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The Southern Missouri River Study Unit

Michael L. Gregg, Amy Bleier, and Fern E. Swenson
2008

The North Dakota landscape has been changed considerably in most places by the large-scale developments of the 20th century. But a few places have been minimally altered, and some are nearly as they were late in prehistoric times. For example, in the Missouri River valley between Riverdale and Bismarck, there are largely undeveloped areas that must be very similar to the way they were when that stretch of river was part of the central homeland of the pre-contact Mandan and Hidatsa people. (The Nature Conservancy is endeavoring to restore and maintain a pristine sample of this land in the bottomlands, breaks, and upland grasslands at the Cross Ranch.) Not only do parts of this landscape retain the natural configurations they had late in prehistory so that we can visually comprehend the premodern natural setting, there are many narrative descriptions of the river and the valley in the journals of explorers and traders who entered the North Dakota portion of the land of the Mandans, Hidatsas, and Arikaras in the late 1700s and early 1800s. The journals of the Lewis and Clark Expedition are preeminent among the earliest historic accounts for significant notations regarding the natural history of this study unit. The strengths and weaknesses of the various published versions of Lewis and Clark journals have been described in a condensed fashion by Clay Jenkinson (1988).

Description of the Southern Missouri River Study Unit

The Southern Missouri River Study Unit (SMRSU) is located in south-central North Dakota comprising portions of Burleigh, Emmons, Kidder, Logan, McIntosh, McLean, Mercer, Morton, Oliver, Sheridan, Sioux, and Stutsman counties. It contains lands on both the east and west banks of the Missouri from near Stanton in Mercer County, south to the North Dakota-South Dakota border (Figures 5.1 and 5.1A). The broadest expanses of territory lie east of the river in Missouri Coteau (the Coteau) terrain and Coteau Slope terrain outside of the Missouri River Trench (the Trench). The complete list of townships contained within the SMRSU is presented in Table 5.1.

The Standing Rock Sioux Tribe assumed State Historic Preservation Officer functions in Sioux County effective on August 14, 1996 (National Park Service letter dated September 11, 1996 to James E. Sperry of the SHSND). The functions assumed by the tribe in Sioux County include:

- Conduct a survey and maintain an inventory of historic properties
- Review Federal undertakings pursuant to Section 106
- Carry out comprehensive historic preservation planning
- Conduct educational activities
- Advise and assist Federal and State agencies and local governments

Since that date (August 14, 1996), any projects in Sioux County have been directed to:

Tribal Historic Preservation Officer
Standing Rock Sioux Tribe
PO Box D
Fort Yates ND 58538

There are 208 mi² of Sioux County within the SMRSU. The SMRSU section provides information currently housed at the SHSND up to September of 2007. The SHSND however has not received site forms or cultural resource reports for work conducted in Sioux County since National Park Service approval of Standing Rock as a Tribal Historic Preservation Office.

Physiography

The SMRSU is contained within the Glaciated Missouri Plateau Subsection of the Missouri Plateau Section of the Great Plains physiographic province (Fenneman 1931; Hunt 1974; Pirkle and Yoho 1977). The three most prominent physiographic districts within the SMRSU are the Missouri Coteau, the Coteau Slope, and the Missouri River Trench districts. Also included is a small portion of an unnamed upland district immediately to the west of the Trench. The Missouri Coteau is of glacial origin, consisting of a dead-ice moraine with associated ice-disintegration features (Kume and Hansen 1965:1). Potholes and sloughs dot the surface of the rolling terrain of the Coteau. The Coteau Slope is a glaciated bedrock slope situated between the Coteau and the east wall of the Trench. Stream erosion from drainages flowing into the Missouri River has modified this sloping landform. Finally, the Trench is a broad Pleistocene valley composed of a minimum of four alluvial and outwash terraces (Clayton et al. 1976; Kume and Hansen 1965:1).

The physiographic and ecological diversity found within the SMRSU and the Garrison Study Unit upriver fostered some of the most intensive prehistoric human settlement the state has witnessed, especially directly within the Missouri River valley and major tributary stream confluence environs. Within the Trench, Native Americans established essentially permanent residential bases in the bottomlands. Other site types such as mortuaries and special purpose ceremonial locations occur as well. Prehistoric settlements, especially campsites, are also numerous in the prairie pothole country of the Coteau.

Figure 5.1: Map of the Southern Missouri River Study Unit.

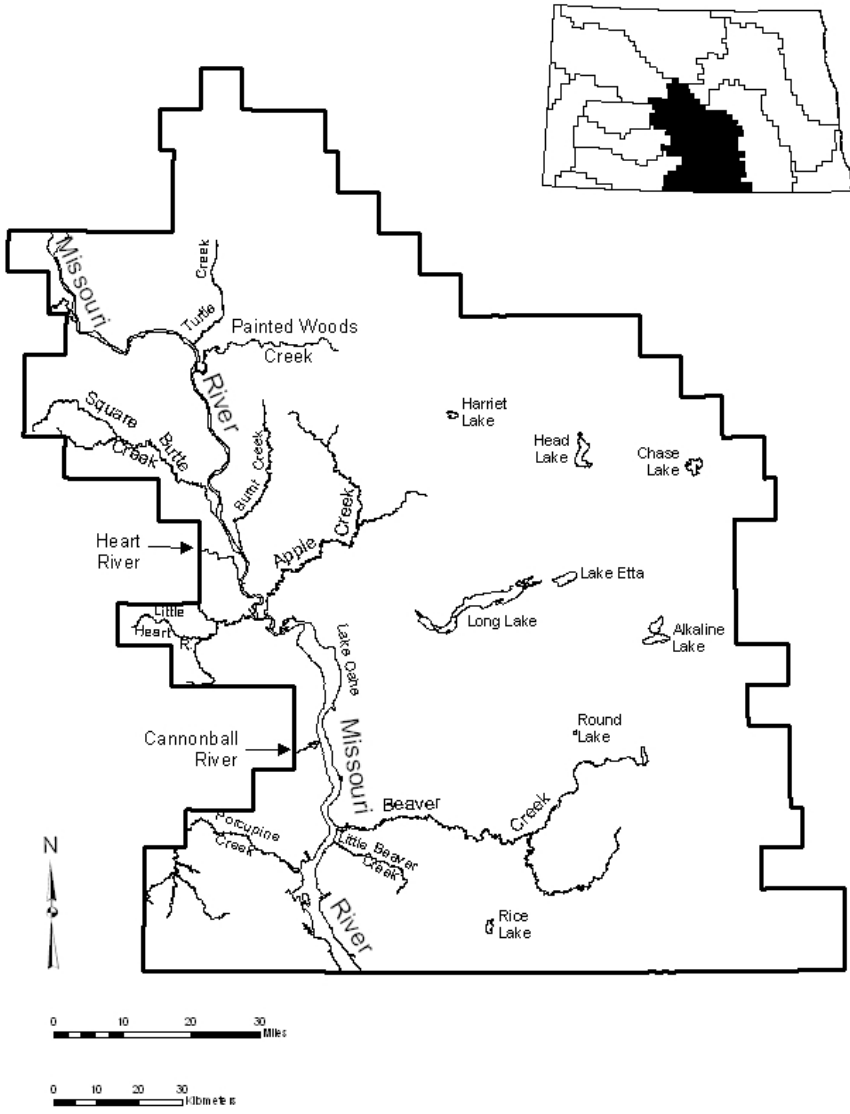


Figure 5.1A: Shaded relief map of the Southern Missouri River Study Unit.

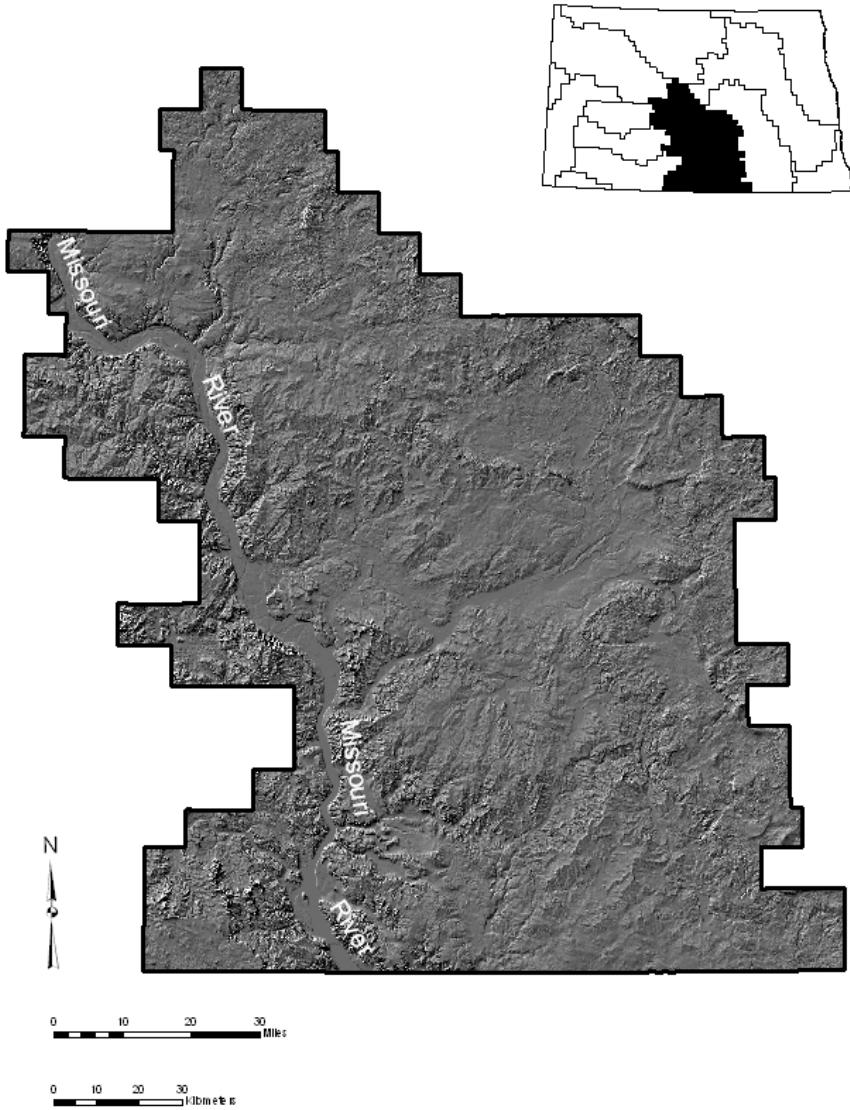


Table 5.1: Townships in the Southern Missouri River Study Unit.

TOWNSHIP	RANGE
129	67
129	68
129	69
129	70
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129	72
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129	77
129	78
129	79
129	80
129	81
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TOWNSHIP	RANGE
131	80
131	81
131	82
131	83
132	68
132	69
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132	74
132	75
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TOWNSHIP	RANGE
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TOWNSHIP	RANGE
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TOWNSHIP	RANGE
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TOWNSHIP	RANGE
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Drainage

The drainage pattern in the SMRSU is prescribed by the location of the Coteau. All drainage within this study unit west of the Coteau flows into the Missouri River and the Mississippi River system draining southward to the Gulf of Mexico. This pattern holds for the vast majority of the SMRSU. The Coteau is essentially internally drained. Along the extreme northeastern fringe of the SMRSU, some minor drainages may flow northward into the Red River system and Hudson Bay.

The most prominent physical feature unquestionably is the Missouri River. Before the construction of impoundments such as Lake Oahe, the Missouri River flowed southward unimpeded in a broad, deeply entrenched valley. The Missouri River within the reach of this Study Unit is fed by a series of higher order drainages including the Heart and the Cannonball, as well as a host of other lower order streams. These include Turtle Creek, Painted Woods Creek, Burnt Creek, Apple Creek, Beaver Creek and Little Beaver Creek along the east bank, and Square Butte Creek, the Little Heart River, and Porcupine Creek along the west bank.

A number of good-sized natural lakes are found east of the Missouri River. These include Harriet Lake, Horse Head Lake, Chase Lake, Lake Etta, Long Lake, Alkaline Lake, Round Lake, Beaver Lake, and Rice Lake. All of these water bodies would have attracted game animals and human settlement during times of sufficient annual precipitation.

Climate

The present climate of the SMRSU is classified as a semiarid continental type. Seasonal extremes in temperature fluctuation are common. Summers are hot, while winters are long and cold. The mean January temperature is 9° F. The July mean rises to 72° F (NDSPB 1939a). Average precipitation in Oliver County is about 17 inches per year (Weiser 1975). Records for Bismarck earlier in this century indicate a slightly lower rainfall of about 14 inches per year (NDSPB 1939a). The North Dakota weather did not inhibit native groups from occupying the Trench on a year-round basis in early historic times (cf. Chomko 1986).

Landforms and Soils

Major landforms encountered in the SMRSU include (1) upland till plain, (2) breaks terrain, (3) river terraces, and (4) river floodplains (Lehmer 1971:49-54). Pedogenesis is different for each landform depending upon the particular parent material involved.

Natural Resources Conservation Service (NRCS) official soil survey resources are available on the internet (NRCS 2007a, b, c). The Web Soil Survey

in particular may be useful, as it has replaced the traditional county soil survey books.

Electronic Field Office Technical Guide:

<http://www.nrcs.usda.gov/technical/efotg/>

Soil Data Mart: <http://soildatamart.nrcs.gov>

Web Soil Survey: <http://websoilsurvey.nrcs.usda.gov/app/>

Floodplains

The floodplains of the Missouri River and other watercourses are those parts of the valleys subject to annual flooding. Within the Missouri River valley, this is often termed Missouri Terrace 0 (MT-0). Prior to dam and reservoir construction, the Missouri River floodplain was expansive, in some cases as much as two miles wide, with the river meandering within this zone (Lehmer 1971:53). Today, one of the only remaining pristine portions of unflooded Missouri River bottomland occurs at the Cross Ranch near Hensler in Oliver County (Ahler et al. 1981, 1982).

The floodplain of the Missouri River comprises alluvial sediments that have built up to variable thicknesses since final retreat of Pleistocene glaciers. Like other major river systems in the Northern Plains, floodplain deposits may vary from several meters to many meters in thickness (Clayton et al. 1976; Toom 1988). The thickness of Holocene alluvial sediments in the Missouri River valley may be 30 m or more as they are in other major glacial meltwater drainageways in the state such as the James River and upper Souris River valleys. Often the floodplain is subdivided into lower (MT-O/A) and upper (MT-O/B) portions (Coogan 1983:7.9, Figure 7.5).

Terraces

These terraces are typically lateral, uneroded margins of prior stream beds or remains of former floodplains which now lie above the existing floodplain. Along other stretches of the Missouri River valley upstream and downstream from the SMRSU, three terraces have been defined (i.e., MT-1, MT-2, and MT-3) (Coogan 1980: Figure 7.6; Coogan and Irving 1959; McFaul 1985). The uppermost sediments in these terraces are Holocene in age, eolian in origin, and are classified in the Oahe Formation (Clayton et al. 1976; Reiten 1983). These flood-free, well-drained terrace surfaces were heavily utilized for situating warm weather residential settlements, most conspicuously in the form of earthlodge villages during the Plains Village period.

Breaks Terrain

The Missouri River “breaks” refers to the eroded and steeply dissected margins of the Trench. This distinctive terrain is similar in many respects to the valley wall and alluvial fan landforms described for smaller river valleys in the

other Study Units. Intermittent and more permanent drainages enter the valley at many locations. Often times these appear as woody draws along the Trench margin. Breaks terrain was very important to the hunting and gathering pursuits of Native Americans (cf. Ahler et al. 1981, 1982).

Upland Plains

The Missouri River Trench is incised into an Upland Till Plain. Soils developed from glacial outwash parent material form a thin mantle from the rim of the Trench out onto the upland plain away from the Missouri River. Numerous pothole lakes and sloughs dot the landscape in the uplands east of the river. The topography is primarily characterized by rolling knob and kettle terrain. There is archeological evidence of native use of the upland plains dating back to the Late Plains Archaic period (Root et al. 1983). Sites with stone rings and other rock features such as cairns were the most common types of sites encountered along the Northern Border Pipeline transect running northwest-southeast through the southern portion of this unit (ibid.).

Flora and Fauna

Numerous species of plants and animals were distributed across the landforms described above. Much of the following floral summary is abstracted from Burgess et al. (1973), while the faunal discussion is taken from Shelford (1963) and Seabloom et al. (1978).

The Northern Floodplain Forest occurs today in riparian zones which have not been cleared along the Missouri River and at the confluences with major tributaries. These forested areas are dominated by cottonwood (*Populus* sp.) with willow (*Salix* sp.), box elder (*Acer negundo*), and green ash (*Fraxinus lanceolata*) (Griffin 1977). Various sedges and grasses comprise the understory.

Mixed grass prairie covered the terraces and the uplands prior to modern developments. Stands of trees are present in draws, coulees, and other locations with adequate soil moisture below the level of the wind-swept prairie. Green needlegrass (*Stipa viridula*), blue grama (*Bouteloua gracilis*) and western wheatgrass (*Agropyron smi thii*) are common components of this plant community. The prairie turnip (*Psoralea esculenta*) which grows in the uplands was an important food for some native people (cf. Denig 1961:11; Reid 1977).

In the report of excavation results for the Dancing Grouse site (32ML107), Deaver and Deaver (1987:11) identified wild plant foods with edible roots available in the site locality as textile onion, biscuitroot, wild turnip, and ground plums with edible fruits. They estimated that harvests of these plant foods during the spring and early summer from an area with a 1 km radius around 32ML107 would yield about 13,000 kg (13 metric tons dry weight) of these foods. They also noted that it has been estimated that people “could have achieved net calorie captures of 400-500 kcal per person-hour gathering these plants” (ibid.:13).

Other plant foods in the Dancing Grouse site area included chokecherries, buffaloberries, gooseberries, and wild plums.

In the woody draws of the “breaks,” bur oak (*Quercus* sp.) is present along with stands of green ash and cottonwood. The predominance of oak and ash has led to the use of the term “hardwood draws” for this biogeographic setting.

All of these floral communities are components of fit habitats for a variety of fauna. Large mammals include white-tailed deer (*Odocoileus virginianus*) and mule deer (*Odocoileus hemionus*). Bison (*Bison bison*), elk (*Cervus elaphus*), and antelope (*Antilocapra americana*) once were present also.

Predators include the wolf (*Canis lupis*), coyote (*Canis latrans*) and fox (*Vulpes*). A host of other smaller mammals and insectivores occur as well. Semiaquatic fur bearing species like the beaver (*Castor canadensis*) inhabiting the rivers and streams were trapped for their pelts and food (cf. Wishart 1979; Wood and Thiessen 1985). Numerous fish species are present in the Missouri River and tributaries. Catfish (*Ictalurus* sp.) regularly were exploited for food (Snyder 1988). Turtles and various mussels also occur in these aquatic habitats. Mussel shell was an important stock material in native technologies (cf. Picha 1988). Finally, a variety of avian species including eagles, hawks, owls, pelicans, magpies, and diverse waterfowl are recorded as permanent or seasonal inhabitants of the SMRSU. Many, if not all, of these faunal resources were exploited for food, clothing, or other purposes by native peoples who lived here.

Other Natural Resource Potential

A number of other natural resources, in addition to the floral, faunal, and water resources mentioned above, were important to the traditional native economies and technologies. These include various lithic materials employed in stone technologies. These technologies declined only after the introduction of Euro-American metal trade goods. Knife River flint (KRF) was preferred for making chipped stone tools in the northern half of the SMRSU. Other stones such as Tongue River silicified sediment (TRSS) were also important to Plains Village and earlier peoples living to the south near the Missouri-Cannonball confluence (cf. Ahler 1977b). The study of lithic utilization patterns through time and space is linked with many other research topics in the SMRSU.

Lithic materials such as granite and rocks of coal burn origin (clinker and scoria) served important functions in the secular and ceremonial spheres of the Plains Indian lifeways. Cobbles of granite were employed as construction materials and as sources of heat transfer in food preparation and ceremonial sweatbathing (cf. Ahler and Mehrer 1984). Large hammering, grinding, and abrading tools also were fashioned from granite. Clinker and scoria rocks had uses in domestic chores as well as ritual functions in the Plains Village ceremonial practices (cf. Ahler 1988c).

Overview of Previous Archeological Work

This section attempts to mention the most significant past archeological work that has been undertaken in the SMRSU.

Inventory Projects

As of 13 September 2007, there were 1,186 archeological sites and 820 archeological site leads and isolated finds in the state site data file for the SMRSU. With an area of 9,639 mi², there is one site recorded for each 8.1 mi². The low number of recorded sites is due to several factors. First, the total of all intensively surveyed areas makes up only a small percentage of the 9,639 mi². A mere 3.2% of the study unit has been surveyed. This is especially apparent for lands situated outside of the Trench. Secondly, inundation of vast areas of Missouri bottomlands by the waters of Lake Oahe has hidden innumerable sites which would be found by modern site surveys. Many of the sites recorded in areas now inundated by the waters of Lake Oahe are prominent earthlodge village sites. Cultural resource management site inventory work preceding reservoir construction certainly did not meet today's standards. This assertion is based on results of more recent survey work undertaken in unflooded reaches of Missouri River bottomlands (cf. Larson et al. 1983, 1986; Penny et al. 1987; Weston et al. 1980).

The following comments are based on data for the 1,186 archeological sites. Tabular summaries on the following three pages consider variations in cultural/temporal affiliation and landform and property type. A word of caution: site totals vary in some cases because of incompletely coded data or uncoded data for some variables, and in other cases because multiple variables are recorded for some variables (e.g., a site might have both Middle Woodland and Plains Village components).

Inspection of Table 5.2 indicates that cultural/temporal affiliation is recorded as "unknown" for approximately 84% of the sites.

Table 5.3 identifies the types of settings in which sites have been recorded. About 68% of earthlodge villages are on terraces. Terrace settings are also where several other kinds of sites frequently are encountered: CM scatters, earthworks, fortifications, graves, hearths, mounds, pits, and trails. Only a few property types are more prevalent on other landforms. Stone rings, other rock features, and rock art sites are more common on hills, knolls, bluffs, and ridges. There is less site diversity out on the plains away from the Trench and major tributary stream valleys.

Table 5.2: Cultural/Temporal Affiliation of Archeological Sites in the Southern Missouri River Study Unit, 13-Sept-2007.

Paleo-Indian	
Unspecified	11
Clovis	1
Plano	3
Total	15
Archaic	
Unspecified	22
Early Large Side-Notched	2
McKean/Duncan/Hanna	11
Oxbow	1
Pelican Lake	15
Total	51
Woodland	
Unspecified	85
Besant	17
Avonlea	3
Early Woodland	2
Middle Woodland	9
Late Woodland	11
Total	127
Plains Village	
Total	112
Plains Nomadic	
Total	2
Historic	
Unspecified	11
Cheyenne	1
Hidatsa	5
Mandan	3
Sioux	2
Other	1
Total	23
Unknown	1,729

Table 5.3: Feature Type by Landform for Archeological Sites in the Southern Missouri River Study Unit, 13-Sept-2007.

	Conical Timber Lodge	Cultural Material Scatter	Earthlodge Village	Earthworks	Fortification	Grave	Hearth	Jump	Mound	Other Rock Features	Pit	Quarry or Mine	Rock Art	Rock Shelter	Stone Circle	Trail	Misc.	Total
Beachline (glacial)		1													1			2
Beach or riverbank		17	2			4	5			1	2							31
Island		1																1
Draw		9	2	1				2	1		1				3		1	20
Upland plain		36				2			1	27	3		1		50	2	3	125
Floodplain		14	6	1			4	2			1				1	1	1	31
Hill - Knoll - Bluff		151	4	3	1	9	7	1	6	92	11		7	1	116	1	1	411
Ridge	1	89		1	1	4	2		5	78	7	2	4	1	101	2	1	299
Saddle		4							1	1					3			9
Sandbar		1																1
Spur		9				1	2		1	6	1				10	1		31
Swale		3								2					5			10
Terrace		289	82	11	7	27	40	1	22	14	35	1	1		8	7	10	555
Alluvial fan		3					2				1							6
Butte		5	3	1		1	1			2			1		1			15
Foot slope		35	18	1			2		2	6	5	1			7	1	1	79
Other		20	4			2			2	9	2		1		10			50
Levee		1																1
Total	1	688	121	19	9	50	65	6	41	238	69	4	15	2	316	15	18	1677

The very low percentage of the sample located in draws (1%) is surely a reflection of the difficulty of finding sites in draws rather than an indication of actual site density in this setting. Throughout prehistory, draws have been favored for big and small game hunting and gathering a variety of wild plant foods. However, site deposits in this geomorphic setting are easily obliterated by gully-washing runoff, readily buried by alluvial sedimentation, and naturally concealed by dense ground cover of grasses, shrubs, and trees. Ahler et al. (1981:31-82) reported on the multiple component Bundlemaker site (32OL159) located in one of these woody draws in the breaks on the Cross Ranch. Test excavation revealed buried stratified cultural deposits reflective of a bison kill/processing location. Other equally significant sites likely are present in similar physical settings throughout the SMRSU.

The first reported inventory work is attributed to Theodore H. Lewis (1890). Lewis, an avocational archeologist and surveyor, located and mapped eight mound sites along the Missouri River on behalf of the North-western Archeological Surveys sponsored by Alfred J. Hill. Lewis also visited a number of prominent earthlodge villages in the Upper Knife-Heart region and in 1883 produced a detailed map of the Molander site (32OL7). He also prepared sketch maps and took notes regarding several other village sites during his 1883 excursion (Wood 1986c:49). These materials are currently housed at a Minnesota Historical Society archives facility in St. Paul.

A number of site reconnaissance and mapping projects were carried out during the early decades of the 20th century which are not listed below. Wood (1986:49-54), in a seminal article about early cartography in the upper Missouri, summarizes early mapping projects overseen by Orin G. Libby of the SHSND. These maps and other Libby documents are housed at the Heritage Center, Bismarck, North Dakota. A number of other individuals were actively involved in documenting the location of Indian villages and campsites in the Missouri River valley. These include George E. Will, Herbert J. Spinden, and Thad E. Hecker, among others. Contributions from these early investigations are apparent in the following works: Will and Spinden (1906), Will and Hyde (1917), Will (1924), and Will and Hecker (1944). During this same period, other researchers such as Gilbert L. Wilson, were working upriver collecting valuable ethnographic and ethnohistoric information among the Hidatsa (cf. Gilman and Schneider 1987; Weitzner 1979; Wilson 1910, 1916, 1917, 1924, 1928, 1934, 1971).

During the 1920s and 1930s, reconnaissance work focused primarily on the prominent earthlodge village sites in the Trench. Information developed by investigators such as William Duncan Strong (Strong 1940) and Alfred W. Bowers (1930, 1948, 1950, 1965) is referred to below in the archeological context discussions.

