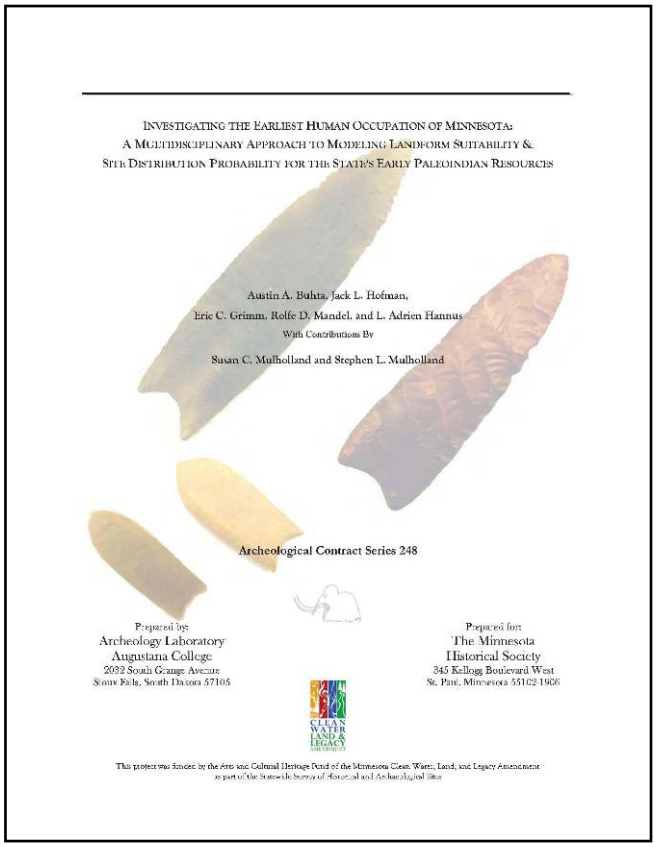
Archaeology in Minnesota
Annual Report of the State Archaeologist
Fiscal Year 2011


INVESTIGATING THE EARLIEST HUMAN OCCUPATION OF MINNESOTA:
A MULTIDISCIPLINARY APPROACH TO MODELING LANDFORM SUITABILITY &
SITE DISTRIBUTION PROBABILITY FOR THE STATE'S EARLY PALEOINDIAN RESOURCES

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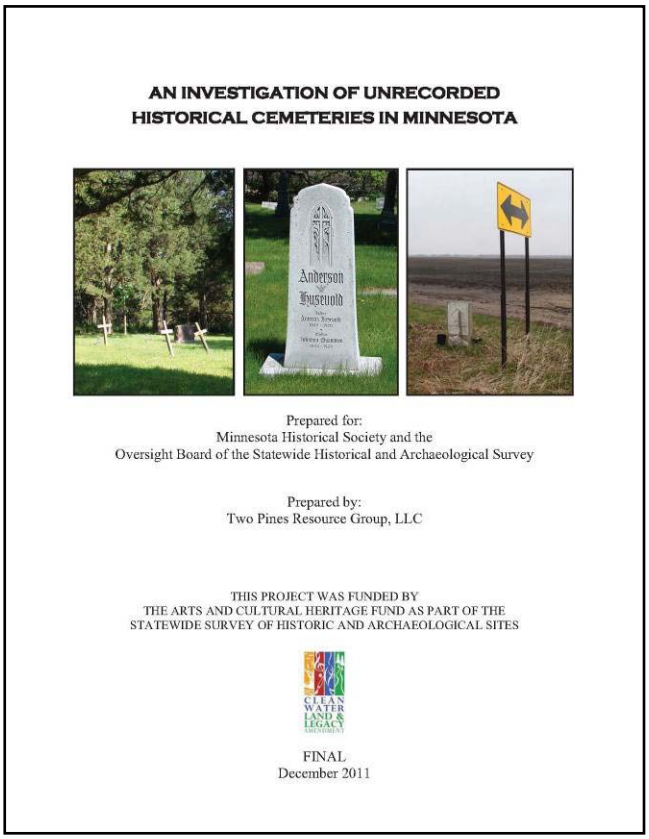
Heritage in Sites


AN INVESTIGATION OF UNRECORDED
HISTORICAL CEMETERIES IN MINNESOTA

Prepared for:
Minnesota Historical Society and the
Oversight Board of the Statewide Historical and Archaeological Survey

Prepared by:
Two Pines Resource Group, LLC

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FINAL
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Stories in Artifacts

Office of the State Archaeologist
Minnesota Department of Administration
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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.

Dedication

This annual report is dedicated to three individuals who retired in 2011 – Guy Gibbon (University of Minnesota), Barb O'Connell (Hamline University), and Susan Roth (Minnesota Historical Society). Each made significant contributions to Minnesota archaeology and history.

Abstract

In fiscal year 2011, the Office of the State Archaeologist (OSA) was involved in a wide variety of activities in order to fulfill legal obligations, protect archaeological sites, and support the advancement of Minnesota archaeology.

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

Chapter 2 summarizes OSA activities and other Minnesota archaeological activities in FY 2011 by program area. Major FY 2011 OSA accomplishments include: reviewing 268 site inventory forms, reviewing 57 development projects, doing field research on 21 major MS 308.08 burial cases, organizing another successful Minnesota Archaeology Week, writing the *State Archaeologist's Manual for Archaeological Projects in Minnesota*, and helping to direct the *Statewide Survey of Historical and Archaeological Sites*.

Basic OSA Fiscal Year (FY) 2011 and Calendar Year (CY) 2011 statistics are:

	FY11	CY11
Licenses Approved:	62	67
Site Forms Reviewed:	268	304
Site Numbers Assigned:	239	272
Reports Added:	122	104
Projects Reviewed:	57	36
Major Burial Cases:	21	-
Burial Authentications:	9	14

Chapter 3 provides an assessment of the current state of Minnesota archaeology including a summary of projects funded by the Legacy Amendment *Arts and Cultural Heritage Fund* for the *Statewide Survey of Historical and Archaeological Sites* and a plan for OSA activities in FY 2012.

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

Acknowledgements

During FY 2011, the Office of the State Archaeologist (OSA) was a department within the Office of Geographic and Demographic Analysis (GDA) at the Minnesota Department of Administration. David Arbeit very effectively supervised the diverse GDA and consistently provided the OSA with sound advice. In FY 2012, OSA was moved into the Community Services Division of Admin supervised by Laurie Beyer-Kropuenske, who has smoothly adapted to her new role providing administrative direction and support to OSA. For many years, Jim Rhodes competently and graciously provided OSA with Legislative guidance. With Jim's retirement in FY 2011, the OSA has lost a good friend and tireless supporter. The same can be said of former Commissioner of Administration Sheila Reger. Other Administration staff provide daily support to the OSA for financial, technical, and personnel matters. Special thanks go to Jerod Rauk and Ryan Church as well as new Administration 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 including David Mather, Tom Cinadr, Susan Roth, and Kelly Gragg-Johnson provide much needed advice and records management assistance. The OSA leases office space at the Ft. Snelling History Center from the MHS 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 support of my family, especially 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 essential daily tasks at OSA including license application processing, site form review, records maintenance, financial accounting, secondary school liaison, and avocational interaction. He serves as the institutional memory for the OSA and his wealth of knowledge and easy-going personality are absolutely essential to the State Archaeologist and the rest of the Minnesota archaeological community.

Scott Anfinson
State Archaeologist

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Cover Illustration: Report covers from three projects for the *Statewide Survey of Historical and Archaeological Sites* funded by the Arts and Cultural Heritage Fund of the Minnesota Legacy Amendment.

Chapter 1: Introduction

This report summarizes the activities of the Office of the State Archaeologist (OSA) for Minnesota State Fiscal Year (FY) 2011, the period from July 1, 2010 through June 30, 2011. It also includes some statistics and information for the 2011 Calendar Year (CY).

The State Archaeologist is a civil service employee of the Department of Administration and throughout FY 2011 resided within the Division of Geographic and Demographic Analysis (GDA). In FY2012, the OSA was moved into the Community Services Division after GDA was disbanded due to a state government re-organization. The OSA has two staff members, the State Archaeologist and an assistant. The OSA leases office space from the Minnesota Historical Society (MHS) at the Ft. Snelling History Center. The OSA receives a biennial appropriation from the state legislature for salaries and operating expenses. The Legislative funding level has remained at $196,000 annually since 2001, although the Department of Administration has contributed an additional $10,000 to OSA activities beginning in fiscal year 2009.

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

The Office of State Archaeologist – Historical Background

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

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

From December of 1992 through January of 1995, there was no State Archaeologist. Lobbying by developers, 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 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 had been the archaeologist for the Minnesota State Historic Preservation Office (SHPO) of the MHS. 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). 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 additional duties including the "authentication" of legally unrecorded historic or prehistoric cemeteries. This law has been amended eight times since 1976, most recently in 2007.

The State Archaeologist's duties under MS 307.08 are:

- grants permission for alterations of or removals from non-Indian cemeteries
- allows posting and approves signs for authenticated non-Indian cemeteries
- authenticates all unrecorded burial sites over 50 years old
- maintains 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 6120.250, Subpart 15a
The State Archaeologist has one duty specified in Minnesota Water Law Rules, which implement MS 103F pertaining to the development of shoreland. Under these rules 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. Water law rules apply to the use of shoreland as governed by state and local agencies. Agency review of shoreland development must consider impacts on *significant* historic sites. Significant historic sites include archaeological sites listed in or determined eligible to the state or national historic registers. Unrecorded cemeteries are automatically considered to be significant historic sites (MR 6120.2500, Subp. 15a).

Minnesota Environmental Policy Act (MS 116D) – Rules 4110.1500
Responsible Governmental Units (RGUs) for Environmental Assessment Worksheets (EAWs) are required to provide a copy of all EAWs to the State Archaeologist. The State Archaeologist has 30 days to comment on the EAW. RGUs make all the important decisions for EAWs including their adequacy and the need for a full Environmental Impact Statement (EIS). If the State Archaeologist recommends archaeological survey, testing, or mitigation for a project covered by an EAW or EIS, it is the RGU that makes the 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.* The Legislation stipulated 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 has responsibilities for

writing requests for proposals (RFPs), helping to select contractors, monitoring contract progress, and reporting results to the Legislature, the public, and to agencies.

Traditional Duties

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

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

Summary of Duties

The most important function of the State Archaeologist is to act as the principal archaeologist for the State of Minnesota. On a day-to-day basis, this involves 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 organizing submitted archaeological reports
3) reviewing development plans submitted by government agencies and private entities to evaluate the potential for harm to archaeological sites
4) promoting and undertaking research in Minnesota archaeology
5) providing public education and answering archaeological questions from the public
6) ensuring burial sites protection through careful record keeping, development plan review, interaction with MIAC, consultation with experts, and doing fieldwork
7) guiding the *Statewide Survey of Historical and Archaeological Sites*

State Archaeologist Scott Anfinson at a burial mound near Eveleth.

Chapter 2: Summary of OSA Activities – FY 2011

Licensing and Activities of Licensees

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

Beginning in the 1960s, licenses were typically issued to qualified archaeologists on a project-by-project basis or as yearly licenses to large agency-specific survey programs such as the Trunk Highway Archaeological Survey (1968 – 1994). In response to public comments, newly appointed State Archaeologist Anfinson undertook a review of the licensing process in FY 2006. 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 on non-federal public property. Licensees were required to notify the OSA of each project to be surveyed under their license, provide a separate report for each survey project, and provide a brief yearly summary of all archaeological work conducted under their license. Separate licenses were 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 are: 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 archaeologists unfamiliar with a particular Minnesota region and the specific historic contexts of some sites.

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 demonstration of appropriate 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. For efficiency reasons, the DNR divisional survey programs will continue to receive the combined Phase I-II licenses as the principal investigators for these programs are familiar with all Minnesota contexts and regions, they deal with numerous projects throughout the state, and there is often a need to rapidly and efficiently deal with a great variety of projects.

