The Southern Red River Study Unit

Paul R. Picha, Michael L. Gregg, and Timothy A. Reed
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The Southern Red River Study Unit (SRRSU) is situated in southeastern North Dakota. The Red River of the North is formed by the confluence of the Bois de Sioux and the Otter Tail rivers at Wahpeton, North Dakota and Breckenridge, Minnesota (Souris-Red-Rainy River Basin Commission 1972:130). Because of its similar physiography and glacial history, drainage, and vegetation, the Bois de Sioux River can be considered part of the Red River drainage. West-central Minnesota is located directly to the east across the Red River. South Dakota lies to the south. The Sheyenne River Study Unit forms the northern border, and the James River Study Unit forms the western border.

Description of the Southern Red River Study Unit

The SRRSU includes parts of four counties: Cass, Ransom, Richland, and Sargent. It comprises a 2,401 mi² area in the southeastern corner of the state. Figures 10.1 and 10.1A depict the boundaries and shaded relief of the SRRSU. Table 10.1 is a summary of whole and partial townships included in the SRRSU.

Drainage

The Red River Basin is a part of the Hudson Bay drainage system totaling 20,820 mi² within North Dakota (Souris-Red-Rainy River Basin Commission 1972:129). The basin in North Dakota can be further divided into nine subbasins. For the SRRSU, the most prominent drainages are the Wild Rice and a small segment of the Sheyenne River (see Figures 10.1 and 10.1A). The Red River of the North flows for some 394 river miles to the international border with Manitoba while enroute to Lake Winnipeg and ultimately Hudson Bay.

Physiography

The SRRSU crosscuts the Red River valley and Glaciated Plains physiographic regions of southeastern North Dakota (Bluemle 1989:24). A prominent scarp associated with the western margin of glacial Lake Agassiz forms the boundary between the Red River valley to the east and the Glaciated Plains region to the west.

The Red River valley is a relatively featureless plain resulting from the sedimentation of glacial Lake Agassiz (ibid.:24). Terrain is essentially flat with elevation varying only a few meters over the expansive lake bed except where Holocene drainages have downcut.

Figure 10.1: Map of the Southern Red River Study Unit.

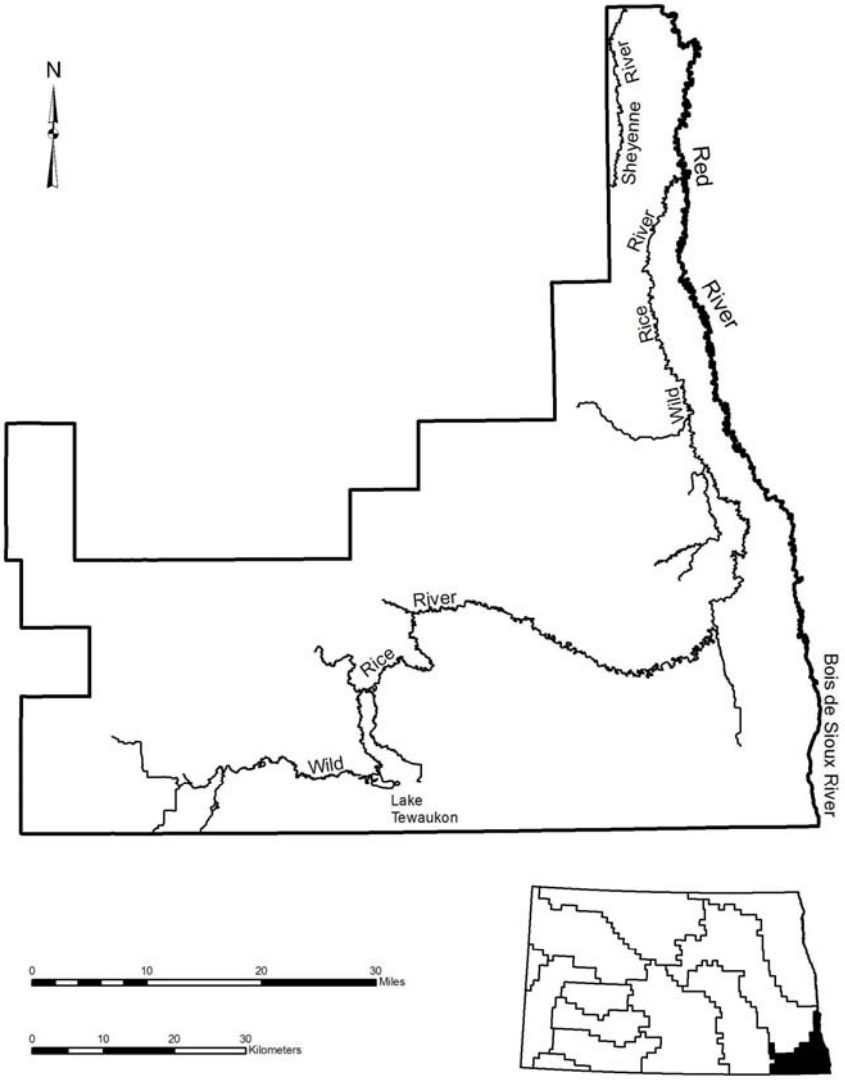

Figure 10.1A: Shaded relief map of the Southern Red River Study Unit.