Following World War II, site inventory projects were conducted by Smithsonian Institution-River Basin Surveys (SIRBS) personnel on several occasions. This work was tied to anticipated construction of the Garrison

Reservoir (Kivett 1948; Metcalf 1951; Metcalf et al. 1953) and the Oahe Reservoir (Cooper 1953; SIRBS 1965). After the inundation of Missouri River bottomlands by these massive man-made lakes following completion of the dams in 1953 and 1958 respectively, little additional site inventory work was conducted anywhere in the SMRSU for 15 years.

As a result of compliance with new public laws and regulations requiring that prehistoric and historic properties be considered in the process of planning federally funded developments, an increasing number of site inventory projects were conducted beginning in the mid-1970s. As indicated in the manuscript listing, many of these surveys were undertaken where coal and electric power developments and road improvements were planned.

Several of the site inventory projects involving expansive tracts of land resulted in the identification of large numbers of previously unrecorded sites. In 1979, 10,000 acres were surveyed at the Cross Ranch in Oliver County. A total of 159 archeological and historical sites and 41 isolated finds were identified (Weston et al. 1980:20). Subsequent investigations at Cross Ranch have added more sites to this total (Ahler et al. 1981, 1982). Archeological properties were found in all four physiographic zones of the Trench defined for the Cross Ranch area. The results of this survey suggest great numbers of archeological sites previously existed above water along stretches of the Trench now inundated or otherwise disturbed or destroyed by construction of the dam reservoir project.

Intensive cultural resources inventory work at the Knife River Indian Villages National Historic Site (KNRI) also resulted in the identification of a significant number of previously unrecorded sites (Lovick and Ahler 1982). "Intensive" survey of the KNRI involved implementing a variety of site identification field procedures resulting in the documentation of a sometimes continuous distribution of artifacts from Native American occupations spread across extensive portions of the KNRI; 55 sites were recorded covering 25% of the 1300-acre surface area of this National Park Service (NPS) property.

From 1976 through 1981, magnetic surveys were conducted at select areas of the KNRI, including Sakakawea Village (32ME11), Lower Hidatsa Village (32ME10), and Big Hidatsa Village (32ME12) (Weymouth 1988). Eleven of the 1,300 total acres were investigated. Two proton magnetometers in difference mode were used to cover each 20-x-20-m survey block (ibid.:5). The most common anomalies observed were remnants of earthlodges, middens, and past excavation trenches.

Surface inventory and limited testing were carried out over a 300 acre parcel of the KNRI in 1994. Specifically, the project area was on the west bank of the Missouri River approximately three miles north of the confluence with the Knife River. Archeological sites recorded or updated consisted of artifact scatters, the Stanton Mound Group (32ME104), and the Northern Trail Complex (32ME476) (Metcalf 1995). The Northern Trail Complex is "a series of deeply

incised travois trails [that] lead generally northward from Big Hidatsa Village” (ibid.:20). As evinced by the artifacts observed at the 10 sites investigated, the area has been occupied since the Early Plains Archaic period.

A large-scale intensive survey was conducted along a transect for the Northern Border Natural Gas Pipeline right-of-way. Scores of previously unrecorded sites were identified along its narrow corridor through the SMRSU (Root and Gregg 1983).

Three major surveys were conducted along portions of the east and west shores of the Lake Oahe (Larson et al. 1983, 1986; Penny et al. 1987). Even with all of this attention, resurvey during different times of year and under different lake level conditions inevitably results in the identification of additional previously unrecorded sites, many of which are appraised as “historic properties.”

Between 1988 and September 2007, approximately 500 inventories within the SMRSU were reported to the ND SHPO, the majority (44%) of which relate to transportation projects. Twenty-two percent result from rural and urban development (waterlines, lagoons, utility lines, and communication lines and towers). Other inventories focus on the natural environment (16%) and energy development and production at coal mines and windfarms (5%).

Over the years, several transportation projects along ND Highway 1806 have required cultural resource inventories and evaluative testing. A lengthy stretch of the road runs north-south, west of the Missouri River in Oliver and Morton counties, an area rich in archeological sites. Within the previously disturbed 100-ft project corridor, the boundaries of two sites (32OL12 and 32OL14) were expanded. The sites are cultural material scatters, with Pelican Lake and Plains Village components identified at 32OL14 (Larson 1992:13, 18).

From 1989 to 1993, the North Dakota Department of Transportation (NDDOT) conducted inventories and evaluative testing for a bypass of ND 1806 around Fort Abraham Lincoln in Morton County. As with other projects along the highway, the corridor had been disturbed by agricultural activities, road construction, and urban expansion. Two sites, 32MO291 and 32MO292, were examined during the investigation. Both sites are cultural material scatters located within the plowzone and heavily disturbed. Artifacts indicate the sites date to the Heart River phase of the Post Contact Coalescent period (Christensen 1993). Monitoring was recommended due to the proximity of the project corridor to Fort Abraham Lincoln.

State Historical Society of North Dakota archeologists delineated boundaries and evaluated sites 32MO42 and 32MO51 in 2000. The sites are earthlodge villages, originally reported by Will and Hecker in 1944, located within the Harmon Village Third Subdivision along ND 1806 (Swenson and Picha 2000:1). Circular earthlodges and ceramics suggest occupation dates of AD 1600

or 1700 for the sites. Sites 32MO42 and 32MO51 have been recommended eligible for the NRHP.

In 2001, archeologists investigated numerous Plains Village sites and site leads on both sides of the Missouri River from the confluence with the Little Heart River north to the confluence with Coal Lake Coulee. The objectives of the project were (1) to locate, inventory, and update sites, (2) to examine ceramics from site collections curated at the SHSND (Ahler 2001), and (3) to conduct a Class III inventory of 1,120 acres previously not surveyed (Metcalf 2001:1). Archeologists successfully evaluated 44 sites and site leads (ibid.:Table 1).

An inventory was completed for replacement of more than 16 miles of utility lines west of the Missouri River between the Cannonball and Little Heart rivers. Cultural properties identified within the project corridor span the Paleo-Indian through historic periods. The archeological components include unnamed Paleo-Indian (32MO163), Hanna and Pelican Lake (32MO98), McKean (32MO100), Besant/Sonota and Avonlea (32MO98, 32MO100, 32MO163), Extended Middle Missouri variant (32MO7, 32MO10), Post Contact Coalescent variant (32MO15), Terminal Middle Missouri variant (32MO104), and unnamed Plains Village (32MO98, 32MO163, 32MO166) (Christensen 1990:Table I).

A 1,920 acre tract, within the drainage area of Square Butte and Otter creeks, was surveyed for a proposed watershed dam. Eighteen archeological sites were recorded, including: 13 cultural material scatters, two stone circle sites, and one rock cairn site (Good 1993:Table I). The artifacts indicate the area has been utilized for at least 1,000 years (ibid.:5).

In 2005, archeologists conducted intensive inventories of several tracts for a proposed wind farm near Wilton, North Dakota. The project area was seven miles east of the Missouri River in rolling grasslands. Three archeological lithic scatters were recorded, two on the surface in plowed fields (32BL545 and 32BL546) and one beneath the surface in native prairie (32BL547) (Stine et al. 2005). Knife River flint, Swan River chert, and TRSS flakes and tools comprise the lithic artifacts (ibid.:5.3-5.9).

Over the years, several inventories, encompassing tens of thousands of acres, have been conducted for the Falkirk Mining Company within the SMRSU (Boughton and Brownell 1994; Boughton et al. 2007b; Walker-Kuntz 1999). The area of operation ranges from the Missouri River floodplain to terraces cut by drainages to rolling grasslands with intermittent wetlands resulting from glacial advancement and recession. Archeological properties recorded in the area include lithic scatters comprised mainly of KRF, stone circle sites, and rock cairn sites.

Nearly 6,000 acres in Oliver County were inventoried in 2006 for The Coteau Properties Company (Boughton et al. 2007a). Topographically, the project area is in rolling grasslands with Square Butte Creek running west to east

through the southern portion. Fourteen prehistoric sites were recorded during the survey, including stone features, lithic scatters, and cultural material scatters. Investigators note that the majority of the scatters were found in plowed fields.

The preceding brief review of select inventory projects highlights the importance of large- and small-scale surveys in documenting significant sites and areas of high site densities (cf. Ahler et al. 1979; Wilt and Swegle 1980).

As part of background studies for large-scale inventory projects, researchers should attempt to make use of LANDSAT imagery of groundcover available for North Dakota (cf. Reid and Johnson 1978) supplemented by aerial photographic coverage (cf. USDA 1937). Recent digital imagery is available from several internet sources (Google Earth 2008; ND GIS 2008; NRCS 2007a), including:

North Dakota GIS Hub (NDGIS): <http://www.nd.gov/gis/>

Natural Resource Conservation Service: <http://www.nrcs.usda.gov/>

Google Earth: <http://earth.google.com>

Table 5.4 lists inventory projects conducted wholly or partially within the SMRSU for which there are manuscripts on file at the A&HPD, and which are coded as wholly or partly within the bounds of the SMRSU. The general cut off date for manuscript consideration is 5 September 2007. However, a few later works are included.

Table 5.4: Inventory Projects in the Southern Missouri River Study Unit, 5-Sept-2007.

Year	First Author	Second Author	Title	Ms #
1890	Lewis, T.		Northwest Archeological Survey, Richland, Barnes, Oliver, McLean, Morton, Dickey, Ransom, LaMoure, Stutsman, Benson, Grand Forks, Walsh, & Pembina Counties, ND	4184
1948	Kivett, M.		Appendices A & B to Accompany Report on Historical Aspects of the Garrison Reservoir Area, Missouri River	111
1950	Metcalf, G.		Report of Survey Activities in Garrison Reservoir, 1951 (& Summary of Archeological Survey of Ft. Berthold Reservation, August-October, 1950	114
1953	Cooper, P.		Appraisal of the Archeological Resources of the Oahe Reservoir, North and South Dakota	127
1953	Metcalf, G.	T. White	Appraisal of the Archeological & Paleontological Resources of the Garrison Reservoir, ND, Supplement	112
1965	Jensen, R.		An Archeological Survey of the Oahe Reservoir Area, ND	130
1973	Franke, N.		Report of the Archeological & Historic Site Survey of the McDowell Dam Project, Burleigh Co., ND	142
1974	Franke, N.		Report of the Archeological & Historic Site Survey of the Nelson Lake Makeup System, Milton R. Young Station, Center, Oliver Co., ND	168
1974	Loendorf, L.	A. Carmichael	The Results of the Archeological Survey of Dam #6, Square Butte Creek Watershed, Morton Co., ND	166
1975	Adamczyk, T.		Archeological Inventory Missouri River Reach Between Fort Benton, MT & Sioux City, IA	80
1975	Dill, C.		1975 Archeological & Historic Site Survey of the Falkirk Mining Company Extended Mining Plan Area, McLean Co., ND	23
1975	Franke, N.		Kidder Co., Road Right of Way, CP 147 (75), Negative Declaration Survey Report	241
1975	Franke, N.		Project # CS-148(5) Right of Way Negative Declaration Survey Report, Burleigh Co., ND	238
1975	Loendorf, L.		The Results of the Archeological Surveys of Square Butte Creek Dam Sites #3 and #5, Oliver Co., ND	48
1976	Ahler, S.		Archeological Cultural Resource Reconnaissance Investigation in the Eagles Park Area, ND, Burleigh Co., ND	5
1976	Carmichael, G.	C. Greenshields	The Results of the Cultural Resource Inventory in the Area of Proposed Channel Construction Near Dam #6, Square Butte Creek Watershed, ND, Morton Co., ND	1733
1976	Dill, C.		1976 Archeological & Historic Site Survey of Baukol-Noonan Incorporated's Center Mine, Limited & Extended Mining Plan Areas, Oliver Co., ND	47
1976	Dill, C.		Addendum to a Cultural Resources Survey Report Entitled 1976 Archeological & Historic Site Survey of Baukol-Noonan Inc.'s Center Mine, Ltd. & Extended Mining Plan Areas, Oliver Co., ND	2515
1976	Dill, C.		Central Dakota Enterprises Transmission Facilities in Mandan, Negative Declaration Survey Report, Morton Co., ND	267
1976	Dill, C.		United Power Association USBR Transmission Line Relocation, McLean Co., Negative Declaration Survey Report	264
1976	Fox, R.	W. Stolt et al.	Archeological & Historical Studies in the Vicinity of the Proposed Coyote Station Electrical Generation Plant Site Near Beulah, Mercer Co., ND	215
1976	Franke, N.		Basin Electric Power Cooperative Transmission Line Right of Way Negative Declaration Survey Report, McLean Co., Ward & Mountrail Counties, ND	258

Year	First Author	Second Author	Title	Ms #
1976	Franke, N.		ND Highway Department Project No. CRS 487 (8) Sheridan & Burleigh Counties, Negative Declaration Survey Report	252
1976	Franke, N.		Square Butte Electrical Cooperative Transmission Line Route, Oliver Co., Negative Declaration Survey Report	259
1976	Franke, N.		US Corps of Engineers MROOP-N Bank Protection 76-3 (CDE) Negative Declaration Survey Report, Oliver Co., ND	255
1977	Bailey, W.		Economic Development Administration EDA-LPW Project ND-5007-0 (Fort Rice) Negative Declaration Survey Report, Morton Co., ND	280
1977	Bailey, W.		Economic Development Administration EDA-LPW Project No. ND-5059, Napoleon Airport Runway Construction Negative Declaration Survey Report, Logan Co., ND	288
1977	Bailey, W.		Washburn Sewage Project Negative Declaration Survey Report, McLean Co., ND	273
1977	Dill, C.		1974-1976 Archeological & Historic Site Survey of Consolidation Coal Company's Glenharold Mine, Limited & Extended Mining Plan Areas, Mercer Co., ND	27
1977	Dill, C.		Falkirk Mining Company Addition Negative Declaration Survey Report, McLean Co., ND	270
1977	Dill, C.		Mandan Planning & Development Office EDA-LPW Round II Treatment Plant Project Negative Declaration Survey Report, Morton Co., ND	286
1977	Dill, C.		Montana-Dakota Utilities Company Heskett Station-USBR 230 kV Tie Line No. 116 Negative Declaration Survey Report, Morton Co., ND	287
1977	Dill, C.		ND Highway Department Project No. M-1-988()000, Mandan, Morton Co., Negative Declaration Survey Report	277
1977	Dill, C.		Survey of Project F-1-083()111, Washburn to Wilton, Burleigh & McLean Counties, ND	2518
1977	Franke, N.		Burial Reported by Mr. Kautzman, Morton Co., ND	218
1977	Ludwickson, J.		L. W. Veigel & Company Project CAP 707 (76), Emmons Co., Negative Declaration Survey Report	275
1977	Ludwickson, J.		ND Highway Department Project No. SAP-1-013 (02)185, Linton, Emmons Co., Negative Declaration Survey Report	276
1977	Weir, D.		Archaeological & Historic Site Survey of a High Voltage Transmission Facility for Cooperative Power Association & United Power Association, McLean Co., ND	18
1977	Weir, D.		Archaeological and Historic Site Survey of a Transmission Pipeline for Cooperative Power Association and United Power Association, McLean Co., ND	951
1977	Zimmerman, L.	J. Buechler et al.	A Cultural Resources Reconnaissance of Eight Proposed Bank Stabilization Sites in Central ND	87
1978	Ahler, S.		Archaeological Field Research in the Knife River Indian Villages National Historic Site, Summer 1978, Mercer Co., ND	304
1978	Ahler, S.		Preliminary Cultural Resource Reconnaissance & Evaluation at the United Power Association Generating Plant, Stanton, Mercer Co., ND	556
1978	Ahler, S.		Proposed F.A.S. Route 3339 Survey, Oliver Co., ND	634
1978	Dill, C.		Mor-Gran-Sou Electric Coop., Inc., Substation, Morton Co., Negative Declaration Survey Report	291
1978	Dill, C.		Toman Engineering Lime Sludge Settling Lagoons, EPA No. C380354, Survey Report, Morton Co., ND	294
1978	Dill, C.		Zeeland Lagoon Cells Negative Declaration Survey Report, McIntosh, ND	293
1978	Good, K.		Cultural Resource Investigation of the Proposed Lake Brekken and Lake Holnes Recreation Area, McLean Co., ND	298

Year	First Author	Second Author	Title	Ms #
1978	O'Brien, L.	L. Loendorf et al.	A Cultural Resource Survey of the Proposed Otter Tail Transmission Line	310
1978	O'Brien, L.	L. Loendorf	Cultural Resource Inventory of the Proposed Transmission Line Route Between the Coyote Station and the Milton Young Plant, Oliver Co., ND	308
1978	Snortland-Coles, J.		ND State Highway Department Project No. F-1-083()090, US 83 From Bismarck to Wilton Survey, Burleigh Co., ND	849
1978	Taylor, J.		Report of Cultural Resource Inventory Concerning a Proposed Road and Bridge Relocation Project of Mercer Co., Route 542 Through the Knife River Indian Villages National Historic Site, McKenzie Co., ND	586
1978	Weston, T.	J. Kjos, et al.	Preliminary Cultural Resources Survey in the Path of the Proposed State Route 1806 in Oliver Co., ND	309
1978	Woolworth, A.	N. Woolworth	A Report on an Archaeological & Historical Reconnaissance Survey of the Great Lakes Gas Transmission Company Pipeline Route in ND and Minnesota	306
1979	Ahler, S.	D. Goulding et al.	Consol 3 Project: Archeological Reconnaissance & Test Excavation in the Glenharold Mine Area, Mercer Co., ND	939
1979	Ahler, S.	T. Weston et al.	Controlled Surface Reconnaissance in the Buchfink Cultivated Track, Knife River Indian Villages National Historic Site, 1978, Mercer Co., ND	131
1979	Ahler, S.		Cultural Resource Reconnaissance for Proposed Haul Road in the Glenharold Mine Area, Oliver Co., ND	2571
1979	Ahler, S.	T. Weston et al.	Cultural Resource Reconnaissance of 160 Acres in the Glenharold Mine Area, Mercer Co., ND	2655
1979	Dill, C.		Cultural Resources Inventory of Project No. F-1-083()126: Washburn North to Coleharbor, McLean Co., ND	952
1979	Farmer, T.	J. Franzen et al.	A Cultural Resource Inventory of the Glenharold Mine, Oliver Co., ND	935
1979	Good, C.		Zachmeier Flats Housing Development Cultural Resource Survey, Morton Co., ND	942
1979	Good, K.	J. Dahlberg	Archaeological and Historical Survey, Proposed Mining Development Area, Falkirk Mining, McLean Co., ND	950
1979	Good, K.		Cultural Resource Inventory of a Planned Coal Mine Development Area, McLean Co., ND	2204
1979	Good, K.		Cultural Resource Inventory of the Proposed Sewage Lagoon Areas at Turtle Lake, McLean Co., ND	2206
1979	Robson, L.		ND Game and Fish Lease (Survey), Emmons Co., ND	3021
1979	Snortland, J.		Intensive Archeological Inventory of Parts of the SW of Section 30 143/81 & Part of Section 25 143/82 in Oliver Co., ND	3403
1979	Snortland, J.		Intensive Archeological Inventory of US Corps of Engineers Rip-Rap Project Collection Area in Oliver Co., ND	1051
1979	Weston, T.	S. Ahler	Cultural Resources Survey & Test Excavations in the Path of Proposed Widening and Upgrading of Co., Route FAS 2910 in Mercer Co., ND	924
1979	Woolworth Research Associates		Report on a Cultural Resources Survey of the Stanton & Preferred Transmission Line Corridors in ND and SD, Basin Electric Cooperative, Bismarck, ND, Vol. 2-ND Sites in Emmons, Morton, & Mercer Counties	2600
1980	Brown, S.	M. Root	Northern Plains Natural Gas Company Right of Way Reroute Survey, Morton Co., ND	2189
1980	Fox, R.		Class III Inventory for All Cultural Resources At a Proposed Sewage Disposal Facility, City of Dawson, Kidder Co., ND	1574
1980	Good, K.		Cultural Resource Inventory of the Proposed Co., Road Project - CRS 1529(53) Emmons Co., ND	1546

Year	First Author	Second Author	Title	Ms #
1980	Good, K.	J. Dahlberg	Cultural Resource Investigation, Road Right-of-Way and Hay Creek Channelization Project, Burleigh Co., ND	1282
1980	Harris, V.		Class III Intensive Inventory for all Cultural Resources Hancock Area Section 32 Erosion Control Project, Mercer Co., ND	2987
1980	Harris, V.		Class III Intensive Inventory for All Cultural Resources, ND Game and Fish Department Projects, Burleigh Co., ND	1527
1980	Harris, V.		Class III Intensive Inventory for all Cultural Resources, Wogansport Area Section 32 Erosion Control, Burleigh Co., ND	3019
1980	Loendorf, L.		Class III Intensive Inventory for All Cultural Resources of a Proposed Power Substation, McLean Co., ND	1281
1980	MacDonald, L.	Mack et al.	Cultural Resource Survey, Government Townsites Study, Fort Peck, MT, Pickstown, SD, Riverdale, McLean Co., ND	2053
1980	Newell, A.	T. Weber-Grieser et al.	Cultural Resource Inventory of 1920 Acres in McLean Co., ND	2513
1980	Robson, L.		Bernie Berger Fill Placement Survey, Morton Co., ND	1286
1980	Robson, L.		Class III Intensive Inventory for All Cultural Resources Horseshoe Butte Area Section 32 Erosion Control Project, Oliver Co., ND	3003
1980	Robson, L.		Class III Intensive Inventory for All Cultural Resources Knife Point I Area, Section 32 Erosion Control Project McLean Co., ND	2974
1980	Robson, L.		Class III Intensive Inventory for All Cultural Resources Larry Umber-Section 10 Permit Request, Emmons Co., ND	1536
1980	Robson, L.		Class III Intensive Inventory for all Cultural Resources Price II Area Section 32 Erosion Control Project, Burleigh Co., ND	3018
1980	Robson, L.		Class III Intensive Inventory For All Cultural Resources, Mandan, ND, Flood Control Levee, Morton Co., ND	2054
1980	Robson, L.		Coal Lake Coulee, Section 32 Erosion Control; McLean Co., ND	2971
1980	Robson, L.		David Vanderwal Permit Request, Emmons Co., ND	1535
1980	Robson, L.		Fort Lincoln Area, Section 32 Erosion Control, Morton Co., ND	2994
1980	Robson, L.		Kenneth Moser, After-the-Fact Irrigation Permit, Emmons Co., ND	1048
1980	Robson, L.		Knife Point II, Section 32 Erosion Control; Mercer Co., ND	2988
1980	Robson, L.		Steel Boat Ramp Survey, ND Game and Fish Department, Emmons Co., ND	1047
1980	Robson, L.		Wildwood Area, Section 32 Erosion Control; McLean Co., ND	2972
1980	Simon, A.	J. Borchert	Additional Cultural Resource Work for the Proposed MDU Transmission Line Route Between the Coyote Station and the Milton Young Plant, Oliver Co., ND	2234
1980	Snortland, J.		Cultural Resources Inventory of Square Buttes, Oliver Co., ND	1010
1980	Weston, T.	S. Ahler et al.	Cultural Resource Survey of the Cross Ranch, Oliver Co., ND, 3 vols.	3667
1980	Wilt, J.	M. Swegle	Inventory of Cultural Resources, Glenharold Mine Extension, Mercer and Oliver Counties, ND, Vol. 1	2765
1981	Ahler, S.	E. Mehrer et al.	Consol 4 Project: Archeological Reconnaissance and Test Excavations in the Glenharold Mine Area, Oliver Co., ND	2481
1981	Cultural Research & Management		Napoleon Floodway RC&D Proposal, Napoleon, Logan Co., ND	3023
1981	Dill, C.		ND Highway 1806, Oliver Co., Re-Route Survey: Cultural Resources Inventory (Class III)	2517
1981	Good, K.		Cultural Resources Inventory Report HAS Inc, Project #81-18-Area Around the Existing Strasburg Sewage Lagoon, Emmons Co., ND	2983

Year	First Author	Second Author	Title	Ms #
1981	Good, K.	L. Sprunk et al.	Evaluation of Significance of Three Recorded Historic Sites, 32ML138, 32ML139 & 32ML140, Near Underwood, ND	2580
1981	Good, K.	M. Schreiner	Historical and Archaeological Survey and Testing Project--Proposed Mining Area-Falkirk Mine, McLean Co., ND	2542
1981	Peterson, J.		A Cultural Resources Inventory Project, Long Lake National Wildlife Refuge, Burleigh Co., ND	2556
1981	Peterson, J.		An Archeological Reconnaissance Survey of ND State Highway Department Project Units, Napoleon South & Emmons Co., Line East, Logan Co., ND	1815
1981	Robson, L.		Alfred Carvell, Dredging Project, McLean Co., ND	2977
1981	Robson, L.		Class III Intensive Inventory Kenneth Miller Irrigation Intake Morton Co., ND	2995
1981	Robson, L.		Class III Intensive Inventory, Burton Riskedahl, Burleigh Co., ND	1777
1981	Robson, L.		David Vanderwal--Easement Request Emmons Co., ND	2930
1981	Robson, L.		Douglas Zearly Road Easement Request, Morton Co.,	2997
1981	Robson, L.		Harvey Meyer Irrigation Intake Emmons Co., ND	2982
1981	Robson, L.		James Britton, Section 10 Permit Request Emmons Co., ND	2913
1981	Robson, L.		Northwestern Bell, Underground Telephone Cable DACW45-2-70-6030 Morton Co., ND	3028
1981	Robson, L.		Painted Woods Bank Stabilization Additional Construction, Right Bank, Oliver Co., ND	3004
1981	Root, M.		Archeological Site Survey and Testing Along the Northern Border Pipeline, ND: Annual Progress Report, 1980, McKenzie, Mercer, Dunn, Stark, Morton, Emmons, McIntosh, & Williams Counties	2564
1982	Brown, K.		A Cultural Resources Survey of the Fort Yates Irrigation Project, Sioux Co., ND	2572
1982	Good, K.	J. Kjos et al.	Class III Cultural Resource Inventory: 120 Acre Tract, Center Mine, Oliver Co., ND	3238
1982	Good, K.	J. Kjos et al.	Cultural Resource Inventory of Portions of Basin Cooperative Service's (Basin Electric Power Cooperative) Glenharold Mine, Mercer & Oliver Counties, ND	3226
1982	Lovick, S.	S. Ahler	Cultural Resource Reconnaissance in the Knife River Indian Villages National Historic Site (Contribution No. 159), Mercer Co., ND	3896
1982	Montgomery, S.		A Class III Cultural Resource Inventory for the Proposed Mandan Sewer Improvements, Morton Co., ND	2999
1982	Robson, L.		Proposed Land Sales Along McClusky Canal, Burleigh, Sheridan, & McLean Counties, ND	2848
1983	Caywood, J.	T. Greiser	A Final Report of a Class III Cultural Resource Inventory and Evaluation of Cultural Resource Sites, Section 4, T143N, R84W, Glenharold Mine, Oliver Co., ND	3234
1983	Dill, C.	Holland, E.	Fort Clark Research Reports, 2 Vols.	3136
1983	Fox, G.	W. Kinney et al.	Class III Cultural Resource Inventory of the Proposed Route & Improvement Areas of ND Highway 1804, Emmons Co., ND	3201
1983	Gnabasik, V.		Lake Oahe Boundary Tract 3531 Encroachments--David Wille, Morton Co., ND	3383
1983	Gnabasik, V.		Proposed Sewage Lagoon Expansion Standing Rock Sioux Reservation Lake Oahe, Sioux Co., ND	3384
1983	Gnabasik, V.		Sugarloaf Bottoms Co., Park Development (Graner Bottoms) Morton Co., Park Board Lake Oahe, Morton Co., ND	3375
1983	Gnabasik, V.		Water Supply Facilities & Borrow Fill and Dumping Areas Survey Riverdale Vicinity, McLean Co., ND	3380
1983	Good, K.	J. Dahlberg et al.	Cultural Resource Inventory of 389 Hectare (960 Acre) Area Within the Falkirk Mine, McLean Co., ND	3239