The licensing totals for Fiscal Year (FY) 2011 and Calendar Year (CY) 2011 are:

License Type:	**FY11**	**CY11**
Phase 1/Reconnaissance Survey (yearly):	57	57
Phase 2/Evaluation Survey	4	9
Phase 3/Excavation:	1	1
Authentication:	0	0
Total:	62	67

Most licensed projects involve reconnaissance surveys of relatively small areas and most of these surveys do not locate archaeological sites, although a few of these surveys can involve large areas and locate multiple sites. Evaluation surveys investigate the importance of individual sites located by reconnaissance surveys. Excavations involve intensive site investigations that usually involve opening large units at specific sites and usually produce the most valuable information about Minnesota's archaeological past. Authentication projects help the State Archaeologist determine if 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 2011 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. These three 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 assisted by LeRoy Gonsior and Doug George run State Parks Archaeology. This program did intensive survey in Glendalough State Park (Otter Tail County) finding and evaluating numerous prehistoric sites. Tim Tumberg runs the Trails and Waterways program with the assistance of Jennifer Tworzyanski, and was involved with extensive reconnaissance of the new Crow Wing State Trail. Mike Magner assisted by Stacy Allan handle DNR Forestry/Wildlife and Fisheries programs. One of their major efforts in FY2011 involved archaeological investigations at the New London Mill (21KH141) in association with replacement of the dam.

There was only one extensive archaeological excavation issued an OSA/MHS license in FY 2011 and CY2011. This license was issued to Ed Fleming (Science Museum of Minnesota) for a University of Minnesota field school at Bremer Village site (21DK6) in Dakota County.

There were no burial authentication licenses issued in FY2011 or CY 2011 as all authentications were completed internally 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 containing basic locational, descriptive, and reference information. Site numbers were assigned using the Smithsonian Institution's trinomial system with a numerical prefix based on state alphabetical position (Minnesota was 21 in 1957), then a two letter county abbreviation (e.g., AN for Anoka), and finally a one-up unique number for each site in a county. The initial compilation of sites was based on the field notes of archaeologist Lloyd Wilford and the T.H. Lewis-surveyed mound sites contained in Newton Winchell's *The Aborigines of Minnesota* (1911). Archaeologists who found previously unrecorded sites were asked to fill out a standard form and submit it to the University's Archaeology Lab.

The University of Minnesota's file became the official state site file with the appointment of Johnson as the first State Archaeologist in 1963. By the late 1960s, the focus of site file use changed from research to cultural resource management (CRM) mainly due to several new federal laws including the National Historic Preservation Act (1966), 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 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 1978 through 1981.

In 1981, the Minnesota Land Management Information System (MLMIS) at the State Planning Agency created a computerized version of SAS site file, although this "data bank" was never utilized for state planning purposes and was not available to archaeologists as it had to be accessed through a main-frame computer. The MLMIS computerized data was not updated after 1981. With the demise of the SAS in late 1981, the assignment of official site numbers reverted to the State Archaeologist.

The first widely available computerization of the archaeological site file occurred in 1982 when the current State Archaeologist, then head of the MHS-based Municipal - County Highway Archaeological Survey, undertook an extensive literature search and review of the archaeological site file. The purpose of the project was to compile a more comprehensive and accurate list of archaeological sites that were recorded in basic archaeological sources so potential effects to "known" sites (many 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). Anfinson's word processor files were then converted into a database file combining the various tables and a few new data fields. Under the Site Number field, unnumbered and unconfirmed site were assigned "alpha" numbers (e.g., 21ANa). Over the next decade, additional fields were added to the database mainly to foster Elden Johnson's 1957 site file research goals.

When Anfinson became the SHPO archaeologist in May of 1990, his computerized database became the SHPO's official archaeological site database. In 1994, MnDOT provided the SHPO with a grant to refine and augment the computerized site file. Under the direction of Homer Hruby, the SHPO completed the project in 1996. The project not only expanded and made corrections to the electronic site database, it cleaned-up and added materials to the SHPO's hard copy folders, added folders for each "alpha" (officially unnumbered) site, and drew 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/).

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

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

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

Besides the site database, the OSA also maintains extensive paper site files. There are several major differences between OSA and SHPO paper files besides the presence of unique data in each entity's folders. The OSA does not have individual folders for the alpha sites, although an intern project began in 2007 seeks to make copies of the SHPO alpha files, which will be

filed in a single OSA folder for each county. The SHPO does not have most of the data contained in the OSA burial site files and the OSA Burial Sites database is not shared with the SHPO, although this database does not include any burial sites not contained in the OSA archaeological site database. The SHPO also depicts both numbered and unnumbered sites on a set of 7.5' USGS maps, while the OSA depicts numbered site locations on a set of county maps. In 2007, the OSA began to produce a set of USGS maps with site locations depicted and now puts newly-recorded sites on a master set of USGS maps.

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

	FY11	CY11
New Forms Reviewed and Site Numbers Assigned:	239	272
Revised Forms Reviewed:	29	32
Total Forms Reviewed:	268	304

OSA Site files at Ft. Snelling.

As of June 30, 2011 there were 17,986 archaeological sites listed in the archaeological site database. Of these, only 11,122 (62%) were assigned official state site numbers and thus have a hard-copy file at both the OSA and the SHPO. As of December 31, 2011 there were 18,143 total sites in the site database of which 11,279 (62%) were numbered. The majority of unnumbered sites (known as alpha sites as they are assigned alpha-numeric numbers) are federal land sites in Chippewa and Superior National Forests 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 CY2011 total of 18,279 sites represents a tripling of the database since 1990, some of which is due to the addition of some federal land inventories (many unnumbered). On average about 300 site forms are submitted to OSA each year. The county with the most sites is St. Louis with 1,913 (1,133 numbered) sites and the county with the fewest is Red Lake with 24 (8 numbered) sites.

It is conservatively estimated that less than 1% of the total 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.

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 were 170 (15% of the total numbered sites), 440 (14%) in 1983, 491 (8%) in 1990, and 1,375 (8%) at the end of CY2011 (432 Phase III; 1,143 Phase II only).

There are about 300 Minnesota archaeological sites listed in the National Register of Historic Places (NRHP). Individual site nominations account for 105 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. Wood Lake Battlefield Historic District in Yellow Medicine County was added to the National Register in FY2011 (7/30/10) and Grand Mound (21KC3) was given National Historic Landmark Status (6/23/11).

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.

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

As of June 30, 2011, there were 2,925 burial sites listed in the OSA's Burial Sites Database. (The end of December 2011 total was 2,933.) This includes about 12,500 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 761 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.

Archaeological Report Files
The OSA maintains a file of archaeological reports. Archaeologists conforming to the requirements of state licensing have submitted most of these reports. The SHPO also maintains an archaeological reports file that mainly includes reports that have been submitted as part of the federal Section 106 process. As not all SHPO-reviewed projects require state archaeological licensing and not all MS 138 licensed projects require SHPO review, the OSA

and SHPO report files are far from identical, although there is significant overlap. Both the OSA and SHPO maintain databases of the reports they have on file.

In FY 2011, 122 reports were added to the OSA files. A total of 104 reports were added in CY 2011. As of the end of December 2011, the OSA had 5,371 reports listed in its files.

Since 1998, the OSA has published yearly (calendar) compilations of abstracts of reports submitted to the OSA. They are produced by Bruce Koenen, the OSA research assistant. They can be found 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. "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 the Spring of 2007, requires that state agencies, local governments, and private developers submit development plans to the State Archaeologist when known or suspected human 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.

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

During FY 2011, the OSA completed substantial review of 57 development projects, of which 52 were part of the state EAW/AUAR/EIS process. Five (5) of the non-EAW/AUAR/EIS project reviews were review requests for the purposes of MS 138.40 (Field Archaeology Act).

Because the State Archaeologist has many duties and is short-staffed, replies to EAW submittals are sent only if an archaeological survey is recommended or a known archaeological site or burial site should be avoided within the Area of Project Effect (APE). Furthermore, if the project will be reviewed under federal Section 106 or will otherwise be reviewed by the SHPO (e.g., State Agency RGU), the OSA defers review and comment to the SHPO unless 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. This is becoming more common mainly due to responsibilities associated with the *Statewide Survey of Historical and Archaeological Sites*. In calendar year 2011, it was also exacerbated by the state employee layoff in July. No archaeological surveys or site avoidance requests for EAWs were recommended by OSA in FY 2011, but numerous projects were simply not reviewed.

Lake Hanska County Park - The State Archaeologist was directly involved with a development project at Lake Hanska County Park in 2011. In November 2010, Brown County staff contacted the State Archaeologist regarding the proposed replacement of the caretaker's house at Lake Hanska. This building, a double-wide manufactured structure

placed on concrete piers, was immediately adjacent to an archaeological site listed on the National Register of Historic Places – the Lake Hanska/Synsteby site (21BW1). This site contained burial mounds, prehistoric habitations, and a historic fort from the US- Dakota War. Lake Hanska County Park had been the subject of a particularly bitter dispute in the mid-1970s when initial park development had done significant damage to the archaeological site.

Although the proposed house replacement in 2011 was on the same footprint as the original house constructed in 1976, the State Archaeologist recommended an archaeological survey as there were probably relatively undisturbed areas between the piers. Following the removal of the existing structure, this survey was carried out by the Archaeology Laboratory of Augustana College in late May 2011 (Adrien Hannus, principal investigator). The survey confirmed that archaeological materials still existed within the building footprint. Based on the survey the State Archaeologist recommended additional testing at the new pier locations prior to any new construction. This testing was carried out by OSA staff in August 2011 and will be discussed in the FY 2012 Annual Report.

Boom Island Park - The State Archaeologist also carefully reviewed Minneapolis Park and Recreation Board (MPRB) construction within Boom Island Park in Minneapolis. This park is within the St. Anthony Falls Historic District and contained an extensive sawmilling and railroad complex in the late 19th century. The State Archaeologist recommended monitoring of the 2011 construction by a historical archaeologist. MPRB complied by hiring URS archaeologist Scott Buskey to do the monitoring. This project too will be further discussed in FY 2012 annual report.

Agency Assistance

One of the principal duties of the State Archaeologist is to assist state agencies with cultural resource management issues. During FY 2011 these duties included meetings and site visits associated with DNR State Park developments and MnDOT highway projects.

OSA also assists local agencies. OSA staff spend considerable time on email and telephone correspondence aiding cities and counties with development review. In FY2011, the State Archaeologist continued to assist Winona County with implementation of their land use ordinance as it applies to archaeological sites and unrecorded cemeteries. The State Archaeologist served on the Three River Park District Cultural Resource Management Plan Committee attending a planning meeting and reviewing the draft report. The State Archaeologist serves on a Dakota County Parks advisory panel examining a proposed new park on the Vermillion River and proposed developments within Spring Lake Park and City of Minneapolis advisory panel setting new design guidelines for the central Minneapolis riverfront.

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

The database currently contains 471 dates from 140 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, Donarski (21MA33) with 12, and Mooney (21NR29) and J Squared (21RW53) both with 10. Forty-nine (49) 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). It is anticipated that perhaps 30 – 40 dates will be added in FY2012 as a result of a Legacy Amendment funded initiative to better date Brainerd prehistoric ceramics.

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

Institutional Field Research - Historically, colleges, universities, and museums have been principally responsible for archaeological research in Minnesota. This began to change in the 1970s with the rapid ascent of government-mandated cultural resource management (CRM) archaeology, which resulted in dramatic shifts in funding and employment from cultural institutions to government agencies and private contractors. Universities remained the principal training institutions for archaeologists and the principal producer 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 2011, the following university-based field research was undertaken in Minnesota:

University of Minnesota – Minneapolis
- Kat Hayes field school at Reaume's Trading Post site (21WD15)
- Ed Fleming (SMM) field school at Bremer Village site (21DK6)

Minnesota State University - Moorhead (Mike Michlovic, George Holley, Ranita Dalan)
- field school in conjunction with Legacy-funded Swift County survey

St. Cloud State University (Mark Muniz)
- field school at Knife Lake quarries in Lake County

Minnesota State University – Mankato (Ron Schirmer)
- field school at the Silvernale site (21GD3)

OSA's Bruce Koenen (right) visits Ron Schirmer's (left) Mankato State field school at the Silvernale (32GD3) site in Red Wing.

