and Crow Wing Counties, Survey to Identify and Evaluate Indian Sacred Sites and Traditional Cultural Properties in the Twin Cities Metropolitan Area, and Investigating Unrecorded Historic Cemeteries in Minnesota*. These completed projects have been summarized in previous Annual Reports.

The State Archaeologist and the Minnesota Historical Society requested additional funding for the Statewide Survey for the 2012-13 biennium. The Legislature granted another \$500,000 and this funding has resulted in eight new projects. These projects are: Poorly Known Areas - *Archaeological Survey of Red Lake County, Archaeological Survey of Steele County, and Archaeological Survey of McLeod County*; Poorly Known Contexts - *Study of Minnesota Plains Village Complexes, Study of Woodland Period Complexes in West Central Minnesota*; Poorly Known Property Types - *LiDAR Analysis of Burial Mounds in 16 Counties, Study of Masonry Ruins, and Study of Historic Dams*. All of these projects except the West Central Minnesota Woodland project were completed by the end of Calendar Year 2013 and are summarized below.

Archaeological Survey of Red Lake County

Purpose: There were only eight (8) confirmed archaeological sites in Red Lake County at the beginning of this project, of which all but one were prehistoric. The prehistoric sites included two mounds sites, three artifact scatters, and two single artifact sites. The only professionally excavated sites in Red Lake County are two burial mound sites examined in the first half of the 20th century. Archaeological reconnaissance surveys in Red Lake County have been largely associated with narrow linear projects for highway and pipeline construction. The purposes of this project were to summarize what was known about the prehistoric past of Red Lake County, to update the State Archaeologist's site file with regard to the status of known sites, to find unrecorded sites, and to build a narrative predictive model of where prehistoric sites should be located.

Contractor: Augustana College Archaeological Laboratory (Adrien Hannus)

Results: The team from Augustana surveyed 4,454 acres in 27 separate parcels, locating 24 previously unrecorded archaeological sites. The survey utilized MnModel data to stratify survey parcels into Low, Medium, and High potential. A total of 45% of survey was in High Potential parcels, 33% in Medium, and 22% in Low. Three local artifact collectors were interviewed, their collections photo-documented, and source locations of their collections were field examined. The survey included detailed geomorphological examinations of four areas and obtained 10 radiocarbon dates from buried soils retrieved by coring.

In the final report, the contractor included a narrative model for predicting site locations based upon previous knowledge, environmental reconstruction, geomorphological analysis, and survey results. Prehistoric sites in the county can be primarily assigned to Archaic and Woodland periods, although local collections also indicate a Late Paleoindian presence. No Paleoindian or Late Prehistoric sites were located by the survey. Geomorphological testing suggests the majority of sites have components that exist below plow zones. With respect to MnModel predictions, 51% of prehistoric sites were in High Probability areas, 47% of sites were in Medium Probability areas, and 2% of sites were in Low Probability areas. The most important conclusions are: Habitation sites should be located near stream confluences, Lithic Procurement/Workshop sites should be located near beach ridges of Lake Agassiz, and all types of Burial sites should be located on the beach ridges.

Archaeological Survey of Steele County

Purpose: At the initiation of this survey, there were only 30 confirmed archaeological sites in Steele County of which 22 were prehistoric. These known sites included two (2) lone mound sites, 15 artifact or lithic scatters, and five (5) single artifact sites. There are no professionally excavated archaeological sites in Steele County, although site 21DO2 in Rice Lake State Park immediately adjacent to the Steele County line was tested by the University of Minnesota in 1972. The purposes of this project were to summarize what was known about the prehistoric past of Steele County, to update the State Archaeologist's site file with regard to the status of known sites, to find unrecorded sites, and to build a narrative predictive model of where prehistoric sites should be located.

Contractor: 10,000 Lakes/AMEC (Amanda Gronhovd)

Results: The contractors first developed a sophisticated site locational model based upon surface water, slope, landform, and vegetation. They then surveyed 1,115 acres based on High, Medium, and Low ranked areas according to their model. The survey located 13 previously unrecorded prehistoric sites, examined and documented 11 artifact collections, re-examined eight previously recorded archaeological sites, and tested two areas within the Straight River lowlands to assess potential for deeply buried sites. They documented occupations associated with Paleoindian, Archaic, Woodland, and Late Prehistoric cultural components.