Year	First Author	Second Author	Title	Ms #
1983	Good, K.	J. Kjos et al.	Wilton B. Site, AML (84) Cultural Resource Study, Near Wilton, Burleigh Co., ND	3232
1983	Kjos, J	M. Schreiner et al.	Class III Cultural Resource Inventory & Investigations at Five Previously Recorded Sites Within Glenharold Mine Area I, Mercer Co., ND, Vols. I & II	3133
1983	Kjos, J	J. Dahlberg et al.	Evaluations of Five Archaeological Sites and One Historic Site, Glenharold Mine Area, Oliver Co., ND, Vols. I & II	3132
1983	Larson, T.	K. Schweigert et al.	A Cultural Resource Inventory of Proposed Recreation Areas, Lake Oahe: Emmons, Morton & Sioux Counties, ND	2835
1983	MacDonald, L.		Class III Intensive Inventory for the Lake Holmes Outlet Channel, McLean Co., ND	3119
1983	Phillips, B.		Cultural Resource Surveys: Billings Microwave System in Golden Valley, Morton, Oliver, Mercer, Slope, Stark, & Billings Counties, ND	3347
1983	Root, M.	M. Gregg	Archeology of the Northern Border Pipeline, ND: Vol. 2, Pts. 1-3 Survey & Background Information, McIntosh, Emmons, Morton, Stark, Mercer, Dunn, McKenzie, & Williams Counties, ND	3455
1984	Fox, G.	T. Greiser et al.	Cultural Resource Inventory & Evaluation of Selected Lands Within Falkirk Mining Company's Mine Area K, McLean Co., ND	4050
1984	Gnabasik, V.		Emmons County Road Easement Request, Section 24, T135N, R79W, Cultural Resources Survey, Lake Oahe/Oahe Dam Project, ND	3478
1984	Gnabasik, V.		Maintenance Facility at Garrison Dam, Cultural Resources Survey, Mercer Co., ND	3476
1984	Gnabasik, V.		ND Parks & Recreation Department, Proposed Boat Ramp at Joe Bush Bay, Lake Oahe, Emmons Co., ND	3389
1984	Gnabasik, V.		Oahe Dam/Lake Oahe Project--Bank Erosion at Standing Rock Sioux Tribe Irrigation Pump Site, Easement No. DACW45-2-68-5192, Section 30, T130N, R79W, Sioux Co., ND	3390
1984	Gnabasik, V.		Wachter Ranch, Channel Change, Square Butte Creek, Morton Co., ND	3397
1984	Kjos, J.		Cultural Resource Survey & Mitigation Plan: Wilton E AML Site, McKenzie Co. & Burleigh Co., ND	3748
1984	Kuehn, D.		A Class II Reconnaissance Inventory of the Harvey Sand & Gravel Co. Barrow Pit in Section 20, T145N, R84W, Mercer Co., ND	3607
1984	Kuehn, D.	A. Hoseth	A Class III Intensive Inventory of 1540 Acres at the Baukol-Noonan Center Mine, Oliver Co., ND	3545
1984	Kuehn, D.		Cultural Resources Inventory Baukol-Noonan Center Mine Expansion Project N 1/2, N 1/2, Section 10, T141N, R84W, Oliver Co., ND	3581
1984	LaVardera, L.		Cultural Resources Inventory of the Falkirk Mining Company's Permit Area E, McLean Co., ND	3943
1984	Schweigert, K.		Evaluation of Site 32ME525, Mercer Co., ND	3473
1985	Cultural Research & Management		Results of an Intensive Cultural Resource Survey for a Proposed Cross-Wind Runway at the Bismarck Airport, Burleigh Co., ND	3845
1985	Gnabasik, V.		Aerial Electric Service Line Easement Request, KEM Electric Cooperative, Inc. for Carter VanderWal Irrigation System, Oahe Project, Emmons Co., ND	3985
1985	Gnabasik, V.		Bank Protection, Knife River Mile 3.80, Mercer Co., ND (COE 85-13)	4548
1985	Gnabasik, V.		Flood Protection, Levee Raise-Upgrade, Heart River at Mandan Area, Morton Co., ND	3992

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1985	Gnabasik, V.		Mor-Gran-Sou Electric Cooperative, Inc., Buried Electric Line Easement Request, Oahe Project, Morton Co., ND	3982
1985	Gnabasik, V.		Proposed Beach Development Area, Oahe Project, Sioux Co., ND	3832
1985	Gnabasik, V.		Proposed Electric Lines to Camp Pads, General Sibley Park, Oahe Project, Burleigh Co., ND	4005
1985	Gnabasik, V.		Proposed Tree Plantings and Buried Electric Lines to Camp Pads, Beaver Creek Recreation Area, Oahe Project, Emmons Co., ND	3978
1985	Gnabasik, V.		Proposed Tree Plantings, Badger Bay Area, Oahe Project, Emmons Co., ND	3979
1985	Gnabasik, V.		Proposed Tree Plantings, Cannonball Area, Oahe Project, Sioux Co., ND	3981
1985	Schweigert, K.		Historical Sites Evaluation in Falkirk Mine Area E, McLean Co., ND	3843
1986	Kuehn, D.		A Class III Intensive Cultural Resource Inventory of a Gravel Pit Near Fort Yates, Sioux Co., ND for the ND State Highway Department	4131
1986	Larson, T.	K. Schweigert et al.	A Cultural Resource Inventory of the Left Bank of Lake Oahe: Burleigh & Emmons Counties, ND	4061
1986	Persinger, P.	K. Schweigert	A Class III Cultural Resource Survey of Drill Hole Locations in a Possible Extension Area of the Glenharold Mine, Oliver Co., ND	4119
1987	Banks, K.		A Cultural Resources Inventory of a Proposed Sewer Collection System at Fort Yates, Standing Rock Agency, Sioux Co., ND	4488
1987	Blasing, B.	B. Coutant	Class I & Class III Cultural Resource Surveys of Wildlife Mitigation Lands in Benson, Burleigh, Cavalier, Nelson, McLean, Ramsey, Sargent, Sheridan, Stutsman, Towner, & Wells Counties, ND	4549
1987	Coutant, B.		A Class III Cultural Resource Survey of Seven Borrow Areas Associated With the Lake Holmes Outlet Channel, McLean Co., ND	4550
1987	Coutant, B.		Report on a Class III Cultural Resource Survey of Co., Road Improvements in McLean Co., ND	4445
1987	Gnabasik, V.		Morton County Parks Department, Proposed Little Heart Bottoms Boat Ramp and Parking Area, Cultural Resources Survey, Oahe Project, Morton Co., ND	4497
1987	Penny, D.	T. Larson et al.	A Cultural Resource Inventory of the Right Bank of Lake Oahe in Morton and Sioux Counties, ND	4228
1987	Shaw, T.	J. Borchert et al.	Results of a Class III Cultural Resource Inventory of ND Highway 200, Underwood to Mercer, McLean Co., ND	4267
1987	Smith, G.		Shoreline Land Exchange, Kidder Co., ND	4408
1988	Banks, K.		Home, Home On The Range: A Cultural Resources Inventory For Nine Homesite Leases, Standing Rock Agency, Sioux Co., ND & Corson Co., SD	4652
1988	Banks, K.		The Proposed Fort Yates Landfill: Cultural Resources of the Future Standing Rock Agency, Sioux Co., ND	4553
1988	Borchert, J.	D. Kuehn	Morton Co., #137 Road Reroute Cultural Resource Inventory	4624
1988	Borchert, J.	D. Kuehn	Surface Water Management Survey for the Baukol Noonan Center Mine Expansion in Oliver Co., ND	4697
1988	Borchert, J.	D. Kuehn	West Sanger Road Cultural Resource Survey Oliver Co., ND	4633
1988	Deaver, K.	S. Deaver	Preliminary Report on Pedestrian Sample of the Sprint Line in Stutsman, Kidder, Stark, Billings, Cass, Golden Valley, Burleigh, & Morton Counties, ND	4595

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1988	Deaver, K.	S. Deaver et al.	US Sprint Fiber Optic Cable Project Spokane, Washington to Fargo, Billings, Stark, Golden Valley, Morton, Kidder, Stutsman, Burleigh, & Cass Counties, ND	4638
1988	Del Bene, T.		The Archaeological Inventory of a Proposed Borrow Area Near Johns Lake Sheridan Co., ND	4546
1988	Floodman, M.		Draft Final Report of a Cultural Resources Inventory of Lands Owned by the Omaha District, Along the Shoreline of Lake Sakakawea, Mercer Co., ND	4601
1988	Ford, D.	D. Kuehn	Cultural Resource Inventory of Morton Co., Road #137, Eight Miles of Proposed Road Change	4523
1988	Gnabasiak, V.		Knife River Mile 3.80 Bank Stabilization Project, Cultural Resources Resurvey, Mercer Co., ND	4583
1988	Persinger, R.		Bridge Replacement and Barrow Area Survey Near Double Ditch Historic Site Burleigh Co., ND	4614
1988	Persinger, R.	J. Whitehurst et al.	Painted Woods Cultural Resource Survey, McLean Co., ND	4597
1988	Schweigert, K.		A Cultural Resources Inventory of the Proposed Washington Street Project, Bismarck, Burleigh Co., ND, Vol. I	4554
1988	Weymouth, J.		Magnetic Surveys of Archaeological Sites in The Knife River Indian Villages National Historic Site, Mercer Co., ND: Major Village Sites	4330
1989	Banks, K.		A Cultural Resources Inventory of Projects in Six Wildlife Development Areas, Cavalier, Nelson, Burleigh, Stutsman, Towner, & Ramsey Counties, ND	4869
1989	Banks, K.		Neither A Burrower Nor a Lander Be: A Cultural Resources Inventory of Two Undertakings, Koenig Wildlife Development Area, McLean Co., ND	4785
1989	Banks, K.		Where Has All The Water Gone, Long Time Passing: A Cultural Resources Inventory of the Nelson & Turtle Lake Water Lines, Morton & McLean Counties, ND	4793
1989	Borchert, J.		Baukol-Noonan Class III Cultural Resource Inventory of the Center Mine Survey Located in Oliver Co., ND	4742
1989	Borchert, J.	J. Brownell et al.	Bornemann AML Project NDO18 Cultural Resource Inventory and Historic Site Evaluations Oliver Co., ND	4825
1989	Borchert, J.	J. Foster	McLean-Sheridan Water Pipeline Additional Cultural Resource Inventory in McLean Co., ND	4826
1989	Borchert, J.	J. Brownell et al.	Wilton C(1) & C(2) AML Project ND001 Cultural Resource Inventory and Historic Sites Evaluations Burleigh Co., ND	4830
1989	Burbidge, G.	J. Borchert	A Class III Cultural Resource Inventory For Twelve Additional Miles of the McLean-Sheridan Rural Water Supply Project McLean & Sheridan Counties, ND	4948
1989	Christensen, R.		A Class III Cultural Resource Inventory of John's Lake Wildlife Development Area, Sheridan Co., ND	6061
1989	Christensen, R.		A Class III Cultural Resource Inventory of the Dying Tree Wildlife Development Area, Burleigh Co., ND	4845
1989	Christensen, R.	R. Persinger	A Class III Cultural Resource Inventory of the Pit Wildlife Development Area, Burleigh Co., ND	4832
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1989	Del Bene, T.		The Cultural Resources Inventory of Scattered Wildlife Development Activities in Burleigh, McLean, Ramsey, Sheridan, Stutsman, & Wells Counties, ND	5035
1989	Del Bene, T.		The Inventory of Proposed Modifications to the Leland Vossler Farm, McClusky Canal, McLean Co., ND	4772

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1989	Floodman, M.		A Cultural Resources Inventory of the Proposed Kneeling Moose Area, Ramsey Co., & Wildlife Development Areas in Fence Construction Contract, Cavalier, Nelson, Benson, Wells, Sheridan, McLean & Burleigh Counties, ND	4850
1989	Foster, J.	D. Kuehn	McLean-Sheridan Rural Water Pipeline Cultural Resources Survey Report	4897
1989	Good, K.	G. Anderson	Class III Cultural Resource Survey Fort Abraham Lincoln State Park, Morton Co., ND, 1988	4837
1989	Good, K.		ND State Highway Department Highway 6 Barrow Pit, Burlington Northern Overpass Replacement, Morton Co., A Class III Cultural Resources Survey	4858
1989	Good, K.		ND State Highway Department State Highway 200 Improvement Project-Aggregate Pit Survey, McLean Co., A Class III Cultural Resources Inventory	4862
1989	Granger, S.	S. Kelly	Denhoff, Goodrich, Martin, & McClusky, Sheridan Co.: ND Cultural Resources Survey Final Report 1988-1989	4900
1989	Kloberdanz, T.		Index of German-Russian Wrought-Iron Cross Sites in McHenry, McIntosh, Emmons, Ramsey, Logan, Burleigh, McLean, Benson, & Pierce Co. in Central ND	4906
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1989	Whitehurst, J.		BEK Telephone Mutual Buried Cable Line Class III Cultural Resource Inventory, Emmons Co., ND	4733
1990	Chevance, N.		The Standing Rock Sioux Tribal Landfill Sites: Intensive Cultural Resources Inventories of Four Proposed Locations For the Standing Rock Agency, Sioux Co., ND	5332
1990	Chevance, N.		Twenty-Eight Housesite Lease Approvals: Intensive Cultural Resources Inventories of Proposed Projects For the Standing Rock Agency, Sioux Co., ND and Corson Co., SD	5256
1990	Christensen, R.		A Class III Cultural Resource Inventory of Mor-Gran-Sou Electric Cooperatives Proposed Electrical Line Replacement in Southeastern Morton Co., ND	5082
1990	Christensen, R.		KEM Electric Hazelton Line Intensive Cultural Resource Inventory: Sections 7 & 18, T135N, R78W, Emmons Co., ND	5439
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1990	Del Bene, T.		A Cultural Resources Inventory of a Proposed Water Line for the H. Nathan Water Services Contract in McLean Co., ND	5071
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1990	Del Bene, T.		Amendment to a Cultural Resources Inventory of a Proposed Water Line for the H. Nathan Water Services Contract in McLean Co., ND	5237
1990	Good, K.		Interstate 94-Ward Road Interchange, Burleigh Co., A Cultural Resources Inventory Report	5410
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1991	Klinner, D.	J. Borchert	Archeological Investigations Related to the Placement of a Three-Phase Underground Powerline at the Knife River Indian Villages at Stanton, Mercer Co., ND	5402
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1992	Banks, K.		Project BRO-15(6)- A Cultural Resource Inventory For the Replacement of Bridge #124-29, Emmons Co., ND	5863
1992	Banks, K.		When the Well Runs Dry: A Class III Cultural Resources Inventory of Three Homesite Waterlines, Standing Rock Sioux Reservation, Sioux Co., ND	5777
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1992	Larson, T.		Larson-Tibesar Associates, Inc. Cultural Resource Inventory Report for the Hensler South Road Project, Oliver Co., ND	5836
1992	Larson, T.		Results of an Intensive Cultural Resource Inventory Along the Route of Proposed Modifications to Highway 1806, Oliver Co., ND	5837
1992	Lewis, R.		Tour Road, Burleigh Co., ND	5922
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1993	Banks, K.		A Cultural Resources Inventory of the Fort Yates Water Distribution System Improvements, Standing Rock Reservation, Sioux Co., ND	6059
1993	Christensen, R.		ND Highway 1806 Archaeology: Class III Inventory & Evaluative Testing at 32MO141, 32MO291 & 32MO292 Project No. DPC-1-806(018)062	6088
1993	Good, K.		ND Highway 1806 Culvert Placement Project Class III Cultural Resources Survey Project No. Ser-1-806(024)078 3.5 Miles North of Mandan, Morton Co., ND	6312
1993	Good, K.		Project No. F-1-806()064 Improvement and Widening Project Highway of Fort McKeen to Mandan, Morton Co., ND	6138
1993	Good, K.		Square Butte Creek Watershed Project Dam Number 6 Morton Co., ND, Vols. 1 & 2	6195
1993	Kulevsky, A.		American Contracting, Inc's Gravel Pit: A Class III Cultural Resource Inventory Burleigh Co., ND	6161
1993	Kulevsky, A.		American Contracting's Four Gravel Pits: A Class III Cultural Resource Inventory in Morton Co., ND	6209
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1993	Lueck, E.		Cultural Resources Investigation of Proposed Rural Water Pipeline Routes on the Standing Rock Reservation, Sioux Co., ND	6137
1993	Olson, B.		Missouri West Water Systems, Rural Morton Co., Segments, Cultural Resources Inventory Grant and Morton Counties, ND	5952
1993	Peterson, L.	J. Brownell et al.	Falkirk, A Cultural Resource Inventory of the Expanded Mining Area, McLean Co., ND	6259
1993	Stine, E.		Strasburg Exchange Class II Reconnaissance Survey Finley/Bek Buried Cable Route Emmons Co., ND	6000
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1996	Kordecki, C.		Wildlife Development Areas in McLean, Sheridan, & Wells Counties, ND, 1996 Cultural Resources Inventory	6869
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1997	Rothwell, S.		Second Addendum, 1997 & the 1998 Addendum To: Report of Findings from an Intensive Cultural Resource Inventory Conducted on Portions of a Proposed Water Project for the Burleigh Co. Water Users Cooperative	7083
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1998	Wermers, G.	D. Klinner	McClusky Canal Cultural Resources Inventory of Selected Areas in Burleigh & McLean Counties, ND	7494
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2000	Rom, L.		Cultural Resources Inventory of Sioux Falls Tower Specialists Inc's Communication Towers in BA, BI, BL, CS, GV, KD, SK, SN, & MO Counties, ND	7677
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2002	Olson, B.		BEK Kintyre Exchange Upgrade Class II Cultural Resources Inventory, Burleigh, Emmons, McIntosh & Logan Counties, ND	8319
2002	Olson, B.		Braun Intertec Job, No. BGXX-02-524B A Class III Cultural Resources Inventory, Burleigh Co., ND	8172
2002	Picha, P.		Archeological Monitoring of an Interpretive Trail at On-A-Slant Village (32MO26), Fort Abraham Lincoln State Park	8404
2002	Stine, E.	A. Kulevsky	Class III Cultural Resource Inventory, Highway 31 Junction I-94 North To Junction 200A: Morton, Oliver and Mercer Co., ND, NDDOT Project Number: SS-1-031-(010)078	8888
2002	Stine, E.		Class III Cultural Resource Inventory, Highway 36 From Junction 3 to Pingree: Kidder and Stutsman Counties, ND	8350
2002	Stine, E.		Class III Cultural Resource Inventory, Interstate 94 From Highway 25 to Grant Marsh Bridge: Morton Co., ND	8351
2002	Stine, E.		Eight Tree Planting Sites: A Class III Cultural Resource Inventory in Bottineau, Burke, Burleigh, Cass, Grand Forks, Ransom, & Pembina Counties, ND	8391
2002	Stine, E.		Pioneer Construction's Logan Co., ND, Gravel Pit: A Class III Cultural Resource Inventory	8247
2002	Stine, E.		Terry Gravel Pit: A Class III Cultural Resource Inventory, Burleigh Co., ND	8392
2002	Wallace, D.		STATEOP-232 Class III Inventory Report, McLean Co., ND	8185
2002	Wallace, K.		STATEOP-129 Class III Inventory Report, McLean Co., ND	8184
2002	Wermers, G.		Lewis & Clark Interpretive Center/Fort Mandan Trails & Improvement Project, McLean Co., ND: Class III Inventory Results	8395
2003	Bales, J.	S. Wagers et al.	Cultural Resources of the Falkirk Riverdale Third Increment, McLean Co., ND	8707
2003	Bluemle, W.		2003 Living Snow Fence Survey (A) of Five Tree Sites in Emmons and Stutsman Counties, ND: A Class III Cultural Resource Inventory	8711
2003	Bluemle, W.		Almer Borrow Area in Kidder Co., ND: A Class III Cultural Resource Inventory	8681
2003	Bluemle, W.		Bender Pit Expansion: A Class III Cultural Resource Inventory, McIntosh Co., ND	8509
2003	Bluemle, W.		Flanders Borrow Expansion Area in Kidder Co., ND: A Class III Cultural Resource Inventory	8683

Year	First Author	Second Author	Title	Ms #
2003	Bluemle, W.		Highways 3 and 13: A Class III Cultural Resource Inventory, McIntosh Co., ND	8712
2003	Bluemle, W.		Kovash Borrow and Access Road: A Class III Cultural Resource Inventory, Emmons Co., ND	8513
2003	Bluemle, W.		Sunset Shared Use Path: A Class III Cultural Resource Inventory, Morton Co., ND	8691
2003	Christensen, B.		STATEOP-422 Class III Inventory Report McIntosh Co., ND	8646
2003	Dowd, A.	K. Pool et al.	Bismarck-Mandan Metropolitan Planning Organization's Proposed Northern Regional Beltway Alternate: A Class III Cultural Resource Inventory in Burleigh & Morton Counties, ND	8429
2003	Kinney, W.		Phase I Cultural Resource Investigation of a Proposed Tieback Levee & Disposal Areas at the City of Grafton in Walsh Co., ND	8660
2003	Kulevsky, A.		Intersection Improvement Along Highway 3 Class III Cultural Resources Inventory in McIntosh Co., ND, NDDOT Project #HSP-2-003(008)009	8687
2003	Morrison, J.		Hay Creek Park Improvements: A Class III Cultural Resource Inventory, Burleigh Co., ND	8552
2003	Morrison, J.		Lang Gravel Pit: A Class III Cultural Resource Inventory, Burleigh Co., ND	8519
2003	Morrison, J.		Seven Ring Dikes on Two Transmission Lines: A Class III Cultural Resource Inventory in Campbell Co., SD & Burleigh, Kidder and Stutsman Counties, ND	8524
2003	Morrison, J.		Wenning Gravel Pit: A Class III Cultural Resource Inventory, Sheridan Co., ND	8558
2003	Picha, P.	T. Reed	Archeological Monitoring for the Carriage House Renovation, Former Governors' Mansion (32BL17), Burleigh Co., ND	8640
2003	Pratt, D.	E. Palmer et al.	Class III Cultural Resource Inventory: Archaeological Investigations & Standing Structure Reconnaissance Survey for the Proposed Liberty Memorial Bridge Rehabilitation/Construction, Bismarck (Burleigh Co.) & Mandan (Morton Co.) ND	8462
2003	Salisbury, E.	E. Stine	2003 Living Snow Fence Survey (B) of 22 Tree Sites in Adams, Grant, Hettinger, Kidder, McIntosh, Oliver, & Stutsman Counties, ND: A Class III Cultural Resource Inventory	8724
2003	Springer, K.		02-059-095, 098-100, 104, 105 and 119 Pipeline & Tanks Cultural Resources Inventory, Morton Co., ND	8527
2003	Springer, K.		A Cultural Resources Inventory of the 02-059-107 Fenceline Project Morton Co., ND	8534
2003	Stine, E.		Berg Borrow Pit: An Intensive Cultural Resource Inventory in Kidder Co., ND	8601
2003	Stine, E.		Dekrey Borrow Pit: A Class III Cultural Resource Inventory in Kidder Co., ND	8602
2003	Stine, E.		Flanders Borrow: A Class III Cultural Resource Inventory in Kidder Co., ND	8682
2003	Stine, E.		I-94 Dawson to Crystal Springs: A Class III Cultural Resource Inventory in Kidder Co., ND	8714
2003	Stine, E.		Lake Ordway Intake Class II Survey for the Pickett/Schlafmann Pivot Irrigation System in McLean Co., ND	8490
2003	Stine, E.		Lewis and Clark Shared-Use Path, Alternate Route: A Class III Cultural Resource Inventory in Morton Co., ND	8583
2003	Stine, E.		Lewis and Clark Shared-Use Path: A Class III Cultural Resource Inventory in Morton Co., ND	8582
2003	Stine, E.		Lovinger Pit Expansion: A Cultural Resource Inventory in Emmons Co., ND	8502

Year	First Author	Second Author	Title	Ms #
2003	Stine, E.		MV & W Borrow: An Intensive Cultural Resource Inventory in McIntosh Co., ND	8604
2003	Stine, E.		Northern Improvement's McCormick Borrow: A Class III Cultural Resource Inventory in Burleigh Co., ND	8720
2003	Stine, E.		Northern Regional Beltway 2003: A Class III Cultural Resource Inventory in Burleigh & Morton Counties, ND	8708
2003	Stine, E.		Rath Staging Plant: A Cultural Resource Inventory in Burleigh Co., ND	8505
2003	Stine, E.		Shipley Borrow: A Class III Cultural Resource Inventory in Kidder Co., ND	8606
2003	Stine, E.		Werlinger Borrow: A Class III Cultural Resource Inventory in Emmons Co., ND	8659
2003	Wermers, G.		Monitoring West River Telecom Cable Installation, Document #11872, Permit # 1-83-125-7638, WO # 23-300, in Section 24, T144N, R82W, McLean Co., ND	8706
2004	Bleier, A.		Lakewood Borrow: A Class III Cultural Resource Inventory, Morton Co., ND	8901
2004	Bleier, A.		Substation Resurvey: An Intensive Cultural Resource Inventory in Burleigh Co., ND	8899
2004	Bluemle, W.		Govern Gravel Pit: A Class III Cultural Resource Inventory in McLean Co., ND	9060
2004	Bluemle, W.		Lakewood Development Proposed Wetlands: A Class III Cultural Resources Inventory in Morton Co., ND	8838
2004	Bluemle, W.		Oliver-Mercer 2004: A Class III Cultural Resource Inventory, Oliver & Mercer Counties, ND	8840
2004	Borchert, J.		NH-1-200(045)900 Highway 200A Resurfacing Class III Cultural Resources Inventory	8836
2004	Christensen, B.		Apple Creek Road Improvement. Class III Inventory Report Burleigh Co., ND	8768
2004	Christensen, B.		Crying Hill & Fortification Hill Trail Class III Inventory Report, Morton Co., ND	8835
2004	Christensen, B.		Mandan Hill Tower Location Class III Cultural Resource Inventory, Morton Co., ND	8841
2004	Good, K.		Capital Electric Cooperative, Inc. Substation Class III Cultural Resource Inventory Burleigh Co., ND	8777
2004	Hafermehl, L.		Painted Woods Creek Bridge (32ML1027) Survey of a Triple-Span Steel Stringer Bridge on McLean Co., Road 29 over Painted Woods Creek, McLean Co., ND	9036
2004	Hiemstra, D.		Hagens Borrow: A Class III Cultural Resource Inventory of Two Locations in Kidder Co., ND	9000
2004	Hiemstra, D.		Johnson Gravel Pit: A Class III Cultural Resource Inventory in McLean Co., ND	9059
2004	Hiemstra, D.		Olsen Borrow: A Class III Cultural Resource Inventory in Burleigh Co., ND	9014
2004	Kulevsky, A.		Highway 1804 at RP 39.6 Intersection Improvement, Emmons Co., ND	8844
2004	Morrison, J.		Alternate Routes for Pioneer Park to Double Ditch: A Class III Cultural Resource Inventory, Burleigh Co., ND	8897
2004	Morrison, J.		Emmons Co., Bridge, Bridge #15-119-27.0: A Class III Cultural Resource Inventory in Emmons Co., ND	8896
2004	Nodland, B.		Dog-Tired Ranch Tree Plantings: Class III Cultural Resources Inventory of Four CRP Planting Areas, Morton Co., ND	8825
2004	Picha, P.		Archeological Soil Probing for a Reconstructed Walkway Bridge at On-A-Slant Village (32MO26), Fort Abraham Lincoln State Park, Morton Co., ND	8784