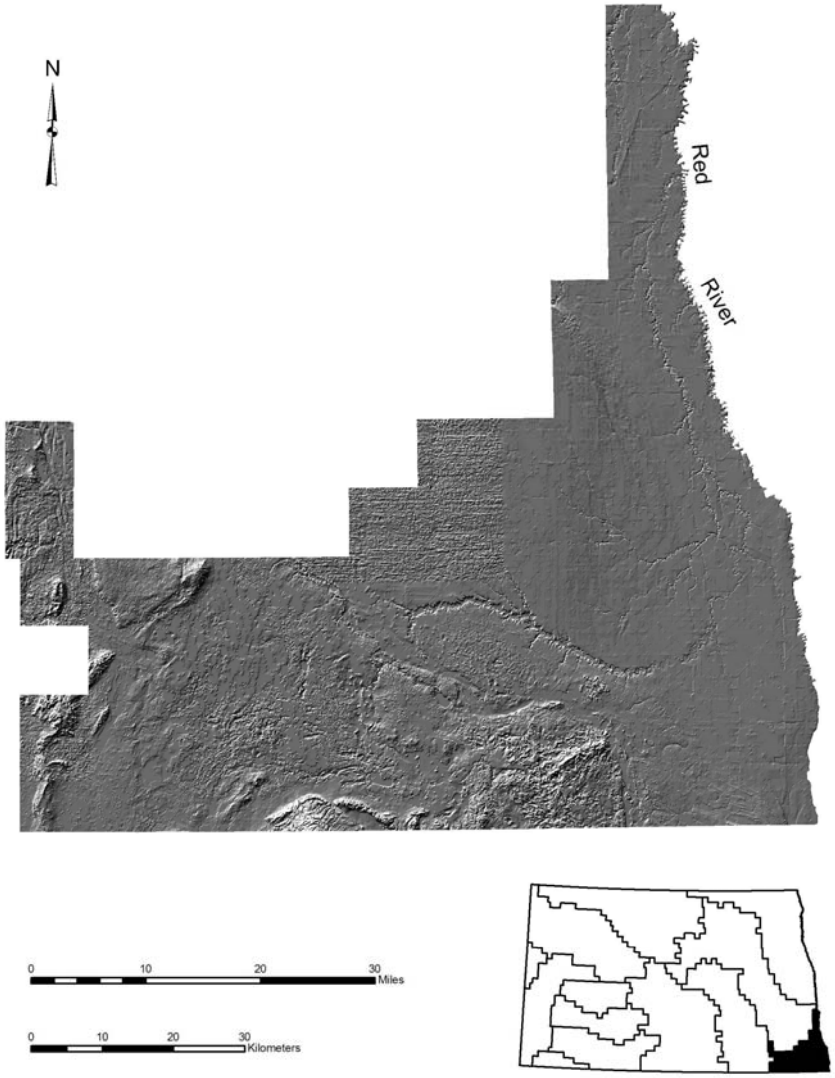

Table 10.1: Townships in the Southern Red Rive Study Unit.

TOWNSHIP	RANGE
129	47
129	48
129	49
129	50
129	51
129	52
129	53
129	53
129	54
129	55
129	56
129	57
129	58
130	47
130	48
130	49
130	50
130	51
130	52
130	53
130	54
130	55
130	56
130	57
130	58
131	47
131	48
131	49
131	50
131	51
131	52
131	53
131	54
131	55
131	56
131	57
132	47
132	48

TOWNSHIP	RANGE
132	49
132	50
132	51
132	52
132	53
132	54
132	55
132	56
132	57
132	58
133	47
133	48
133	49
133	50
133	51
133	52
133	53
133	58
134	48
134	49
134	50
134	51
134	52
134	58
135	48
135	49
135	50
136	48
136	49
136	50
137	48
137	49
138	48
138	49
139	48
139	49
140	48
140	49

The Glaciated Plains, which includes a small wedge of the Prairie Coteau, comprise gently rolling to locally steep relief terrain (cf. ibid.; Brophy and Bluemle 1983:Figure 1). The Prairie Coteau (Sisseton Hills) juts up northwestward from South Dakota.

Few prominent physiographic features other than the Sisseton Hills and tributary valleys of the Red River would have attracted prehistoric settlement. Numerous small pothole lakes dotting the landscape west of the escarpment in Richland and Sargent counties should also have offered concentrated locations of subsistence resources.

Climate

The climate is continental. It is typified by winters which are long and cold offset by short hot summers. Temperatures can vary dramatically during the course of the annual cycle in this region of the Northeastern Plains. The average January temperature for Stutsman County is 7°F while that for July is 70°F (Larsen et al. 1964:1-2). Mean annual precipitation is 20 inches, most of which falls as rain during late spring and early summer. Frost-free days average about 140 in the south and decline to 120 as one moves north along the Red River valley (Anfinson 1990:149).

Understanding of climatic conditions in the SRRSU during the past 13,000 years is based on paleoenvironmental data collected from adjacent regions of the Northern Plains and Midwest and other areas located further afield. Table 10.2 identifies some of these studies.

Table 10.2: Studies Pertaining to Paleoenvironmental Investigations in the Northeastern Plains and Adjacent Regions.

Author and Date	Abbreviated Title
Anfinson and Wright (1990)	Climatic Change and Culture in Prehistoric Minnesota
Ashworth and Cvancara (1983)	Paleoecology of Southern Lake Agassiz Basin
Bartlein et al. (1984)	Holocene Climatic Change in Northern Midwest
Baerreis and Bryson (1965)	Climatic Episodes and Dating Mississippian
Bernabo (1981)	Estimates of Temperature Change Last 2700 Years
Bryson (1985)	Climatic Analogs in Paleoclimatic Reconstruction
Bryson (1987)	Climates of the Holocene
Bryson et al. (1970)	Late-Glacial and Post-Glacial Climatic Changes
Grove (1988)	Little Ice Age
McAndrews (1966)	Postglacial History of Northwestern Minnesota
Rannie (1983)	Red River at Winnipeg During 19th Century
Shay (1969)	Vegetation History, Southern Lake Agassiz Basin
Webb et al. (1983)	Holocene Changes in Vegetation in Midwest
Wendland (1978a)	Holocene Man in North America
Wendland and Bryson (1974)	Dating Climatic Episodes of the Holocene

The last continental glaciers had receded from the SRRSU by about 11,500 years BP. The Study Unit had been covered by the Red River Lobe (cf. Brophy and Bluemle 1983:180; Clayton and Moran 1982:74-75; Hallberg and Kemmis 1986:66). Following recession of the ice, expansive glacial Lake Agassiz was formed (cf. Teller and Clayton 1983). Glacial Lake Agassiz figured prominently in the early prehistory of the SRRSU (cf. Buchner and Pettipas 1990; Pettipas and Buchner 1983). Early on, Lake Agassiz drained southeastward through the River Warren (now Lake Traverse, Big Stone Lake, and the Minnesota River). Lake levels fluctuated in concert with glacial re-advances. A number of prominent strandlines marking former beaches are readily apparent on the ground. More strandlines are visible in oblique aerial photographs. These former beaches include McCauleyville, Campbell, Tintah, Norcross, and Herman (cf. Michlovic 1987:21).

Vegetation mosaics colonized the deglaciated terrain surrounding glacial Lake Agassiz. There were forests of spruce and deciduous trees interspersed with openings dominated by sagebrush (Ashworth and Cvancara 1983). During the following millennia, deciduous forest gave way to prairie grassland by about 9000 BP in much of the SRRSU. Stands of timber remained along prominent drainageways such as the Bois des Sioux-Red, Sheyenne, and the Wild Rice rivers. Prairie predominated until the introduction of mechanized agriculture.

Landforms and Soils

Table 10.3 provides a listing of pedologic and geological studies covering the four-county area within which the SRRSU is contained. Soil surveys prepared by the Natural Resources Conservation Service (NRCS) are available for each of the four counties. Additionally, the North Dakota Geological Survey (NDGS) has published maps of till deposits in the Red River valley in the *Quaternary Geology of Southern Lake Agassiz Basin Guidebook* (Harris et al. 1996).

The primary landforms in the SRRSU include: 1) floodplains, 2) terraces, 3) valley walls, 4) alluvial/colluvial fans, and 5) upland plains (cf. Larsen et al. 1964; Thompson and Joos 1975). Soils found on these landforms formed under a variety of pedogenic regimes (cf. Birkeland 1984:Figures 2.1, 2.2).