Hamline University (Brian Hoffman)
- field school at Roosevelt Lake in Cass and Crow Wing counties

University of Minnesota – Duluth (Susan Mulholland)
- field school at Duluth sites and Knife Lake quarries

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

The OSA is not aware of any major Minnesota excavations on federal land in FY 2011, although there was an extensive examination of the Knife Lake quarries in Superior National Forest by a number of institutions. There was also a *Passport in Time* (PIT) project investigating sites in the Portage Lake area in Chippewa National Forest.

David Mather, the SHPO archaeologist, and Jim Cummings, an archaeologist/naturalist for Kathio State Park, continued their research at the Petaga Point site (21ML11). In FY2011, they excavated another 1x1 meter unit and obtained a radiocarbon date suggesting the house structure there is proto-historic.

Public Education

Minnesota Historical Society Director Stephen Elliot visits the flint-knapping demonstration by Rod Johnson at the Archaeology Fair.

Archaeology Week - The OSA has served as the organizer and major sponsor of Minnesota Archaeology Week since 1998. The first Archaeology Week was held in 1995. Minnesota Archaeology Week 2011 was held May 14-22. There were over 20 officially sponsored events in 15 counties. Over 900 people attended the events. Some of the featured events included a lecture on the prehistory of northeastern Minnesota in Moose Lake, a flint-knapping demonstration in Waconia, an open house at the museum in Winnebago, a symposium on sacred sites in Rochester, and a talk on the archaeology of Swift County in Benson. The annual Ft. Snelling Archaeology Fair was held at Ft. Snelling State Park sponsored by the Minnesota Historical Society, the Office of the State Archaeologist, and the Minnesota Archaeological Society. State Archaeologist Scott Anfinson presented the 17th annual Elden Johnson Distinguished Lecture at the University of Minnesota. His topic was an overview of Elden Johnson's career.

The 2011 Archaeology Week poster was titled *A New Deal – Federal Relief Program Archaeology in Minnesota*. The poster was jointly produced by OSA and Michelle Terrell of Two Pines Resource Group. It featured historic photographs of 1930s WPA and CCC excavations at a number of Minnesota archaeological sites including Grand Portage and Fort Ridgely.

Presentations and Meetings – During FY 2011, the State Archaeologist made formal presentations at the State Coroner's Annual Meeting on 10/14/10 in Brooklyn Park, the National Recreation and Parks Association Annual Meeting on 10/27/10 in Minneapolis, MnDOT's Survey and Right of Way conference on 3/15/11 at Breezy Point, the annual Elden Johnson lecture on 5/11/11 at the University of Minnesota, and the Trust for Public Land meeting in Little Falls on 6/16/11. OSA assistant Bruce Koenen presented a talk on Minnesota Archaeology at Augustana College in Sioux Falls on 1/16/11.

The State Archaeologist attended the Council for Minnesota Archaeology (CMA) Spring Symposium and business meeting at Inver Hills Community College on 10/18-19/10, the Minnesota Archaeological Society meeting on 11/9/10, the Gales of November Shipwreck Conference in Duluth on 11/12-14/10, a MnDOT sponsored meeting on the Geomorphology of the Mississippi River in Oakdale on 4/5/11, the State Historic Preservation Office Review and Compliance Symposium in St. Paul on 4/26/11, Moorhead State University's presentation on the Archaeology of Swift County in Benson on 5/14/11, and the Advisory Council for Historic Preservation's Section 106 training in Minneapolis on 6/9/10.

OSA assistant Bruce Koenen attended Archaeology Day at Kathio State Park on 9/25/10, the Gopher State Artifact Show in Lakeville on 10/13/10, the CMA quarterly meeting at Ft. Snelling on 10/16/10, the CMA spring symposium at Inver Hills Community College on 10/18-19/10, the Minnesota Archaeological Society meeting on 11/9/10, the Superior Basin Conference in Pine City on 3/18-19/11, the Gopher State Artifact Show in Rochester on 4/17/11, the SHPO Review and Compliance seminar on 4/26/11, and the Pine City Knap-In on 6/24/11. Koenen helped organize the CMA Spring Symposium.

OSA Archaeology in the Schools – Assistant to the State Archaeologist Bruce Koenen takes the lead in this initiative and has assembled a teaching kit of artifacts that he takes with him on school visits. In FY 2011 he made a presentation to Kimball Elementary in Kimball on 5/9/11. Koenen also put on four flint-knapping workshops at Normandale Community College, gave St. Cloud State University Cultural Resource Management students a tour of the OSA office, and spoke to Inver Hill Community College archaeology students on 6/16/11.

The State Archaeologist continues to serve as an Instructor in the University of Minnesota Department of Anthropology. In FY 2011, he taught one course in 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. He participated in two thesis defenses in FY 2011, one in Anthropology and one in Architecture.

Internships – The OSA sponsors internships to not only train students of archaeology in practical skills, but to accomplish needed work within the office. In FY 2011, the OSA did not have an intern.

Boards and Committees – The State Archaeologist serves on a number of boards and committees. In FY2011, he served on the Dakota County Parks Technical Advisory Committee, the University of Minnesota Heritage Education Collaborative, the Minneapolis Riverfront Design Committee, and the Three Rivers Park District Advisory Committee. 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 an advisory board for the Cultural Resource Management Master's Degree program at St. Cloud State University.

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

Major media exposure for the State Archaeologist in FY2011 included an interview with the *Northfield News* on 12/15/10, an interview for Minnesota Public Television's *Almanac* show on 12/21/10, an interview with KSTP television on 2/16/11, and radio interviews in May 2011 with KROC (Rochester), KAUS (Austin), KWLM (Willmar), and WTIP (Grand Marais) concerning the Legacy Amended-funded *Statewide Survey of Historical and Archaeological Sites*.

Professional Development – Due to a freeze on out-of-state travel, the State Archaeologist did not attend any major professional conferences in FY 2011.

The State Archaeologist continues to serve as an editorial advisor to the *Midcontinental Journal of Archaeology*. He is a member of the National Association of State Archaeologists (NASA), the Plains Anthropology Conference, the Midwest Archaeological Conference, the Minnesota Archaeological Society, and the Society for American Archaeology.

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.

Minnesota law basically treats human burials and cemeteries in two ways: as Public Cemeteries under MS 306 and as Private Cemeteries under MS 307. These laws were initially passed soon after Minnesota became a state (1858), although they have been re-numbered and revised multiple times. Public cemeteries are not restrictive regarding who can be buried there and tend to be active (i.e., open to new burials). Local units of government usually own public cemeteries.

Private cemeteries are those with restricted use governed by procedures established by a private association and they exist on private property. Most private cemeteries are affiliated with religious groups. Lands containing private cemeteries are exempt from public taxes and

assessments. Some well-known and well-marked private cemeteries are no longer active primarily due to church closure.

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

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. That change involved only the addition of one word, "grounds", in 308.07, Subd. 2, but it had major implications for authentication, management, and enforcement. It is now a felony to willfully disturb a "burial *ground*" not just a burial. This requires that the State Archaeologist define burial ground limits during the authentication process, that all land within those limits be properly treated, and that human remains do not have to be directly disturbed to represent a violation of the law.

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

MS 307.08 FY 2011 Activities - The OSA dealt with 21 major burial cases in FY 2011. "Major" is defined as a case where substantial OSA review is required as indicated by the need for fieldwork, extensive research, and/or official correspondence. Not all major cases result in formal authentication as defined in MS 307.08. Formal authentication involves either proving to a reasonable degree there is a burial in a particular location or proving to a reasonable degree there is not. When a burial ground or portion of a burial ground is found, mapped, and an affiliation determined, it is considered to be "authenticated." There is no standard term for a negative authentication finding.

The OSA typically receives several email or telephone inquiries every week relating to possible burial cases, but most of these can be dealt with quickly and without the need for fieldwork. "Minor" cases do not individually cause a significant expenditure of OSA time or resources, although as a whole and with the addition of the major cases, burial site protection accounts for over half the workload of the OSA.

Of the 21 major burial cases in FY 2011, all involved some OSA fieldwork and 13 of these resulted in formal authentication (6 positive and 7 negative). Authentication involves four

steps: 1) determining if the site is indeed a burial ground, 2) defining the limits of the burial ground, 3) attempting to determine ethnic identity, and 4) sending official correspondence with an authentication conclusion to the landowner as well as the zoning authority and/or county recorder. All FY 2011 major cases are discussed below. Two (2) of the cases resulted in the discovery of previously unrecorded sites. Fifteen (15) of the sites involve Indian burials, three (3) involve non-Indian burials, and the remainder were not human burials.

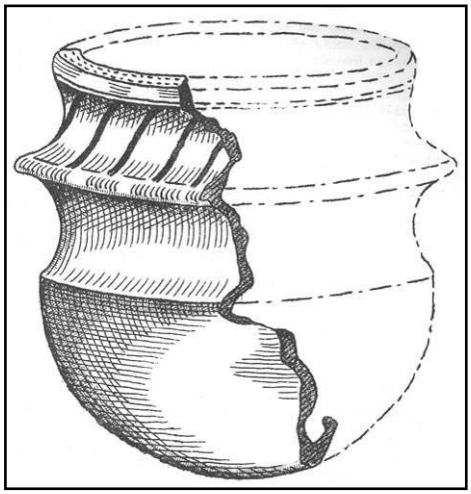
The State Archaeologist also makes an effort to re-check known burial sites or look for reported but unthreatened burial sites when it is convenient (i.e., if they are in the vicinity of other projects being field reviewed). The known sites can be either sites that were originally documented in the distant past or sites that have been involved with recent authentication or reviewed development projects. In FY 2011, the State Archaeologist field examined 17 sites that did not require immediate OSA action. These site were 21BK110, 21BN6, 21CP64, 21CW8, 21DK5, Albert Lea Catholic Church, 21GD8, 21GD59, 21HE65, 21KH137, 21ML128, 21ML133, 21PO1, 21PO2, 21SN9, 21SN141, and 21WR6. All of these sites were photo-documented.

MS 307.08 Major OSA Actions – FY 2011

21BL22 – Utility Work in Bemidji, Beltrami County

In late 2009, MIAC was alerted to possible utility work underway along Bemidji Avenue on the west side of the Mississippi River in Bemidji. This work was within the limits of site 21BL22, a burial and habitation site first documented in the late 19th century. Part of the habitation site also shares the site number 21BL31. MIAC coordinated with the City of Bemidji and had contract archaeologists screen all the removed dirt. The screening yielded thousands of artifacts.

In May 1895, Theodore Lewis examined the habitation area that he said extended on both sides of the Mississippi River where it entered Lake Bemidji. Jacob Brower looked at the same area in July 1899, noting village materials on the west side of the river and two mounds just west of the village area. In September 1939, sanitary sewer work just west of the river and east of Bemidji Avenue encountered remains of three individuals and village site materials. These were reported to Lloyd Wilford at the University of Minnesota. Wilford subsequently wrote an article in the *Minnesota Archaeologist* (October 1943) about an unusual ceramic vessel uncovered by this disturbance. In May 1956, Wilford was again contacted when sewer line work along Bemidji Avenue west of the river hit three locations containing the remains of four individuals; two of the locations approximately corresponded with the two mounds mapped by Brower in 1899.



In August 1988, construction work on an eastern addition to the Pamida store in Bemidji just west of the Mississippi River hit extensive human remains and village material. The State Archaeologist (Hohman-Caine) in cooperation with MIAC did extensive salvage work at the site screening about 225 cubic yards of soil. The screening recovered the remains of 16-20 individuals who were immediately reburied along the east end of the store addition.

The State Archaeologist visited the location on 7/20/10 after the 2009-10 construction had been completed. He examined exposed soil for archaeological remains (negative) and photo-documented the area. The Pamida Store will be closed in early 2012, which may again result in development pressure on this location.

Ravenna Cemetery – Human Remains found in School Collection, 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 Wiflord 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 visited the location on 5/6/11. There appears 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.

Lobster Lake – Burial Authentication Request, Douglas County
In December 2009, an attorney representing a landowner on the northeast side of Lobster Lake in Douglas County requested an authentication of a suspected burial mound. The mound was in the path of a proposed power line through the landowner's property.

The State Archaeologist examined the location on 10/15/10 accompanied by the landowner. While the location was an ideal spot for a burial on a hill overlooking the lake, the feature was too large to be a burial mound and thus resulted in a negative authentication. Due to finds of prehistoric habitation materials in the vicinity, the landowner was asked to report any disturbances in the area to the State Archaeologist.