The Steele County contractors emphasized model building over optimizing discovery of new sites, but they fulfilled the project objectives outlined in their research design. It is still unclear whether the relatively low density of sites in the county is due to relatively limited

survey coverage in high potential areas or low density occupancy by prehistoric populations. Additional archaeological survey may be warranted in the county that is focused only on high potential locations such as the edges of existing and now-drained lakes and those locations suggested by additional discussions with local collectors. It may also be helpful to develop a map showing areas with the highest potential to contain deeply buried sites.

Archaeological Survey of McLeod County

Purpose: There were only 13 confirmed archaeological sites in McLeod County at the beginning of this project, all of which were prehistoric. There are no professionally excavated archaeological sites in McLeod County. Archaeological surveys have been limited, but include trunk highway and county highway surveys (mostly done in the 1970s, 1980s, and early 1990s), DNR small-area surveys, and scattered federally-required surveys for pipelines, wastewater treatment plants, and parks. The purposes of this project were to summarize what was known about the prehistoric past of McLeod County, update the State Archaeologist's site file with regard to the status of known sites, to find unrecorded sites, and to build a narrative predictive model of where prehistoric sites should be located.

Contractor: Bolton and Menk (Dale Maul)

Results: The contractor surveyed almost 2,000 acres, located 15 previously unrecorded sites, and examined the known locations of seven numbered sites and one alpha site. The alpha site (21MCc) was confirmed and was assigned a state number (21MC16). The contractor examined and photo-documented artifact collections at the McLeod County Historical Society. Based on these collections, they found evidence that McLeod County was occupied by Paleoindian, Archaic, Woodland, and Late Prehistoric peoples. The contractor used a traditional technique for developing a model for predicting site locations, relying on archaeological "intuition" and the locations of previously known sites. This model suggested that most sites would be located in elevated locations adjacent to major bodies of water.

The contractors surveyed almost 2,000 acres, with at least a quarter of the acres in parcels already known to contain sites. Of the 230 landowners contacted by mail, only 56 (24%) granted permission to go on their land. This demonstrates the need for landowner permission requests to be made in person in order to better explain purposes and methods. Due to the relatively low number of positive responses, most of the final survey parcels were chosen more for the fact that landowner permission had been obtained rather than relative site potential or modeling priorities. Furthermore, because survey parcels were large areas of land owned by a single owner, over half the surveyed acres had only modest to low site potential based on the parcels as a whole, even if a parcel was initially chosen for partial proximity to a high potential area (e.g., lake shore). Nearly all the newly located sites are very small and contain few artifacts; most were single artifact find spots or sparse lithic scatters. It is still unclear if the relatively low density of sites in the county is due to survey limitations or low prehistoric populations. Additional archaeological survey should be done in McLeod County that is focused on high potential locations (i.e., existing and drained lake shores, river-stream intersections) and additional areas identified by local collectors. The final report is well illustrated and provides a good basis for future studies of McLeod County.

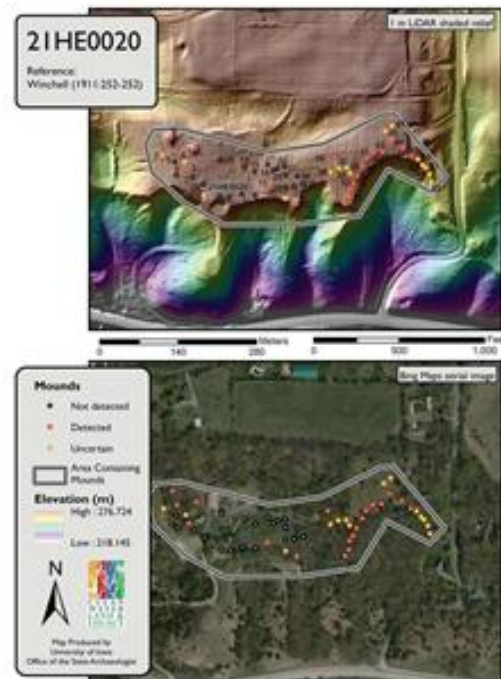
LiDAR Analysis of Burial Mounds in High Mound Counties