Floodplains

The floodplains of the major river valleys (e.g., Red, Sheyenne, Wild Rice) are the portions of the valleys susceptible to annual flooding. The broad, flat lacustrine plain of glacial Lake Agassiz offers little to impede overbank flow once the Red River has reached flood stage. Modern 20th century solutions to this problem include construction of levees and other diversion features.

Table 10.3: Summary of Geologic and Pedologic Studies in the Southern Red River Study Unit by County.

County	Geology, NDGS[a] Author(s) and Date	Pedology, NRCS[b] Author(s) and Date
Cass	Arndt and Moran (1974) Klausing (1968)	Prochnow et al. (1985)
Ransom	Bluemle (1979)	Thompson and Joos (1975)
Richland	Baker (1967)	Thompson and Joos (1975)
Sargent	Nielson (1973) Bluemle (1979)	Larsen et al. (1964)
Tri-County		Omodt et al. (1966)
General[c]	Arndt (1977) Clayton and Moran (1982) Clayton, Moran, et al. (1980) Hallberg and Kemmis (1986) Harris et al. (1996) Teller and Clayton (1983) Upham (1895) Atlas Map 15, Sheyenne River (Harris 1989) USGS (n.d.)	Foss et al. (1985) Foss (n.d.) Smith (n.d.) Birkeland (1984) Holliday (1990) NRCS (1975)
[a]North Dakota Geological Survey; [b]Natural Resources Conservation Service; [c]applies to SRRSU		

The present-day Red River (along with the Wild Rice River) is characterized by a meandering course with numerous old channel scars. Michlovic (1987:10, citing Smith n.d.) suggests that the Red River had assumed its laterally moving meandering coarse by about 4500 BP.

Terraces

Holocene terraces occur along many tributary stream channels. Buried topsoils (paleosols) can be expected to occur in these settings. The paleosols sometimes contain archeological remains (cf. Michlovic 1988:58).

Valley Walls

Major river valley walls are sometimes draped with a veneer of glacial till. Till is exposed along portions of the Red River drainage.

Alluvial/Colluvial Fans

These fans occur in both large and small valleys throughout the Northern Plains. Sediments deposited by permanent and ephemeral streams entering these drainageways collect in these fan formations (cf. Hajic 1990:51-57). Michlovic (1987:10) has suggested that early and middle Holocene age cultural deposits may be preserved in these settings along the lateral margins of the Red River valley.

Upland Plains

Till plains occur in upland settings west of the beach ridges. Glacial outwash is mantled over older deposits. To the east, exposures of till occur in spots on the glacial lacustrine plain.

The NRCS official soil survey resources are available on the internet (NRCS 2007a, b, and 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.usda.gov
Web Soil Survey: http://websoilsurvey.nrcs.usda.gov/app/

Flora and Fauna

The Red River-Bois de Sioux and Wild Rice River valleys and the surrounding environs support a variety of plant and animal communities. Northern floodplain forest occurs along the banks of the major rivers and streams. Open gallery stands of elm-ash-cottonwood along with box elder, basswood, and bur oak predominate (Anfinson 1990:149). Much of the surrounding area prior to Euro-American contact was in tall grass (cf. *Andropogon gerardi)* prairie. Tall and medium-grass prairie extended westward from the Red River valley onto the rolling Glaciated Plains. Important plant foods present on the prairie included prairie turnip *(Psoralea esculenta)* and Indian pea *(Astragalus* caryocarpus)(cf. Michlovic 1984b:17). Wild rice *(Zizania aqautica)* was another food available for harvest along stretches of the Red and Wild Rice rivers (cf. Haberman 1978:16; Ritterbush 1990:60-63).

The riparian woodland and prairie floral communities provided habitat for various fauna. Large ungulates included bison, moose, elk, and white-tailed deer (cf. Bailey 1926; Reid and Cannon 1928). Fur-bearing mammals such as beaver, muskrat, and fox were present as well (cf. Gough 1988; Hickerson 1956). Various fish and mussel species along with turtles occur in the Red River and its tributaries (cf. Cvancara 1983). Avian species including migratory waterfowl were also common in the valley and surrounding wetlands. Many of these creatures were sources of food, furs, and feathers for native groups. Table 10.4 provides a listing of fauna remains recovered from Red River valley archeological sites near this unit (Femco [21WL1] and Mooney [21NR29]).

Other Natural Resource Potential

Water resources were critical for supporting permanent or annual settlement. Concentrations of sites along the banks of the Red River attest to its importance. Clay deposits may have been important in certain locations during

Table 10.4: Summary of Animal Remains Recovered from Archeological Sites in the Red River Valley near the Southern Red River Study Unit (adapted from Michlovic 1987:15).

Class	Species
Large Mammal	Bison (*Bison bison)* Elk (*Cervus elaphus)* Deer (*Odocoileus* sp.)
Small Mammal	Squirrel (*Scuiridae*) Pocket Gopher (*Geomys*) Skunk (*Mephitis*) Beaver (*Caster canadensis*) Muskrat (*Ondatra*) Dog / Wolf (*Canis*) Raccoon (*Procyon lotor*) Badger (*Taxidea taxus*)
Birds	Ducks (*Aythyinae, Anatinae, Anatidae*) Coot (*Fulica americana*) Hawk (*Accipitridae*) Pigeon (*Columbidae*)
Fish	Pike (*Escocidae*) Catfish (*Ictaluridae*) Sucker (*Catostomidae*) Walleye (*Stizostedian* sp.) Drum (*Aplodinotus grunniens*) Sunfish (*Centrachidae*)
Turtle	Box Turtle (*Emyidae*) Snapping Turtle (*Chelydra*)

Woodland and Plains Village periods. The extent to which the rich Red River valley silt loams were used for prehistoric garden plots remains to be assessed.

Knappable stone is available only in secondary deposits of pebbles and cobbles in glacial till, stream gravels, and the former shorelines and strandlines of Glacial Lake Agassiz. Vast extents of the former lakebed contain no sediments larger than silts. Long-term settlement in such areas would have necessitated long-distance transport of stone when needed.

Overview of Previous Archeological Work

The SRRSU may have witnessed the least archeological work of any of the 13 study units judging from the scant inventory and testing information and other site data discussed below. Most of this work has been conducted in compliance with federal regulations pertaining to construction of wastewater facilities, power transmission lines, fiber optics and cellular communications, bridge replacements, and roadway construction.

Inventory Projects

As of 13 September 2007, there were 49 sites and 62 site leads recorded in the state site data file for the SRRSU. With the SRRSU covering a 2,401 mi^2 area, there is one site recorded per 49 mi^2. This site density is the lowest for any of the

study units. Less than 4 percent of the SRRSU has been intensively surveyed (September 2007). These figures reflect the paucity of archeological work conducted in the southern Red River Basin as a whole rather than indicating actual site density.