21GD8 – Burial Authentication Request, Goodhue County
In November 2010, an individual interested in obtaining a parcel of land near Frontenac in Goodhue County contacted the State Archaeologist. The location contained a portion of burial mound site 21GD8 recorded by T.H. Lewis on May 10, 1885 as having 24 mounds.

The State Archaeologist informed the individual that OSA could not examine the site until the 2011 field season, but encouraged him to engage the services of an approved private contract archaeologist to examine the area. The private landowner took this suggestion and contracted with the Mississippi Valley Archaeological Center (Connie Arzigian, principal investigator) in November 2010.

MVAC personnel examined the area on November 3, 2010. The parcel in question was mostly west and south of the mound area mapped by Lewis. The only area of the parcel with possible complications was an entrance easement from Trunk Highway 61 at the extreme northern end of the mound group. At the time of the MVAC survey, this area was a recently plowed field with excellent surface visibility. Surface reconnaissance and soil probes of the access road area failed to find any evidence of a mound. Following the receipt of the MVAC survey report, the State Archaeologist informed the proposed purchaser of the parcel by telephone that MS 307 did not restrict purchasing property containing burials, only their disturbance and that the likelihood of surviving burials in the parcel was low due to long-term cultivation and road development.

The State Archaeologist examined the area on 5/19/11 and confirmed that no mounds were visible within the parcel in question. The area of 21GD8 has been extensively disturbed by cultivation, highway construction, and commercial and residential development so it is likely that most if not all the mounds have been destroyed. No OSA authentication letter has been issued pending additional correspondence from the developer and an official request from the landowner.

21GD15 – Flagpole Construction of Barn Bluff in Red Wing, Goodhue County
In September 2010, the State Archaeologist was contacted by the City of Red Wing regarding a request by the local American Legion to put a new flagpole on Barn Bluff. The original flagpole had been erected in 1929, but the pole was no longer in place. The City was informed of the possibility of a known burial mound (21GD15) in the immediate vicinity and the need for field review by OSA prior to any construction. OSA's Bruce Koenen visited the location on 9/28/10, noting that the existing flagpole base was built into the mound. He met with representatives of the City and the American Legion the following day. A location 35' south of the mound was selected as possible new flagpole site.

The OSA then requested plans from the City documenting where the new flagpole would be placed. The City sent the plans to OSA on 10/1/10, noting that no construction was planned until the Spring of 2011. The State Archaeologist approved the location on 11/2/10. The State Archaeologist recommended that the City coordinate with the Prairie Island Dakota.

New flagpole on Barn Bluff in Red Wing showing the old flagpole base and USGS marker in the mound.

The State Archaeologist examined the location on 11/2/10 prior to the new construction and on 6/21/11 after the construction. The old flagpole base and a USGS survey marker were both still within the mound limits and an informal trail cut across the mound causing severe erosion. The State Archaeologist recommended to the City that: 1) the trail be re-routed to the south, 2) the old path through the mound blocked by woody vegetation or brush, and 3) the mound be restored to its original configuration and re-vegetated without removing the old flagpole base and without covering the USGS survey marker. These recommendations were to be discussed with the Prairie Island Dakota prior to implementing. OSA will re-examine the location in FY 2012 to monitor progress regarding the mound restoration recommendations.

21GD58/61 – Burial Authentication Request on Prairie Island, Goodhue County

In April 2011, Xcel Energy requested authentication of the Birch Lake Mound site (21GD58/61) adjacent to the Prairie Island Nuclear Generating Plant. One of the reasons for the authentication request was possible use of one of the mounds for re-interring human remains that had been removed in 1968.

This site had originally been investigated by Theodore Lewis in October 1885 where he mapped eight small circular mounds. Elden Johnson and a University of Minnesota field crew excavated five of the mounds as part of the survey for the construction of the nuclear power station. Johnson noted that six of the mounds had been leveled by plowing, one mound was nearly leveled, and the eighth was largely intact. Human remains were found in the excavated mounds, but the remains were sparse and very fragmentary. Johnson assigned the number 21GD61 to the excavated mounds, although it later became apparent that these were the same mounds mapped by Lewis in 1885 that had been assigned the number 21GD58.

In the summer of 2009, Xcel had hired Mergent, a private consulting firm, to conduct an archaeological survey of their property adjacent to the Prairie Island Plant. This survey included mapping any remnants of burial mounds and other archaeological features.

On May 24, 2011, OSA personnel accompanied by Xcel personnel and Whitney White the Prairie Island Dakota Community Tribal Historic Preservation Officer (THPO) visited the location of 21GD58/61. Based on the Lewis map, Johnson's notes, historical aerial photographs, the Mergent field map, and soil coring, OSA personnel were able to relocate Johnson's excavations and determine the locations of the original mounds. No mounds were clearly visible, but excavation features were. The relocated features were marked with pin flags. Because this is an Indian burial ground, MIAC has the principal management authority following the OSA authentication, but the State Archaeologist suggested in a letter to Xcel dated 5/25/11 that Lewis Mound 8 (Johnson Mound 1) be used for any re-interment because it had been the most extensively excavated in 1968 and thus would have the lowest chance of still containing burials.

21GD78 –Review of DNR Water Access Upgrade on Prairie Island, Goodhue County

In August 2010, the State Archaeologist was contacted by the US Army Corps of Engineers (COE) regarding a proposed upgrade of a MnDNR water access site on the Mississippi River near the north end of Prairie Island. DNR had applied for a COE permit for the proposed construction. The Area of Potential Effect (APE) appeared to be within the northern limits of mound site 21GD78.

The mound group now known as 21GD78 was originally mapped by Theodore Lewis in November 1885. At that time it consisted of 42 mounds of which 7 were linear and the rest circular. The next recorded visit by archaeologists was in 1970 by the Minnesota Trunk Highway Archaeological Reconnaissance Survey (MTHARS) who noted on the MHS site form "under cultivation, not found."

In November 1995, Bureau of Indian Affairs (BIA) archaeologist Richard Berg visited the site in response to a proposed acquisition of Indian Trust land to the west and south of the boat ramp by the Prairie Island Dakota Community. Berg mapped a historic farmstead about .4 miles southeast of the boat ramp. Within the farmyard, Berg noticed several low earthen features, which he thought might be Lewis mounds 1- 4. He also speculated that the farmhouse was located on another mound that was unnumbered by Lewis, but designated by an "H" on the 1885 Lewis map. The land containing the farmstead was put into trust by the federal government and the buildings were removed.

The State Archaeologist visited the location on 8/31/10. The area of the existing boat ramp and the private land immediately to the southeast was briefly examined with no mounds clearly obvious, but the fields were in crop at the time limiting visibility. The area was photo-documented. No plans have been submitted to the OSA by DNR for the proposed water access upgrade and no authentication request has been received from DNR as of yet.

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

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

In May 2010, MIAC hired soil scientist Grant Goltz to undertake hand-pushed soil coring of the development area. The OSA did not issue an authentication license for this work as it involved only minor soil disturbance. (Mr. Goltz is not a *qualified archaeologist* under state law, although he is very familiar with mound investigations.) The Goltz work was not coordinated with OSA. Goltz completed a report of his work in early June 2010. Hennepin County provided the State Archaeologist with a copy of the report. Goltz concluded that mound remnants still existed in the Area of Potential Effect (APE), but OSA review of the report indicated Goltz's mound reconstruction map was 50' off due to use of a poor quality photocopy of the Lewis notes (see below). In a meeting with Hennepin County on 6/17/09, the State Archaeologist recommended that Hennepin County obtain another opinion by a qualified geoarchaeologist. Hennepin County agreed to do this in FY 2011.

In August 2010, Hennepin County hired Michael Kolb, a qualified archaeologist and geomorphologist, to further investigate the possibility of mound and burial features at 21HE27. Kolb used a truck-mounted soil corer, excavating close interval cores (2.5 m) along two transects through the proposed construction area; a total of 45 cores were extracted and analyzed. Like the 2009 MVAC examination, Kolb could find no evidence for any surviving mound fill, burial pits, bone, or artifacts.

Geomorphologist Mike Kob inspects soil from borings at 21HE27

The discrepancy between the findings of Arzigian and Kolb versus those of Goltz appear primarily related to the accuracy of reconstructions of the 1883 Lewis notes and extensive post-1883 alterations of the APE. The OSA examined a microfilm copy of the Lewis notes rather than rely on an old photocopy. Goltz and most other researchers in Minnesota rely on copies of copies of the Lewis notes from a base copy originally made by a thermofax (wet process) copier in the mid-1970s. The original Lewis notes are in the collections of the Minnesota Historical Society and the OSA has a 1st generation microfilm copy.

Lewis records that Mound 2, a small circular mound at the north edge of the CSAH 101 APE, was crossed by the Section 17 northern E-W section line "307 feet east" of the NW section corner. This mound is the benchmark mound for all reconstructions based on Lewis measurements and bearings. Prior to Dr. Kolb's survey, the State Archaeologist had Hennepin County exactly relocate the NW corner of Section 17. Utilizing the exact section corner for measurements, it is clear that dark-shaded mounds on the Peterson MTHAR's map are fairly accurate modern reconstruction of the Lewis mound locations. Goltz states that his reading of the Lewis notes puts Mound 2 "357 feet east" of the section corner, a 50-foot error which is no doubt due to indistinct numbers on his photocopy. Thus the Goltz mound reconstructions are 50 feet too far to the east. Both Arzigian and Kolb note extensive modern soil disturbances and filling in the APE and this probably accounts for Goltz's finding of surface features and soil anomalies. It is also possible that isolated remnants of mound fill still exist in the APE, but it is highly unlikely such remnants contain burials.

Over the last century and a half, intensive transportation and residential related development has probably destroyed all burials and significantly modified the soils in this location. Landscaping, major construction and demolition episodes, garbage disposal, sewage disposal, soil stockpiling, utilities, gardening, pets, and just day to day activities have all served to alter the soils at this location. Interpretation is also hampered by the thick, dark topsoils, which mask soil features. Therefore identifying features that might be related to the pre-contact earthworks is close to impossible, which explains the different interpretations arrived at by the researchers.

Based on the findings of the Arzigian and Kolb survey and considering the 50-foot mapping error of the Goltz survey, the State Archaeologist has no evidence to support the survival of human burials within the APE of the proposed CSAH 101 roundabout. While the CSAH 101 roundabout is clearly within what once was a burial area, MS 307.08, Subd. 13 states that a burial area must contain or have the high potential to contain human remains in order to

receive the protection of the Private Cemeteries Act and a positive authentication by the State Archaeologist. Due to extensive disturbances over the last century and a half, the State Archaeologist could not authenticate a surviving burial ground within the CSAH 101 APE.

On December 21, 2010, the State Archaeologist issued a negative authentication letter to Hennepin County. The county was cautioned, however, that all former burial areas should be treated with care. The State Archaeologist recommended that prior to construction, surface soils should be stripped off the construction area and that this stripping be monitored by a qualified archaeologist approved by the State Archaeologist. He also recommended careful consultation with the Minnesota Indian Affairs Council to make sure all their concerns have been adequately addressed.

21HE59 and 21HE60 – Authentication Request in Minnetrista, Hennepin County

In early April 2011, OSA was contacted by the attorney for a developer in Minnetrista regarding a proposed residential building site (Palmer Pointe) near several known burial mound groups. The groups in question had been mapped by T. H. Lewis in May of 1883. The western group had been assigned the official State Archaeologist's inventory number of 21HE59 and the eastern group was assigned 21HE60. The 21HE59 group originally consisted of 5 mounds and the 21HE60 group had 9 mounds.

On April 19, 2011, OSA personnel visited the location to determine if mounds still survived within the development area. The location had already been extensively modified by a previous development including grading, road building, and utility work. It was apparent that site 21HE59 had been completely destroyed by this development, although no home had been built within the probable footprint of the mounds. The exact position of mound group 21HE59 was difficult to locate as Lewis stated only that they were in the SW of the SW of Section 36, Township 117, Range 24 and his sketch map showed them north of a road that traversed the area in an approximate east-west direction. A later description by Newton Winchell in 1911, stated that the 21HE59 mounds were "about 200 yards west" of 21HE60. This would place 21HE59 just west of the intersection of Yellowstone Trail and Palmer Court. This area was clearly deeply disturbed by the grading several years ago.