Purpose: Minnesota has over 12,000 recorded burial mounds. Detailed mapping of these mounds began in the late 1860s and peaked with the surveys of Theodore Lewis (1883 – 1895) and Jacob Brower (1889 - 1905). Many mound sites mapped by Brower and Lewis have not been formally assessed by modern professional archaeologists and few mound sites have been re-mapped in any detail. In 2009, Clean Water Legacy funding was allocated to the DNR to complete high-quality LiDAR mapping of the entire state of Minnesota. In 2010, a pilot study in Scott and Crow Wing counties completed for the *Statewide Survey* demonstrated the usefulness of LiDAR for mound mapping.

The new LiDAR-Mound project undertook a detailed LiDAR analysis of previously recorded burial mound sites in 16 counties that have both large numbers of mounds and the availability of high-definition LiDAR. These counties are Goodhue, Hennepin, Scott, Wabasha, Otter Tail, Mille Lacs, Wright, Kanabec, Sherburne, Washington, Houston, Dakota, Sibley, Douglas, Pine, and Isanti. These counties account for about 64% of the mounds known in Minnesota. The project was to produce high-quality LiDAR images of all burial mound sites in these counties to allow for the first comprehensive assessment of mound survival in over 100 years and to assist the Office of the State Archaeologist (OSA), the Minnesota Indian Affairs Council (MIAC), other public agencies, and private landowners with management issues involving burials mounds. In addition, the consultant had to provide some training for Minnesota archaeologists who want to use LiDAR for research and environmental review purposes.

Contractor: University of Iowa - Office of the State Archaeologist (Joe Artz)

Results: The Iowa team first undertook a careful literature search to determine how many mounds had been recorded in each of the 16 counties. They came up with a total of 7,646 mounds in 651 discrete locations (sites). The mound locations were then georeferenced by plotting the mounds on modern aerial photographs attempting to match the legal locations and topographic features recorded by the original surveyors. Almost 20% of recorded mounds could not be reconstructed on the modern topography due to poor original locational data or massive changes to the landscape, resulting in a total 6,223 georeferenced mounds. These locations were then examined using a number of LiDAR-based methods including default hillshades, custom hillshades, and point clouds. A total of 2,181 (36.2%) mound-like features were clearly indicated by LiDAR with another 597 possible mounds.



Example of LiDAR analysis of a mound site.

This means that 3,445 (55.4%) of the georeferenced mounds could not be re-located using LiDAR, suggesting that over half the mounds in these counties have been destroyed or at least are no longer surficially visible. Mounds have survived best in wooded areas (63.4%) and worst in developed areas (8.8%) and highway right-of-ways (6.8%). Over 75% of mounds in agricultural field are no longer visible. The study detected 118 possible mounds at 12 locations that had not been previously recorded. Mn-OSA is now attempting to field-verify the new mound locations and also a sample of known mound sites examined by this study. Colored LiDAR maps are now available for all of the mounds sites georeferenced in the 16 counties and copies of these maps have been placed in the OSA site folders.

Training for the use of LiDAR to find mounds and other archaeological features was provided at the Council for Minnesota Archaeology (CMA) research symposium at Inver Hills Community College on 2/8/13. Over 70 individuals attended the training.

Study of Minnesota Plains Village Complexes

Purpose: The Late Prehistoric Period in Minnesota (AD 1000 – 1650) is a period of great cultural change. In western Minnesota, Plains Village cultures feature a settlement-subsistence orientation with one foot in the woodlands and one foot in the Great Plains, combining focal bison hunting, gardening, and broad-based hunting-gathering. The ceramics of these Plains Village complexes also exhibit a blend of traits with well-made grit tempered ceramics that have both smoothed and cord-marked surfaces as well as trailed-line and cord-impressed decoration. By the end of the period, many of the cultural complexes in southern and western Minnesota have disappeared with the transition to modern ethnographically known groups unclear. The purpose of this project was to determine what Plains Village contexts are present in western Minnesota, how early they appear, how late they survive, their physical manifestations, and their interaction with other historic contexts.