> Surveys have shown that prehistoric sites in the valley are abundant. Most of the 100 new ones found in the plowed fields of Wilkin, Clay, and Norman counties of Minnesota and Cass County of North Dakota are on the levee deposits of the Red River; extrapolating from this information, we might suggest about 1,000 on both sides of the Red between Breckenridge, Minnesota, and Winnipeg (Michlovic 1988:56).

Tables 10.5 and 10.6 present data for 1) cultural/temporal affiliation(s) and 2) property types by the landforms on which they are located. Cultural material scatters and other rock features are the best represented classes in the sample, followed by graves and mounds. The site lead data suggest that additional mounds (n=9) and cultural material scatters await recording within the Sargent County portion of the SRRSU. Only about one-third of the sites are assigned to a specific prehistoric period and primarily they are late. However, Middle Woodland and earlier sites are known but are not coded in the NDCRS database.

Some of the earliest site surveys in the SRRSU were conducted between 1959 and 1961 by the University of Minnesota. This work was part of a larger research project aimed at the prehistory of the Red River valley (cf. Johnson n.d., 1962). These and other survey reports for the SRRSU are listed in Table 10.7.

Nelson (1973) conducted archeological reconnaissance in southeastern North Dakota. He recorded several prominent sites (e.g., 32SA101).

University of North Dakota archeologists were involved with survey work in the proposed Garrison Diversion Unit-Southern Section in Sargent County for the Bureau of Reclamation between 1974 and 1976. The following year, Good, Kinney, et al. (1977) reported a survey conducted along a 14.5 mi (23 km) stretch of the upper reaches of the Wild Rice River and the shoreline of Lake Tewaukon. No prehistoric sites were recorded along the Wild Rice River. Three prehistoric sites were found along the lake shoreline including the Lake Tewaukon site (32SA211) reported by Haberman (1978). Haberman's report describes the remains of a human burial along with a KRF biface salvaged from the shoreline (ibid.:222-223).

Sample survey work conducted in 1978 in Clay County, Minnesota was reported (Minnesota Historical Society 1981:29-32; Michlovic 1979c). A total of 131 (40 acre) survey units were sampled; 14 prehistoric sites were found (ibid.: Table 3g). The sample survey units were grouped according to four strata: 1)

streamshore, 2) Lake Agassiz beach ridges, 3) intersection of beach ridges with rivers, and 4) away-from-water. The sample universe was estimated to cover 740 mi^2. Streamshore units produced the highest frequency and percentage of sites (Table 10.8). As expected, away-from-water units contained the least number of sites.

Table 10.5: Cultural/Temporal Affiliation for Archeological Sites in the Southern Red River Study Unit, 13-Sept-2007.

Archaic	
Oxbow	1
Total	**1**
Woodland	
Unspecified	14
Late Woodland	10
Arvilla	2
Total	**26**
Plains Village	
Total	**1**
Historic	
Euro-American	4
Total	**4**
Unknown	**83**

Table 10.6: Feature Type by Landform for Archeological Sites in the Southern Red River Study Unit, 13-Sept-2007.

	Cultural Material Scatter	Earthworks	Grave	Mound	Other Rock Features	Pit	Rock Art	Stone Circle	Total
Beachline (glacial)	1								1
Beach or riverbank	3		1						4
Upland plain	3			1	2				6
Floodplain	9								9
Hill - Knoll - Bluff	7				4				11
Ridge	1	1			1	1	1	1	6
Saddle	1								1
Terrace	8								8
Foot slope	2				2	1			5
Other	1		1	1					3
Lacustrian plain	1								1
Levee	1								1
Total	38	1	2	2	9	2	1	1	56

Table 10.7: Inventory Projects in the Southern Red 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 Co., ND	4184
1973	Nelson, L.		Archaeological Survey in Portions of Southeastern ND, Northeastern SD, and West-Central MN, Sargent & Ransom Counties, ND	83
1974	Carmichael, G.		The Archaeological Survey Along the Proposed Route of Dome Pipeline in ND	93
1974	Schneider, F.	R. Vehik	Archaeological Surveys in the Garrison Diversion Unit, ND	107
1975	Franke, N.		ND Highway Department Project No. R 2-8-013 ( ) 339, Negative Declaration Survey Report, Richland & Sargent Counties, ND	242
1976	Good, K.	J. Dahlberg et al.	Archaeology Investigations in the LaMoure-Oakes Project Area, Garrison Diversion, Sargent, LaMoure, & Stutsman Counties, ND	102
1977	Good, K.	W. Kenney et al.	Archaeological Investigations in the LaMoure-Oakes and Wild Rice River Project Areas, Sargent, LaMoure, & Stutsman Counties, ND	103
1978	Dill, C.		Fish & Wildlife Service Lake Tewaukon Refuge Headquarters Housing, Sargent Co., Negative Declaration Survey Report	292
1978	Loendorf, L.		US Fish & Wildlife Service Proposed Dike, Tewaukon National Wildlife Refuge, Survey, Sargent Co., ND	335
1978	Schreiner, M.		Cultural Resource Inventory of Proposed Landing Strip at Hankinson, Richland Co., ND	331
1978	Schreiner, M.		Cultural Resource Inventory of the Proposed Mooreton, Richland Co., ND, Sewage Disposal Area	334
1978	Schreiner, M.		Cultural Resource Inventory of the Proposed Sewage Lagoon at Hankinson, Richland Co., ND	165
1978	Vehik, R.		An Archaeological Survey of Selected Portions of the Lower and Middle Sheyenne River Basin in ND	222
1979	Loendorf, L.		Fort Abercrombie Bridge Across the Red River Survey Report, Richland Co., ND	725
1979	Michlovic, M.		Archaeological Reconnaissance in Reed Township, Cass Co., ND	635
1979	Michlovic, M.		Archaeological Reconnaissance in the Vicinity of the Breckenridge-Wahpeton Interstate Airport, Wahpeton, Richland Co., ND	877
1979	Ramsey, R.		An Historic Sites Inventory, For Fargo, Cass Co., ND	4657
1980	Elliot, C.		Lake Agassiz Regional Planning Council Abercrombie, Lidgerwood, and Fairmount Surveys Report, Richland Co., ND	979
1980	Gregg, M.		Class III Intensive Inventory for All Cultural Resources at a Proposed Wastewater Treatment Facility Improvement, Town of Dwight, Richland Co., ND	1006
1980	Michlovic, M.		Archaeological Reconnaissance at the Wastewater Facilities Plan Site, Cass Co., ND	1578
1981	Loendorf, L.		Cultural Resource Inventory of the Proposed Expansion to the Wastewater Treatment Facility for the City of Fargo, Cass Co., ND	3288
1981	Michlovic, M.		Archaeological Reconnaissance at the Milnor Wastewater Facilities Site, Sargent Co., ND	1621
1982	Michlovic, M.		Field Check for Cultural Resources on 40-50 Acres of Reed Township, Just North of Fargo, Cass Co., ND	2863
1983	Schweigert, K.	P. Jessen	Architectural Recordation and Supplementary Recordation, LaMoure-Oakes Projects Areas, Garrison Diversion Unit, Dickey, Sargent, & LaMoure Counties, ND	3474