Only the easternmost mound (Lewis Mound 9) survives at site 21HE60 and soil coring demonstrates that the other eight mounds west of Mound 9 in 21HE60 have been completely destroyed by grading that probably was associated with late 19th century road construction. Due to the presence of this mound, the State Archaeologist established a 20-foot boundary around the base of Mound 9 at 21HE60. Pin flags were placed on the site demarcating this boundary. Surveyors from Alliant Engineering met OSA personnel at the site and they were requested to mark this burial ground boundary on the plat maps for Palmer Pointe. Because this area was fully within an existing conservation easement, it should not cause any development problems.

In a letter dated April 19, 2011, the State Archaeologist informed the developer of the field results and the need to maintain the buffer around the lone surviving mound. The developer was also informed that most of the State Archaeologist's management obligations for this

burial ground were transferred to Minnesota Indian Affairs Council (MIAC) upon issuance of the official authentication letter.

21HE393 - Authentication Request for Hermitage Shores, Hennepin County

In March of 2006, the City of Minnetrista contacted the OSA regarding the Hermitage Shores Development and the possible presence of an early historic settlers' graves within the development. Several neighbors also contacted OSA about the development. Based on historical research, George and Frank Halsted were supposedly buried near their cabin on Lake Minnetonka and this spot was supposedly marked with a flagpole in front of a late 20th century residence. The State Archaeologist visited the site in May 2006, located the flagpole, and photographed the vicinity. There was no obvious surface evidence for a gravesite or any marker denoting one, although a large boulder was present just south of the flagpole.

The State Archaeologist recommended that an archaeological survey be done of the entire development parcel because it was located on Lake Minnetonka, although such a survey was not mandatory as it was a private development on private land. Archaeological Research Services (ARS) completed this survey in July of 2007, but no archaeological materials were recovered. ARS sub-surface testing was just beyond a 20-buffer of the flagpole, but no features or artifacts were noted. In 2007 the State Archaeologist recommended that a 20-foot no-development setback be maintained from the flagpole in case there were indeed burials there.

OSA trench around boulder near flagpole at 21HE393.

In late May 2011, the new Hermitage Shores developer requested an official authentication of the Halsted graves so the property could be fully developed. OSA personnel met with representatives of the developer on-site on June 2, 2011. Since the initial OSA visit in 2006, the adjacent house had been removed, but the flagpole was still in place. OSA personnel excavated a 25-foot trench north of the flagpole, a six-foot trench south of the flagpole to the boulder, and a 12-foot long trench south of the boulder. The trenches were about 25 cm wide and 40 cm deep. OSA staff also excavated a trench around the boulder examining the soil for any features and the boulder for any markings or plaques. The soil was not screened.

Although numerous late 19th century/early 20th century historical artifacts were found in the excavated soil, the only evidence of a grave-like soil feature was between 13 to 16 feet north of the flagpole. This feature was marked with pin flags and the trench was backfilled. The developer was asked to avoid the pin-flagged area and that any disturbances in the immediate vicinity should be monitored by a qualified archaeologist. Construction was scheduled to take place in FY2012 and will be discussed in the 2012 Annual Report.

Lake Minnewashta Trail – Possible Mound within Regional Park, Hennepin County
In early November 2010, a MnDOT archaeologist contacted OSA about proposed trail construction impacts to a possible burial mound in Lake Minnewashta Regional Park. The possible mound had been reported by an archaeological survey for the trail. On 11/17/10, OSA personnel visited the location noting several mound-like features in the general vicinity, but the possible mound adjacent to the trail alignment was too small and in the wrong location for a mound. County parks personnel accompanied OSA staff on the field examination.

21NL8 – Possible Mound Disturbance at Ft. Ridgely Cemetery, Nicollet County
In May 2006, DNR State Parks archaeology staff informed the State Archaeologist that privately-owned maintenance vehicles had been driving over a known burial mound in the private cemetery within Ft. Ridgely State Park. The State Archaeologist examined the location on 6/1/06 noting fresh tire tracks across the mound. An attempt to contact cemetery management was hampered by the lack of a contact person and address.

In early May 2011, DNR State Parks personnel once again contacted the State Archaeologist about the possible disturbance of the mound 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 fresh grave excavated in May 2012. 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 plat 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 plat map, but the map did not have a scale. A map with a scale was then requested. As soon as this map is obtained, the State Archaeologist will authenticate the mound within the cemetery.

21NR1 – Mound Disturbance at the Slininger Site, Norman County
In early July 2010, the Bureau of Criminal Apprehension (BCA) office in Bemidji contacted the State Archaeologist about the disturbance of a burial in Norman County. The location in question was at the Slininger site (21NR1), a well-known mound site near Twin Valley. Due to the northern location and because the burial was clearly of Indian origin, MIAC's Jim Jones who is based in Bemidji, immediately visited the site to determine what had happened. Jones reported that the landowner was using a backhoe to obtain some fill to use around his house and had dug into the mound not knowing what it was. When he hit bone he stopped

digging and called the sheriff. The sheriff then contacted BCA and all the removed bones were given to Hamline University for analysis.

The Slininger site was first recorded in 1939 when Lloyd Wilford of the University of Minnesota visited the site following up on reports from local residents. Wilford thought there were three or four mounds at the site based on his 1939 visit. In 1946 Wilford excavated what he designated Mound 2 at the Slininger site, and made a map of four adjacent mounds, noting a fifth possible mound in a cultivated field to the west. The 1946 excavated mound contained four primary and four bundle burials. A site report was completed by Wilford, which was published in the *The Arvilla Complex* (1973) edited by Elden Johnson.

Dr. Barb O'Connell of Hamline University (top) helps excavate the accidentally disturbed burial mound at the Slininger site (21NR1).

The mound disturbance in July 2010 appears to be between mounds 3 and 4 where they are joined by a narrow isthmus. MIAC's Jones enlisted the help of Dr. Barbara O'Connell of Hamline University to help remove the remainder of the disturbed burial at Slininger. The State Archaeologist visited the site on 7/21/10 and observed the burial removal. No report has been received by OSA from MIAC or Hamline as of yet detailing the excavation or any analysis.

Indian Heights Trail – Authentication Request in Rochester, Olmsted County

In May 2010, a number of citizens from Rochester contacted the State Archaeologist concerned that a proposed bike trail in Indian Heights Park would impact a Dakota Indian burial site. Although there are no recorded burial sites at that location in the current OSA database, documentary research confirmed there were probably some Dakota burials in the park dating to the early 1850s. These burials were apparently on the eastern edge of the park overlooking the Zumbro River. They were probably shallow graves covered with rock cairns. Written accounts suggest these graves were soon disturbed by local residents and no trace of them remained by the mid-1880s.

The State Archaeologist visited the park on July 10, 2010. The eastern portion of the park has been extensively disturbed by quarrying. It is likely the face of the bluff has moved quite a distance away from the river (west). A thorough walkover of the eastern portion of the park

could find no evidence of any obvious burial mounds, cairns, or aboriginal artifacts. A sign at the north edge of the park suggested that the land was purchased with federal Land and Water Conservation Act (LAWCON) funds through the assistance of the National Park Service (NPS). The State Archaeologist contacted the City of Rochester, the Minnesota SHPO, and the NPS (MNRRA) and suggested that any significant land disturbance in the park may be subject to Section 106 of the National Historic Preservation Act. An archaeological survey would be needed to assess any archaeological impacts. The City has been in contact with archaeologist Connie Arzigian of the Mississippi Valley Archaeological Center (MVAC) who may complete a survey of the park prior to any development.

21PN3 – Authentication Request in Pine City, Pine County

In March 2011, a realtor from Pine City requested additional authentication work on a building lot within a burial mound site on Cross Lake just northeast of the city. A group of 116 prehistoric burial mounds had been mapped at this location by T. H. Lewis in November of 1889. The mound group had been assigned the official State Archaeologist's inventory number of 21PN3. In 1979, archaeologist Christina Harrison briefly looked at the mound group for the MHS Statewide Archaeological Survey (SAS), but did not note any obvious surviving mounds stating that the mound area was largely covered with lakeshore residences. Soil scientist Grant Goltz examined the area in 1994 and 1995 in conjunction with a proposed sewer project, reporting visible mounds on a number of the developed lots, but his report noted only "mound locations" on the undeveloped lot in question.

On June 1, 1998, the Office of the State Archaeologist (OSA) carefully examined the lot in question finding one mound near the northeast lot corner. It was determined that this was Mound 21 of the 21PN3 mound group. Using this extant mound as a benchmark, OSA personnel determined that five other mounds (14-18) had once been located on Lot 18. None of these mounds were still visible. The OSA did extensive soil coring in 1998 in an attempt to find mound fill or burial pits associated with these mounds, but were unsuccessful. On October 23, 1998, the OSA's Bruce Koenen monitored machine grading of the lot center where mounds 14, 15, and 17 had been located. No burial pits or human remains were uncovered.

In response to the realtor request in March 2011, OSA staff again visited the lot on April 28, 2011 and were met at the site by the realtor and land owner. Field work focused on the other two no longer visible mounds, 16 and 18, located in a row of large white pines near the northern lot line. OSA personnel reconstructed the approximate locations of these mounds using the Lewis notes and excavated narrow N-S trenches at each location in an attempt to locate surviving mound fill or features. A control trench was also excavated 45' northwest of Mound 21 to obtain a more natural soil profile. The soil profiles in all three trenches were almost identical with a brown-black sandy loam topsoil horizon extending to about 28 cm followed by a clearly demarcated sub-soil horizon characterized as brown sand. The interface of these two horizons is so clear that it may indicate an old plow-zone interface.

State Archaeologist Scott Anfinson measures soil profile at 21PN3.

Because no mound fill or features were apparent at the former locations of Mounds 16 and 18, the State Archaeologist concluded that they have been completely destroyed. However, because two large pine trees over 100 years of age are located in the immediate vicinity, there is a slight possibility that burial pits exist within the root balls of these trees and it was impossible for to excavate within these root balls. The trees are expected to remain in-place.

In a letter dated 4/28/11 addressed to the land owner, the State Archaeologist said that the only restriction on the development of Lot 18 was to avoid all impacts to visible Mound 21. A 10-foot boundary was established around the base of Mound 21 at 21PN3 and pin flags were placed on the site demarcating this boundary. This restriction would allow for the construction of an entrance road or garage in the vicinity of Mound 21, but would prevent any damage to the mound. Because this area is partially within setbacks from the county road right of way and the north property line, the restrictions should not cause any significant development problems.

The letter also noted that the mound would have been built by the ancestors of today's Indian tribes, so under MS 307.08 management obligations for the burial ground were transferred to Minnesota Indian Affairs Council (MIAC) upon issuance of this official authentication letter. No disturbances are permitted within the Mound 21 area without the permission of MIAC.

21RC60 - Burial Disturbance in Faribault, Rice County

In mid-May 2011, the Faribault Police Department contacted the State Archaeologist about the inadvertent discovery of human remains. The remains were uncovered by a bottle collector digging a pit within an old latrine in a residential backyard just northwest of the downtown district. The police turned the removed remains over to Susan Myster at Hamline University for forensic examination.

OSA personnel examined the location on May 21, 2011 accompanied by a detective from the Faribault Police. The bottle collector's pit was about three feet wide and six feet long with a depth of about six feet. With the help of the detective, the previously excavated dirt was screened, recovering late 19th century artifacts and a few more pieces of human bone. The pit was then deepened to a depth of 7'6" with additional human remains recovered from the northwest corner of the pit. All soil from the OSA excavation was screened through ¼' mesh.

The pit profile consisted of 12 inches of gravelly fill below the sod, followed by 28” of a dark mottled soil, then light colored soil and ash to 40” below the surface, and finally a mottled soil with lots of artifacts to about 88”. The skeletal remains were confined to the lowest fill horizon.

Faribault Police Detective Tony Kuchinka and OSA assistant Bruce Koenen excavating the 21RC60 burial site in Faribault.