Contractor: Minnesota State University – Moorhead (Mike Michlovic and George Holley)

Results: The researchers divided western Minnesota into four regions: Minnesota River, Prairie Lakes, Big Stone, and Ecotone. They then examined existing museum collections from these regions and presented well-done pictures of the ceramics in the final report. Sixteen (16) radiocarbon dates were obtained on Late Prehistoric materials from six sites – Maplewood (4), Browns Valley (3), Jones Village (3), Price (4), Lucas (1), and Miller Mound (1). The Browns Valley site (21TR5) was subjected to some field examination including shovel testing and remote sensing. This testing found that the one small segment of the enclosure site that still existed had been severely disturbed.

The conclusions of the project were: 1) the strongest Late Prehistoric cultural connections of the southwestern Minnesota villagers are with village complexes to the east, 2) radiocarbon dates obtained for this study indicate Plains Village ceramics in western Minnesota date between AD 1000 – 1300 with western complexes (e.g., Big Stone) later than eastern (e.g., Cambria), 3) Late Prehistoric ceramics in western Minnesota exhibit strong Woodland influences, but also exhibit great diversity in manufacturing and decorative attributes, 4) Plains Villagers in western Minnesota are better termed Prairie Villagers, 5) some earthwork

enclosures in western Minnesota are defensive and some are ceremonial, which reinforces eastern cultural relationships, 6) the lifestyle (and perhaps greater cultural characterization) of the western Minnesota Prairie Villagers is different than that of the Plains Villagers with less gardening and more diversified hunting (ethnographically a Dakota pattern rather than a Mandan pattern), and 7) the Prairie Villagers of western Minnesota should not be lumped with the Northeastern Plains Village complex. The authors suggest that additional work, including site excavation and radiocarbon dating, should be done before formally adopting the term Prairie Villagers as a Late Prehistoric taxonomic construct for western Minnesota.

Study of 19th Century Masonry Ruins

Purpose: Masonry ruins are among the most memorable and picturesque places in the world. While ancient masonry ruins are common in much of the Old World, in North America they exist only in the American Southwest associated with Puebloan cultures. In the Upper Midwest, masonry structures were not constructed by Native Americans or by most early European fur traders, explorers, and initial settlers. The earliest masonry structures in the Midwest date to the period well after European intrusion and are associated with intensive Euro-American settlement. In Minnesota, the earliest masonry building construction was Fort Snelling in 1820. Once intensive Euro-American settlement began, masonry buildings, dams, and bridges were built. Stone and brick became popular construction materials for water-powered flour mills. With the conversion to steam power in the 1880s, masonry construction was needed for boiler houses, engine houses, and smoke stacks associated with all types of manufacturing facilities. This coincided with the ready availability of commercially produced brick. Residential and farm construction also utilized a variety of masonry construction techniques. Most 19th and early 20th century masonry structures in Minnesota either survive almost fully intact still serving their original purpose or they have been demolished. Few ruins survive in urban areas because they occupied valuable development land or their ruins were deemed dangerous. The purposes of the project were to create an inventory of known masonry ruin sites, to develop a framework for evaluating their historical significance, and to develop strategies for their stabilization and interpretation.

Contractor: Two Pines Resource Group (Andrea Pizza)

Results: Only 41 masonry ruin sites were recorded that met the definitions of this study – 19th century masonry (brick or stone) construction that originally included a masonry superstructure (i.e., more than just a masonry foundation) with part of the superstructure still intact. Additionally, a ruin was defined as a partially destroyed building or structure that could no longer serve its originally intended purpose. Five types of masonry ruins were defined: Industrial Ruins, Infrastructural Ruins, Institutional Ruins, Residential Ruins, and Commercial Ruins. Building ruins were also classified as High Wall and Low Wall ruins. A total of 23 ruin sites were field documented including 11 Industrial Ruins, three Infrastructural Ruins, one Institutional Ruin, and five Residential Ruins. They also examined three masonry structures that did not qualify as ruins under their definition because the main structure was mostly gone or it had been rehabilitated into another use. The researchers developed a draft Multiple Property Documentation Form (MPDF) for 19th Century Masonry Ruins that should help with ruin evaluation and nomination. The researchers recommended

that additional survey be done to find ruins in Minnesota and that standardization in recordation procedures is needed to adequately account for them. Another recommendation is the need for immediate stabilization of significant ruins as many are in danger of collapse. A final section in the report written by preservation architect Robert Mack discussed challenges and guidelines for the treatment of masonry ruins.