Year	First Author	Second Author	Title	Ms #
2004	Springer, K.		The 04-059-007, -013 and -014 Prescribed Grazing System Project Cultural Resources Inventory Morton Co., ND	8878
2004	Stine, E.		46 th Avenue SE: A Class III Cultural Resource Inventory in Mandan, Morton Co., ND	8772
2004	Stine, E.		Capital Electric's Substation in Burleigh Co., ND: A Class III Cultural Resource Inventory	8813
2004	Stine, E.	L. Hafermehl	Century Avenue: An Intensive Cultural Resource Inventory in Bismarck, Burleigh Co., ND	8814
2004	Stine, E.		Lewis and Clark Shared Use Bike Path: A Cultural Resource Inventory in Morton Co., ND	8898
2004	Stine, E.		Pioneer Park to Double Ditch: A Class III Cultural Resource Inventory, Burleigh Co., ND	8812
2004	Wermers, G.		The Unruh Cattle Company Waterlines and Stock Tanks in Mercer Co., ND	8970
2005	Bleier, A.		2005 Forest Land Enhancement Program Sites in Billings, Emmons, Hettinger, and Steele Counties, ND: A Class III Cultural Resource Inventory	9479
2005	Bleier, A.		2005 Living Snow Fence Transportation Enhancement Program Sites in Adams, Dickey, Emmons, Stark & Stutsman Counties, ND: A Class III Cultural Resource Inventory	9296
2005	Bleier, A.		2005 State Wide Forest Land Enhancement Program Sites in Burleigh, Dunn, Emmons, Stark, Stutsman, & Walsh Counties, ND: A Class III Cultural Resource Inventory	9212
2005	Bleier, A.		2005 State Wide Tree Mitigation Sites in Burleigh, McLean, Pembina, Ransom, Stark, & Stutsman Counties, ND: A Class III Cultural Resource Inventory	9197
2005	Bleier, A.		Aipperspach Pit Expansion: A Class III Cultural Resource Inventory in McIntosh Co., ND	9353
2005	Bleier, A.		Alderin Gravel Pit Expansion: An Intensive Class III Cultural Resource Inventory, Mercer Co., ND	9203
2005	Bleier, A.		Mandan Avenue: A Class III Cultural Resource Inventory in Morton Co., ND	9240
2005	Bleier, A.		RSC Project: A Class III Cultural Resource Inventory in McIntosh Co., ND	9351
2005	Bleier, A.		Terry Borrow Area: A Class III Cultural Resource Inventory in Burleigh Co., ND	9347
2005	Burns, C.		Class III Cultural Resource Investigation of a Gravel Pit, South of Wishek, McIntosh Co., ND SW¼ SE¼ Section 23, T132N, R71W, McIntosh Co., ND DOT Project Number: NH-2-003(007)031	9445
2005	Christensen, B.		ND200A RF936 Class III Inventory Report, McLean Co., ND	9518
2005	Christensen, J.		A Class III Intensive Level Pedestrian Cultural Resource Inventory of 35 United States Army Reserve Properties in CO, MT, ND, SD & UT for the 96 th Regional Readiness Command	9363
2005	Hiemstra, D.		Horsehead Road: A Class III Pedestrian Cultural Resource Survey in Kidder Co. ND	9218
2005	Hiemstra, D.		O'Shea Materials Pit: A Class III Cultural Resource Inventory in McLean Co., ND	9372
2005	Klinner, D.		Bridge 30-154-24.0 Replacement Project: A Class III Cultural Resource Inventory, Morton Co., ND	9536
2005	Klinner, D.	J. Morrison	Hannover Road Reconstruction Project: A Class III Cultural Resource Inventory in Oliver Co., ND	9127
2005	Klinner, D.	J. Morrison	Lincoln Lagoon Expansion Project: Results of a Class III Cultural Resource Inventory, & Evaluative Testing of Site 32BL543, Burleigh Co., ND	9170

Year	First Author	Second Author	Title	Ms #
2005	Kordecki, C.		Northern Plains Electric Cooperative 2004 Cultural Resources Inventory of Specific Projects in Benson, Foster, Kidder, Pierce, Rolette, Stutsman, Towner, & Wells Co., ND	9198
2005	Morrison, J.		Nine Power Structures For Minnkota Power: A Class III Cultural Resource Inventory, A Class III Cultural Resource Inventory, Burleigh, Cass, & Stutsman Counties, ND	9333
2005	Morrison, J.	D. Klinner	Northern Plains Commerce Centre: A Class III Cultural Resource Inventory in Burleigh Co., ND & Addendum	9121
2005	Morrison, J.		Washburn Multi Use Trail: A Class III Cultural Resource Inventory in McLean Co., ND	9119
2005	Morrison, J.		Westfield Road Safety Project: A Class III Cultural Resource Inventory, Emmons Co., ND	9110
2005	Salkin, P.		An Archaeological Survey of a Proposed Communications Tower Site Near the Village of Ashley, McIntosh Co., ND	9315
2005	Stine, E.		Addendum B and Addendum C to: Burleigh County Wind Farm: A Class III Cultural Resource Inventory to Burleigh Co., ND	9401
2005	Stine, E.		Addendum to: Oliver County Road: A Class III Cultural Resource Inventory in Oliver Co., ND	9346
2005	Stine, E.		Aggregate's Raile Pit: A Class III Cultural Resource Inventory in McIntosh Co., ND	9454
2005	Stine, E.	D. Hiemstra et al.	Burleigh County Wind Farm: A Class III Cultural Resource Inventory in Burleigh Co., ND	9587
2005	Stine, E.		ND04 Pick City Alt 1: A Class III Cultural Resource Inventory in Mercer Co., ND	9366
2005	Stine, E.	L. Hafermehl et al.	Oliver County Road: A Class III Cultural Resource Inventory in Oliver Co., ND	9324
2005	Stine, E.		Pioneer's Reward Pit Expansion: A Class III Cultural Resource Inventory in Kidder Co., ND	9262
2005	Stine, E.		Weinmann Pit Expansion: A Class III Cultural Resource Inventory in Kidder Co., ND	9357
2005	Stine, E.		Whitman Pit: A Class III Cultural Resource Inventory in Burleigh Co., ND	9114
2005	Wermers, G.		STATEOP-0450 Class III Inventory Report, Kidder Co., ND	9234
2006	Bleier, A.	L. Hafermehl	Highway 83 From Linton to Hazelton: A Class III Cultural Resource Inventory in Emmons Co., ND	9579
2006	Bluemle, W.		Cherry Lake Boat Ramp: A Cultural Resource Inventory for a Proposed Boat Ramp in Kidder Co., ND	9724
2006	Bluemle, W.		Peterson Pit Survey: A Class III Cultural Resource Inventory in McLean Co., ND	9798
2006	Burns, C.		The Auch Well & Pipeline: A Class III Cultural Resource Inventory, Logan Co., ND	9900
2006	Burns, C.		The Glesman Borrow Area: A Class III Cultural Resource Inventory, Logan Co., ND	9829
2006	Burns, C.		The Hahne Borrow Area: A Class III Cultural Resource Inventory, Logan Co., ND	9828
2006	Burns, C.		The Wald Survey, Logan Co., ND: A Class III Cultural Resource Inventory	9735
2006	Burns, C.		Underground Electrical Line Survey: A Class III Cultural Resource Inventory in Emmons & Logan Counties, ND	9688
2006	Burns, W.		The Baumann Water Pipeline Survey, McIntosh Co.: A Class III Cultural Resource Inventory	9875
2006	Burr, J.		McCormick Pit Expansion: A Class III Cultural Resource Inventory in Burleigh Co., ND	9820
2006	Fandrich, B.		A Historic District Evaluation of Main Street in Ashley, McIntosh Co., ND	9944

Year	First Author	Second Author	Title	Ms #
2006	Fandrich, B.		Center to Hannover: A Class III Cultural Resource Inventory of a 6.1-Mile Segment of ND Highway 25 in Oliver Co., ND	9753
2006	Fandrich, B.		Heart River Bridge: A Class III Cultural Resource Inventory of a Plate Girder Bridge & Approach along West Main Street in Mandan, Morton Co., ND	9809
2006	Fandrich, B.		Napoleon South: A Class III Cultural Resource Inventory of a 5.6-Mile Segment of State Highway 3 in Logan Co., ND	9774
2006	Heiner, P.		ADM Borrow Area: A Class III Cultural Resource Inventory, Oliver Co., ND	9624
2006	Heiner, P.		Emmons County Bridge Borrow Area: A Class III Cultural Resource Inventory, Emmons Co., ND	9625
2006	Heiner, P.		Linton Borrow Area: A Class III Cultural Resource Inventory, Emmons Co., ND	9626
2006	Hiemstra, D.		BIS Menoken Alt 1: A Class III Cultural Resource Inventory in Burleigh Co., ND	9614
2006	Hiemstra, D.		BIS Regan Alt: A Class III Cultural Resource Inventory in Burleigh Co., ND	9615
2006	Hiemstra, D.		Bridge #28-170-40.0: A Cultural Resource Inventory for a Proposed Bridge Replacement in McLean Co., ND	9932
2006	Hiemstra, D.		Community Transportation Enhancement Grant Program: A Class III Cultural Resource Inventory in Burleigh, Grand Forks, Ward and Williams Co., ND	9894
2006	Hiemstra, D.		Leno Pit: A Cultural Resource Inventory for a Proposed Gravel Pit in Burleigh Co., ND	9927
2006	Hope, S.	L. Peterson	Falkirk: An Addendum to A Cultural Resource Inventory of the Expanded Mining Area, McLean Co., ND	9704
2006	Klinner, D.		Washburn Municipal Airport: A Class III Cultural Resource Inventory, McLean Co., ND	9868
2006	Kluth, D.		A Cultural Resource Inventory For Three Proposed Structure Foundation Replacements Along the Garrison-Jamestown & Bismarck-Jamestown #1, 230 kV Transmission Lines, Kidder & Stutsman Counties, ND	9866
2006	Kordecki, C.		South Central Regional Water District Main Transmission Pipeline Cultural Resources Inventories, Burleigh & McLean Counties, ND	10068
2006	Kulevsky, A.		Addendum to Oliver County Wind Farm: A Class III Cultural Resource Inventory in Oliver Co., ND: Substation & Transmission Line	9766
2006	Pezzoni, J.	M. Eades	Aberdeen Area Indian Health Service Historic Resources Survey Project Report: Abridged Version for ND State Historic Preservation Office, Mountrail, Benson, Sioux, & Rolette Counties	9914
2006	Springer, K.		The 05-038-002 Soils Trench Cultural Resources Inventory, Burleigh Co., ND	9599
2006	Stine, E.		Capital Electric Cooperative's Four Year Construction Plan: A Class II & Class III Cultural Resources Inventory in Burleigh and Sheridan Co., ND Addendum A	9715
2006	Stine, E.		Division Street Expansion: A Class III Cultural Resource Inventory in Morton Co., ND	9740
2006	Stine, E.		Living Snow Fence Projects: A Class III Cultural Resource Inventory in Adams, Benson, Bottineau, Emmons, Griggs, McLean, Mountrail & Stutsman Counties, ND	9888
2006	Stine, E.		Mor-Gran-Sou's 1806 Phase 3 URD Buried Utility Line: A Class III Cultural Resource Inventory in Morton Co., ND	9607
2006	Stine, E.	A. Kulevsky	Oliver County Wind Farm: A Class III Cultural Resource Inventory in Oliver Co., ND	9675

Year	First Author	Second Author	Title	Ms #
2006	Stine, E.		Price Gravel Pit: A Class III Cultural Resource Inventory in Oliver Co., ND	9664
2006	Wermers, G.		ROW-184 Class III Inventory Report, Logan Co., ND	9907
2006	Wermers, G.		STATEOP-0459 Class III Inventory Report, Oliver Co., ND	9877
2006	Wermers, G.		STATEOP-0460 Class III Inventory Report in Logan Co., ND	9869
2007	Bluemle, W.		Wachter Borrow: A Class III Cultural Resource Inventory in Burleigh Co., ND	10088
2007	Boughton, J.	B. Fandrich et al.	Coteau: A Cultural Resource Inventory in Oliver Co., ND	10077
2007	Boughton, J.	S. Wagers et al.	Falkirk: A Cultural Resource Inventory of 20,000 Acres in McLean Co., ND	10152
2007	Burns, C.		Shared-Use Path Pedestrian Survey: A Class III Cultural Resource Inventory, Morton Co., ND	9966
2007	Burns, C.		The Bachman Material Source Area: A Class III Cultural Resource Inventory, McLean Co., ND	10051
2007	Burns, W.		The Bitz Materials Resource Survey, Logan Co.: A Class III Cultural Resource Inventory	10114
2007	Burns, W.		The Highway 11 Materials Resource Survey, Emmons Co.: A Class III Cultural Resource Inventory	10111
2007	Burns, W.		The Holkup Survey, McLean Co.: A Class III Cultural Resource Inventory	10050
2007	Burns, W.		The Hummel Survey, Emmons Co.: A Class III Cultural Resource Inventory	10146
2007	Curran, M.		Short Format Cultural Resources Inventory for the Verizon Wireless ND01 Turtle Soup Alternate #2A Johnson Behrens South Communication Tower McLean Co., ND T146N, R80W, Sec. 5	10075
2007	Hiemstra, D.		McLean-Sheridan Rural Water System's Washburn Expansion: A Class II & Class III Cultural Resources Inventory in McLean Co., ND	9984
2007	Hiemstra, D.		ND01 DT New Underwood Alt 1: A Class III Cultural Resource Survey for a Proposed Cell Phone Tower & Ancillary Facilities in McLean Co., ND	10085
2007	Kinney, W.		A Proposed McIntosh Co., Borrow Pit, NDDOT Project Numbers NH-2-003(007)031 and SNH-2-013(023)232. A Class III Cultural Resource Inventory Report	10079
2007	Metzger, P.	E. Bank	Short Format Cultural Resources Inventory & Documentation for the Verizon Wireless ND05 McKenna Lake Alternate #3B Weigel West Communication Tower Logan Co., ND T135N, R73W, Sec. 29	10076
2007	Springer, K.		06-057-030 & -031 Tree Planting Project Cultural Resources Inventory, Mercer Co., ND	10001
2007	Springer, K.		The 05-065-043 Fence Project Cultural Resources Inventory, Oliver Co. ND	9954

Test Excavation Projects

Table 5.5 presents a list of manuscripts from test excavation projects within the SMRSU. The list of investigations classed as test excavation has a somewhat shorter history than those for inventory, major excavations, or other work. However, results derived from these explorations have helped lay the cultural chronological foundations for this Study Unit. Many important contributions to regional prehistory have stemmed from this class of inquiry.

Most of the early test excavation projects were directed toward gathering samples of artifacts from earthlodge village sites. Among the first were tests at Sakakawea (32ME11) and Lower Hidatsa (32ME10) in 1965 by Donald J. Lehmer (Lehmer et al. 1978; Wood 1986b:5). Wood (1986b:Table 1) briefly summarizes an array of testing activities at additional Plains Village sites in the Upper Knife-Heart region undertaken in 1968. A great deal of this work has been reported in the form of graduate student theses followed up by condensed articles in refereed journals (e.g., the 1969 testing at Lower Sanger [32OL12] on the Cross Ranch [Stoutamire 1973]).

Beginning in the mid-1970s, the tempo of testing intensified. As indicated in the listing, reporting upsurged beginning in 1978. Test excavation programs were linked to both large- and small-scale cultural resource projects. At the northern end of the Study Unit, much of the reported work was undertaken within the KNRI and at the Cross Ranch. Prominent earthlodge villages including Sakakawea (Ahler et al. 1980), Lower Hidatsa (Ahler and Weston 1981), and Big Hidatsa (Ahler and Swenson 1985b) were tested. Other small Plains Village sites in the KNRI also were the subject of inquiry in the late 1970s and early 1980s (Ahler 1984a, b; Ahler and Mehrer 1984; Ahler et al. 1983; Toom et al. 1985). Late Plains Woodland sites were investigated at Cross Ranch (Ahler et al. 1981, 1982). Limited testing at two earthlodge village sites also was reported by Rippeteau (1981).

Sites outside of the Trench received long-overdue attention, but this attention came at the expense of site destruction associated with more large-scale federally licensed undertakings. This included pioneering efforts with tipi rings (e.g., Deaver 1987; Deaver and Coutant 1984a; Good 1983; Good and Schreiner 1981; Good et al. 1982; Herbort and Anderson 1983; Kjos et al. 1983; Root et al. 1983).

The southern half of the SMRSU witnessed a variety of test excavations during this period. On-a-Slant (32MO26), a Heart River phase earthlodge village near the Missouri-Heart River confluence at the northern end of Fort Lincoln State Park, was tested in 1980 (Ahler 1997). During the next two years, numerous sites along the Northern Border Pipeline transect were tested (Root et al. 1983). One of the many significant Northern Border discoveries was a Middle Plains Woodland Sonota/Besant component at the Wounded Knee site (32EM21) (Root 1983v).

Since 1985, much test excavation work has centered on archeological resources within the area of potential effect of coal mining operations in the northwestern portion of the SMRSU. Stone circle sites are commonly the focus of this testing (cf. Deaver 1987). One example was in Falkirk Permit Area D, containing 32ML148 with 13 rings and 32ML270 with 14 rings and three cairns (Deaver and Coutant 1984b). Both sites were mapped, features were mapped and sampled with 1-x-1-m test excavation units, and ¼-inch screen recovery was employed. Testing at both sites encountered nothing but light-density deposits of chipped stone flaking debris (ca. two items/m²). At 32ML270, two rings and one cairn were tested with five 1-x-1-m units. The sites were evaluated as not eligible for listing in the NRHP due to the paucity of artifacts encountered during testing. Portions of both sites were stripped with a grader after testing with an eye toward discovering and exposing cultural features with high artifact content, but results were negative. The sites were interpreted as representing casual and short-term utilization of the uplands by small scattered groups (ibid.). There was no evidence for possible cultural/temporal affiliation of either site. In some cases such as this where a site is to be destroyed in its entirety, shovel probes might be placed inside and outside all rings to insure that any large and distinct artifact concentrations are detected and salvaged.

In 1993, archeological and geoarcheological investigations were undertaken in the southern portion of 32EM72 (McKibbin et al. 1994). Site 32EM72, located on the east shore of Lake Oahe and overseen by the US Army Corps of Engineers, has been eroded due to wave action. In addition to test excavations, project activities included soil coring, site mapping, cutbank profiling, and surface collection. Investigations identified eight cultural levels in the cutbank. Suggested date ranges are early Late Plains Archaic through the Late Plains Woodland (ibid.:24). The geoarcheological analysis aided in delineation of the horizontal extent of the site. Further, study of the cutbank revealed that the sedimentary origins of strata containing cultural materials were wind deposited during wet seasons and susceptible to erosion during dry seasons (ibid.:35; cf. Clayton et al. 1976).

A proposed materials pit necessitated test excavations at the Nelson site (32ML903) in 1998 (Morrison 1999b). Approximately 95% of the recovered artifacts consisted of debitage, only four pieces were not KRF (ibid.:5,13). Investigators suggest the two identified components date to the Plains Archaic period but cannot be further distinguished based on recovered artifact samples.

During the summer of 2005, geophysical surveys and test excavations were conducted at Boley Village (32MO37). Boley is situated on a second terrace near the confluence of the Missouri River and Square Butte Creek (Ahler 2006:1). The site is identified as one of the traditional villages of the Mandan located in proximity to the mouth of the Heart River. Based on the artifact assemblage and radiocarbon dates, the date range is AD 1500s-1725 (ibid.:74). The geophysical survey included magnetic gradiometry and electrical resistance survey,

supplemented and verified by systematic coring (ibid.:223). Investigators note, “Geophysical survey methods again proved a wonderful tool for exploring settlement structure on a broad scale as well as guiding pinpoint excavations with great efficiency” (ibid.:226). The geophysical survey and coring program revealed complex middens, two crisscrossing fortification ditches (in addition to the surface visible inner ditch), and numerous isolated pit features at the village margin.

The Larson Village (32BL9) was surveyed utilizing geophysical techniques followed by test excavations in 2006 (Mitchell 2007). The site is one of the traditional villages of the Mandan and was likely founded ca. 1500. This village, like Double Ditch State Historic Site, has four fortification systems with the outermost representing the founding community (Mitchell 2007:226). The combined use of geophysical techniques and traditional archeological excavation at this site, as well others, have revealed the complex nature of the traditional Mandan villages near the Heart River, now believed to have been occupied for some 300 years.

Table 5.5: Test Excavation Projects in the Southern Missouri River Study Unit, (as of September 5, 2007).

Year	First Author	Second Author	Title	Ms #
n.d.	Ahler, S.		Final Report for the Faculty Research Grant in Support of Carbon-14 Analysis Associated with the 1982-83 Cross Ranch Archeological Project (UND Account No. 1813-2203-2388), Oliver Co., ND	4015
1965	Wood, W.		Field Notes for Clark's Creek (32ME1), Fort Clark (32ME2), Molander (32OL7), & Bagnell (32OL16), & SHSND Archeological Tests Near Stanton, ND	95
1978	Dill, C.		Preliminary Report: Baukol-Noonan Center Mine Tipi Ring Sites Testing Project- 1978, Oliver Co., ND	307
1978	Griffin, D.	S. Ahler	Testing and Evaluation of Archeological Sites 32ML404 & 32ML406 in McLean Co., ND	647
1978	Loscheider, M.	J. Greer	National Register Evaluation of Two Extended Middle Missouri Village Sites on the Missouri River North of Mandan, Morton Co., ND	930
1980	Ahler, S.	F. Schneider et al.	Test Excavations at the Slant Village Site (32MO26), Fort Lincoln State Park, ND	1693
1980	Robson, L.		Archeological Testing-Knife Point I Area, Section 32 Erosion Control Project; McLean Co., ND	2976
1981	Ahler, S.	C. Ho Lee et al.	Cross Ranch Archeology, Test Excavations at Eight Sites in the Breaks Zone, 1980-81 Program (Contribution No. 154), Oliver Co., ND	3668
1981	Ahler, S.		Preliminary Report Concerning Location and/or Evaluation of Eight Archaeological Sites in Section 9, T143N, R84W, in the Glenharold Mine Area, Oliver Co., ND	2559
1981	Ahler, S.	T. Weston	Test Excavations at Lower Hidatsa Village (32ME10), Knife River Indian Villages National Historic Site	2476
1981	Rippeteau, B.		Lewis & Clark Trail Test Site 32OL258	2414
1981	Rippeteau, B.		Oliver County Lewis & Clark Trail Testing Addendum: Continued Testing at 32OL417/418 (Badcurve Site), 32OL9 (Smith Farm Village Site), 32OL11 (Lower Sanger Village Site), & 32OL421 (Blackwater Site)	2413
1981	Rippeteau, B.		Oliver Co., Lewis & Clark Trail Testing Program	2412

Year	First Author	Second Author	Title	Ms #
1981	Roberson, W.		Northern Border Pipeline Historic Sites Testing Data, Morton, Dunn, McKenzie & Williams Counties, ND	2588
1981	Robeson, W.	C. Parish	Northern Border Pipeline, ND: Historic Sites Testing & Evaluation, Morton, Dunn, McKenzie & Williams Counties	2566
1981	Robson, L.		Addendum Kenneth Miller Irrigation Intake, Morton Co., ND	2996
1982	Ahler, S.	C. R. Falk et al.	Cross Ranch Archeology, Test Excavations at Twelve Sites in the Breaks & Upland Zones, 1981-82 Program (Contribution No. 174), Oliver Co., ND	3669
1982	Ahler, S.		Progress Report Concerning Archeological Investigations at the Cross Ranch & in the Knife River Flint Quarry Area, Dunn Co. & Oliver Co., ND	2750
1982	Good, K.	D. Melton et al.	Cultural Resource Investigations: Archeological Testing & Mapping of Site 32ME519 & Mapping of Site 32ME87, Glenharold Mine, Mercer Co., ND	3230
1982	Good, K.	J. Kjos et al.	Evaluation & Mapping of Five Archeological Sites (32OL116, 32OL121, 32OL122, 32OL123, 32OL124) Center Mine, Oliver Co., ND	2578
1982	Schreiner, M.	D. Melton et al.	Archeological Test Excavation Project: Three Previously Recorded Archeological Sites, Glenharold Mine, Oliver Co., ND	2893
1983	Good, K.		Testing and Evaluation of Seven Archeological Sites Within Glenharold Mine, Oliver Co., ND	3233
1983	Herbort, D.	P. Anderson	Cultural Resource Evaluation & Assessment on the Proposed Falkirk Mining Areas D, F, & G, McLean Co., ND	3120
1983	Root, M.	M. Gregg	Archeology of the Northern Border Pipeline, ND: Vol. 3, Test Excavations, McIntosh, Emmons, Morton, Stark, Mercer, Dunn, McKenzie, & Williams Co., ND	3456
1984	Ahler, S.	E. Mehrer	The KNRI Small Sites Report: Test Excavations at 8 Plains Village Archeological Sites in the Knife River Indian Villages National Historic Site., Mercer Co., ND	3547
1984	Deaver, K.	B. Coutant	Archaeological Site Testing & Evaluation of Site 32ML265, McLean Co., ND	4663
1984	Deaver, K.	B. Coutant	Archaeological Site Testing & Evaluation of Sites 32ML107, 32ML110 and 32ML210, McLean Co., ND	3944
1984	Deaver, K.	B. Coutant	Archaeological Site Testing & Evaluation of Sites 32ML148 and 32ML270 McLean Co., ND	4610
1984	Fredlund, L.	D. Herbort et al.	The Mitigation of Archeological Site 32OL270, Glenharold Mine, ND, Vols. I & II	3246
1984	Greiser, T.	S. Greiser	Report of Findings Resulting from Phase I Mitigation of Adverse Impacts to Cultural Resource Sites in Mine Area I of the Glenharold Mine, Mercer Co., ND, 2 vols.	3834
1984	Greiser, T.		Testing & Evaluation of Site 32ML152 Near Underwood, McLean Co., ND	3365
1985	Deaver, K.		Letter Report: Pulver Mound (32ML112) Site Test Results.	3948
1985	Toom, D.	S. Ahler	Archeological Investigations for Small-Scale Construction Projects at Six Locations in the Knife River Indian Villages National Historic Site (Contribution No. 226), Mercer Co., ND	3888
1985	Toom, D.	S. Ahler et al.	Test Excavations at the Lower Hidatsa West Site (32ME499), Knife River Indian Villages National Historic Site	3553
1986	Borchert, J.		Archaeological Testing at the Five Sites in the Baukol-Noonan Center Mine, Oliver Co., ND.	4104
1987	Deaver, K.		Archaeological Site Testing and Evaluation of Sites 32OL227, 32OL245, & 32OL246, Oliver Co., ND	4579
1987	Fox, R.		Preliminary Testing Evaluation of Proposed Parking Lots #1 & #2: Fort Abraham Lincoln State Park, Morton Co., ND	4227
1987	Hunt, W.		Subsurface Test Excavation at a Water Well Head, Taylor Bluff Site (32ME366), Knife River Indian Villages National Historic Site, ND	4286