Based on the artifacts recovered from the base of the pit, it appears to have originated in the late 19th century. Preliminary forensic examination of the skeleton suggests that it is of a male in his mid-to late teens. The individual had been heavily muscled. The skull also exhibited evidence that it had be autopsied. The skeleton had Caucasian traits. Additional skeletal and artifact analysis will be completed by Hamline University.

Dundas Episcopal Churchyard – Authentication Request in Dundas, Rice County

In November 2010, the director of the Dundas Historical Society contacted the State Archaeologist about a proposed addition to the Church of the Holy Cross in Dundas. The original Episcopal church had been constructed in 1868 on land donated by the prominent Archibald flour milling family. The church was built by William Cleland using funds provided by the Archibalds. Cleland then built a house for his family northeast of the church. In 1874, a cemetery was established for the Archibald family just north of the church. William Cleland’s family was not allowed to use this cemetery so another small cemetery was established just east of the church. The last burials in both churchyards were in the late 19th century. In 1900 a vestry was added to the southeast corner of the church. In 1964 a parish hall was added to the south of the vestry. The Church of the Holy Cross and its churchyards were added to the National Register of Historic Places in 1982.

In 2009 the Church of the Holy Cross was closed by the Episcopal Church and soon after the building and land were sold to the Rejoice Church of Northfield. In late 2010 Rejoice Church planned to construct a major addition to the northeast side of the church and build an extensive parking lot east of the church. The State Archaeologist was contacted in November 2010 due to concerns the parking lot would disturb the Cleland graves.

The State Archaeologist determined that neither cemetery has been officially recorded with Rice County so OSA had some management jurisdiction under MS 307.08. The State

Archaeologist then contacted the architect for the church addition in early December 2010. The architect stated that they indeed planned to remove the Cleland graves because the slope east of the church would require a significant retaining wall if the graves were allowed to remain. The Rejoice Church proposed to reinter the removed remains in the Archibald cemetery north of the old church. The State Archaeologist noted the MS 307 concerns and also suggested that an Environmental Assessment Worksheet (EAW) may be required due to the effects on a National Register listed historic property.

Looking southwest at Church of the Holy Cross in Dundas prior to Rejoice construction showing Cleland Cemetery (left) and Archibald Cemetery (right).

After conferring with the Rejoice Church, the City of Dundas, the Dundas Historical Society, former members of the Church of the Holy Cross, and descendants of the Cleland family, the State Archaeologist determined on 12/22/10 that it was unnecessary to remove the Cleland graves and inappropriate to reinter them in the Archibald Family cemetery. This decision was based both on historical integrity concerns and concerns voiced by the Cleland family. A 20' no-disturbance boundary was established by the State Archaeologist beyond the fence surrounding the Cleland cemetery. The Rejoice Church subsequently re-designed the parking lot to avoid direct impacts to the Cleland Cemetery. The City then determined that an EAW was unnecessary because the effects to the historic property were not adverse.

The State Archaeologist visited the Dundas church several times during the new construction in 2011 to insure that the setback from the Cleland Cemetery was maintained.

21RW9 – Authentication Request in Redwood Falls, Redwood County

In late March 2010, the State Archaeologist received a request from a landowner in Redwood Falls to authenticate a burial mound group on her property. The site in question was 21RW9. The request was initiated by the proposed sale of the property for a new state veterans' cemetery.

The mound group now known as 21RW9 was first surveyed on September 29, 1884 by Theodore Lewis. Lewis mapped 13 mounds on a bluff above the Minnesota River of which seven were circular and six linear. The largest mound (Number 3) was near the center of the group and was 74 feet in diameter and 5.5 feet high. The other mounds were only one to two feet high. In June 1940, the site was visited by Lloyd Wilford of the University of Minnesota who noted only the large mound was still visible. In June 1978 an MHS Statewide Archaeological Survey (SAS) crew examined the site and also noticed only the largest mound. Archaeologist Robert Clouse visited the site in August 1984 after a report that

someone was digging into the large mound; Clouse informed the OSA and the Redwood County sheriff of the reported vandalism.

OSA assistant Bruce Koenen discussed the 21RW9 mound site via telephone with the landowner on 4/1/10 and sent her a copy of the site map from Winchell (1911). The State Archaeologist visited the site on 10/19/10, but was unable to contact the landowner. He briefly examined the site, which was in high grass at the time of the visit. As with previous archaeological visits over the past 50 years, only the largest mound was clearly visible. The remainder appeared to have been plowed down after a least a century of intensive agricultural use. A UTM point was recorded at the center of the extant mound and the area was photographed.

This location appears to be no longer under consideration as a state veterans' cemetery, but the State Archaeologist will continue to monitor the site's condition.

21SC22 – Electric Line Relocation, Scott County

In June 2010, Three Rivers Park District contacted the State Archaeologist regarding a new electric overhead service line proposed by the City of Shakopee originating in Shakopee Memorial Park and going through the westernmost parcel of The Landing Park (formerly Murphy's Landing). This power line would replace an existing overhead line. The power lines passed through a known mound group, 21SC22.

The mound group known as 21SC22 was originally surveyed by Theodore Lewis on October 13, 1882. The group consisted of 28 mounds and is also known as the Pond Mound Group, after the missionary Samuel Pond who lived in the immediate vicinity. A historic Dakota village site (Chief Shakopee's) was also recorded in the immediate vicinity of the mounds and this habitation site was given the number 21SC2. Lloyd Wilford of the University of Minnesota excavated at the village site in 1940. In 1975, Doug Birk and Doug George of the MHS mapped the mound group, documenting about half the mounds as still intact. In 1976 the City of Shakopee disturbed Mounds 23 and 24 in 21SC22 when they were landscaping for Veterans Memorial Park improvements. MHS archaeologists noticed the disturbance and found artifacts and human remains scattered on the surface of the freshly graded area. Various surveys over the last 30 years have recorded about 10 clearly visible mounds. In 1998, the city removed a flagpole and veteran's marker from Mound 21 and turned over management of the eastern (visible) mounds to the Shakopee Dakota Community.

On 6/13/11, the State Archaeologist examined the area and took photographs. No final decision on the route on the power-line was made at that time. Final decision awaits coordination with the City, Three Rivers Park District, MIAC, and the Shakopee Dakota.

21TR28 and 29 – Request from Federal Agency, Traverse County

In October 2010, the State Archaeologist was contacted by an archaeologist with the federal Natural Resource Conservation Service (NRCS) concerning locational confusion with two mound sites in Traverse County. The mounds sites were near a conservation project funded

by NRCS. Both sites had been recorded by Theodore Lewis in August 1883. Site 21TR28 consisted of one circular mound and site 21TR29 consisted of two circular mounds. Lewis stated in his notes that the lone mound site was about 1050' from the two-mound site. The mound sites were examined in 1991 by Craig Johnson of the Institute for Minnesota Archaeology (IMA). Johnson's map shows the two sites as being about 1000' apart with the lone mound northeast of the other site. There was some concern on the part of NRCS that other unrecorded mounds were in the vicinity of the known sites or that the original Lewis legal locations were in error.

The State Archaeologist visited the sites on 11/4/10. The mounds recorded by Lewis were all rapidly re-located, but the Lewis legal locations were indeed in error with the Section number correct and the quarter sections about ½ mile off. The sites were photographed and the site forms corrected.

21WE3 – Authentication Request, Waseca County

In early June 2011, Waseca County requested an authentication for a recorded mound site northeast of Janesville in association with a request to expand a private campground on Lake Elysian. Site 21WE3 had been recorded by T.H. Lewis in October 1884 as a lone mound. The description by Lewis simply stated the mound was near the north line of a quarter section and 70 feet above Lake Elysian. No map was drawn by Lewis showing the surrounding terrain. The mound was described as being 40 feet in diameter and 4 feet high. There was no evidence that any archaeologist had visited the site since 1884.

The State Archaeologist examined the area on June 7, 2011. An existing campground was bisected by the quarter section line recorded by Lewis. The campground contained numerous semi-permanent and several permanent structures including a swimming pool. The main area of the campground exhibited extensive land alteration including a road. After examining the entire campground and the agricultural fields immediately to the south, it was clear that the far northern portion of the campground appeared to offer the highest potential to contain mounds as it provided an overlook to the lake. A mound-like feature was found on a small but prominent hill in this area. The possible mound was just north of the quarter section line recorded by Lewis, in the section immediately north of the one listed by Lewis.

The county was informed by email on 7/8/11 that no building permits should be issued at the possible mound location, but the remainder of the campground was cleared to develop further. Any proposed disturbances in the possible mound area would have to be subjected to additional OSA field review.

Chapter 3: Minnesota Archaeology in 2011

In the 2006, 2007, 2008, 2009, and 2010 OSA Annual Reports, the State Archaeologist discussed in detail the status of Minnesota archaeology highlighting some recent improvements and current problems and suggesting courses of action that could improve Minnesota archaeology. The FY 2011 status of archaeology in Minnesota has not changed greatly with regard to the numbers of archaeologists working in the state, the programs at the State Universities, laws, and cultural resource management activities. However, substantial funding through the 2008 Legacy Amendment has had major positive implications for Minnesota archaeology.

Statewide Survey of Historical and Archaeological Sites

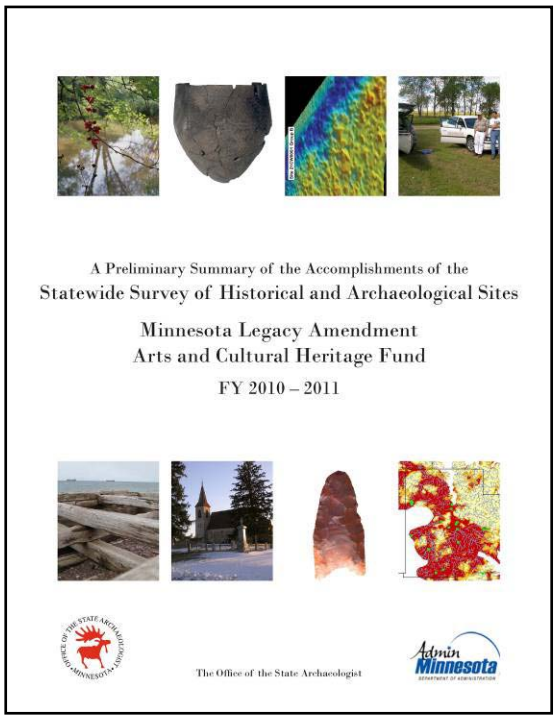
In November 2008, the voters of Minnesota approved a constitutional amendment that increased the state sales tax by three-eighths of one percent for 25 years with the revenue dedicated to four funds whose primary purpose is to preserve the natural and cultural legacy of the state. The amendment is commonly 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, 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 thus 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 3) undertake projects that would assist both state and local agencies with protecting and managing cultural resources.

Following consultation with the Minnesota Department of Transportation (MnDOT), the Minnesota Department of Natural Resources (DNR), the Council for Minnesota Archaeology (CMA), and the general public at an open meeting at Ft. Snelling on 9/9/09, the State Archaeologist wrote a series of draft Requests for Proposals (RFPs). Consultation with MnDOT and DNR continued as specified in the legislation.

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 are titled: *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, An Archaeological Survey of Swift County, An Archaeological Survey of Olmsted County, An Archaeological Survey of the Lake Superior Region, A Survey to Find Minnesota's Earliest Archaeological Sites, Investigating Unrecorded Historic Cemeteries in Minnesota,* and *The Age of Brainerd Ceramics*. The first three contracts were completed by the end of December 2010, an additional four were completed by the end of December 2011, and the final contract should be completed in early 2012.



The three contracts completed in CY2010 (Crow Wing – Scott Mound Survey, Twin Cities Indian Sacred Sites Survey, Swift County Survey) were discussed in the 2010 OSA Annual Report. A report was also sent to the Legislature by OSA at the end of 2010 summarizing progress on all eight contracts. By the end of CY2011, all contracts had been completed except for the Brainerd Ceramics Dating Study. Final reports for all the 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.

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 the first results of this new initiative will be discussed in the 2012 Annual Report. Below are summaries of the Statewide Survey contracts completed in CY 2011.