Year	First Author	Second Author	Title	Ms #
1986	Fiege, M.	F. Quivi et al.	Historic Resources of North Side Fargo, Cass Co., ND: Inventory and Assessment	4329
1986	Granger, S.	S. Kelly	Final Report of the Fargo Inventory Project, Cass Co., ND Cultural Resources Survey 1985-1986	4328
1986	Loendorf, L.		Cultural Resource Survey for the Proposed Sewer Rehabilitation, North Fargo, Cass Co., ND	4230
1986	Michlovic, M.		Archaeological Survey & Test Excavations in Cass Co., N.D.	4295
1986	Michlovic, M.		Letter Report: Statement of "No Effect" Regarding Archaeological Materials in the Vicinity of the City of Lidgerwood's Planned Wastewater Facility Expansion, Richland Co., ND	4006
1986	Michlovic, M.		Letter Report: Statement of No Effect Regarding Archaeological Materials in the Vicinity of the City of Fairmount's Planned EPA Facility, Richland Co., ND	4013
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	Schimmer, J.		Final Report Field Reconnaissance Survey of Churches in Barnes, Ransom, Richland, Sargent & Steele Counties, ND	4280
1988	Artz, J.		A Class III Cultural Resource Survey in Portions of the Tewaukon Game Management Area, Sargent Co., ND	4616
1988	Floodman, M.		Final Report of the Phase I Cultural Resources Investigation of a Proposed Flood Control Project Along the Sheyenne River, at West Fargo, Cass Co., ND	4504
1988	Schweigert, K.		Cultural Inventory of Two Farmsteads Near Fargo, Cass Co., ND	4599
1989	Borchert, J.	L. Loendorf	Englevale MR&I Project Cultural Resources Inventory Ransom Co., ND	4812
1989	Borchert, J.		Hamlin Bridge Replacement Bridge No. 135-08.0 CBRS 4110 (52) Cultural Resource Inventory, Sargent Co., ND	4873
1989	Hill, M.		A Cultural Resources Survey for the Proposed Bachelor Stockpond Project on the Sheyenne National Grassland, Richland Co., ND	4758
1989	Loendorf, L.		A Cultural Resource Survey of the Proposed Wahpeton Wastewater Treatment Facility, Richland Co., ND	4951
1989	Michlovic, M.		Great Bend Lagoon Project, Richland Co., ND	4683
1989	Peterson, L.	G. Wermers et al.	A Class III Cultural Resource Inventory For A RSR Electric Line Project Sargent Co., ND	4915
1989	Späth, C.		Gwinner Water Tower and Water Treatment Plant in Sargent Co, Class III Cultural Resource Inventory	4930
1990	Deaver, S.	M. Bergstrom	Arsenic Ground Water Cultural Resources Survey in Richland, Sargent and Ransom Counties, ND	5061
1990	Edevold, M.	T. Edevold et al.	Red River Valley Archaeological Survey 1987, in Cass Co., ND	5323
1990	Floodman, M.		FDR 201 Road Improvement Project Sheyenne National Grasslands Sections 9 & 10 T133N R52W Richland Co., ND	5169
1990	Floodman, M.		Rotenberger Land Exchange Sheyenne National Grasslands Section 6 T133N R53W Ransom Co., ND	5185
1990	Floodman, M.		South Frisk Allotment Stock Pond Sheyenne National Grasslands Section 5 T134N R52W Richland Co., ND	5186
1990	Floodman, M.		South's East Allotment Dune Stabilization Sheyenne National Grasslands Section 18 T133N R52W Richland Co., ND	5187
1990	Michlovic, M.		Reconnaissance Survey of the Southeast Cass Water Resource District Sewer Improvement District #89-1 Project, Cass Co., ND	5095
1990	Peterson, L.		A Class III Inventory of the Proposed Hamlin Bridge Replacement and Channel Change Area, Sargent Co., ND	5119
1990	Schweigert, K.		Cenex Pipeline Company Fargo Extension, Steele, Griggs, Foster, Cass, Barnes, Eddy, Wells, Pierce, McHenry, & Ward Counties, Class III Cultural Resource Survey	5443

Year	First Author	Second Author	Title	Ms #
1990	Späth, C.		Proposed Bridge #142-18.0, Red River Crossing at Cass Co., Road #22, ND Cultural Resource Inventory	5064
1991	Floodman, M.		Hankinson Allotment Powerline Sheyenne National Grasslands Section 32, T131N R50W Richland Co., ND	5530
1991	Good, K.		12th Avenue Northwest Improvement Project Fargo, Cass, Co., ND M-8-984(034)033	5688
1991	Lewis, R.		Rutland, Sargent Co., ND	5396
1991	Lewis, R.		South Bank Stabilization, Sargent Co., ND	5398
1992	Driscoll, P.	M. Gregg	1992 Wildlife Development Area Surveys in Ramsey, Sheridan, Sargent, & McLean Counties, Central & Eastern ND	5881
1992	Floodman, M.		R Allotment Dune Stabilization Sheyenne National Grasslands Section 27 T134N R52W Richland Co., ND	5871
1992	Floodman, M.		R. Allotment Reseeding Sheyenne National Grasslands Section 3, T133N R52W Richland Co., ND	5870
1992	Johnson, L.	M. Hufstetler et al.	Historic Bridges in ND	5920
1992	Michlovic, M.		Cultural Resources Survey (Class III) At the Abercrombie, Richland Co., ND Wastewater Treatment Facility	5835
1992	Michlovic, M.		Cultural Resources Survey (Class III) In the Sheyenne Shadows Subdivision, Cass Co., ND	5834
1992	Stine, E.		Sheyenne River Bridge Replacement A Class III Cultural Resource Inventory Cass Co., ND	5817
1992	Stine, E.		Wild Rice River Bridge Replacement A Class III Cultural Resource Inventory Cass Co., ND	5823
1993	Martorano, M.	T. Anderson	Cultural Resources Survey Report Class III Cultural Resource Inventory Item No. 1, Ten Microwave Repeater Sites, ND	6090
1994	Kinney, W.		Dakota Magic Casino Survey A Cultural Resource Report of an Intensive Class III Survey For the Sisseton-Wahpeton Sioux Tribe Richland Co., ND	6381
1994	Kulevsky, A.		RSR Electric Cooperative's Cable Corridor for Irrigation System: A Class III Cultural Resource Inventory in Sargent Co., ND	6322
1994	Lewis, R.	R. Hoflen	Small Projects in Tewaukon Refuge, Sargent Co., ND	6323
1994	Snortland, J.		Richland County EWP 077-001A Cultural Resources Class III Survey	6374
1994	Snortland, J.		Richland County EWP 077-001B Cultural Resources Class III Survey	6373
1994	Snortland, J.		Richland County Soil Conservation Service Borrow Area Class III Survey	6375
1994	Toom, D.		Bridge Replacements, Archeological Sites, & Archeological Site Surveys in ND	6249
1995	Borchert, J.		ND Department of Transportation Material Source Projects Cultural Resource Review 1989-1994	6509
1995	Borchert, J.		ND Department of Transportation Safety Project Cultural Resource Review 1992-1994	6449
1995	Floodman, M.		Hanson Allotment Flowing Well Sheyenne National Grasslands Ransom Co., ND	6553
1995	Kinney, W.		Three Borrow Areas in Richland County ND Project #BRO-39(19) & #BRO-(20). A Report of an Intensive Class III Cultural Resource Inventory for Gutzmer Construction	6544
1995	Kordecki, C.		Kidder-Progold Transmission Line Cultural Resources Inventory, Richland Co., ND	6534
1995	Kordecki, C.		Log Piles of Cass, McHenry, Ransom & Walsh Counties ND, Cultural Resources Inventory	6565
1995	Kulevsky, A.		ProGold's Corn Processing Plant: A Class III Cultural Resources Inventory in Richland Co., ND	6606
1995	Kulevsky, A.		RSR Electrics 1995-1998 Construction Plan: A Class II & Class III Cultural Resource Inventory in Ransom, Richland & Sargent Counties, ND	6500
1995	Stine, E.		Gravel Products' Gravel Pit: A Class III Cultural Resource Inventory in Ransom Co., ND	6488