Year	First Author	Second Author	Title	Ms #
1989	Borchert, J.		Evaluative Test Excavations at 32MO137, 32MO138 & 32MO140 Morton Co., ND	4796
1989	Picha, P.	D. Toom et al.	1987 and 1988 Archeological Investigations Related To Visitor Center Construction in Area B at the Knife River Indian Villages National Historic Site, Mercer Co., ND	4731
1990	Christensen, R.		A Class III Cultural Resource Inventory of Mor-Gran-Sou Electric Cooperative's Proposed Electrical Line Replacement Reroute South of Huff, Morton County, ND & Auger Probe Testing Southwest of Historic Fort Rice	5083
1990	Good, K.		Veteran's Memorial Cemetery Project Core Sample Testing of the Proposed Waterline Route ND State National Guard Sponsored Project Located Within the Boundary of Fort Abraham Lincoln State Park, Morton Co., ND	5208
1990	Peterson, L.	D. Klinner et al.	Evaluation of 15 Prehistoric & Historic Sites in the BNI Coal, Ltd, Center Mine, Oliver Co., ND	5033
1990	Späth, C.		Square Butte Creek, in Morton Co., Reach Three Project, Phase I Testing	5084
1990	Wermers, G.	J. Borchert	32OL293 & 32OL294 Archaeological Investigations West Sanger Road Oliver Co., ND	5259
1992	Christensen, R.		32MO177: NDDOT 1992 Test Excavations Project #NH-1-006(006)042	5683
1992	Penny, D.	T. Larson	Results of the 1991 Archaeological Testing at the Central Barracks & Granary, Fort Abraham Lincoln, Morton Co., ND	5738
1993	Kinney, W.		A Report on the Results of Test Excavations & Monitoring for the Area of the Proposed Ranger's Residence Additional Fort Abraham Lincoln State Park, Morton Co., ND	6268
1994	McKibbin, A.	M. McFaul et al.	32EM72: Results of Test Excavations on the East Shore of Lake Oahe, Emmons Co., ND	6475
1996	Peterson, L.		Investigation at 32ML872 a Stone Ring Site in McLean Co., ND	6687
1996	Stine, E.		32EM1086 & 32EM1088: Results of Testing for a Bridge Replacement & Road Realignment, Emmons Co., ND	6739
1997	Boughton, J.		BNI Coal Mine: Testing & Evaluation of 32OL286 & 32OL338 Two Prehistoric Sites Southwest of Center, ND.	6940
1997	Christensen, R.		ND Highway 1806 Archaeology: 32MO1040 Evaluation Project No. DPC-1-806(018)062	6984
1997	Kinney, W.		An Additional Proposed Borrow Area for NDDOT Project #SER-1-034(008)039 in Logan Co., ND. A Class III Cultural Resource Inventory Report	7060
1997	Kinney, W.		Class III Cultural Resource Inventory of an Expansion of the Proposed Truck Dump Site & Fuel Delivery System Locations in McLean & Mercer Counties, ND	7061
1997	Kinney, W.		Two Proposed Logan Co., ND Borrow Areas for NDDOT Project #'s SER-1-034(008)039 and SER-1-034(007)025. A Class III Cultural Resource Inventory Report	7063
1997	Kulevsky, A.	E. Stine	32MO27 Evaluative Testing, Morton Co., ND	6870
1997	Rothwell, S.	T. Larson et al.	Results From an Archeological Testing Program Carried Out at 32SL286, 39WW46, 39WW47, 39WW48 and 32EM203, Lake Oahe	6958
1998	Lieb, J.		Testing and Evaluation of 32ML868 & 32ML869, Two Stone Ring Sites Located Southeast of Coal Lake in McLean Co., ND	7240
1999	Morrison, J.		Nelson's Gravel Pit: Limited Testing of 32ML903, McLean Co., ND	7307
2000	Klinner, D.	G. Wermers	Evaluative Testing Program at Site 32OL122, Oliver Co., ND UW #2161	7585
2002	Klinner, D.	G. Wermers et al.	McClusky Canal 2000 Evaluative Test Excavations at Archeological Sites 32BL144, 32BL145, 32BL175, 32ML896, 32ML899 & 32ML901, Burleigh & McLean Co., ND	9061
2005	Bleier, A.	A. Kulevsky et al.	Capital Electric's Substation: Evaluative Testing at 32BL538, Burleigh Co., ND	9132
2005	Bleier, A.		Highway 1804: Evaluative Testing at 32BL233, Burleigh Co., ND	9178

Year	First Author	Second Author	Title	Ms #
2005	Bleier, A.	D. Hiemstra et al.	Verifications Locale South of Mandan: Evaluative Testing of 32MO1378, Morton Co., ND	9058
2005	Butler, T.	T. Chadderton	Archaeological Evaluation of Sites 32MO300, 32MO1374, & 32MO1375 Square Butte Watershed Dam Site Number 6 Morton Co., ND	9124
2005	Peterson, L.	T. Parkins et al.	NRHP Evaluation of 25 Prehistoric Sites in Permit Area NAFK-8405, McLean Co., ND for the Falkirk Mining Company	9307
2005	Stine, E.		Site 32OL371: Results from Evaluative Testing in Oliver Co., ND	9174
2006	Ahler, S.	J. Burns et al.	Geophysical Survey & Test Excavation During 2005 at Boley Village (32MO37), Morton Co., ND	9836
2006	Peterson, L.	S. Hope	Falkirk: Testing and Evaluation of 14 Prehistoric Sites Located within the Northeast (6th) Addition, McLean Co., ND	9780
2007	Stine, E.		Mor-Gran-Sou's Evaluative Testing at 32MO1365 Morton Co., ND	9992

NRHP and NDSHSR

A large number of sites have been listed in the National Register of Historic Places (NRHP) as a result of district nominations for the Knife River Indian Villages National Historic Site and the Cross Ranch. The NRHP eligible Ripple Pasture site (32MO50) is a fortified blufftop village site thought by Will and Hecker (1944) to be Post-Contact Coalescent, but appraised by C. L. Dill as prehistoric Middle Missouri (site form, A&HPD). There are seven sites with prehistoric or protohistoric archeological components in the SMRSU listed in the NDSHSR: Camp Hancock in Bismarck, Fort Mandan upriver from Washburn, Double Ditch (32BL8), Huff (32MO11), Molander (32OL7), Menoken (32BL2), and On-a-Slant (32MO26).

The current list of archeological sites in North Dakota listed in the NRHP is available on the NPS internet website. The following internet links are useful (NPS 2008a, b):

General information and links to specific information: <http://www.nps.gov/nr/>
 Query for sites by State (Location = ND): <http://www.nr.nps.gov/>

Major Excavation Projects

The SMRSU has witnessed more major excavations than any other Study Unit (cf. Lehmer 1971:Appendix 1). Only the Garrison and Knife River Study Units rival this amount of major excavation. Because of the sheer volume of work and the immensity of significant results, a very brief outline is provided here focusing on highlights of these inquiries. Again, more details regarding these results are incorporated in the archeological context discussions below. Further, excellent summary works have been published by Lehmer (1971), Wood (1986), Ahler (1993), and Johnson (2007). As with test excavation projects, most of the early investigations concentrated on the major villages of the Plains Village period and mounds of the Plains Woodland period. More recently, large, impact-mitigating excavation projects have been directed at other types of properties

such as stone feature sites. Table 5.6 lists manuscripts relating to excavation and salvage projects.

Prior to the earliest excavations listed, a number of pioneering archeologists dug at sites in the SMRSU. In 1896, J. V. Brower of the Minnesota Historical Society collected artifacts posited to have been ancestral Mandan near Bismarck (Brower 1904). George Will and Herbert Spinden were active in 1905 (Will and Spinden 1906). Work also was carried out by Will (1924). During the late 1920s and early 1930s, two other archeologists were beginning to investigate sites in the Trench. Alfred W. Bowers (1930, 1948) conducted excavations at a number of Plains Village sites which he attributed to the Mandan or their ancestors. Some of William Duncan Strong's (1940) Northern Plains investigations pertain to lands within the SMRSU. Among the sites he excavated were On-A-Slant Village, Big Hidatsa, Lower Hidatsa, and Sakakawea Village.

Table 5.6: Major Excavation Projects in the Southern Missouri River Study Unit, 5-Sept-2007.

Year	First Author	Second Author	Title	Ms #
1954	Johnston, R.		Field Notes and Photographs From Excavation of Fort Rice (32MO2), Morton Co., ND	954
1955	Wood, W.		Records from 32SI4, the Paul Brave Site	67
1957	Scheans, D.		Battle Porcupine Creek Original Records, Sioux Co., ND	62
1957	Scheans, D.		The Archeology of the Battle-Porcupine Creek Area, Sioux Co., ND.	55
1958	Howard, J.		Report of the Investigation of the Tony Glas Site, 32EM3, Emmons Co., ND	11
1959	Howard, J.		Report of the Investigation of the Huff Site (32MO11), Morton Co., ND.	40
1960	Neuman, R.	J. Hoffman	Field Notes and Photographs Taken From SIRBS Survey Files: 32SI1--Boundary Mounds, 32SI2-Fireheart Creek, 32SI6-Porcupine Creek, and 32SI8-Jerome Standing Soldier	128
1961	Wood, W.		The Huff Site, 32MO11, Excavation Notes from the 1960 Project at Huff	42
1961	Wood, W.		The Huff Site, 32MO11, Oahe Reservoir Area, ND: 1960 Excavations	41
1961	Wood, W. R.		Identified Animal Bone: Paul Brave (32SI4), Huff (32MO11), & Demery (39CO1)	43
1964	Lehmer, D.		Field Notes, Photographs & Feature Forms, 32SI2, Fire Heart Creek Site	65
1964	Lehmer, D.	D. Henning	Fire Heart Creek Site (32SI2)-Field Notes	63
1966	Hoffman, J.		Field Notes and Photographs from 32SI7-Ben Standing Soldier Site	56
1967	Dollar, C.		The Excavations at Fort Abraham Lincoln (1966 Season), A Progress Report, Morton Co., ND	38
1967	Hoffman, J.		Field Notes Vol. 1--32SI19--South Cannonball Site, 1967 Excavation	57
1967	Hoffman, J.		Field Notes Vol. 3--32SI19--South Cannonball Site	59
1968	Hoffman, J.		Field Notes Vol. 2--32SI19--South Cannonball Site	58
1968	Hoffman, J.		Field Notes Vol. 4--32SI19--South Cannonball Site	60
1969	Hoffman, J.		Field Notes Vol. 5--32SI19--South Cannonball Site	61
1969	Johnston, R.		Field Notes, Fort Rice Excavation (32MO2)	957
1970	Partsch, M		Museum Catalog Record No. 1 Through 539, Fort Rice Excavation (32MO2)	955
1970	Partsch, M		Museum Catalog Record No. 540 Through 1063, Fort Rice Excavation (32MO2)	956
1972	Dill, C.	F. Zimmerman	Lewis & Clark's Amahami Indian Village, Final Report National Endowment for the Humanities Youth Grant, Mercer Co., ND	31

Year	First Author	Second Author	Title	Ms #
1975	Dill, C.		Hidatsa Culture History: An Identification of Problems, Mercer Co., ND	3839
1975	Thiessen, T.		The Bendish Site (32MO2), Morton Co., ND	39
1976	Franke, N.		Double Ditch Salvage on May 27/May 28, 1976, Burleigh Co., ND	4242
1978	Ahler, S.		White Buffalo Robe Village Project, Progress Report No. 1, Completion of Fieldwork, Mercer Co., ND	2221
1978	Good, K.	J. Hauff	Archaeological Test Excavation at the Anderson Tipi Ring Site (32ML111), McLean Co., ND: A Cultural Resource Study in Central ND	552
1979	Ahler, S.		Archaeological Field Research in the Knife River Indian Villages National Historic Site, Summer 1979, Mercer Co., ND	934
1979	Robson, L.		Winona Island Burial Recovery, Emmons Co., ND	953
1980	Lee, C.		The Archeology of the White Buffalo Robe Site, Vol. I, Mercer Co, ND	2526
1980	Lee, C.		The Archeology of the White Buffalo Robe Site, Vol. II, Appendices A-F, Mercer Co., ND	2527
1980	Lee, C.	S. Ahler	White Buffalo Robe Village Project Progress Report No. 7, Continuation of Laboratory Work December 16, 1979-March 15, 1980, Mercer Co., ND	963
1980	Snortland, J.		Salvage of Cultural Resources Uncovered by the Ft. Clark Road Project (SHDSOS-1-086(01)000), Mercer Co., ND	1050
1981	Ahler, S.		Archeological Research in the Knife River Indian Villages National Historic Site, 1980-1981. Progress Report on Laboratory Analysis, September 7, 1980 through May 31, 1981, Mercer Co., ND	1853
1981	Anonymous		Robert Zahn Site (32SI3) Burial Recovery (Appendix 4)	2657
1982	Sperry, J.		The Havens Site (32EM1) 1967 & 1968 Excavations, Emmons Co., ND	2553
1983	Hudak, G.		Archeology of the Northern Border Pipeline, Beaver Creek: Vol. 5, An Archeological Mitigation of the Beaver Creek Site, 32EM49, Emmons Co., ND	3459
1984	Dill, C.		Excavation of an Outhouse Pit, First and Thayer, Bismarck, Burleigh Co., ND	3471
1984	Gnabasik, V.		Historic Burial Recovery at Site 32MO3, Oahe Reservoir, Morton Co., ND	3479
1984	Gnabasik, V.		Human Mandible and Burial Recovery at Site 32MO12, Oahe Reservoir, Morton Co., ND	3477
1984	Griffin, D.		South Cannonball (32SI19): An Extended Middle Missouri Village in Southern ND	3470
1985	Deaver, K.		Mitigation of the Anderson Tipi Ring Site (32ML111), McLean Co., ND (3 volumes).	3949
1985	Gnabasik, V.		Reburial of Three Historic Burials Recovered from the Fort Rice Area, Oahe Project, in the Fort Rice (Military) Cemetery, Morton Co., ND.	3991
1986	Deaver, K.		Preliminary Report Mitigation of Site 32ML107.	4205
1986	Gnabasik, V.		Burial Recovery at Site 32MO12, Oahe Project, Morton Co., ND.	4008
1986	Gnabasik, V.		Burial Recovery at Site 32MO4, Oahe Project, Morton Co., ND.	4010
1986	Gnabasik, V.		Historic Burial Recovery at Site 32SI5, Oahe Project, Sioux Co., ND.	4009
1987	Deaver, K.	S. Deaver	Dancing Grouse, A Tipi Ring Site in Central McLean Co., ND Volume 1: Narrative	4600
1988	Ahler, S.		Archeological Mitigation at Taylor Bluff Village (32ME366), Knife River Indian Villages National Historic Site	4503
1992	Olson, B.		Missouri West Water Systems Cultural Resources Inventory Morton Co., ND	5930
1992	Späth, C.		Stone Circle Site 32OL301, BNI Coal Center Mine, Oliver Co., ND: Data Recovery	5800
1994	Stine, E.		West River Telecommunications Excavation at 32ME787 Mercer Co., ND	6394
1996	Peterson, L		Data Recovery at a Stone Ring Site in the Southeast Island Permit Area, McLean Co., ND	7110
1997	Ahler, S.		Archaeology of the Mandan Indians at On-A-Slant Village (32MO26), Fort Abraham Lincoln State Park, Morton Co., ND	6920

Year	First Author	Second Author	Title	Ms #
2000	Abel, E.		Archaeological Investigation of a Cavalry Stable at Fort Abraham Lincoln (32MO141) Fort Abraham Lincoln State Park Mandan, Morton Co., ND	7742
2000	Ahler, S.	K. Kvamme et al.	New Geophysical & Archaeological Investigations at Huff Village State Historic Site (32MO11), Morton Co., ND	7683
2002	Ahler, S.		Prehistory on First Street NE The Archaeology of Scattered Village in Mandan, Morton Co., ND	8175
2003	Ahler, S.	G. Crawford et al.	Archaeological Investigations During 2001 & 2002 at Double Ditch State Historic Site, Burleigh Co., ND	8719
2003	Ahler, S.		Archaeology at Menoken Village, A Fortified Late Plains Woodland Community in Central ND, Burleigh Co.	8475
2003	Hunt, W.	S. Ahler et al.	Archeological Investigations at Fort Clark State Historic Site ND: 1973-2003 Studies at the Fort Clark and Primeau Trading Posts (32ME2)	8530
2003	Morrison, J.	L. Hafermehl	Main Avenue Monitoring: A Report on Cultural Resources Recorded During the Reconstruction Along Main Avenue in Bismarck, Burleigh Co., ND	8465
2004	Ahler, S.		Archaeological Investigations During 2003 at Double Ditch State Historic Site, Burleigh Co., ND	8858
2004	Pouley, J.	L. Peterson	BNI Coal: Data Recovery & Mitigation at the Mosbrucker Rings Site (32OL338), Oliver Co., ND	8857
2004	Toom, D.	M. Jackson et al.	Elbee Village Site (32ME408) 2003 Archeological Test Excavations Knife River Indian Villages National Historic Site Mercer Co., ND	9008
2005	Ahler, S.	J. Burns et al.	Archaeological Investigations During 2004 at Double Ditch State Historic Site, Burleigh Co., ND	9583
2005	Butler, T.	T. Chadderdon	Archaeological Mitigation of Site 32MO390 Square Butte Watershed Dam Site Number 6 Morton Co., ND	9141
2006	Hope, S.	L. Peterson	Falkirk: Data Recovery at Five Prehistoric Sites in Permit Area NAFK-8405, McLean Co., ND	9882

Shortly thereafter, Thad Hecker was the first to excavate a long rectangular Plains Village house in 1938-1939 at Huff (32MO11) (Wood 1967:28). Later excavations were carried out at this North Dakota State Historic Site in 1959-1960. The two decades following the end of WWII saw the expansion of large-scale salvage excavations at sites soon to be inundated by rising reservoir pools. Many of these projects were undertaken by SIRBS personnel along with archeologists from at least 10 other institutions (Lehmer 1971:193; Thiessen 1999). As indicated in the tabular listing, many earthlodge village sites were dug during this time. Lehmer presented the major synthesis of the results of this salvage work in his *Introduction to Middle Missouri Archeology*. More recently, Ahler (1993) presents a synthesis and working model for the taxonomic framework of the Plains Village tradition in the upper Knife-Heart region of the Middle Missouri subarea. In addition, Johnson (2007) reviews and presents new information regarding the chronology of Middle Missouri Plains Village sites.

Plains Woodland burial mounds were another site type investigated by major excavations in the 1960s. Henning (1965) reported on Alkire Mound (32SI200) and Neuman (1975) discusses Boundary Mound (32SI1) and Schmidt Mound (32MO20).

From 1980 to 1989, only two major excavations were undertaken at Plains Village sites in the valley. Lee (editor, 1980) coordinated the reporting for the

multiple component White Buffalo Robe site (32ME7). Excavations at Taylor Bluff Village (32ME366) are reported by Ahler (1988). In contrast, large-scale mitigation projects have taken place at three stone circle sites outside of the valley at 32OL270 (Fredlund et al. 1984), Anderson Tipi Ring site (32ML111) (Deaver 1985), and Dancing Grouse (32ML107) (Deaver and Deaver 1987).

Dancing Grouse (32ML107) is a tipi ring site covering approximately nine hectares on three small ridges overlooking Coal Lake Coulee. It has around 50 rings, and excavations were conducted at 11 of those plus two non-feature areas, totaling 421 m². Circular units were used. Soil phosphate testing and phytolith testing were employed. There are posited to have been at least seven Besant ring occupations dating between 1041 and 1212 RCYBP (ca. AD 700-900). This site is across the coulee from 32ML111, the Anderson Tipi Ring site, and also near 32ML112, the Pulver Mound site.

Since the 1990s, major excavation projects have been reported for several Plains Village sites along the Missouri River. Additionally, as documented, there have been more geophysical surveys at archeological sites in the SMRSU than in any other study unit. The following discussion briefly mentions some salient issues of the investigations. The reader is directed to the referenced materials for detailed discussions of the research and findings.

On-a-Slant Village (32MO26), a Mandan earthlodge village near the mouth of the Heart River, is located within the boundaries of the present-day Fort Abraham Lincoln State Park. Analysis of excavations in 1980 reveal three time periods dating to ca. AD 1575-1785. Changes in the artifact assemblage show how village occupants adapted to the rapidly changing cultural dynamics along the Missouri River. These changes included: (1) simpler ceramic decorative techniques and an increase in Knife River ware; (2) a reliance on local lithic resources; and (3) a more complex subsistence strategy comprising a wider variety of cultigens and wild plants and more emphasis on alternative resources other than bison, such as medium-sized mammals (e.g., deer and pronghorn antelope), fish, river mussels, and fur-bearing animals (Ahler 1997:ii).

Investigations at Huff Village (32MO11) have focused on archeological research supplemented by geophysical investigations (Ahler and Kvamme 2000). Fieldwork included geophysical survey (magnetometer survey and electrical resistance), systematic coring, and excavation. Upon project completion researchers concluded, “[W]e can note that this geophysical study is a very important test case and pilot study in the application of such methods in Plains Village settings. We have gained much new technical information about the interpretation of magnetic and resistance anomalies that can readily be extended to old data sets and new archaeological contexts” (ibid.:118). All of the methods incorporated into the investigation at Huff increased the knowledge base regarding the arrangement of the settlement and the architecture within it. Moreover, acquisition of six radiocarbon dates from charred corn and corncob

allowed researchers to narrow the range of occupation to AD 1443-1465 (ibid.:65).

The Scattered Village site (32MO31), located in downtown Mandan, was uncovered during a transportation project with federal funding. Objectives of the excavation included: (1) the emergency salvage program, (2) determination of cultural affiliation, (3) determination of the site's relationship to oral traditions, (4) chronological placement of the site, (5) tracking cultural and technological change over time, and (6) clear presentation of data for future comparative study and public education (Ahler 2002:ii). As reported, either a Mandan or Hidatsa cultural affiliation is consistent with oral traditions and the ceramic assemblage. Radiocarbon dates and Euroamerican trade items provide an approximate date range of late AD 1500s-1700 (ibid.).

Since archeologists began re-investigating Double Ditch State Historic Site (32BL8) in 2001, several volumes of research and analyses have been produced (Ahler 2003b, 2004, 2005). The multi-year, multi-disciplinary project includes four seasons of geophysical surveys (Kvamme 2004), a limited subsurface coring program, and three summers of excavation. The geophysical surveys, including magnetometry and resistivity methods, revealed the subsurface presence of Ditches 3 and 4, fortification systems previously not known to archeologists. Fieldwork in 2001-2002 included: (1) re-excavation of early 20th century excavations, (2) sampling and dating of Mound B, (3) cross-sectioning and dating of Ditches 3 and 4, (4) sampling and dating of pit features at the village periphery, and (5) cross-sectioning of a house feature (Ahler 2003b:261). Continuing in 2003, project activities included: (1) deep testing of 13 mounds in proximity to Ditch 2, (2) cross-sectioning Ditch 4, and (3) sampling and dating deposits at a potential rectangular house location (Ahler 2004:315). Finally, tasks of the 2004 field season included: (1) excavation of pit features at the center and periphery of the village, (2) determination of the subsurface shapes of Ditch 2 through coring and Ditch 4 by excavation, (3) excavation of the "zone of obliteration" outside Ditch 2, and (4) elucidation on the differences between house depressions and large borrow areas within the confines of Ditch 2 (Ahler 2005:327). Five periods, spanning AD 1490-1785, have been delineated for the site through analysis of the artifact assemblage and numerous radiocarbon dates (ibid.:329). Combining traditional excavation techniques with newer technologies have allowed archeologists to dramatically alter their interpretations of Double Ditch State Historic Site (Ahler and Geib 2007:442-451; Kvamme 2007:210-221; Kvamme and Ahler 2007:539-561).

In 1964, Menoken Village (32BL2) was designated as a National Historic Landmark based on the assumption that it was the location of initial contact between Euroamericans and the Mandan. Recent radiocarbon dating has disproved that assumption and revealed that the site actually was occupied ca. AD 1200 (Ahler 2003a:565). Located along Apple Creek, Menoken State Historic Site (32BL2) is smaller than other fortified earthlodge villages but recent archeological investigations and geophysical surveys have provided substantial

information concerning the transition from the Late Woodland period (probably Sonota complex) to the Plains Village period (ibid.:574). It appears the 200 or so occupants of Menoken Village were hunter-gatherers who lived a semisedentary lifeway (ibid.:574). As Ahler succinctly writes, "It is clear that Menoken Village is a very unusual archaeological location, documenting what was perhaps the climax of a semisedentary hunting-gathering tradition on the Northern Great Plains" (ibid.:575). The results of the 1998 and 1999 investigations at Menoken have more recently been published in Ahler (2007:15-31), Krause (2007:32-40), and Kvamme (2007:210-221).