Study of Historic Dams

Purpose: DNR and Army Corps of Engineers inventories suggest Minnesota has more than 1,250 dams of which 800 are publicly owned. There were also once hundreds of now-vanished milling and logging dams. At least one million dollars is spent annually by the state for dam maintenance and an estimated 114 million dollars is needed over the next 20 years just to keep public dams safe. There are pressures to remove dams not only for safety and economic reasons, but for environmental reasons as well. Dams disrupt the natural ecology of rivers, especially with regard to fish movement, although dams can also help retard the spread of invasive species. Dams can be categorized by their principal purpose, the raw materials used in their construction, or their architectural type. In Minnesota, most dams were built for hydropower, transportation, and flow control/flood control reasons. Current DNR strategies for dam maintenance and removal largely ignore historic preservation concerns. The purpose of this project was to create a comprehensive inventory of historic dams in Minnesota and, after field examination of various examples from this inventory, develop strategies to evaluate historical significance, define management issues, and explore interpretive opportunities. Dams on the mainstem of the Mississippi River were not included as their historic values have recently been assessed by federal agencies (USACE, FERC).

Contractor: Archaeo-Physics (Douglas Birk, Sigrid Arnott, and David Maki)

Results: A georeferenced database was constructed from US Army Corps of Engineers (USACE) records, Minnesota DNR records, SHPO records, a general literature search, the use of LiDAR imagery, and field reconnaissance. A total of 1,691 records now populate this database that includes 949 records from the National Inventory of Dams Database (USACE) and 400 logging dams that are largely destroyed. The team field examined 31 dam locations in 12 Minnesota counties. This fieldwork included 12 historic mill dams, nine WPA dams, nine logging dams, and one irrigation dam. Some fieldwork involved remote sensing using ground penetrating radar (GPR) and three-dimensional laser scanning. The final report contains an overview of dam construction in Minnesota, a summary of the fieldwork, and a draft Multiple Property Documentation Form (MPDF) for evaluating the historical significance of dams. The MPDF identified three basic dam property types that may have associated historically significant examples: Logging Dams, Mill Dams, and Federal Relief/WPA dams. The study and database will be given to DNR, SHPO, and the USACE to assist them with their management and environmental review duties.

Study of Woodland Period Complexes in West Central Minnesota

Purpose: The Woodland Period in Minnesota (500 BC – AD 1000) is perhaps the most well-known prehistoric period in the state due to numerous excavated sites and relatively well-

defined ceramic types that allow us to identify discrete times and what appear to be discrete cultural groups. It is the period when earthen mounds become the preferred burial mode, ceramics and the bow and arrow first appear, and new forms of vegetal foods are intensively utilized (e.g., wild rice). West-central Minnesota is one of the poorest known areas of Minnesota in terms of archaeology. There have been very few intensive excavations in the region, especially with regard to the Woodland Period so there are very few radiocarbon dates and very few in-depth analyses of Woodland Period artifacts. The purpose of this project was to investigate Woodland historic contexts in west-central Minnesota to determine how early they appear, how late they survive, their physical manifestations, and their interaction with other prehistoric contexts.

Contractor: Augustana College Archaeological Laboratory (Adrien Hannus)

Results: The contractors conducted extensive testing of several sites in Kandiyohi County during the summer of 2013. The project is scheduled to be completed by June 30, 2014.