An Archaeological Survey of Olmsted County

Purpose: To review the archaeological resources of Olmsted County through examination of existing collections and known sites, and, most importantly, to conduct a field survey to document additional archaeological sites in the county. At the beginning of the survey, only 38 prehistoric archaeological sites were recorded in Olmsted County, as well as an additional 19 possible but unconfirmed sites (known as OSA alpha sites as they do not have official state site numbers).

Contractor: Mississippi Valley Archaeological Center (Connie Arzigian)

Results:

- plotted all of the areas previously archaeologically surveyed in Olmsted County
- field examined and completed site update forms for nine previously known sites
- made multiple visits to the Olmsted County History Center to examine and photograph all Native American prehistoric artifacts
- worked with local artifact collectors to document their collections
- utilized local volunteers to help with the field survey
- surveyed 866 acres in 32 different locations within the county
- located 9 previously unrecorded prehistoric archaeological sites
- conducted geomorphological testing at two Early Prehistoric site localities
- investigated the effects of major floods on archaeological sites in SE Minnesota

Conclusions:

- of the 65 now-known or reported prehistoric sites, three are Paleoindian, nine are Archaic, five are Woodland, and the remainder are recorded as Prehistoric
- the environment and landscape during Paleoindian times (12,000 – 7,000 BC) would have been very different than that of the early historic period and some early prehistoric sites may be deeply buried by alluvium or colluvium
- during dry Archaic times, springs were probably important for site location
- no burial mounds have been recorded by archaeologists in Olmsted County, although five locations have reported but unconfirmed mounds
- no Late Prehistoric Mississippian or Oneota sites have been recorded in Olmsted County
- prehistoric ceramics are rare in Olmsted County
- all known prehistoric sites in Olmsted County are small with no evidence for intensive and long-term village occupation
- site locations are mainly on terraces along rivers and streams especially at confluences and where fire-protected areas would have existed (e.g., east banks, river bends)
- most valley bottoms have been significantly re-worked by Holocene floods destroying many sites except perhaps those at the very edges of the valleys
- the relative scarcity of prehistoric sites especially large village sites in Olmsted County is probably an accurate reflection of prehistoric land use rather than modern site destruction or the lack of extensive archaeological survey

An Archaeological Survey of the Lake Superior Region

Purpose: To review the archaeological resources of Minnesota's Lake Superior Region through examination of existing collections and known sites, and, most importantly, to conduct a field survey to document additional archaeological sites in the region. At the beginning of the survey, only 34 archaeological sites had been recorded in this region along the Lake Superior shore within the basin of glacial Lake Duluth (known as Minnesota Archaeological Region 9). It includes areas of Cook, Lake, St. Louis, and Carlton counties.

Contractor: Duluth Archaeological Center (Sue and Steve Mulholland)

Results:

- compiled GIS layers to identify areas with high potential for archaeological sites, focusing on areas with less than 7 degrees of slope, less than 100 meters from surface water plus land ownership, transportation routes, geomorphology, USGS topographic maps, and glacial lake shoreline features
- artifact collections were reviewed at the Historical Societies of Cook, Lake, St. Louis, and Carlton Counties
- interviews with members of the Northern Lakes Archaeological Society provided information on approximately two dozen sites in the Two Harbors area
- field surveyed approximately 144 acres
- 6 previously unrecorded prehistoric archaeological sites were located
- confirmed the existence of 20 previously recorded sites

Conclusions:

- the low numbers of sites make accurate site location prediction difficult
- degree of slope and distance from surface water appear to be the most important site locational variables in Region 9
- sites appear either to be less than 50 m from water or more than 100 m from water, with fewer sites between 50m – 100m from water
- just over half the sites are on land that slopes less than 5 degrees, with 22% between 5 and 10 degrees, and 27% on slopes of over 10 degrees
- early Paleoindian sites are rare in Region 9
- sites yielding prehistoric ceramics are very rare in Region 9
- all known prehistoric sites in Region 9 are small with no evidence for intensive and long-term village occupation
- the relative scarcity of prehistoric sites especially large village sites in Region 9 appears to be an accurate reflection of prehistoric land use rather than modern site destruction or the lack of extensive archaeological survey, although prehistoric sites are very difficult to find in the region considering the limited surface soil exposure due to limited cultivation

A Survey to Find Minnesota's Earliest Archaeological Sites

Purpose: To determine if relatively intact sites dating prior to 10,000 BC can be found in Minnesota through a comprehensive analysis of environmental and archaeological records followed by some field survey of one or more high potential area. A major element of the project was to summarize all known early Paleoindian artifact finds in Minnesota and reconstruct the Paleoindian environment. The most diagnostic Early Paleoindian artifacts are fluted projectile points.

Contractor: Augustana College Archaeological Laboratory (Adrien Hannus)

Results:

- collections from 20 public institutions and 15 private collections were examined
- 133 Early Paleoindian sites were documented by the literature search and collection examination
- Paleoindian points were divided into Clovis, Folsom/Midland, Eastern Fluted, Plainview, and Undetermined categories
- no new Early Paleoindian artifacts were discovered in the field by the project, although one new prehistoric site of undetermined affiliation was located in Rock County and two new Early Paleoindian sites were documented in Murray County
- geomorphological, paleoecological, and archaeological fieldwork was concentrated in the southwestern corner of the state (Region 1) as it had high surface visibility and was not ice-covered during the last glaciation
- a lake sediment core from Fish Lake near Windom was analyzed in order to reconstruct the post-glacial environment for southwestern Minnesota, resulting in the most detailed vegetational and climatic reconstruction yet available for this region of Minnesota
- geomorphological investigations focused on the Blue Mounds locality produced a detailed sedimentary record of the area

Conclusions/Recommendations:

- most Early Paleoindian sites have been found in Region 4 (44) and Region 2 (38) with the fewest in Region 9 (0) and Region 8 (2)
- Clovis and Folsom points are rare in northern Minnesota
- building an early site locational model for the entire state is difficult considering the extensive environmental changes in Minnesota over the last 14,000 years
- five locations are considered to have the highest potential for Early Paleoindian sites in Minnesota: Upper Mississippi River and Minnesota River terraces, wetland basins or basin margins formed by the collapse of glacial ice, within and beneath colluvial slopes dating to or post-dating the Early Paleoindian Period, glacial beach ridges, and Aeolian dune fields
- based on the known fluted point distribution, three regions appear to have the highest potential to contain Early Paleoindian sites: Region 2 (Southwest Prairie Lake), Region 3 (Southeast Riverine), and Region 4 (Central Deciduous Lake)
- the greatest need is to find a relatively intact Early Paleoindian site, carefully excavate it, and obtain radiocarbon dates

Investigating Unrecorded Historic Cemeteries in Minnesota

Purpose: To summarize what is known about unrecorded historic cemeteries, to update the State Archaeologist's site file with regard to such cemeteries, and to conduct limited field work to determine the status of unrecorded cemeteries in three counties. Under Minnesota Statutes 307.08, the State Archaeologist is charged with authenticating unrecorded historic (over 50 years) cemeteries and has certain management responsibilities for those unrecorded cemeteries that are authenticated as non-Indian.

Contractor: Two Pines Resource Group (Michelle Terrell and Andrea Vermeer)

Results:

- the literature search identified 5,876 historic period cemeteries in Minnesota
- there is no clear legal definition in Minnesota of what a *recorded cemetery* is; for the purposes of this project, *recorded* was assumed to mean that a legal record of the cemetery existed at a state agency or local unit of government such as a plat filed as a cemetery, a deed designating an area as a cemetery, or with respect to recognized abandoned or neglected cemeteries where local governments have assumed maintenance responsibilities
- 3,333 cemeteries were classified as recorded and 2,543 as unrecorded
- locational, descriptive, and legal information for each cemetery was listed in a database compatible with the current State Archaeologist Burials Database
- the literature search did not include an intensive investigation of federal land records because the State Archaeologist and local governments do not have MS 307 jurisdiction so the majority of cemeteries in the database are on private land or non-federal public land
- field examined 9 cemeteries in Dakota County, 10 cemeteries in Redwood County, and 14 cemeteries in Washington County

Conclusions/Recommendations:

- this project compiled the first comprehensive electronic database of historic period cemeteries in Minnesota
- unrecorded cemeteries exhibit a wide variety of sizes, descriptive characteristics, affiliation, and current condition
- additional literature is needed of obscure, particularistic, or non-public sources including the DNR Underground Mine Mapping database for the Iron Range, US-Dakota War of 1862 sources for western Minnesota burials associated with that conflict, Indian reservation records for non-federal (non-trust) land, institutional records associated with county poor farms and state hospitals, and manuscript data relating to early historic occupations in Minnesota
- extensive field survey is needed to assess the current condition of and establish boundaries for most unrecorded cemeteries
- state law should include a revised definition of *recorded cemetery*

The Age of Brainerd Ceramics

Purpose: To determine if Brainerd ceramics appear as early and survive as late as some researchers have proposed (1500 BC – AD 700), if contamination with old carbon plays a significant role in dates on food residues from Minnesota prehistoric ceramics, and if the contamination is dependent on region of origin of the ceramics, the natural food sources of the charred material, or pre-treatment methods. Better understanding these ceramics and associated culture(s) will allow management agencies to better assess site significance and allow more economical management practices.

Contractor: Soils Consulting (Christy Hohman-Caine and Leigh Syms)

Results: (final reporting is pending due to complications in obtaining optical luminescence dates)

Recommendations/Conclusions: (pending receipt of final report)

State Archaeologist's Manual for Archaeological Projects in Minnesota

Public agencies and licensed contract archaeologists in Minnesota must follow various guidelines to insure their fieldwork and reporting is completed in a comprehensive and professional manner so impacts of development projects on archaeological sites can be adequately assessed and sites on public property can be appropriately managed. Some of these guidelines are agency specific, while others apply to all projects reviewed under federal and state authorities.

The current State Archaeologist, while employed as the Minnesota SHPO Archaeologist, wrote a set of guidelines used in Minnesota for archaeological projects reviewed by the OSA and the SHPO. After coordination with then State Archaeologist Mark Duzik, the *SHPO Manual for Archaeological Projects in Minnesota* was released by the SHPO in 2001 and revised in 2005.

Due to recent information that has been obtained from the MnDOT-sponsored Deep Testing, Farmstead, and Woodland Context projects as well other methodological insights and advances over the last five years, state archaeological guidelines for Minnesota were in need of an update. The State Archaeologist took the lead in this effort, coordinating with the Minnesota SHPO in FY2010. The OSA and SHPO decided to each produce their own manuals, however, as the SHPO is primarily involved with federal projects, while the State Archaeologist is mainly concerned with state projects.

In FY 2011, the State Archaeologist informed the SHPO, state agencies, contract archaeologists, and the Council for Minnesota Archaeology (CMA) of his intent to produce a new survey manual. In late June 2011, a draft manual was sent to all of these entities asking for comment. No substantial comments were received so the draft OSA manual was

implemented immediately after the state government shutdown of July 2011. This manual must now be followed by all archaeological projects in FY2012 subject to state licensing.

The *State Archaeologist's Manual for Archaeological Projects in Minnesota* does not substantially differ from the 2005 SHPO manual. It eliminates information about SHPO office protocols, mainstreams information about professional obligations, geomorphology, historical archaeological sites, and predictive modeling, and adds information about the duties of the State Archaeologist, state laws, and burial authentication under MS 307.08. Field and reporting procedures remain essentially the same as the 2005 SHPO manual.

Retirements and Cultural Resource Management in Minnesota

With the Baby-Boom Generation reaching retirement age, numerous retirements have greatly affected and will continue to affect the cultural resource management community in Minnesota. At the Minnesota Historical Society (MHS), there is a new MHS Director/SHPO as Stephen Elliot replaced Michael Fox in May 2011, there is a new SHPO historian with Denis Gardner replacing Susan Roth in December 2011, and there will be a new Deputy SHPO in early January 2012 with Barbara Mitchell Howard replacing Britta Bloomberg. Fox had temporarily replaced Nina Archabal in January 2011. Archabal had been MHS Director and Minnesota State Historic Preservation Officer (SHPO) since 1986. Bloomberg had been Deputy SHPO and head of the MHS Grants, Field Services and Historic Preservation Department since 1991. Historian Roth came to MHS in 1972 and first worked in the Archaeology Department before joining the SHPO in the mid-1970s. She was highly regarded locally and nationally as an expert on Minnesota history and the National Register of Historic Places.