Hunt (2003) and Ahler (2003) review and analyze intermittent investigations at the Fort Clark State Historic Site (32ME2) from 1973-2001. The site includes two historic fur trade posts (Primeau's Post and Fort Clark) and archeological remnants of Mandan (AD 1822-1861) and Arikara (AD 1838-1861) earthlodge villages (ibid.:1). As with other village sites, geophysical surveys have played a significant role in creating a more detailed picture of the site using relatively non-invasive procedures (Kvamme 2001; Kvamme 2007:210-221).

In 2003, archeological excavations and geophysical surveys were conducted in the northern portion of the Elbee site (32ME408) within the Knife River Indian Villages National Historic Site (Toom et al. 2004). A Plains Village site, Elbee is located near the confluence of the Knife and Missouri rivers. Recovered artifacts were contained within the plowzone and subsurface features located by geophysical survey (e.g., pits and hearths) (ibid.:6.1). Investigators suggest these features are associated with house remains whose surficial signatures have been destroyed by agricultural activities. The northern portion of the Elbee site, consisting of a single Plains Village component, has been radiocarbon dated to the mid-AD 1500s (Scattered Village complex) (ibid.). Going forward, investigators encourage archaeological and geophysical examination of the southern portion of the site.

Site 32MO390 was discovered during construction of the Square Butte Watershed Dam Site Number 6, north of Otter Creek. Archeological fieldwork included pedestrian survey, geomorphological assessment of the creek valley, geophysical survey, and excavation. The multi-component site dates to the Early Plains Village and Late Plains Village periods, with an unknown date for the buried component in the A1 horizon (Butler and Chadderon 2005:i). Investigators suggest that 32MO390 may have been a field camp or processing site related to larger village sites (32MO40 and 32MO41) in the area (ibid.).

Other Work

The dramatic ethnohistory of the SMRSU has been captured in the journals of early explorers, trappers, and traders. The first to leave a written record was La Verendrye (Smith 1980). Others include John Evans and James McKay from 1795-1797 and David Thompson in 1798 (Wood 1977, 1981, 2003; Wood and Thiessen 1985).

The most famous early visitors to the SMRSU after the turn of the 18th century were Lewis and Clark (Jenkinson 2003; Moulton 1983-2001, vol. 1-13; Reid 1988). During the next half century, a host of notable characters made their way to the Upper Missouri. Fortunately, artists Karl Bodmer and George Catlin captured some of the essence of this country and its native peoples.

During the field seasons of 1996 and 1997, archeologists undertook monitoring of a transportation project on ND Highway 1806 near the confluence of the Heart and Missouri rivers. Known prehistoric sites included 32MO291, 32MO292, 32MO335, 32MO359, and 32MO1043 (Ahler et al. 2000). The monitoring showed that although sites along such roads usually are disturbed, cultural historic information still can be gleaned from artifacts and/or features. The information is beneficial for comparative studies in the Heart River area.

Table 5.7: List of Other Work in the Southern Missouri River Study Unit, 5-Sept-2007.

Year	First Author	Second Author	Title	Ms #
n.d.	Anonymous		The Paul Brave Site, 32SI4, Xerox Catalog	64
n.d.	Hecker, T.		List of Known Earth Lodge Village Sites Above the Grand River	94
n.d.	Henning, D.		The Alkire Mound (32SI200)	4482
n.d.	Hoffman, J. J.		Artifact descriptions for the Ben Standing Soldier site, 32SI7. Unfinished manuscript on file, National Park Service, Lincoln, NE	2520
n.d.	Rose, J.	M. Kay et al.	Analysis of Human Osteological Remains Multi-County Areas, Emmons, Sioux, Bowman & Mercer Counties, ND	2755
1951	Mattison, R.		Report on Historical Aspects of the Garrison Reservoir Area, Missouri River	109
1953	Mattison, R.		Report on Historic Sites of the Oahe Reservoir Area, Missouri River	108
1955	Wood, W.		Field Notes and Specimen Catalogs for 32SI3	212
1962	Paulson, N.		Sitting Bull Excavation, Sioux Co., ND	4720
1965	Anonymous		Historic Sites Under the Authority of the State Historical Society of ND As Established by The 39 th Legislative Assembly	2011
1966	Mallory, O.		An Appraisal of the Archeological Resources of the Garrison Diversion Project, ND	96
1972	McGonagle, R.		Deapolis Village Site (32ME5): Data on Metal Projectile Points in the Collections of the ND State Historical Society Museum, Ralph Thompson & Roger Holkesvik	26
1975	Cash, J.		Notes on the Architectural Significance of Fort Lincoln, Burleigh Co., ND	6076
1975	National Park Service		Draft Environmental Statement: Proposed Establishment of Knife River Indian Villages National Historic Site, Mercer Co., ND	2497
1977	Ahler, S.		A Program for Investigation of the Archeological Resources of the Knife River Indian Villages National Historic Site, Mercer Co., ND	104
1977	Econ, Inc.		Interpretive Guide: Archaeological Photo Interpretation & Feasibility Study of a Five Co., Area in West Central ND Using Small Scale (1:80,000) Aerial False Color Infrared	79
1977	Wood, W.		Historical Resources of the Knife River Indian Village National Historic Site, Mercer Co., ND	101
1979	Calabrese, F.		Knife River Indian Villages National Historic Site, Rocky Mountain Inventory of Archeological Sites Program, Mercer Co., ND	976

Year	First Author	Second Author	Title	Ms #
1979	Lee, C.	S. A. Ahler	White Buffalo Robe Village Project Progress Report No. 6, Continuation of Laboratory Work September 16-December 15, 1979, Mercer Co., ND	936
1979	Lee, C.	S. Ahler	White Buffalo Robe Village Project Progress Report No. 5, Continuation of Laboratory Work June 16, 1979-September 15, 1979, Mercer Co., ND	959
1979	Taylor, J.		Human Skeletal Material From the Larson Salvage Project, Burleigh Co., ND	3203
1980	Ahler, S.	A. Swenson	Analysis of Surface Collections from the Poly (32ME407), Stanton Ferry (32ML6), & Stiefel (32ME202) Archaeological Sites	961
1982	Snortland, J.		Inventory & Archeological Assessment of the State Historical Society of North Dakota's State Historic Sites	1814
1982	Taylor, J.		Preliminary Report on the On-A-Slant Village Replica Earthlodge Burn Project Morton Co., ND	3771
1983	Ahler, S.	C. Falk et al.	Taylor Bluff Site (32ME366), Mercer Co.	5399
1983	Billeck, W.		Stone Ring Contemporaneity: Evaluation of Two Sites By Ring Distribution, Artifact Density Patterning, & Other Methods, Emmons & Morton Co., ND	3220
1983	Dill, C.		32ME8: Report on Construction Damage, Summer 1983, Mercer Co., ND	3122
1983	Greiser, T.	S. Greiser	Mitigation Plan for Cultural Resource Sites in Mine Area I of the Glenharold Mine, Mercer Co., ND	3124
1983	Hoffman, J.		An Investigation of Menoken Indian Village Historic Landmark, Burleigh Co., ND	2891
1983	Loendorf, L.		Archaeological Site Evaluations For the Proposed Ottertail Transmission Line: Underwood to Harvey, McLean & Sheridan Co., ND.	4155
1983	National Park Service		Cultural Resource Management Plan Knife River Villages National Historic Site, Mercer Co., ND	3222
1983	Reiten, J.		Quaternary Geology of the Knife River Indian Villages National Historic Site, Mercer Co., ND	3245
1983	Sluss, J.		Icons on the Prairie, Emmons & McIntosh Co., ND	3219
1983	Sprunk, L.		Former Governor's Mansion State Historic Site, Burleigh Co., ND	4872
1984	Perry, L.		Temporal Analysis of Cultural Materials Contained in a Late Historic Privy, 233 North First Street, Bismarck, Burleigh Co., ND	3472
1984	Richert, S.		Analysis of Flaking Debris from Selective Features at Slant Village, 32MO26.	3946
1984	Toom, D.	A. Simon	Interim Report on Archeological Mitigation Activities at the Taylor Bluff Site (32ME366), Knife River Indian Villages National Historic Site: September 1983-March 1984	3293
1985	Gnabasik, V.		Monitoring Installation of Overhead Electric Line Poles by KEM Electric to Grenz Irrigation Pump, Section 36, T134N, R79W, Oahe Project, Emmons Co., ND	3980
1985	Perry, L.		Evaluation of the 1966-67 Archeological Testing Program, Fort Abraham Lincoln State Park, Morton Co., ND	4128
1986	Fox, R.		Custer House Archaeological Project-Field Notes, Morton Co., ND	4187
1986	Gnabasik, V.		Historic Burial Recovery from the Fort Rice Area & Reburial Arrangements, Oahe Project, Morton Co., ND	4163
1986	Gnabasik, V.		On-Site Meeting with Mayo Construction Regarding Potential Gravel Sources on Oahe Project Lands in Section 36, T134N, R79W, Emmons Co., ND	3997
1987	Anonymous		Havens Archeological Site (32EM1) Bank Stabilization Missouri River Oahe Dam-Lake Oahe South Dakota and ND	6426
1987	Borchert, J.	L. Loendorf	32OL285 & 32OL290 Evaluation and Significance	4671
1987	Fox, R.		The 1986 Custer House Site Archaeological Project, Morton Co., ND	4658
1987	McLaughlin, C.		Knife River Indian Villages Archeological Incident Report: Replace Buried Telephone Cable, Mercer Co., ND	4485
1987	Snortland, J.		Boley Site (32MO37) And Mandan Burial Customs	4325

Year	First Author	Second Author	Title	Ms #
1988	Good, K.		1987 Custer House Excavation, Morton Co., ND	4656
1988	Johnson		Ceramics from 39CO14 & 39WW203	--
1988	Reid		Lewis and Clark in North Dakota	--
1989	Ahler, S.	P. Picha et al.	Impacts of Prescribed Burning on Archeological & Biological Resources of the Knife River Indian Villages NHS, Mercer Co., ND	5090
1989	Good, K.	G. Anderson	Commissary Storehouse Exterior Structure Report Fort Abraham Lincoln, Fort Abraham Lincoln State Park, Morton Co., ND	4899
1989	Penny, D.	T. Larson	Results of a Cultural Resource Inventory of Six Farmers Home Administration Parcels, Stark, Sioux, Mountrail, Williams, Morton, & Burleigh Counties, ND	4911
1989	Thiessen, T.		An Archeological Field Survey of Seven Borrow Sources in Mercer, Oliver, and McLean Counties, ND	4933
1989	Vivian, J.		Wilton, Burleigh Co., ND, Historic Coal-Mining District	5045
1990	Good, K.		Northern Pacific Railroad Overhead Bridge (BNRR Over-head Bridge) Mandan Railroad Viaduct Spanning the BNRR South of the Intersection of Main St West and 7 th Ave City of Mandan, Morton Co.	5232
1990	Haury, C.		In the Footsteps of T. H. Lewis: Retracing of the Northwestern Archaeological Survey in Oliver, Benson, Grand Forks, Pembina, Ransom, Richland, LaMoure, Morton, Stutsman, & Barnes Counties, ND	5322
1990	Thiessen, T.		An Archeological Field Examination of an Imported Borrow Source on the Kathleen Windhorst Property Near Fort Clark, Mercer Co., ND	5075
1991	Driscoll, P.	M. Gregg et al.	Wildlife Development Area Surveys in Nelson, Ramsey, Benson, Towner, McLean, Burleigh, Cavalier, Sheridan, Stutsman, & Wells Counties, ND	5303
1991	Emerson, A.	R. Fox, Jr.	The Archaeology Program at the Central Barracks Site Fort Abraham Lincoln State Park, Morton Co., ND: Results of the 1989 Investigations	5546
1991	Fox, R.	A. Emerson	Results of the 1990 Commissary Mitigation Archaeology Investigations, Fort Abraham Lincoln State Park (32MO141), ND	5648
1991	Hufstetler, M.	L. Johnson	Historic Structures Report: Three Buildings at Fort Abraham Lincoln, Morton Co., ND	5505
1991	Thiessen, T.		A Summary of Archeological Investigations Conducted In Conjunction With Development of a Permanent Visitor Center/Administrative Facility at the Knife River Indian Villages National Historic Site, ME, ML, & OL Counties, ND	5742
1992	Good, K.		Century Avenue Reroute Project Century Avenue (Century to Tyler Parkway) Burleigh Co., ND (City of Bismarck)	5968
1992	Rose, J.		Paint Analysis: Fort Abraham Lincoln Central Barracks, Granary Building, Morton Co., ND	6056
1993	Danielson, D.		A Summary of Monitoring the Removal of the Oberlander Road at Knife River Indian Villages National Historic Site, Mercer Co., ND	6214
1993	National Park Service		The Phase I Archeological Research Program for the Knife River Indian Villages National Historic Site, Pt. II: Ethnohistorical Studies in Mercer Co., ND	7150
1993	National Park Service		The Phase I Archeological Research Program for the Knife River Indian Villages National Historic Site, Pt. III: Analysis of the Physical Remains in Mercer Co., ND	7151
1993	National Park Service		The Phase I Archeological Research Program for the Knife River Indian Villages National Historic Site, Pt. IV: Interpretation of the Archeological Record in Mercer Co., ND	7152
1993	National Park Service		The Phase I Archeological Research Program for the Knife River Indian Villages National Historic Site, Pt. I: Objectives, Methods, and Summaries of Baseline Studies in Mercer Co., ND	7149
1993	Olson, B.		Missouri West Water Systems, Monitoring of Reroute Around the Boley Site (32MO37) Cultural Resources Inventory Morton Co., ND	5951

Year	First Author	Second Author	Title	Ms #
1993	Williams, J.		Unidentified Human Skeletal Remains Recovered from the Perimeter of the Bole Site (32MO37), Morton Co., ND	6074
1994	Banks, K.		A Cultural Resources Inventory of Three Change-Orders, Standing Rock Rural Water Supply System, Sioux Co., ND	6340
1994	Stine, E.	A. Kulevsky	Four Cities in ND: A Class I Cultural Resource Survey Records & Files Search of Fargo, Grand Forks, Mandan, & Minot, ND	6240
1994	Stine, E.		Motsiff Site 32MO29 Monitoring: Morton Co., ND	6392
1994	Williams, J.		Summary Report: Unidentified Human Skeletal Remains Recovered from Site 32ML850, Falkirk Mine, McLean Co., ND	6411
1994	Williams, J.		Summary Report: Unidentified Human Skeletal Remains Recovered from the Baker Site (32ME787), Mercer Co., ND	6410
1994	Winham, P.	W. Wood et al.	Village Sites of the Middle Missouri Subarea AD 1000-AD 1887 National Historic Landmark Theme Study	7231
1995	Johnson, L.		Historic American Buildings Survey John Engberg House Mitigation HABS No. ND-XX, McLean Co., ND	5649
1996	Stine, E.		Master Monitor: Monitoring of a Telecommunication Installation Along the Ft. Lincoln By-Pass, Morton Co., ND	6708
1997	Williams, J.		Summary Report: Human Skeletal Remains Recovered at the SR 1806 Bypass Survey Area, Morton Co., ND (6-28-96)	7039
1997	Williams, J.		Summary Report: Human Skeletal Remains Recovered at the SR 1806 Bypass Survey Area, Morton Co., ND (9-6-96)	7040
1998	Hafermehl, L.	K. Kirkey et al.	Fort Abraham Lincoln Cavalry Stable Historic Structures Report, Morton Co., ND	7315
1998	Kvamme, K.		Geophysical Explorations at Flaming Arrow Village (32ML4), McLean Co., ND 1997 Field Season	7234
1998	Williams, J.		Analysis of Human Skeletal Remains Recovered from 32BL146, Burleigh Co., ND	7098
1998	Williams, J.		Analysis of Human Skeletal Remains Recovered from Site 32BL118, Burleigh Co., ND	7194
1998	Williams, J.		Analysis of Human Skeletal Remains Recovered from the Double Ditch Site (32BL8), Burleigh Co., ND	7097
1998	Williams, R.		Ethnohistory of a Fur Trade Community: Life at Fort Clark Fur Trade Post, 1830-1860	7500
1999	Kvamme, K.		Preliminary Findings of Geophysical and Related Explorations at Menoken Village State Historic Site (32BL2) Burleigh Co., ND 1998 Field Season	7339
1999	Williams, J.		Analysis of Human Skeletal Remains Recovered from Scattered Village (32MO31), Mandan, ND	7313
2000	Ahler, S.	C. Graham et al.	Report of Archaeological Investigations Along Highway 1806 Morton Co., ND	7617
2000	Schliesman, R.		An Historic Structures Report for the Post Surgeon's Quarters at Camp Hancock Bismarck, Burleigh Co., ND	7785
2000	Scott, D.		Documentation of an Exposed Cache Pit at Big Hidatsa Village (32ME12), Knife River Indian Villages National Historic Site, ND	7659
2000	Stine, E.		United Tribes Technical College Burn Pits: Monitoring of Excavations	7602
2001	Ahler, S.		Analysis of Curated Plains Village Artifact Collections from the Heart, Knife and Cannonball Regions, Burleigh, Morton, & Oliver Counties, ND	8044
2001	Hufstetler, M.		Architectural Analysis of Historic Buildings at the Wilhelm Lindell Homestead, McLean Co., ND	7816
2001	Kvamme, K.		Final Report of Geophysical Investigations at the Mandan/Arikara Village, Fort Clark State Historic Site (32ME2)	7960
2001	Peterson, L.		The Falkirk Bison Kill: A Pound Site in Central ND, McLean Co.	7970

Year	First Author	Second Author	Title	Ms #
2002	Hafermehl, L.		Building on Block 7 A Survey of Five Buildings on Hazelton's Main Street In Preparation for Construction of a New Community Center, Emmons Co., ND	8215
2003	Picha, P.		Archeological Monitoring for a Reconstructed Palisade Segment at On-A-Slant Village (32MO26), Fort Abraham Lincoln State Park, Morton Co., ND	8639
2004	Kvamme, K.		Geophysical Findings at Double Ditch State Historic Site (32BL8) Burleigh Co. ND, 2003	8855
2005	Hufstetler, M.	J. Goff	Historic Bridges in ND 2004 Revision	10128
2005	McCormick, M.		Mitigation Report For Historic Buildings At The Fred Koehler Homestead & George Busch Farmstead McLean Co., ND	9481
2006	Harvey, J.	J. Bennett et al.	Cultural Resources Mitigation at 32MO296, 32MO306, 32MO1374, and 32MO1375 Morton Co., ND	9660
2006	Klinner, D.		Trail Construction Monitoring, Washburn Multiple Use Trail: McLean Co., ND	9585

Paleo-Indian Period

The Paleo-Indian period designates the time of initial peopling of the area sometime after 9500 BC following recession of Wisconsinan glaciation. Paleo-Indian hunting and gathering adaptations essentially are unknown here as they are in most other parts of the state.

Paleo-Environmental Modeling

Clayton and Moran (1981) provide a late glacial chronology for portions of the Northern Plains including the SMRSU. Wisconsinan glaciers advanced and retreated several times between about 20,000 and 9500 years BP. The vast majority of the SMRSU was free of glacial ice after ca. 12,300 BP. The Missouri River, flowing in a glacial meltwater channel, drained southward during that time as it does now. The pothole country as well as the knob and kettle terrain of the Coteau was the result of ice advancement, stagnation, and meltdown.

The climatic episode during terminal glacial times is identified as the Boreal. Following the recession of the ice front, the landscape was dominated by spruce-aspen forests and wetlands. Investigations indicate that intact paleosurfaces of Paleo-Indian age occur in buried terrace settings within the Trench. Toom (1988:Table 3) reported two dates exhibiting a weighted average of 9940 ± 70 BP for sediments interpreted as representing the basal member of the Leonard paleosol of the Oahe Formation (cf. Clayton et al. 1976) at the Flaming Arrow site (32ML4) near Washburn, North Dakota. The existence of these buried landscapes indicates that paleo-environmental modeling can be enhanced in the SMRSU with appropriate study. Pollen, plant microfossil, and other floral and faunal data ought to be recoverable to permit more detailed climatic and environmental reconstructions.

Cultural Chronology

There is not yet any basis for putting forth a Paleo-Indian chronology for the SMRSU which is any different from that of the statewide chronological model. Schneider (1983) summarized early information for finds of Paleo points from North Dakota. Ahler and others provide detailed information on Folsom and other Paleoindian points in the Missouri River Valley in the New Town area (Ahler et al. 2002:69-112). Specimens have been reportedly found in Mercer, Oliver, Morton, and Sioux counties on the west bank of the Missouri River and McLean, Burleigh, Emmons, and Kidder counties east of the river within the SMRSU. Fluted points are rare. Middle-era complexes such as Agate Basin and Cody seem to be best represented (Figure 5.2). Are there differences in the distribution of Paleo-Indian complexes from one side of the Missouri River to the other?

Settlement Behavior

At various times during the early Holocene subsequent to glacial recession, a number of landforms would have been open for settlement. These include remnant surfaces of old river terraces and the rim of the uplands overlooking the valley. This is where most Paleo-Indian sites should be found. Shoreline erosion along Lake Oahe in South Dakota has exposed Paleo-Indian artifacts in terrace settings at the Travis 2 site (39WW15) (Ahler et al. 1977) and at the Walth Bay site (39WW203) (Ahler et. al. 1974). What are the differences between Paleo-Indian settlements located on Missouri River terraces and those located along the rim of the uplands?

Native Subsistence Practices

Subsistence practices in other parts of the Northern Plains included hunting mastodons, mammoths, and giant bison. Later, following the early Holocene biotic transition, the focus narrowed to bison. There is an information deficiency regarding the plant foods available for gathering as well as those that were actually gathered or collected for consumption or other purposes. Any excavations at Paleo-Indian sites should involve efforts to recover and identify floral remains in the form of pollen, phytoliths, and carbonized macrofossils.

Technologies

Knowledge concerning the array of technologies implemented by Paleo-Indian hunter-gatherers in the SMRSU is largely restricted to observations based on the sample of chipped stone points which have been found and reported. Tool aggregates from residential bases or other types of sites have not yet been sampled and described to provide clues to the broad range of everyday domestic activities which typified the early lifeways. This data gap limits the ability to consider bone and antler technologies such as those reported from investigated sites elsewhere in the Northern Plains (cf. Frison and Stanford 1982; Frison and

Zeimens 1980). Surely other raw materials such as wood and shell served as stock material for the fabrication of a variety of tools (cf. Frison 1989). What is the nature of the technologies which were employed to produce Paleo-Indian ceremonial artifacts and other stylized decorative items?

Artifact Styles

Paleo-Indian knappers produced some of the most distinctive styles of points. Specimens present in the Ralph Thompson collection from Emmons and Morton counties include examples of Scottsbluff, Eden, Meserve (?), Agate Basin (?), and other untyped lanceolate points (Figure 5.2). The Scottsbluff points seem to display greater affinities with eastern stylistic variants than western and southern variants. They are more similar, for example, to specimens from Wisconsin (e.g., Buckmaster and Raquette 1988:111-112) than those from the Horner and Carter/Kerr-McGee sites in Wyoming (cf. Frison

1983:Figure 8.6). Regional developments have been the basis for defining the contemporary Firstview and Kersey complexes in the Southern and Central Plains (ibid.:117,120). Are the Scottsbluff materials in eastern North Dakota (or all of North Dakota) affiliated with an eastern Cody complex rather than a Northwestern Plains or Central Plains complex?

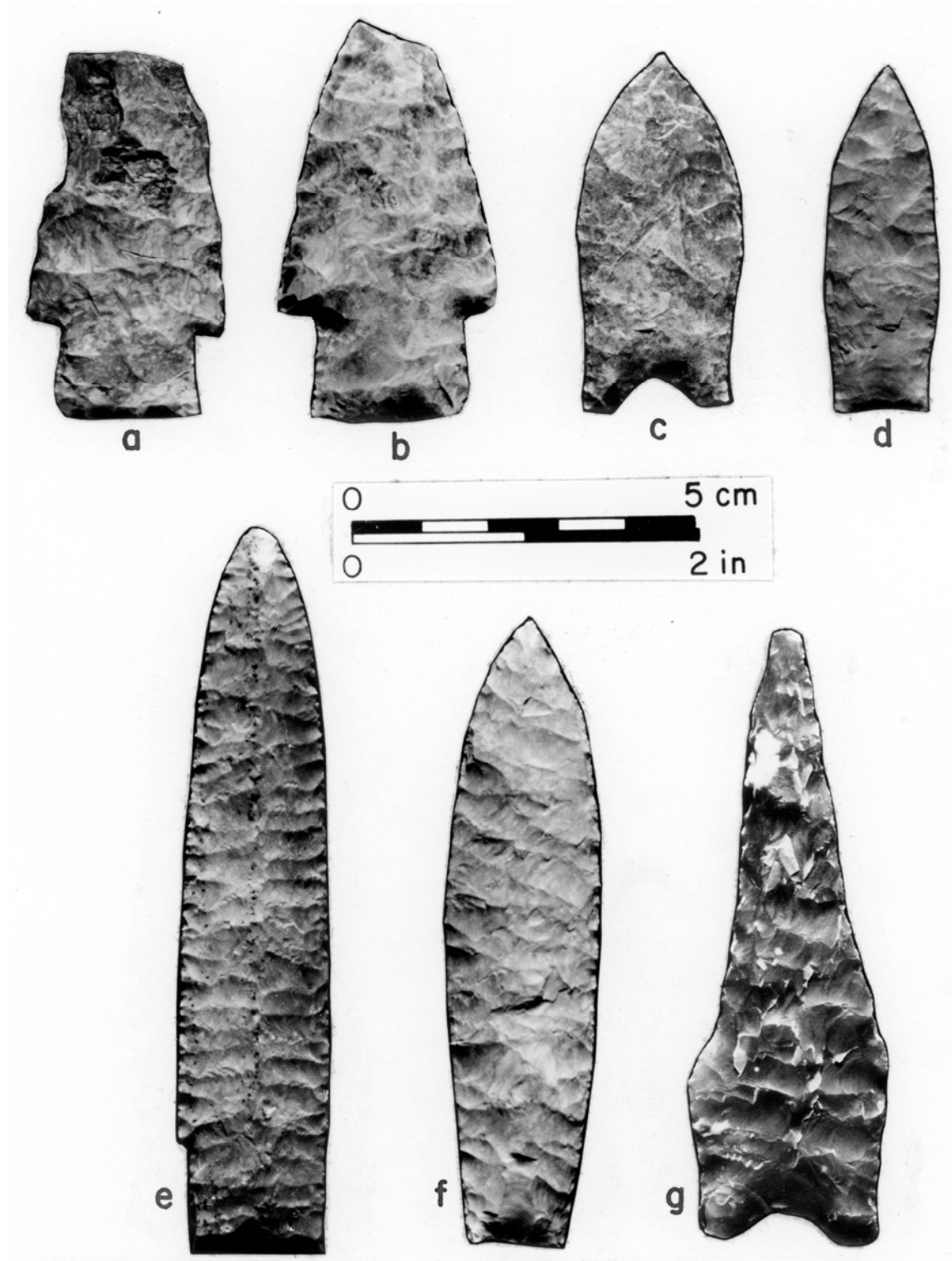
Regional Interaction

The occurrence of artifacts made from nonlocal (“exotic”) stones is evidence for regional interaction during the Paleo-Indian period. Frison (1982b:173-178) outlines source areas for a number of lithic raw materials which could possibly occur as artifacts in the SMRSU. What is the range of lithic raw material types likely to occur here in Paleo-Indian components?