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1995	Wermers, G.	D. Klinner	Richland County Road Improvement Project: Results of the Class II and III Cultural Resources Inventories Conducted for Kadrmas, Lee & Jackson, P.C. and Richland Co., ND	6462
1996	Ketz, K.	M. Kullen	Cultural Resources Survey in Cass Co., (Class II Reconnaissance Inventory) for Projects 4693-1, 4694-1, 4695-1, 4696-1 for the City of Fargo, Engineering Department	6820
1996	Kinney, W.		Results of the Class III Cultural Resource Inventory for the Christine, Richland Co., ND-Wolverton, MN Lagoon Expansion & Forcemain Improvements. Project No. 9401, Moore Engineering, West Fargo, ND	6772
1996	Kulevsky, A.		Interstate Engineering's Pitcairn Creek Bridge Replacement: A Class III Cultural Resource Inventory in Richland Co., ND	6775
1996	Stine, E.		Two Bridges in Richland County, ND: A Class III Cultural Resource Inventory	6781
1996	Stine, E.		Wild Rice River Bridge Replacement: A Class III Cultural Resource Inventory in Richland Co., ND	6784
1997	Kinney, W.		Reservoir "C," A Class III Cultural Resource Inventory for a Proposed Reservoir Upgrade in Richland Co., ND	7057
1997	Kordecki, C.	J. Bales	Radio Tower Locations in a Multi-County Area of Central and Southeastern ND: 1995 & 1996 Cultural Resources Inventory	6860
1997	Sather, D.		Historic Sites Archaeology in Fargo: Preliminary Archival and Archaeological Investigations of the Potential for Historic-Age Archaeological Deposits Within Specified Areas of Fargo, Cass Co., ND	7100
1997	Scott, J.		Gutzmer-1 Borrow Area: A Class III Cultural Resource Inventory, Richland Co., ND	6970
1997	Scott, J.		Gutzmer-2 Borrow Area & Access Road: A Class III Cultural Resource Inventory, Richland Co., ND	6971
1997	Scott, J.		Gutzmer-3 Borrow Area: A Class III Cultural Resource Inventory, Richland Co., ND	6972
1997	Scott, J.		Two Borrow Areas for Dakota Bridge: A Class III Cultural Resource Inventory, Richland Co., ND	6974
1998	Bourgerie, G.	E. Abel	Class II Reconnaissance Inventory For Project 4814 City of Fargo, Engineering Department Cass Co., ND	7216
1998	Floodman, M.		USDA Forest Service Dakota Prairie Grasslands Report to ND SHPO: Project Effects to Cultural Resources Sites, Sheyenne Road Repairs in Ransom & Richland Counties, ND	7264
1998	Kinney, W.		Sargent County Bridge No. 132-10.0 Replacement, NDDOT Project No. DPI-0036(005)411. A Class III Cultural Resource Inventory	7302
1998	Kinney, W.		The Evanson & Anderson Waterfall Production Areas. A Class III Cultural Resource Inventory of the Route of a Proposed Underground Electric Cable in Sargent Co., ND	7102
1998	Kinney, W.		The Proposed Route of the Sun Valley Products Forced Main, Cass Co., ND, A Class III Cultural Resource Inventory Report	7131
1998	Larson, T.		Addendum: 1998 Cultural Resource Investigations for the Ransom-Sargent Water Project (in Ransom, Sargent, LaMoure & Barnes Counties, ND)	9078
1998	Larson, T.	D. Penny et al.	Results of a Class II & III Cultural Resource Inventory for Ransom-Sargent Water Users, Inc., Barnes, Cass, Dickey, LaMoure, Ransom & Sargent Counties, ND, Vols. I & II	9093
1998	Larson, T.		Results of a Class III Cultural Resource Inventory for NDDOT Project Areas NHU-8-210(007)000, NH-8-013()379 and NH-8-013()380, Richland Co., ND	7167
1998	Rothwell, S.		Report 1 for the 1998 Field Season: Cultural Resource Inventories for the Cass Rural Water System, Cass Co., ND	7223
1998	Stine, E.	D. Forsberg et al.	A Class III Cultural Resource Inventory of the ND Segment of the Alliance Pipeline (Milepost 0 to 323.87)	7227
1999	Floodman, M.		Sheyenne District Well Plugging FY 2000 in Ransom & Richland Co., ND	7567