Two major academic retirements occurred in 2011. Archaeologist Guy Gibbon retired from the University of Minnesota Anthropology Department in May 2011. Gibbon was a specialist in Midwestern Prehistoric archaeology, coming to Minnesota from the University of Illinois in 1974. His departure leaves the U of M without a full-time North American prehistoric archaeologist. Physical anthropologist Barbara O'Connell retired from Hamline University in May 2011. O'Connell had assisted the State Archaeologist and MIAC with human skeleton identification since the early 1980s. Hamline's Susan Myster is currently assisting OSA and MIAC with human osteological analysis.

Guy Gibbon (center) at his U of M retirement party flanked by State Archaeologist Scott Anfinson and MnDOT archaeologist Craig Johnson

The State of Minnesota also lost an influential and highly respected archaeologist with the death of Janet Spector in September 2012. Spector was a staff member at the University of

Minnesota from 1973 through 1998, first with the Anthropology Department and then with Women's Studies. She was a Midwestern archaeologist trained at the University of Wisconsin. Her 1993 book *What This All Means* was an examination of the Little Rapids village site (21SC26) from an archaeological and ethnographic perspective.

Within agencies at the state level, Joe Hudak has led MnDOT's Cultural Resource Unit since 1992, but will retire at the beginning of January 2012. At the federal level, David Kluth replaced the long-serving John Dobrovolny in 2009 as head of cultural resources for the US Fish and Wildlife Service Midwest Region. Kluth was replaced with archaeologist James Myster in this position in June 2011. In the US Forest Service, Andrea LeVasserr at Chippewa National Forest and Walt Okstad at Superior National Forest recently retired as heads of cultural resources for those Minnesota forests. Bill Yourd is now the CRM lead at Chippewa and Lee Johnson has these duties at Superior. In another recent federal change, Dave Cooper, a well-known underwater archaeologist, was replaced by Bill Clayton as the head of resource management at Grand Portage National Monument.

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, 11 at State agencies, 3 at Indian reservations (Bois Forte, Leech Lake), and about 30 at private contracting firms based in Minnesota. A number of out-of-state contracting firms also occasionally do archaeological work in Minnesota. Advanced degree archaeologists generally meet federal and state standards required to be a principal investigator on a public archaeological project and to obtain a state license.

There are perhaps an equal number of Bachelor's Degree-level archaeologists living in Minnesota who work on 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 11 full-time academic archaeologists in Minnesota who have advanced degrees and practice North American Archaeology. The University of Minnesota – Minneapolis has six full-time staff archaeologists in the Anthropology Department, but only one specializes is North American archaeology (Katherine Hayes). There are three North American archaeologists at Minnesota State University - Moorhead (Mike Michlovic, George Holley, Rinita Dalan), two at St. Cloud State (Mark Muniz, Debra Gold), two at Hamline University (Skip Messenger, Brian Hoffman), and one at Minnesota State – Mankato (Ron Schirmer). There is also one North American archaeologist at the Science Museum of Minnesota (Ed Fleming). 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. Jeremy Nienow has recently been hired to teach archaeology and anthropology at Inver Hills Community College.

Post-secondary Archaeological Education

The University of Minnesota Department of Anthropology hired a tenure-track North American historical archaeologist, Katherine Hayes, in 2009. She replaces an existing North American prehistoric archaeologist (Guy Gibbon) who retired from full-time work in 2009 and fully retired from the University in 2011. The Anthropology Department has fulfilled its commitment to once again offer *local* summer field schools in archaeology. Professor Hayes led a historical archaeological field school at the Reaume Trading Post site (21WD15) in 2011. Dr. Hayes also directs the Heritage Management graduate program at the University of Minnesota. The State Archaeologist teaches a class in this program each spring semester. Also in 2011, Science Museum of Minnesota archaeologist Ed Fleming took a University of Minnesota field school to the Bremer Village site (21DK6) in Dakota County

University of Minnesota 2011 excavation at the Reaume Trading Post site (21WD15).

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. The availability of Legacy funds for archaeological projects is a major new incentive to pursue research in the state.

Public Archaeological Education

The state continues to lack comprehensive archaeological publications, archaeological museum exhibits, and archaeological college 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 respective universities. The National Forest Service continues to offer 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.

The publication void will be partially filled by the release of Guy Gibbon's book on Minnesota archaeology by the University of Minnesota Press in 2012. Placing reports from the *Statewide Survey of Historical and Archaeological Sites* on the OSA webpage also provides easy access to important recent archaeological information about Minnesota.

A Plan for 2012

Legislation

The Field Archaeology Act has a number of areas that could benefit from additional clarification including: 1) the *Legislative Intent* section emphasizes regulation of archaeology rather than preservation of sites; 2) the *Definition* section lacks several key concepts such as *agency, paramount right of the state, significant site*, and *undertaking*, as well as needing revision of certain definitions (e.g., *object* should eliminate "skeleton" and add "artifact" and *state site* should only refer to sites on non-federal public land and should eliminate the 1875 bottle/ceramic exclusion); 3) opportunities to streamline the licensing process to increase efficiency; 4) environmental review sections should be more consistent with federal legislation (e.g., review of *all* state *sponsored* undertakings that could harm *significant* sites); 5) improved coordination with and references to other pertinent statutes such as MS 307 and environmental laws that involve archaeological matters and the State Archaeologist; and 6) the roles of various agencies should be clarified and expanded (e.g., agencies should submit development plans to MHS-SHPO, OSA, and when appropriate to MIAC). OSA is interested in collaborating with stakeholders including MIAC, MnDOT, DNR, MHS, and the Council for Minnesota Archaeology (CMA) to develop a legislative initiative to address beneficial clarifications.

Development Plan Review

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

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 replies to EAW submittals are sent only if an archaeological survey is recommended or a known archaeological site or burial site should be avoided within the Area of Project Effect (APE). Furthermore, if the project will be reviewed under federal Section 106 or will otherwise be reviewed by the SHPO (e.g., State Agency RGU), the OSA defers review and comment to the SHPO unless 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 thus no comment is issued. This is becoming more common mainly due to responsibilities associated with the *Statewide Survey*

of Historical and Archaeological Sites. Numerous EAW projects were simply not reviewed by the OSA in FY2011.

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.

MnDOT has an electronic archaeological predictive model called MnModel initially developed in the mid-1990s. MnModel will be subjected to a significant upgrade in FY2012 (known as *MnModel 4*). If a simplified version of this revised model could be made easily accessible to local governments they would have a reasonable way to assess initial site probability. OSA will work with MnDOT to try accomplish this. If MnModel model cannot be made widely accessible in a secure and effective manner, OSA will continue to try provide local governments with narrative predictive models. Some of these models are being produced by the county surveys done for the *Statewide Survey of Historical and Archaeological Sites*.

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

The *Site* and *Report* databases do not include boundaries of sites and survey areas. The *Burial Site Database* does not include many reported or suspected burial sites contained in OSA paper files if these sites have not been confirmed by professional archaeologists or are not listed in the *Archaeological Site* database. The completion of the Historic Cemeteries Project described on page 43 of this report should greatly assist with environmental review impacts to all known cemeteries. The MnModel 4 project will plot survey locations and site boundaries and then put this information into GIS format.

Even if comprehensive data is available in OSA database, most agencies in Minnesota do not have direct access to these databases. To obtain up-to-date site information they must visit the OSA offices or call OSA staff, but OSA has limited ability to handle large numbers of visitors, requests for information, or complicated database searches. In FY 2012, the OSA will work with the Department of Administration and MnGEO to try make the OSA databases available on-line.

Archaeological Research

Critical research needs include radiocarbon dates for certain sites and complexes, a mounds status survey, site locational surveys and site excavations in poorly known regions to establish the basic cultural sequence and fine-tune predictive models, and investigations of the Early Prehistoric Period including finding and excavating well-preserved Paleoindian sites. University-based research will still have to take the lead in some of these

investigations, especially those involving major excavations, but state level initiatives are essential to fulfilling others. The OSA will contribute staff time and other resources to further these research goals. Many of these initiatives may be funded through the *Statewide Survey of Historical and Archaeological Sites* noted above.

Radiocarbon Dating Needs - The need to better date the Brainerd ceramic complex were discussed in the 2009 Annual Report and will hopefully be accomplished by the Brainerd Dating Study discussed on page 44 of this report. An initiative to address absolute dating of other prehistoric cultural complexes will be considered with Legacy funding made available in the 2012-13 biennium. Possible targets include southwestern Minnesota Woodland and Plains Village complexes, Havana ceramic complexes in eastern Minnesota, and the Archaic Period in general.

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

A major effort to assess the status of mound sites in Minnesota began with the 2010 Legacy-funded LiDAR mound survey in Scott and Crow Wing counties discussed in the 2010 Annual Report. The State of Minnesota also provided Legacy funding to complete statewide coverage for LiDAR to be completed in FY2012. Using this new LiDAR information, a new *Statewide Survey* initiative in 2012 may attempt to better assess the current condition of many of Minnesota's burial mounds.

References Cited

Anfinson, Scott

1983 *A Review of Archaeological Sites in Minnesota, 1982: A Report to the State Archaeologist*. Minnesota Historical Society, St. Paul.

2005 *SHPO Manual for Archaeological Projects in Minnesota* (Revised Version). Minnesota State Historic Preservation Office, St. Paul.

2008 *State Archaeologist's Procedures for Implementing Minnesota's Private Cemeteries Act* (MS 307.08). Office of the State Archaeologist. Available at: http://www.osa.admin.state.mn.us/

2011 *State Archaeologist's Manual for Archaeological Projects in Minnesota.* Office of the State Archaeologist, St. Paul.

Arzigian, Constance and Katherine Stevenson

2011 *2010 Archaeological Reconnaissance Survey of Olmsted County, Minnesota*. Mississippi Valley Archaeological Center, La Crosse. Report completed for the Statewide Survey of Historical and Archaeological Sites.

Buhta, Austin, Jack Hoffman, Eric Grimm, Rolfe Mandel, and Adrien Hannus

2011 *Investigating the Earliest Human Occupation of Minnesota: A Multidisciplinary Approach to Modeling Landform Suitability and Site Distribution Probability for the State's Early Paleoindian Resources*. Archaeology Laboratory Augustana College, Sioux Falls. Report completed for the Statewide Survey of Historical and Archaeological Sites.

Holley, George, Michael Michlovic, and Ranita Dalan

2011 *Archaeological Survey of Swift County*. Minnesota State University – Moorhead. Report completed for the Statewide Survey of Historical and Archaeological Sites.

Johnson, Elden

1957 The Minnesota Archaeological Site File. *Minnesota Archaeologist* 21:14-16.

Mulholland, Susan, Steven Mulholland, Jennifer Hamilton, and Stacey Stark

2011 *Points and Pits: Archaeological Investigation of Minnesota's Region 9, the Lake Superior Shore Carlton, Cook, Lake, and St. Louis Counties*. Duluth Archaeological Center. Report completed for the Statewide Survey of Historical and Archaeological Sites.

Riley, Melanie, Joe Alan Artz, William Whittaker, Robin Lillie, and Andrew Sorensen

2010 *Archaeological Prospection for Precontact Burial Mounds Using Light Detection and Ranging (LiDAR) in Scott and Crow Wing Counties, Minnesota*. Office of the State Archaeologist, University of Iowa, Iowa City. Report completed for the Statewide Survey of Historical and Archaeological Sites.

Vermeer, Andrea and Michelle Terrell

2011 *An Investigation of Unrecorded Historic Cemeteries in Minnesot*a. Two Pines Resource Group, Shafer. Report completed for the Statewide Survey of Historical and Archaeological Sites.

Winchell, Newton

1911 *The Aborigines of Minnesota*. The Pioneer Company, St. Paul.

Appendix A: Glossary of Minnesota Archaeological Terms

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

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

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

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

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

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

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

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

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

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

Cultural Resource Management (CRM) - The identification, protection, and interpretation of archaeological sites, historic structures, and other elements of cultural heritage though 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 Euroamerican 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 – an archaeological site evidenced almost exclusively by the presence of stone tools or stone tool manufacture.

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

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

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

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

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

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

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

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

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

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

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

Post-Contact Period – the period of 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.