Historic Preservation Goals, Priorities, and Strategies

The principal data gap is the paucity of recorded sites. A priority should be the identification and recordation of Paleo-Indian sites in the SMRSU with attention to the landforms on which they occur. Correlations of sites and landforms will provide useful information for future management of these important and poorly known cultural resources.

Figure 5.2: Paleo-Indian points from the Southern Missouri River Study Unit found by Ralph S. Thompson: (a-b) Scottsbluff; (c-d) untyped lanceolate forms; (e) Eden; (f) Agate Basin; (g) possibly Meserve or reworked Goshen. Specimens (a)-(f) are from Emmons County. Specimen (g) is from Morton County.



Plains Archaic Periods

The Plains Archaic tradition witnessed a variety of hunting and gathering lifeways, but unlike Paleo-Indian, adaptations were geared to essentially modern flora and fauna. Archaic subsistence strategies dominated the Northern Plains between 5500 BC and sometime during the first millennium AD. The Plains Archaic is subdivided into Early, Middle, and Late periods based on associated cultural complexes which are represented in the SMRSU. Distinctive styles of projectile points serve as cultural markers for these complexes.

Paleo-Environmental Modeling

Three climatic episodes have been defined during the nearly 4,000 year span of the Archaic periods: Atlantic, Sub-Boreal, and Sub-Atlantic. Climatic conditions during much of this time are posited to have been arid and droughty with brief periods of more mesic conditions. The biotically favorable mesic interludes are thought to have been more common during the later Sub-Boreal and Sub-Atlantic than the earlier Atlantic. Clayton et al. (1976) suggest that much of the fine-grained aeolian fill on the Missouri River terraces was deposited under arid conditions.

The rate of valley infilling in the Trench is thought to have diminished during the later part of the Sub-Boreal. Mid-Holocene geomorphology is poorly known for the Trench and tributary valleys where innumerable Archaic sites surely lie buried in alluvial, aeolian, and colluvial fill. How deep is the Mid-Holocene alluvial fill in the Missouri River valley? What was the nature of Missouri River bottomland habitats throughout the Archaic periods?

Cultural Chronology

There is a scarcity of chronometrically dated site deposits from all three Plains Archaic time periods in the SMRSU. There are no dated Early Archaic components. But isolated finds of large side-notched (Simonsen) projectiles are reported by Larson et al. (1986:Figure 6.5c). A possible large form of Oxbow projectile point/cutting tool was recovered from the Beaver Creek site (32EM49) (Billeck 1983q:Figure 68.8b). But follow-up excavations encountered only a deposit dating to the initial Late Archaic (Hudak 1983). Private collectors purportedly have found points exhibiting nonlocal styles at sites south of the state line along the Missouri River (Marion Travis personal communication to P. Picha, 1989). These include Dovetail forms (cf. Stoltman 1986:Figure 4-3).

Middle Archaic remains are better represented. They can be found in the uplands as well as within the Trench at sites such as 32EM30 (Larson et al. 1986:6.8a, b). West of the Missouri River between the Cannonball and Little Heart rivers McKean (32MO100) and Hanna (32MO98) components have been recorded (Christensen 1990:Table 1).

Late Plains Archaic Pelican Lake components are better represented. Various forms of small corner-notched dart points have been found. Two dated Late Plains Archaic components appear in the literature. Hudak (1983:2.15) reported a suite of four dates with a mean of 3142 RCYBP at 32EM49. A buried cultural horizon at 32EM72 was dated to 3000±120 RCYBP (Larson et al. 1983:115). Survey work along the Missouri River in Emmons and Sioux counties has resulted in increased numbers of recorded sites (Larson et al. 1983, 1986; Penny et al. 1987). Pelican Lake points have also been found in the Cross Ranch locality in the northern reaches of the SMRSU (Ahler et al. 1981; Ahler et al. 1982; Weston et al. 1980). In Morton County, archeologists recorded Pelican Lake points at 32MO98 (Christensen 1990).

During periods when xeric climatic conditions prevailed, the Missouri Trench may have offered the only game in town. At times, it may have provided the only habitats in the state that could support permanent occupation. If this was the case, we should expect a more variation in artifact styles at some Archaic sites in and near the Trench. When the archeological record is more complete, we might anticipate more complex cultural chronologies will be developed for the Plains Archaic periods within the SMRSU and the GSU than for elsewhere in the state.

Settlement Behavior

The settlement practices of Plains Archaic peoples are not well known due to the small number of investigated sites compared with the following Plains Woodland and Plains Village periods. This lack of known sites is likely a function of their relatively deep burial in alluvial bottomland settings along the Missouri River and lower order tributary streams draining to the Missouri River. During the Northern Border Pipeline survey, artifacts attributable to the Plains Archaic often occurred in upland settings where there has been minimal soil deposition since the Early Holocene (cf. Root et al. 1983).

Limited test excavations conducted on the Cross Ranch in the northern portion of the SMRSU documented Late Plains Archaic deposits at several sites. An upland temporary camp or game processing locus is represented at the Rivera site (32OL170) which is associated with the nearby Bundlemaker bison kill site (32OL159) (Ahler et al. 1981; Ahler et al. 1982). Plains Archaic groups were exploiting resources in the Uplands and Breaks physiographic zones.

Toom (1988) reported probable Archaic age artifacts in deep tests conducted in a Missouri River terrace setting at the Flaming Arrow site (32ML4). Larger-scale excavations sounded the early Late Archaic deposits at 32EM49 along Beaver Creek in a stream terrace context (Hudak 1983). Attempts need to be made in correlating Archaic functional site types with landforms in order to model settlement behavior. Terrace settings were probably characteristically open prairie, unsheltered locations once boreal forest conditions withdrew in the early Holocene. Warm season residential bases should be anticipated in terrace

settings with winter residential bases in more sheltered floodplain settings. What forms of archeologically recoverable evidence for seasonality can be expected in Plains Archaic deposits in this part of North Dakota?

Native Subsistence Practices

What is known concerning Plains Archaic subsistence is largely derived from test excavations at a few sites. The Late Plains Archaic component at Beaver Creek produced small quantities of bison and fish scales (Schaaf 1983). This cultural deposit also produced *Chenopodium* sp. remains which were interpreted to be of cultural origin (ibid.). Chenopods commonly were utilized for food in the Midwest during Late Archaic times (cf. Asch and Asch 1978; Seeman and Wilson 1984). Bison bone also is reported from 32EM72 (Larson et al. 1983).

The importance of hunting to the Plains Archaic lifeway can be deduced by the frequent occurrence of dart point tips of many different styles. The role of plant foods is not assessed as easily given the low numbers of identified ground stone plant processing tools reported in the literature. Standard flotation sampling of feature and non-feature matrices during excavation could recover remains which would add information concerning Plains Archaic subsistence strategies. Given the environmental conditions of this part of North Dakota, what quantity of chenopod plant growth should be expected to have occurred naturally in the disturbed habitats of abandoned hunter-gatherer settlements? What quantity of charred chenopod seeds could be expected to occur as part of the non-artifactual content of Archaic cultural deposits in this area?

Technologies

Plains Archaic complexes in the SMRSU are known best for their chipped stone technologies, although bone and ground stone technologies have been considered upriver in the Garrison Study Unit on the basis of small Middle and Late Archaic samples excavated from the Mondrian Tree site (32MZ58) (cf. Gregg 1983d:Table 23.2). At Oxbow sites in the Canadian Plains, copperworking technologies are indicated (cf. Millar 1978:335-338; Wormington and Forbis 1965:Figure 45), but these artifacts may have been brought in through exchange mechanisms. Again, outside of the SMRSU, shellworking technologies are represented by beads and disks in Middle Archaic deposits at Mummy Cave in Wyoming and Cactus Flower in Alberta (Brumley 1975, 1978; McCracken et al. 1978; Wedel et al. 1968). Future investigations in the SMRSU surely will result in new information concerning applications of varied technologies during the Archaic. What is the evidence for ground stone woodworking tools dating to the Plains Archaic periods in this Study Unit?

Technologies were also applied to build structures for residential settlements and other purposes. Deaver and Deaver (1987) report the earliest Montana-North Dakota radiocarbon dated tipi rings are from ca. 3900 RCYBP at a site in Montana (see pp. B.54-B.56 herein). The earliest clustering of dates from

ring sites in North Dakota is ca. 2000 RCYBP at the Anderson Tipi Ring site (32ML111) (ibid.), although these dates more likely are associated with a Middle Woodland Besant/Sonota component than a Late Archaic component. What technologies were applied to build structures through the different Archaic periods and complexes? Structural remains are mostly likely to be best preserved in deeply buried alluvial and colluvial depositional contexts.

Artifact Styles

The formal dimensions of Early Plains Archaic artifact style are poorly known in the SMRSU. Only a few specimens have been reported from surveys (cf. Larson et al. 1983, 1986; Penny et al. 1987; Root et al. 1983). These include large side-notched and corner-notched specimens, but they are all from undated contexts. The Simonsen dart point form, along with a possible variety of other closely related, well made large side-notched forms with ground incurvate base haft elements, are distributed from Nebraska northward throughout the Northern Plains in Early Archaic components (e.g., Agogino and Frankforter 1960b; Ahler 1989:116; Ahler et al. 1977; Frison et al. 1976; Gryba 1976; Kivett 1962; Kuehn 1982c, 1984; Shay 1971, 1978; Shutler et al. 1974). Components with these forms can be expected to date within the approximate 2,000 year long temporal range of 5500-3200 BC. The best chance to identify intact cultural deposits of this antiquity is in cutbank exposures of Missouri River terraces.

Middle Plains Archaic point styles representative of the McKean Lanceolate, Duncan, and Hanna complexes are present in surface collections from sites in the central and southern portions of the SMRSU along the Missouri River (Christensen 1990). One unusually large Oxbow style basal fragment was recovered from 32EM49 (Billeck 1983q:Figure 68.8b).

Small, medium, and large corner-notched forms occur with greater frequency. These are often termed "Late Archaic/Middle Woodland." Small Pelican Lake forms are associated with both Late Plains Archaic and Early Plains Woodland components in the eastern river valleys of North Dakota, while the Besant and Samantha Side-Notched types in conjunction with a minor frequency of large corner-notched forms characterize Middle Plains Woodland deposits (cf. Gregg and Picha 1989b). As suggested for southwestern Manitoba, do the large "Archaic Barbed" corner-notched forms date to the earlier part of the Late Archaic period while the smaller "Plains Middle Woodland Pelican Lake points" date to the later part of the period? (cf. Syms 1980:364-365, 370).

Regional Interaction

Stone tool stylistic attributes and the infrequent occurrence of nonlocal materials in Early and Middle Plains Archaic assemblages suggest that interaction networks generally were limited to the Northern Plains. The possibility of renewed long-term contacts with the Eastern Woodlands groups, a phenomenon characteristic of Paleo-Indian times, cannot be confirmed given

existing data (cf. Brose 1979). However, the notion that the Late Plains Archaic sphere of interaction and exchange may have broadened is suggested by the occurrence of corner-notched specimens usually termed Pelican Lake at locations further to the east (cf. Tiffany 1986:166-167). Also, copper beads attributed to the Pelican Lake component in Cultural Zone 2 at the Mondrian Tree site (32MZ58) at the upper end of the adjacent Garrison Study Unit indicate exchange with groups in the upper Midwest on a Late Archaic time level (Toom 1983f). Information concerning regional interaction most readily is garnered from data regarding nonlocal lithic raw materials. But artifact samples must be collected from single component artifact levels or features which can be soundly dated to one of the Archaic periods. If nonlocal material source areas are classified by direction (e.g., north, east, south, west), what is the evidence for changes in directionality of interaction through the three Archaic periods? (cf. Ahler 1988c:162; Reher and Frison 1980:127-130).

Historic Preservation Goals, Priorities, and Strategies

When the pool level of Lake Oahe is elevated, Plains Archaic archeological deposits are destroyed by wave action and shoreline erosion (cf. Larson et al. 1983:149). With decreases in pool elevation in the late 1980s and again in 1998, this sort of destruction was alleviated. Low pool levels present the opportunity to conduct test excavations at known Archaic deposits which will undergo renewed erosion when pool levels rise. Because excavated Archaic components are so poorly represented, North Dakota archeologists should work with Omaha Corps of Engineers cultural resource specialists to develop test excavation programs at shoreline sites in the "take area" along Lake Oahe.

Plains Woodland Periods

Plains Woodland lifeways likely were similar in many respects to those of the preceding Plains Archaic. However, the Early and Middle Woodland periods provide the first evidence for (1) routine production of ceramic vessels for cooking, (2) burial mound mortuary practices and ceremonialism, and possibly (3) some gardening. The Plains Woodland era, like the Plains Archaic, is subdivided into Early, Middle, and Late periods.

Paleo-Environmental Modeling

Within the SMRSU, research needs to be devoted to environmental reconstruction. During the Early and Middle Plains Woodland periods, coinciding with the later half of the Sub-Atlantic climatic episode, conditions are thought to have been more mesic than today. This situation would have fostered an increase in the regional biomass and hence increased human carrying capacity. Population increases and cultural florescence are suspected to have accompanied this climatic amelioration. Cultural deposits associated with well-developed paleosols in alluvial and colluvial settings along the Missouri River and

its tributaries need to be documented and investigated to further test this proposition.

During the Scandic climatic episode (AD 400-750) intervening between Middle Woodland and Late Woodland/incipient Plains Village climaxes, climatic conditions are hypothesized to have deteriorated for a time with warm and dry weather prevailing during the Middle to Late Woodland transition. Following this downswing, precipitation is hypothesized to have increased to another peak during the Neo-Atlantic (ca. AD 850-1250). The return of mesic conditions is posited to have once again coincided with cultural florescence in the region marked by the Late Plains Woodland-Formative Village transition.

Larger samples of paleo-environmental information need to be generated from Early, Middle, and Late Plains Woodland sites in the SMRSU. Tipi ring sites in the uplands seem to lack contexts favorable to the preservation of delicate floral and faunal remains which yield data most useful for reconstructing climatic conditions and seasonality at the time of occupation. What sorts of site depositional contexts are most likely to hold artifacts and ecofacts with highest potentials to yield important information concerning Woodland environmental conditions?

Cultural Chronology

Only two Early Plains Woodland components have been recorded thus far in the SMRSU, but more should be expected to occur in buried alluvial settings stratigraphically underlying Middle Woodland deposits. They should contain small corner-notched dart points and may be initially mistaken for Late Archaic deposits until the distinctive coarse-tempered ceramic potsherds are recovered. Are Early Plains Woodland components in the SMRSU sufficiently similar to those from the James River Study Unit to indicate a cross-subareal development of an Early Woodland culture from a single, Pelican Lake complex which was distributed across portions of the Northeastern Plains and Middle Missouri subareas?

Besant/Sonota components are well represented here (Neuman 1975). Included are mound sites such as Boundary Mounds (32SI1), Schmidt (32MO20), and Alkire Mounds (32SI200) (Henning 1965). There are habitation sites such as High Butte (32ME13) (Wood and Johnson 1973), Wounded Knee (32EM21) (Root 1983v), Anderson Tipi Ring (32ML111) (Deaver 1985), Dancing Grouse (32ML107) (Deaver and Deaver 1987), and 32MO98, 32MO100, 32MO163 (Christensen 1990). Additionally, there are bison kill locations such as Bundlemaker (32OL161) (Ahler et al. 1981:57). Radiocarbon assays obtained from Wounded Knee (1930±100 RCYBP) (Root 1983v:965), High Butte (AD 350±140) (Wood and Johnson 1973:35), and Alkire Mound (AD 300±200) (Wood and Johnson *ibid.*:Table 4) firmly establish the Besant/Sonota components at these sites within the Middle Plains Woodland period. Other conical and linear mound groups of presumed Woodland age occur in the SMRSU as well (cf. Chomko and

Wood 1973; Weston et al. 1980). Additional Middle Plains Woodland site types surely will be identified as work progresses in the region.

Sites attributed to the Late Plains Woodland period in the SMRSU generally contain cord roughened ceramics and small, side-notched arrowpoints. A number of these have been investigated in the “breaks” physiographic zone on the Cross Ranch in Oliver County (Ahler et al. 1981; Ahler et al. 1982). Ahler (1993:65) proposed the Charred Body complex in the Knife and Heart regions based on settlement plan, house form, Late Woodland-like pottery, and lack of evidence for corn horticulture at Menoken and Flaming Arrow. Radiocarbon dates from three posts from an oval, semisubterranean structure (Toom 1988) at Flaming Arrow average 935 ± 36 BP (cal AD 1035-1158). Four samples of charred botanical remains from two houses at Menoken produced internally consistent dates with a mean of 861 ± 28 BP (cal AD 1159-1221) (Ahler 2003:224; 2007:18). The 1998, 1999, and 2006 excavations at Menoken have provided significant new information regarding the transition from a village-based Terminal Late Woodland hunter-gatherer lifeway to the earliest Plains Village hunter-farmer lifeway (Ahler 2007:15-31).

Settlement Behavior

Plains Woodland peoples appear to have used the Trench as a focus of residential settlement. Sonota occupation sites such as High Butte are found in valley rim settings overlooking the floodplain. Solitary mounds and mound complexes are situated near the valley rim in the uplands (cf. Weston et al. 1980). Natural entrapments along game trails leading through the breaks to the uplands were spots where bison were hunted. The breaks zone was also heavily utilized by Late Plains Woodland groups on the Cross Ranch for habitation. Campsites were situated in proximity to bison kill and butchering locations as well as mortuary mound complexes.

Early or Middle Woodland settlement is also indicated in tributary stream valleys such as along Horsehead Creek. The Serr site (32EM58) on a low stream terrace along Horsehead Creek yielded a small Besant Side-Notched point (Gregg et al. 1983a:Figure 58.3b) and three radiocarbon dates from a hearth feature indicating Early or Middle Woodland occupation represented in the lower cultural zone. Excavated materials from the lower cultural zone provide evidence for TRSS workshop activities and bison processing. Tongue River silicified sediment is present in sufficient quantities in various parts of the SMRSU to have attracted special-purpose procurement-workshop task groups. The total uncorrected one sigma date range for the three radiocarbon dates from the Serr site is 2740-2110 BP (790-160 BC) (ibid.:1024).

At present there is a paucity of information regarding Late Woodland settlement patterns in this Study Unit due to limited number of sites identified. Known sites include those on the Cross Ranch (Ahler et al. 1981; Ahler et al. 1982), Menoken, Flaming Arrow, and 32MO98 (Ahler 2007:15-31) and a few

others. Linear mounds in uplands, encampments in break zones, and fortified settlements along the Missouri and at least one tributary (Apple Creek) are known.

The geophysical survey at Menoken provided a site-wide settlement layout (Kvamme 2003:557-563, 2007:215). Two oval houses were subsequently excavated at Menoken revealing two distinct architectural styles (pithouses and surface houses) (Ahler 2007:15-31). Both houses are firmly dated to ca. AD 1200, as are the two pit houses located outside the fortification ditch.

As Ahler (2003:576) states there needs to be a “continuing study of the timing and process of transition from a village-based terminal Late Woodland hunter-gatherer lifeway to the earliest Plains Village, hunter farmer lifeway.” Similar studies to those at Menoken and use of geophysical techniques site-wide need to continue.

Even though the Late Woodland period (AD 600-1200) is shorter than the Middle Woodland period (100 BC-AD 600), the sample of Late Woodland sites should be much larger than it is. Why are Late Woodland components so poorly represented?

Native Subsistence Practices

Menoken provides significant information regarding the presence of botanical remains at a Terminal Late Woodland site (Nickel 2003: 255-276; Nickel 2007:134). The botanical remains at Menoken include small amounts of corn and a squash seed. The only tool providing evidence of gardening was a possible working edge of a scapula digging tool (Ahler 2007:21). There is evidence of harvesting of goosefoot and collection an array of wild plants (rose, plum, buffaloberry, dogwood, snowberry, grape, chokecherry pits (Nickel 2007:134). Ahler (2003:576) suggests future subsistence research should focus on the following topic:

A more definitive understanding of the subsistence base for the settlement, resolving the enigma of an apparent semipermanent community with a sizeable population, but lacking a horticultural resource base. Such work could begin with more intensive study of charred parenchyma and phytoliths, near-site botanical surveys, and systematic search for plant food resources that are less conspicuous in the archaeological record.

Fine-screen recovery of large volumes of soil will provide a more complete collection of evidence for use of wild fruits and cultigens. What similarities and differences are there in plant use between Late Woodland versus Plains Village sites? While it is certain that wild plant foods were an essential part of the diet, were any of these wild species tended or encouraged to an extent indicative of at least incipient gardening early in the Woodland timeframe? What should be expected in North Dakota sites as archeological evidence for incipient gardening?

Technologies

The Besant/Sonota ceramic vessels represented in excavated samples from the Wounded Knee site (32EM21) (Root 1983v) share similarities in form, surface treatment, and temper with pottery produced at contemporary sites in the James River Study Unit (cf. Gregg and Picha 1989b). Carbonized residues on vessel interiors from both areas indicate they were used for cooking. Middle Woodland ceramics are better represented in this Study Unit than either Early or Late Plains Woodland ceramics. What are the technological attributes of transitional Early-to-Middle Woodland and Middle-to-Late Woodland ceramics in this area? In answering these questions it is clear that in addition to traditional ceramic analysis there needs to be an analytical component specific to manufacturing practices as was undertaken for the terminal Late Woodland Menoken Village (e.g., Krause 2007:32-40).

Sonota/Besant chipped stone assemblages from Wounded Knee and High Butte (32ME13) evince heavy reliance on KRF supplemented by regular use of locally available materials. In an excavated sample from Wounded Knee, KRF accounts for 32% of the chipped stone tools and 53% of the flaking debris, and locally available TRSS accounts for most of the remainder. At High Butte further north and closer to the KRF source area, KRF accounts for 90% of the recovered chipped stone tools and flaking debris reported by Wood and Johnson (1973:Table 3). At the terminal Late Woodland Menoken site, KRF occurs in about 95% of the flaking debris and ca. 93% of chipped stone tools (Ahler 2003a:442-443). Closer available lithic materials comprise only about 3% of the flake and tool collections and truly distant sources represent less than 1% of the chipped stone tools and flakes (ibid.: 443). What sort of stone raw material selection pattern are represented at other Woodland sites?

Boneworking debris was also recovered from the Besant/Sonota components at Wounded Knee and High Butte. A bone cutting tool and a bone tube fragment were recovered from Wounded Knee. A pendant made from a canid incisor, scrap from making bone beads, and expediently fashioned rib tools were found at High Butte. Can any aspects of Besant/Sonota boneworking technology be identified as diagnostic of Middle Plains Woodland technologies?

Artifact Styles

Besant and Samantha Side-Notched dart point/cutting tools are diagnostic of Besant/Sonota complexes of the Middle Plains Woodland period and occur in most collections dating to this era (Neuman 1975; Root 1983v). Some large corner-notched forms also usually are present in low frequencies. Sonota ceramic vessels are conoidal to subconoidal in form and most have cord roughened exteriors. Decoration is usually limited to the lip and exterior rim areas; bosses and punctations are characteristic. What artifact styles are diagnostic of Early and Late Woodland components in the SMRSU?

Late Woodland arrowpoints are typically small side-notched forms falling into both of the gross classes termed Prairie Side-Notched and Plains Side-Notched (Ahler et al. 1982; Kehoe 1973). The Prairie Side-Notched class is construed so broadly as to have little utility for specifying anything other than very general temporal affiliation. Can specific types be identified within the Prairie Side-Notched class for which more meaningful cultural affiliations are specifiable?

Late Woodland ceramic vessel samples also exhibit considerable stylistic variability. At present, the excavations at Menoken have provided the largest pottery sample from a Late Woodland context for the study area. The sample from Menoken was heterogeneous displaying predominately Late Woodland characteristics with a blending of Plains Village traits such as the S-rim vessels and trailing on the shoulder/body (Swenson 2003:327-355). This blending of Late Woodland and Plains Village traits is also present in the manufacturing techniques at Menoken (Krause 2007:32-40). Other Late Woodland sites with similar collections include Cross Ranch, Flaming Arrow, and other sites in Morton and Emmons counties.

Regional Interaction

The occurrence of artifacts made from nonlocal and exotic raw materials in Middle Plains Woodland assemblages is one indication of increased regional interaction over that of preceding Archaic times. Sonota components in the SMRSU hold artifacts fashioned from nonlocal stones, freshwater and marine shells, and metallic ores such as copper (Neuman 1975). The trade routes and the particular cultural mechanisms guiding these exchange relations need to become better understood.

Trade materials represented at the terminal Late Woodland Menoken site include native copper and marine shell. The native copper would not have been archeologically recovered without fine-screened recovery. Marine shell artifacts include beads, tubes, and pendent (Ahler 2003:573). Fine screen recovery is vital in identifying trade material as well as several other artifact classes.

Historic Preservation Goals, Priorities, and Strategies

The few remaining earthen mounds and mound complexes along the Trench should be recorded and preserved from further destruction. These mounds are often smaller than in the James River and Sheyenne River study units to the east. Residential bases and other site types located near these mounds should be inventoried as well. A top priority should be to establish a unified approach amenable to all concerned for the preservation and study of prehistoric mortuary sites.

Research into Late Plains Woodland adaptations should continue such as that of Menoken State Historic site. The continued study of the timing and process of transition from a village-based terminal Late Woodland hunter-gatherer lifeway to the earliest Plains Village, hunter-farmer lifeway is recommended by Ahler (2003:576). Transitional sites should be identified and studied.

As with Archaic sites, there are significant intact Woodland-age deposits eroding from the Oahe shoreline. Archeologists working in North Dakota should confer with Omaha US Army Corps of Engineers cultural resource specialists and request federal aid in conducting salvage work at places such as Wounded Knee (32EM21) where a Besant/Sonota deposit is eroding (cf. Root 1983v:998).

Plains Village Period

Menoken State Historic Site (Ahler 2007:15-31) provided solid evidence for origins of the Plains Village lifeway in the SMRSU. The Plains Village lifeway developed to its fullest expression in late prehistoric and protohistoric times in this Study Unit.