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1999	Gnabasik, V.		A Phase I Cultural Resources Investigation of Three Proposed Bank Protection Areas in the City of Fargo, Cass Co., ND	7430
1999	Isern, T.	K. Nesemeier	Wrought Iron Cross Cemeteries in ND - Continuing Survey, 1998-99	7725
1999	Kinney, W.		A Class III Cultural Resource Inventory of Both ROWs of ND Highway 32 From Lisbon to its Intersection with ND Highway 13 at Gwinner, ND, Ransom & Sargent Counties, ND	7486
1999	Kinney, W.		Airport Park, Wahpeton, a Class III Cultural Resource Inventory for Richland Co., ND	7421
1999	Kinney, W.		Richland County Bridge Replacement Project NDDOT #BRO-39(15). Class III Cultural Resource Inventory Report	7334
1999	Kulevsky, A.	M. Hannum	A Class III Cultural Resource Inventory of the ND Segment of the Alliance Pipeline Addendum: Extra Workspaces, Pipe Make-Up Areas, and Route Variations in Pierce, Wells, Barnes, Cass & Richland Counties, ND	7603
1999	Landrum III, J.	T. Kitch et al.	A Class III Cultural Resources Investigation of the Proposed Abercrombie Boat Ramp, Abercrombie, Richland Co., ND	7464
1999	Lewis, R.		Tewaukon National Wildlife Refuge Bank Stabilization 99TWK004 in Sargent Co., ND	7405
1999	Lewis, R.		Tewaukon National Wildlife Refuge Pole Barn Replacement 99TWK002 in Sargent Co., ND	7403
1999	Lewis, R.		Tewaukon National Wildlife Refuge Sprague Lake Projects 99TWK001 in Sargent Co., ND	7402
1999	Lewis, R.		Tewaukon National Wildlife Refuge Wild Rice Dike Repair 99TWK003 in Sargent Co., ND	7404
1999	Michlovic, M.	D. Sather	Cultural Resources Survey of the Cass Co., Highway #14 Construction, Cass Co., ND	7330
1999	Morrison, J.		Cass Co., Highway 81 Survey: Class II and III Cultural Resource Inventory, Cass Co., ND	7463
1999	Ness, M.		Results of a Historic Architecture Study from 6th Avenue to 13th Avenue South & University Drive to Mid-Block of 14th Street South, Fargo, Cass Co., ND	7595
1999	Scott, J.		Cass Co., Highway 16 Bridge Replacement: A Class III Cultural Resource Inventory, Cass Co., ND	7432
1999	Scott, J.		Cass Co., Highway 81 Bridge Replacement: A Class III Cultural Resource Inventory, Cass Co., ND	7426
2000	Boder, T.		Class III Cultural Resource Inventory Cass County, Diversion Project, Stanley Township, Cass Co., ND	7597
2000	Forsberg, D.	B. Mitchell et al.	Alliance Pipeline Project: A Class III Cultural Resource Inventory of the ND Segment of the Alliance Pipeline, Addendum: Access Roads and Shooflies	7563
2000	Kinney, W.		Proposed Cossette Borrow Pit for NDDOT No. BRC-0957(054) in Cass Co., ND, A Class III Cultural Resource Inventory Report	7700
2000	Kinney, W.		Richland County Bridge #122-08.0 Replacement. A Class III Cultural Resource Inventory Report	7558
2000	Morrison, J.		Highway 13 from Gwinner, ND to Highway 1: A Class III Cultural Resource Inventory in Dickey & Sargent Counties, ND	7651
2000	Olson, B.		FSA Peterson Farm Sargent Co., ND: A Class III Cultural Resources Inventory	7570
2000	Olson, B.		Otter Tail Power Company Emergency Powerline Replacement Near Forman, Sargent Co., ND Cultural Resources Inventory Report	7599
2000	Stine, E.	F. Florin et al.	Phase I Cultural Resource Investigation of Proposed Levee Alignments at the City of Wahpeton, Richland, Co., ND	7594
2000	Straka, J.	D. Stanley	Cultural Resources Inventory for a Proposed Cell Phone Tower in Brandenberg Township Richland Co., ND Sec 33, T131N, R49W Project No. SAC-5015	7787

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2000	Straka, J.	D. Stanley	Cultural Resources Inventory for a Proposed Cell Phone Tower in Colfax Township Richland Co., ND Sec 34, T135N, R49W Project No. SAC-5017	7788
2000	Straka, J.	D. Stanley	Cultural Resources Inventory for a Proposed Cell Phone Tower in Ibsen Township Richland Co., ND Sec 27, T133N, R49W Project No. SAC-5016	7789
2000	Toom, D.	M. Jackson	Red River Basin Riparian Project Cultural Resources Surveys of the Richard Freeman Property in Cass Co., & the Roger Weinlaeder Property in Walsh Co., ND	7774
2000	Wermers, G.		Thirteen NDDOT Living Snow Fence Planting Areas in Adams, Oliver, Burleigh, Barnes, & Cass Counties, ND	7646
2000	Westover, A.		Phase I Cultural Resources Survey Section 206 Rock Slope Fishways Project Red River of the North, Fargo, Cass Co., ND & Moorhead, MN	8174
2001	Bluemle, W.		NDDOT Scenic Routes: A Class III Cultural Resource Inventory, Barnes & Ransom Co., ND	7843
2001	Floodman, M.		Fiscal Year 2001 Abandoned Well Plugging and Berg Corral, Sheyenne Ranger District, Ransom & Richland Counties, ND	7909
2001	Hall, D.		Cultural Resource Survey Western Area Power Administration Fiber Optic Cable Installation Cass Co., Fargo, ND	8028
2001	Johnson, D.		Geophysical Investigation at Fort Abercrombie State Historic Site, ND	9733
2001	Kinney, W.		A Richland County Borrow Area For NDDOT Project Number BRO-39(010). A Class III Cultural Resource Report	8065
2001	Kinney, W.		Class III Cultural Resource Inventory For NDDOT BRO-39(10), a Bridge Replacement Project, Richland Co., Bridge #39-110-30.0 (32RI738)	7879
2001	Springer, K.		A Preliminary Cultural Resources Inventory of the Colfax Emergency Watershed Protection Project, Richland Co., ND	8100
2002	Bluemle, W.		Danny's Gravel Pit #1: A Class III Cultural Resource Inventory, Ransom Co., ND	9091
2002	Bluemle, W.		Danny's Gravel Pit #2: A Class III Cultural Resource Inventory, Ransom Co., ND	9092
2002	Bluemle, W.		Smith Borrow Area: A Class III Cultural Resource Inventory, Cass Co., ND	8359
2002	Borchert, J.		I-94 Fargo, Class II Cultural Resource Inventory, Cass Co., ND	8258
2002	Floodman, M.		Dakota Prairie Grasslands FY 02 Well Plugging Projects McKenzie, Billings, Ransom & Richland Counties, ND	8210
2002	Floodman, M.		Hankinson Hills Campground & Trail Richland Co., ND	8394
2002	Kinney, W.		Class III Cultural Resource Inventory For Richland Co., ND Bridge Replacement Project Number BRO-39(031)	8166
2002	Kinney, W.		Results of a Class III Cultural Resource Inventory at Two Existing Bridge Locations & the Site of Proposed New Bridge Construction for BRO-39(029) Richland Co., ND	8387
2002	Kinney, W.		Richland County Bridge Replacement Project Number BRO-39(030). A Class III Cultural Resource Inventory Report	8168
2002	Murdy, C.		A Class III Cultural Resource Survey of the White Rock Pipeline, LLC, Roberts Co., SD & Richland Co., ND	8322
2002	Nienow, J.	K. Breakey	Phase I Archaeological Investigations of Proposed Levee Alignments & Ponding Areas in the City of Wahpeton, Richland Co., ND	8370
2002	Penner, B.		Phase I & II Archaeological Investigations of the Proposed Replacement of the TH 10 (Main Avenue) Bridge Crossing Between Fargo, Cass Co., ND & Moorhead, Clay Co., MN	8321
2002	Springer, K.		A Cultural Resources Inventory of the Co., Drain #2 Project Richland Co., ND	8409
2002	Stine, E.		Cass Co., 40th Avenue Bridge Replacement: A Class III Cultural Resource Inventory, Cass Co., ND	8374
2002	Stine, E.		Cass Co., 64th Avenue Bridge Replacement: A Class III Cultural Resource Inventory, Cass Co., ND	8375
2002	Stine, E.		West Fargo Bridge Replacement: A Class III Cultural Resource Inventory, Cass Co., ND	8376
2002	YHR Partners		Downtown Fargo Historic Survey Inventory and Assessment Summer 2002 Cass Co., ND	8565