Statewide Survey for FY 2014-15

The State Archaeologist and the Minnesota Historical Society requested additional funding for the Statewide Survey for the 2014-15 biennium. The Legislature generously granted \$600,000 and this funding has already resulted in three new projects under contract for FY 2014: *An Archaeological Survey of Hennepin County* (Archaeological Research Services, Christina Harrison, principal investigator), *An Archaeological Survey of Le Sueur County* (Minnesota State University - Mankato, Ron Schirmer, principal investigator), and *A Study of CCC Camps in Minnesota* (Great Lakes Archaeological Research Center, Mark Bruhy and Sean Dunham, principal investigators).

An RFP for an overview of *The Archaic Tradition in Minnesota* was advertised in FY 2013, but there was only one response so the Board decided not to contract for this project in the 2014-15 biennium. If funding can be secured for the 2016-17 biennium, the Archaic overview RFP will be re-issued. In retrospect, there are several major benefits to this delay: The results of two major Archaic site studies due to impacts from highway projects are expected within the next two years, as well as results from two new *Statewide Survey* projects in FY 15 (see below) that have Archaic implications.

Three additional RFPs are in draft form and will be advertised in the spring of 2014: *Documenting Minneapolis Neighborhood Parks Historic Landscapes*, *The Prehistoric Archaeology of the Minnesota River Trench*, and *The Archaic Tradition in Central Minnesota*. These three projects will use the majority of the remaining funding for the 2014-15 biennium. In the past two biennia, the Oversight Board has undertaken eight projects in each biennium, but the Board has decided that fewer numbers of projects, some of which are better funded, will result in reduced management obligations for the Board and should also result in better products. If there is any additional funding remaining in the FY 14-15 *Statewide Survey* budget after contracts have been initiated for the six projects listed above, these funds may be spent on developing historical and archaeological curriculum materials for secondary schools in Minnesota. There is a great need for such materials.

Current Status of Minnesota Archaeology

Archaeologists

There are currently perhaps 100 North American 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, 10 at State agencies, 3 at Indian reservations, 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 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 15 full-time academic archaeologists in Minnesota who have advanced degrees and practice North American Archaeology. The University of Minnesota – Minneapolis has five full-time staff archaeologists in the Anthropology Department, but only one specializes in North American archaeology (Katherine Hayes), although another (Gilliane Monnier) is now doing some work in Minnesota. Rebecca Dean, a Southwestern US specialist, was recently hired by the University of Minnesota-Morris. There are three North American archaeologists at Minnesota State University - Moorhead (Mike Michlovic, George Holley, Rinita Dalan), three at St. Cloud State University (Mark Muniz, Debra Gold, Rob Mann), 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). Jeremy Nienow teaches archaeology and anthropology at Inver Hills Community College and Susan Krook teaches archaeology and anthropology at Normandale Community College. 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.

Post-secondary Archaeological Education

The University of Minnesota-Minneapolis Department of Anthropology is once again offering *local* summer field schools in archaeology. In 2012 and 2013, Professor Gilliane Monnier provided co-direction for an archaeological field school at the Bremer Village site (21DK6) in cooperation with Ed Fleming of the Science Museum of Minnesota. Katherine Hayes directs the Heritage Management graduate program at the University of Minnesota. The University of Minnesota – Morris is also doing some fieldwork in 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 in Minnesota. This is also true at Hamline University and Inver Hills Community College. The availability of Legacy Amendment funds for archaeological projects is a major new incentive to pursue research in the state.

Public Archaeological Education

The state continues to have few archaeological publications, archaeological museum exhibits, and archaeological fieldwork opportunities for the general public. University field schools are open only to students and usually to students that are enrolled full-time at the sponsoring university. The National Forest Service offers occasional short-term public excavation opportunities known as *Passport in Time* (PIT) projects, but these are limited to the two national forests in northern Minnesota and have not occurred for several years.

The publication void has been partially filled by the release of Guy Gibbon's book entitled *Archaeology of Minnesota* by the University of Minnesota Press in late 2012, although the book is meant more for professionals than the general public. Placing reports from the *Statewide Survey of Historical and Archaeological Sites* on the OSA webpage provides easy access to important recent archaeological information about Minnesota, but this too is often highly technical. The journal *The Minnesota Archaeologist* continues to be published by the Minnesota Archaeological Society.