Paleo-Environmental Modeling

Tree ring studies from oak trees near Bismarck (Will 1946) indicate dozens of alternating droughty and mesic periods over the past 500 years. While the specific responses of particular cultural groups to such environmental change may seldom if ever be identified, it ought to be possible to explicate ranges of general cultural responses or adaptations. Tree ring studies should continue with wood samples from a variety of ecological contexts in an attempt to model effective soil moisture for the SMRSU as a whole over the past 500 years.

Cultural Chronology

Within North Dakota lie portions or all of the Cannonball, Knife-Heart, and Garrison archeological regions of the Middle Missouri subarea. The most refined archeological chronology for any part of North Dakota is the one devised for the Plains Village period in the upper (northern) portion of the Knife-Heart region. This chronology has been derived from data amassed from excavations at many village sites situated between the mouth of the Heart River and the Knife River Indian Villages National Historic Site (KNRI). The chronology comprises

phases which are defined based on material cultural traits and settlement characteristics. The chronologically most significant material cultural traits are some rather precise ceramic vessel stylistic and technological attributes. In the initial formulation of this chronology, most of the phases were sequential while one ran parallel to the basic sequence (cf. Picha et al. 1989:8). The Clark's Creek phase was dated AD 1000-1200, Nailati phase 1200-1400, Heart River phase (1400-1710), Scattered Village complex 1400-1700, an unnamed protohistoric phase 1710-1750, and Knife River phase 1750-1861 when the Villagers abandoned their upper Knife-Heart homeland and moved northwestward into the Garrison Region to establish Like-a-Fishhook village. The Heart River phase was defined as precontact in age, but excavations at the Big Hidatsa village site (cf. Ahler and Swenson 1985b) indicate that European trade goods may have begun reaching the villages by as early as 1600 rather than 1710 (ibid.:108).

Ahler (1993:57-108) extensively revised the working culture-historic framework for the Plains Village tradition in the Upper Knife-Heart region of the Middle Missouri subarea. Below is a list of phase assignments and reassignments for archeological components (ibid.:Figure 25.2 and Table 25.1).

- 1830-1886: Four Bears phase
- 1785-1830: Roadmaker phase
- 1700-1785: Minnataree phase
- 1600-1700: Willows phase
- 1525-1600: Hensler phase
- 1450-1525: Mandan Lake phase
- 1400-1450: Scattered Village phase
- 1300-1400: Nailati phase
- 1200-1300: Clark's Creek phase
- pre-1200: Formative Village

Craig Johnson's 2007 publication *A Chronology of Middle Missouri Plains Village Sites* is another important resource in Plains Village studies.

Settlement Behavior

The vast majority of North Dakota's earthlodge villages and other sorts of Plains Village settlements are in the SMRSU. Plains Village people lived in other parts of the state, but village settlements were more intensively and continuously occupied in the SMRSU than in any other. This is probably related to the reliability of the Missouri River as a water source as well as the quantity of diverse subsistence and technological resources available in and along the Missouri River valley. Climatic conditions may also have been factors.

Site-wide use of geophysical techniques in combination with traditional excavation in the Heart River region at traditional Mandan sites have revealed these settlements were much larger and occupied longer than previously

recognized (Ahler 2004, 2005; Ahler and Geib 2007:442-451; Kvamme 2007:210-221; Kvamme and Ahler 2007:539-561). The use of combined site-wide remote sensing and excavation at village sites should continue in order to maximize understanding of these complex sites.

Relatively little is known of activities outside the villages and the archeological remains generated by such activities compared to what is known of life within the villages from archeological studies, ethnohistoric accounts, and ethnography (Picha et al. 1989:108). More ought to be understood regarding outside-village activities. One of the findings which prompted the explication of this research goal was fire-cracked rock (FCR) concentrations associated with Knife River Fine ware ceramics at the Hotrock site peripheral to Lower Hidatsa village at KNRI (Ahler and Mehrer 1984:71). These particular artifact concentrations may mark the locations of special-purpose sweatbathing in areas removed from the main villages (cf. Picha et al. 1989:87).

Since the SMRSU has most of the Plains Village sites, it seems reasonable to expect that most of the state's Plains Village mortuary sites and cemetery areas also are here. Modes of interment were quite varied. Some remains were buried in the ground within the bounds of the villages, some may have been placed in earthen mounds on the valley rims overlooking the valley, some were interred in solitary graves around the village peripheries such as those around Fort Clark and KNRI. Other human remains appear to have been buried in pits on hilltops and ridgetops, then capped with stacked rock monuments. There are a series of such sites on the hilltops east of the Badger Ferry village site (32EM7). A large cairn at one such site (32EM61) was fully excavated and attributed to the Plains Village tradition on the basis of the styles of arrow points found with the burials (Gregg et al. 1983b). Bowers (1950:99) recorded that some Mandans preferred this sort of burial under stone cairns on hilltops.

Deceased Arikaras were interred in a cemetery area around the Fort Clark site (32ME2). This cemetery area, which was recorded by Lewis Henry Morgan, shows clearly on a large-scale map of the entire site area which covers ca. 100 acres with more than 2,200 surface features including the Arikara graves (Wood and Billeck 1988). Did Plains Village mortuary practices vary between peoples with Extended and Terminal Middle Missouri material culture?

Rock art sites attributable to Villagers also exist in the SMRSU. But they are uncommon because of the scarcity of exposed rock surface suitable for painting, incising, and pecking. Site 32ME348, the Indian Temple site, was recorded 100 m from the eastern edge of the Stanton Mound Group (32ME104). It consists of a human face glyph and linear glyphs executed on sandstone (A&HPD site files). John Taylor (ibid.) suggested this rock art site could be linked to the Hidatsas on the basis of ethnographic information. The Sacred Mountain site (32SI207), located two miles west of the town of Cannonball, south of the Cannonball-Missouri confluence, consists of four granite boulders on a hilltop with glyphs of buffalo tracks, bear paws, thunderbird tracks, serpents, and

turtles. In *North Dakota: A Guide to the Northern Prairie State* prepared by the workers of the Federal Writers Project of the WPA in 1938 (printed by Knight Printing, Fargo, North Dakota), it is written that this site was revered by Mandans, Arikaras, and Sioux (p. 314). This work also states that after the “great flood,” the First Man and First Woman of the Mandan first stepped here.

Native Subsistence Practices

The definition of the Plains Village lifeway typically involves horticulture which played the preeminent role in food production yielding a dependable, storable food surplus (e.g., Lovick and Ahler 1982). This sweeping generalization was questioned in the 1970s (cf. Nickel 1977) and was called into question anew in the late 1980s. Clearly, there were years when garden crops failed. But could the large village settlements have been supported principally by the products of hunting and gathering wild foods? Hunting and gathering have supported permanent settlement in rich habitats in other places in the world such as along the Pacific Coast in North and South America. It may also have been possible with the rich biota which characterized the best of times during the Neo-Atlantic climatic episode in the Northern Plains.

Excavated samples from the White Buffalo Robe site (32ME7) indicate that corn, beans, squash, and sunflowers were cultivated, plus chokecherries, wild plums, buffaloberries, and goosefoot were used (Nickel and Jones 1980). There were remains of corn, beans, and squash from the Nailati, Heart River, and Knife River phase components (ibid.: Table 14.10). There were sunflowers in Nailati and Heart River samples. All three components yielded remains of wild plant foods in the form of the seeds of wild plum, chokecherry, wild grape. There were also dogwood seeds in samples from all components (ibid.: Table 14.10). How did Plains Village gardening practices change through time? Did adoption of any new species during the Plains Village period result in great increases in storable food surpluses?

Nickel (2007:126-136) discusses samples from more recent botanical collections from village sites and suggests there may be a “long-standing Mandan tradition of combining cultivation of both exotic and indigenous cultivars with the collection and cultivation of weedy plant seeds.” Nickel also points out the complications caused by sample size. Combinations of flotation for smaller samples and water-screening of large volumes of soil should be undertaken to more fully capture macrobotanical botanical specimens.

Technologies

Nowhere are Plains Village technologies, both prehistoric and protohistoric, better known than they are in this part of North Dakota from analyses of excavated sites along the Missouri River as well as ethnohistoric and ethnographic descriptions of the Hidatsa, Mandan, and Arikara. For example, chipped stone toolmaking technologies (e.g., Ahler 1975a, 1975b, 1977b, 1984b,

1988c; 1997, 2002, 2004, 2005, 2006; Ahler and Toom 1993) may be nearly as well-known now as they were when they were being practiced. As another example, details of the construction of circular earthlodges were recorded by Wilson (1934).

Despite the detail available for some categories of technological information, there is relatively little known about others. There has been very little exploration of seasonal differences in technologies. Historically, there were separate summer villages and winter villages. How did technological practices differ seasonally so that summer and winter settlements might be identified by their material remains?

Artifact Styles

Styles of designs and decorations on ceramic vessels have been fundamental for defining Plains Village cultural chronologies (e.g., Lehmer 1971). Ahler (2001) presents a source of pottery descriptions for Plains Village sites in the Heart, Knife, and Cannonball regions. Now there is a strong indication that decorative techniques and placements, lip forms, rim forms, thickness, and exterior surface treatment can be analyzed to identify remains deposited by Awatixa and/or Hidatsa-proper subgroups of Hidatsas (cf. Ahler 1988b, 1993). Were stylistic shifts essentially contemporary between Hidatsa people who lived along the Missouri River and their contemporaries who lived around Devils Lake or along the James River? Or did people of the same tribal affiliation distinguish their geographic separateness by executing different designs on some of their ceramics?

A unique decorative motif has been identified by Ralph Thompson on ceramic vessel fragments from four Extended Middle Missouri sites along the left bank of the Missouri River in Emmons County: the Havens site (32EM1), 32EM101 and 32EM102 about three miles north of Havens, and 32EM104 ca. 1.25 mi south-southwest of Little Beaver Creek Bay. The 32EM101, 32EM102, and 32EM104 village sites were not identified by Will and Hecker (1944) but have been revealed as the Lake Oahe shoreline has wasted landward (Ralph S. Thompson personal communication to M. Gregg, 1989). One partially restored vessel displaying this motif and a line drawing representation of the motif are illustrated below (Figure 5.3). The grit tempered vessel is classifiable as Riggs ware; it has lip tab handles and tool impressed lip decorations in addition to the exterior rim decoration. The exterior surface treatment ranges from smoothed to partly burnished, smoothed-over check stamped. Could the occurrence of this unique decorative motif in these four Extended Middle Missouri village sites be evidence that they were occupied contemporaneously?

Another diagnostic Plains Village artifact style is a thin, lightweight axe with a raised ridge on each side of the hafting groove. Axes such as this may have occurred first in late northern Extended Middle Missouri villages

Figure 5.3: Partially restored vessel from 32EM104 with bear paw-chevron-scroll motif executed on the upper rim. A representation of the motif is drawn below the photo. The vessel decoration was done by trailing with tool impressing in the scrolled, dashed portion of the motif. Discovered by Ralph S. Thompson.

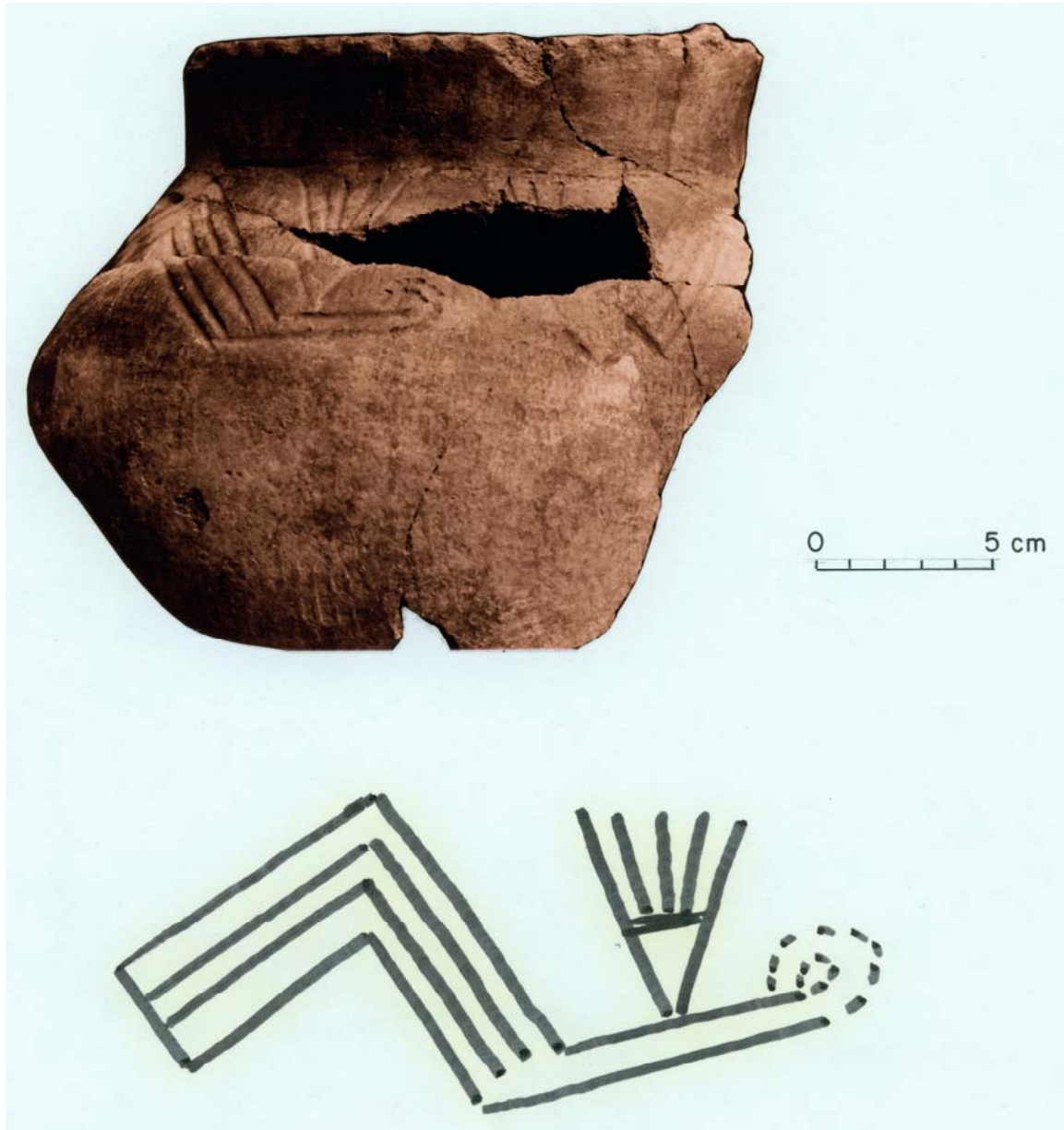


Figure 5.4: On the left, an Extended Middle Missouri style flat axe from 32EM102. On the right, a whelk shell gorget with “weeping eye” Southern Cult motif said to have been found near the Scattered Village site (32MO31). Information furnished by Ralph S. Thompson.



(Lehmer 1971:124). An example made of slate and found by Ralph Thompson is illustrated below (Figure 5.4). It is from the Extended Middle Missouri village site 32EM102. This particular specimen is very unusual in that it has finely incised or scratched decorations on the poll and bit areas of both faces. How late did this style of axe persist in the Middle Missouri subarea? Is this style of axe diagnostic of the entire Terminal Middle Missouri time period (ca. 1100-1550) or just a portion of it? The style extends eastward to the James River Study Unit where an example was found on the surface of the Larson site (32SN106) (cf. Gregg et al. 1987:150).

Regional Interaction

Dentalium sp. shells from prehistoric Plains Village sites, and ethnohistoric references to Mandan and Hidatsa people dealing with other groups in the Rockies, are clear indications of long-range interactions to the West. The long-distance exchange of native materials continued into protohistoric times even after European goods became hot commodities. An example of the protohistoric exchange of native materials is indicated by the recovery of Flattop chalcedony and exotic jasper/chert lithic materials from Lower Hidatsa West in the KNRI (cf. Picha et al. 1989:91).

The whelk shell gorget with “weeping eye” Southern Cult motif illustrated on the following page is said to have been found near Scattered Village (32MO31), the village site where the Crow-Hidatsa schism of oral tradition may have taken place (Will and Hecker 1944:101) (Ralph S. Thompson personal communication to M. Gregg, 1989). This artifact is similar to two others from the “Emmons Mound” in the “vicinity of the Sheyenne Grasslands” (cf. Beckes and Keyser 1983:137-138) and a site near Melita in Southwestern Manitoba (Syms 1988). These artifacts are evidence not only for interaction networks extending from the Middle Missouri subarea to the Gulf Coast (cf. Howard 1953), but from the Middle Missouri subarea throughout the Northeastern Plains.

The topic of Village interaction has been researched to a considerable extent (Ahler and Kay 2007; Wood 1972, 1974, 1980, 1985). External relations involved not only exchanges of material goods, but also exposure to new and different religious practices (including mortuary behavior) as well as techno-economic innovations in the realm of horticulture. Archeological evidence for regional interaction ought to be continually compiled and added to the database developed by Wood. As the database expands, inferences and hypotheses in this historic context can be revised and updated.

Historic Preservation Goals, Priorities, and Strategies

Most of the summer earthlodge villages in the SMRSU escaped total destruction and inundation when Lake Oahe was constructed. This is because the summer villages are typically on terraces elevated high enough above the level of the upper reaches of the reservoir to escape inundation. Further, many village

sites are above the upper end of the Lake Oahe pool along one of the few stretches of the Missouri River in the Dakotas where the valley bottomlands have not been inundated. However, wave action at times of high pool levels has had adverse effects on sites in Emmons County where profile exposures of house floors, refuse pits, and midden areas have invited vandalism and uncontrolled relic hunting. The Missouri River valley archeological research sponsored by the SIRBS was intended to salvage valuable information that would enable better understanding of the prehistoric Village cultures as well as to amass study collections. Post-SIRBS surveys have identified additional eroding sites which previously were unknown and which hold additional valuable information. Ralph S. Thompson suggests salvage work should be conducted at some of these sites for the same reasons and purposes that the SIRBS conducted the earlier work. It is a matter of continuing responsibility for heritage resources in the public domain. Developments have destroyed or severely impacted many villages north and south of Bismarck. There is a need for resurvey of village locations (e.g., Metcalf 2001) in order to evaluate significance and inform landowners of the presence of these resources and the probability of burials at those locations.

Two sites in dire need of attention are 32EM104 which is ca. 1.25 mi south-southwest of Little Beaver Creek Bay and the McKnight Ranch site (32EM5), also known as the Buffalo Corral or Big Beaver Creek site. Ralph S. Thompson noted that these two sites have been in and out of the water with pool level fluctuation, and he suggests that two house features should be salvaged at each site before they are lost forever.

There is a need to review and summarize the mortuary practices of pre-historic and protohistoric Village peoples for preservation planning purposes. It especially would be helpful for the community of cultural resource planners to be able to identify the settings where graves can be expected so that such places can be carefully considered in projects that will alter the natural landscape. Burial sites need to be protected. When disturbances are eminent, human remains need to be salvaged, scientifically analyzed, and identified as to antiquity, race, and tribal affiliation. In the best of worlds, it would benefit science and tribal histories if scientists and Native American tribal culture experts work together to maximize information potential from burials that cannot be protected from disturbance.

Equestrian Period

The Equestrian Period spans the century from AD 1780-1880 during late protohistoric and historic times subsequent to the introduction of the horse and the arrival of Euro-American trade goods (cf. Secoy 1953). This period which witnessed Euro-American exploration and Fur Trade expansionism provides the first written records documenting ethnic or tribal differentiation among the various nomadic societies such as the Yanktonai Dakotas who occupied part of the SMRSU at that time (cf. Warren 1986:147).

Paleo-Environmental Modeling

Tree ring studies from oak trees near Bismarck (Will 1946) indicate dozens of droughty periods alternating with period of favorable precipitation over the past 500 years. While very specific responses of particular cultural groups to such environmental changes may seldom if ever be identifiable archeologically, it ought to be possible to explicate ranges of general cultural responses or adaptations. Did a significant drop in effective moisture mark the end of the Little Ice Age early in the Equestrian period?

Cultural Chronology

The cultural chronology for the Equestrian Period presented here is based primarily on results of ethnohistoric research in conjunction with a few excavated sites such as Ice Glider (32OL110) reported in the literature (cf. Wood ed. 1986). The inception of the Fur Trade coupled with the introduction of the horse gave rise to a new Native American adaptation—nomadic equestrianism. Robert Warren (1986:148) has suggested that 19th century Yanktonai Dakota movements can be bracketed into three arbitrary time periods which coincide with the arrival of Euro-American trade goods and the horse to the region: First (1780-1810), Middle (1811-1830), and Third (1831-1860). Thiessen (1987, 1993) discusses four periods of Fur Trade development based largely on concepts first outlined by Ray (1974, 1978):

- 1) Initial indirect trade period (ca. 1600-1740). This marks the initial introduction of Euro-American trade goods to the Upper Missouri River, primarily through indirect contacts with French traders based out of Montreal (cf. Wood and Thiessen 1985).
- 2) Intermittent direct trade period (ca. 1740-1790). The inception of this period coincides with the first documented Euro-American contact (cf. Howard 1976; Smith 1980). Horses originating from Southwestern sources arrived during this time.
- 3) Frequent direct trade period (ca. 1790-1822). Trade goods and horses become more common with increased contacts with Euro-Americans.
- 4) Final local trade period (ca. 1822-1860). The establishment of fur trade posts such as Fort Clark in the region operationalized the mechanics of local trade prior to the establishment of reservations (cf. Abel 1932; Howard 1976).

This type of chronological scheme appears to hold promise for temporally classifying both Plains Village and Equestrian Nomadic sites in the SMRSU, provided that representative samples of trade materials can be collected using fine-screen recovery during testing and major excavations. The issue of differentiating Mandan, Hidatsa, and Arikara stone circle sites from those of the

Middle Dakota remains to be resolved. However, studies such as that conducted by Warren (1986) for Ice Glider which tie together material culture, subsistence orientation, and ethnohistory are most fruitful for addressing this issue.

Settlement Behavior

The settlement practices of the various Equestrian Nomadic groups who used this area during protohistoric and historic times are thought to have been heavily influenced (if not mandated) by social, economic, and environmental factors (cf. Hanson 1983). Stone circle sites were represented the best of the site types recorded on the Coteau east of the river along the Northern Border Pipeline transect (cf. Root et al. 1983). Most ring sites are inferred to have been temporary camps occupied by prehistoric Woodland and Plains Village peoples in seasonal hunting-and-gathering modes. However, many were surely constructed by equestrian nomads and equestrian villagers. These sites are recorded primarily along ridges or hill crests, often with commanding views of the surroundings. Incomplete ring courses at stone circle sites along with intra-ring artifact density measures can yield information concerning site reuse (Billeck 1983a). It has become clear that some sites containing large numbers of ring features represent locations which were used recurrently (cf. K. Deaver 1985; Deaver and Deaver 1987). Howard's (1976) transcription of the John K. Bear Yankontai Winter Count makes mention of annual reuse of certain locations (cf. Binford 1983b:45-46). How did protohistoric and historic Equestrian Nomadic settlement behavior differ from that of prehistoric nomadic hunter-gatherers?

Native Subsistence Practices

Equestrian Nomadic subsistence practices involved hunting principally bison, plus deer and pronghorn, supplemented by foraging for wild plant foods such as prairie turnip (*Psoralea esculenta*) (cf. Denig 1961:10-13; Reid 1977). The Ice Glider site (32OL110) reported by Warren (1986) provides information for one of the few analyses of excavated faunal remains from an Equestrian Nomadic component in the state. The faunal sample is dominated by bison, deer, and elk along with smaller mammals, birds, and freshwater mussels (Warren 1986:Table 17). Horse bone was also well-represented in the aggregate. Unfortunately, floral remains were not recovered to provide complimentary information concerning the role of plant foods in the diet. What differences should be expected in floral remains recovered from Equestrian Nomadic versus Plains Village winter residential bases?

Technologies

During late prehistoric times, Plains Woodland and Plains Village societies alike experienced varying degrees of cultural change associated with shifts in settlement and subsistence practices. For instance the Cheyenne, once an earthlodge village-dwelling people, adopted a nomadic lifeway (cf. Wood 1971). After the introduction of the horse, they shifted to a full-blown Equestrian

Nomadic lifeway. The well-developed prehistoric Cheyenne Plains Village ceramic technology was largely given up in the transition to nomadism.

Following Euro-American contact, metal tools replaced stone, ceramic, shell, and bone implements in native technologies to a large degree (cf. Hanson 1975; Wood ed. 1986, various chapters). The determination of cultural or ethnic affiliation for many postcontact artifact assemblages based solely on stylistic traits still is evolving. Some items of ceremonial or domestic origin exhibiting specific decorative or stylistic traits may hold information pertinent to this problem. For example, particular decorative motifs inscribed on ice gliders were certainly culturally prescribed (Warren 1986). The difficulty lies in linking these stylistic motifs with the sociocultural groups or associations that used them.

Artifact Styles

In the James River Study Unit, there is a Plains Village archeological complex which first appeared about AD 1200 and continued into protohistoric times in the form of the Stutsman focus as defined by Wheeler (1963). A diagnostic trait of this complex is Buchanan Flared Rim ware as defined by Wheeler. This ceramic makes up 30% of the sample of 530 vessels from the protohistoric Hintz site (32SN3), but it accounts for 100% of the smaller samples from some of the earlier sites. The Plain and Tool Impressed types of Knife River ware may be the latest expression of this pottery. The combination of (1) the occurrence of these ceramics in both the Upper James River and Knife-Heart regions, (2) Hidatsa oral traditions saying the Axaxawi Hidatsa occupied parts of southeastern North Dakota, and (3) the similarity of circular houses with oblique entryways at Hintz and the Amahami site (32ME8) may indicate a possibility that the James River Plains Village materials represent the material culture of the prehistoric Awaxawi Hidatsa (cf. Gregg 1988). What artifact styles of the Equestrian Period are diagnostic of particular tribal groups or subgroups?

Regional Interaction

Culture changes attendant to the adoption of horses likely resulted in modifications of many long-standing patterns of social interaction and trade on the Northern Plains (cf. Wood 1980), particularly those between the Plains Villagers and their non-Village neighbors. Then, following decimation and near extinction by epidemic disease, formerly prominent ethnic groups such as the Hidatsas were no longer any match for rival horse mounted bands of Middle Dakota such as the Yanktonai (cf. Abel 1932). Intergroup hostilities accelerated during the 19th century. In Village sites occupied during the Equestrian Period, what is the archeological evidence of trade with non-Village groups from the Northwestern Plains and the Northeastern Plains?

Historic Preservation Goals, Priorities, and Strategies

Artifact content and information potentials ought to be assessed at a sample of Equestrian period sites. Any site with potential to add information to these contexts should be considered eligible for listing in the NRHP. Develop approaches for distinguishing between protohistoric and Equestrian Nomadic campsites. Continue to review historical records and documents, teaming with tribal historians whenever possible, to provide insights into this period.