A Plan for 2014

Legislation

Cemetery Law – MS 306 and 307

Based on incidents reported to the State Archaeologist over the last 5 years, it has become apparent that additional clarification of Minnesota burial laws is needed. The State Archaeologist has suggested to the Department of Administration that a Legislative initiative be made in 2014 to revise parts of the Private Cemeteries Act (MS 307) and the Public Cemeteries Act (MS 306) to make them easier to understand, eliminate unnecessary regulation, and clarify their application. These changes should include the following:

MS 306 - adding terms to the Definition section (306.87) including *abandoned cemetery*, *neglected cemetery*, and other necessary items; adding a provision in 306.03 requiring cemetery associations to provide county governments or the Minnesota Department of Health with a copy of their register of burials for their cemetery and yearly updates for active cemeteries; adding a provision in 306.03 for permanent archival care of original cemetery records when a cemetery association is unincorporated, disbanded, or defunct; adding a section requiring the Department of Health to maintain a database of all recorded historic period (post-1837) burial grounds in Minnesota. (The State Archaeologist maintains a database of unrecorded cemeteries.)

MS 307 - revising 307.08, Subd. 11 to eliminate the term *security data* and itemizing the entities that are eligible to receive burial site data from the State Archaeologist, allowing the State Archaeologist to more widely share burial sites data with responsible entities; amending 307.08, Subd. 11 to eliminate the need for the State Archaeologist to provide on-line access to a website entitled "Unplatted Burial Sites and Earthworks in Minnesota"; amending the definition of *Recorded Cemetery* to include all cemeteries where an official record of the cemetery exists at a state or local agency that provides the cemetery name, affiliation, location, and area; adding a section to deal with reversion of private cemetery ownership when no current owner can be identified.

Providing a few new definitions and clarifying a few existing definitions will not only assist the State Archaeologist in carrying out his duties, but will assist the public and agencies with better self-determining their responsibilities and limitations regarding cemeteries. There are currently technical and financial difficulties preventing the State Archaeologist from providing on-line access to a burial sites database, the database name in the law is inaccurate, and the State Archaeologist would like to broaden the content and availability of on-line databases to include all types of archaeological sites. While exact locational information in the databases should be restricted to appropriate entities, the State Archaeologist wants local governments, qualified archaeologists, and responsible researchers to have direct access to these databases to streamline and simplify their efforts.

Field Archaeology and Historic Sites Law - MS 138

The Field Archaeology Act (FAA) and the Historic Sites Act (HSA) both contained in Minnesota Statutes 138 have a number of areas that could benefit from revision including:

- 1) The *Legislative Intent* section of the FAA should emphasize preservation of sites rather than regulation of archaeologists;
- 2) The *Definition* section of the FAA lacks several key concepts such as *agency*, *paramount right of the state*, *significant site*, and *undertaking*, as well as needing revision of certain definitions (e.g., *object* should eliminate “skeleton” as an example 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 FAA licensing process should be streamlined to increase efficiency and reduce redundancy by having the State Archaeologist issue the license rather than MHS;
- 4) The environmental review sections of both laws should be more consistent with federal legislation (e.g., review of *all state sponsored* undertakings that could harm *significant* sites);
- 5) Improved coordination with and references to other pertinent statutes such as MS 307 and environmental laws that involve archaeological matters and the State Archaeologist;
- 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); and
- 7) The State Register of Historic Places in the HSA should be revised to include an eligibility provision for environmental review purposes and a non-Legislative process to improve ease of listing.

The Department of Administration (the parent agency of OSA) will not sponsor revised MS 138 legislation unless there is prior agreement with MHS regarding changes to the law and other key stakeholders have been carefully consulted prior to Legislative presentation. Key stakeholders include MIAC, MnDOT, DNR, the Council for Minnesota Archaeology (CMA), city governments, and county governments. In 2014, the State Archaeologist will work to create an advisory committee among key agencies to write draft legislation that addresses needed and appropriate revisions to MS 138.

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 OSA or MHS review, although such projects represent the majority of local highway development activity in the state.

Even the relatively few projects that are submitted for archaeological review rarely get detailed review. The State Archaeologist has many duties and is short-staffed so OSA written 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).

The OSA will try work more closely 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 accurate predictive models for unrecorded sites. The OSA is working with MnDOT to help implement this.

In addition to providing local agencies with direct access to the site inventory, agencies also could greatly benefit from being able to assess site potential in development areas. MnDOT has developed an electronic archaeological predictive model called MnModel initially produced in the mid-1990s. MnModel began a significant upgrade in FY2012 known as *MnModel 4*. If a version of this revised model could be made easily accessible to local governments they would have a reasonable way to assess site probability and thus conform with the MS 138.40 requirement that “scientifically predicted” sites be considered when reviewing developments. OSA is working with MnDOT to make the electronic model more accurate and directly accessible to local governments. If MnModel model cannot be made widely accessible in a secure and effective manner or if its accuracy is insufficient, OSA will continue to try to provide local governments with accurate and easy-to-use narrative predictive models. Some of these models are being produced by the county surveys done for the *Statewide Survey of Historical and Archaeological Sites*.

Archaeological Research

Critical research needs include radiocarbon dates for certain sites and complexes, a mound status field 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 poorly known prehistoric complexes such as the Archaic. 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 may be funded through the *Statewide Survey of Historical and Archaeological Sites* noted below. It is essential to keep the *Survey* funded in future biennia.

Statewide Survey of Historical and Archaeological Sites - The sixteen projects undertaken over the last four years have clearly demonstrated the value of the *Statewide Survey of Historical and Archaeological Sites* to both cultural resource management (CRM) and archaeological research in Minnesota. During the 2014-15 biennium, the survey will continue its three-part focus: 1) examining poorly known areas of Minnesota, 2) examining poorly known historic contexts, and 3) examining poorly known property types. Examinations of all three of these foci benefit state agencies and environmental review authorities by providing information on where archaeological and historic sites are located and determining which resources are significant (i.e., worthy of preservation). This information not only helps protect important sites, but can save agencies and developers money by streamlining the review process.

The Board has identified these possible projects to be considered in FY 2014 and 2015:

- *Poorly Known Areas*: Surveys of Hennepin, Le Sueur, Lake of the Woods, Pope, and Wadena counties; Survey of the Minnesota River Valley
- *Poorly Known Contexts*: Archaic Period in Central Minnesota, SE Minnesota Woodland Period
- *Poorly Known Property Types*: CCC Camps, Minneapolis Park Landscapes, Ojibwe TCPs, additional LiDAR-Mound studies

Radiocarbon Dating Needs - The need to better date the Brainerd ceramic complex was addressed by the Brainerd Dating Study discussed in 2012 Annual Report; 40 radiocarbon dates and 10 optically stimulated luminescence (OSL) dates were obtained by the Brainerd study. Initiatives to address absolute dating of other prehistoric cultural complexes are being implemented with Legacy funding made available in the 2012-13 biennium for western Minnesota Woodland and Plains Village complexes. A major Archaic Period dating initiative will be undertaken during the 2014-15 Biennium.

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 may be on their property and thus they do not know what to avoid disturbing.

A major effort to assess the status of mound sites in Minnesota began with the 2010 Legacy-funded LiDAR mound survey in Scott and Crow Wing counties as discussed in the 2010 Annual Report and continued with the LiDAR-Mound study of 16 counties completed in 2013 discussed in this report. Using the LiDAR-derived information, the State Archaeologist will attempt to field verify the accuracy of a sample of the data in various counties.

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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 – any discrete location containing clear evidence of human activity that holds potential for significant understanding of the past through the use of archaeological methods.

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 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 Euro-American 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*.

Cultural Resource Management (CRM) - The identification, protection, and interpretation of archaeological sites, historic structures, and other elements of cultural heritage through survey, evaluation, and treatment strategies.

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 Euro-American manufacture are present or written records available; begins about 1650.

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 – a prehistoric site evidenced almost exclusively by the presence of stone tools and/or stone tool manufacturing debris and lacking ceramics and surface features.

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 Euro-American 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 (ca. 12,000 BC) up to the significant incursion of European culture (ca. 1650); 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.

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.