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2003	Berg, R.		An Archaeological Reconnaissance of Four Proposed Building Sites on the Circle of Nations School Campus (Former Wahpeton Indian School-32RI724) in the City of Wahpeton, Richland Co., ND	8567
2003	Bluemle, W.		Highway 46: A Class III Cultural Resource Inventory, Cass, Ransom and Richland Counties, ND	8751
2003	Bluemle, W.		Qwest River Boring Project: A Class III Cultural Resource Inventory Enhanced with Auger Probes, Cass Co., ND	8489
2003	Kinney, W.		Sargent County ND Bridge Replacement Project BRO-41(007), A Class III Cultural Resource Inventory	8539
2003	Kulevsky, A.		Highways 32 & 11 Intersection Improvement: A Class III Cultural Resources Inventory near Forman in Sargent Co., ND, NDDOT Project #HSP-8-011(012)128	8668
2003	Michlovic, M.		Cultural Resources Survey of the Proposed I-94 Interchange at 9th Street, West Fargo, Cass Co., ND	8569
2003	Mulholland, S.	S. Mulholland et al.	Phase I Archaeological and Geomorphic Investigations at Bridge 7135 (S.P.14-622-06), Clay Co., MN & Cass Co., ND	8456
2003	Potter, A.		Milnor Shared Use Path: A Class II Cultural Resource Inventory in Sargent Co., ND	8577
2003	Raab, H.	J. Rust et al.	Phase I Cultural Resources Investigation at the Ridgewood Addition, City of Fargo, Cass Co., ND	8612
2004	Bleier, A.		Bridge 122-6.0: A Class III Cultural Resource Inventory in Richland Co., ND	8933
2004	Bleier, A.		Bridge 126-23.1: A Class III Cultural Resource Inventory in Richland Co., ND	8934
2004	Bleier, A.		Cass Co., Highway 14: A Cultural Resource Inventory, Cass Co., ND	8935
2004	Bluemle, W.		CCEC 2004: A Class III Cultural Resource Inventory, Barnes, Cass and Richland Counties, ND	8848
2004	Bluemle, W.	E. Stine	South Fargo Four Mile Survey: A Class III Cultural Resource Inventory, Cass Co., ND	8747
2004	Christensen, B.		ROW-080 Class III Inventory Report Ransom Co., ND	8789
2004	Clark, J.	K. Ferris	A Cultural Resource Inventory of Selected Locations of the Dakota Valley Electric Coop., Inc. 2005-2008 Work Plan in LaMoure, Dickey, Richland, Stutsman, & Sargent Counties, ND	8982
2004	Jackson, M.		Cass Rural Water Users 2004 Class III Cultural Resources Add-On Survey, Cass Co., ND	9004
2004	Jackson, M.		Cass Rural Water Users 2004 Class III Cultural Resources Survey, Cass Co., ND	8851
2004	Kinney, W.		Richland Co., ND Class III Cultural Resource Inventory for NDDOT Project #BRO-0039(032)	8753
2004	Kulevsky, A.		BRO-0039(030) Bridge Replacement Cultural Resources Inventory, Richland Co., ND	8904
2004	Kulevsky, A.		BRO-0039(032) Bridge Relocation Survey, Richland Co., ND	8903
2004	Kulevsky, A.		Two Birchem Borrow Areas: A Class III Cultural Resource Inventory in Sargent Co., ND	9009
2004	Stine, E.		Bridge #118-20.0: A Class III Cultural Resource Inventory in Sargent Co., ND	8845
2005	Bleier, A.		County Highway 8 East, Richland Co., ND: A Class III Cultural Resource Inventory	9246
2005	Bleier, A.		County Highway 8 West, Richland Co., ND: A Class III Cultural Resource Inventory	9247
2005	Bleier, A.		County Highway 81, Richland Co., ND: A Class III Cultural Resource Inventory	9248
2005	Bleier, A.		ND Verona Alt 1: A Class III Cultural Resource Inventory in Ransom Co., ND	9390
2005	Christensen, B.		STATEOP-144 Class III Inventory Report, Richland Co., ND	9440
2005	Christensen, B.		STATEOP-256 Class III Inventory Report, Richland Co., ND	9441
2005	Christensen, J.		A Class III Intensive Level Pedestrian Cultural Resource Inventory of 35 US Army Reserve Properties in CO, MT, ND, SD & UT for the 96th Regional Readiness Command	9363
2005	Hafermehl, L.	E. Stine	West Fargo Highway 10: A Class III Cultural Resource Inventory in Cass Co., ND	9488

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2005	Jackson, M.		Binford Water Supply Project Class II & III Cultural Resource Inventories, Griggs Co., ND	9491
2005	Michlovic, M.		Archaeological Survey of the Proposed Kent Force Main, Wilkin Co., MN & Richland Co., ND	9086
2005	Stark, W.		Class III Intensive Cultural Resources Inventory for the Fargo 12th Avenue North Reconstruction Project, Fargo, Cass Co., ND	9308
2005	Stine, E.		Highway 127: A Class III Cultural Resource Inventory in Richland Co., ND	9555
2005	Toom, D.		Ransom County Bridge Replacement Project BRO-0037(009), Bridge No. 37-110-08.0 Cultural Resources Survey Ransom Co., ND	9162
2005	Wilson, J.		Phase I Cultural Resources Investigation of a Revised Levee Alignment & Phase II Archaeological Evaluation of 32RI799, City of Wahpeton, Richland Co., ND	9112
2006	Barr, V.		Reconnaissance Cultural Resource Survey of Bison Pasture Prescribed Fire Control Line Spirit Lake Reservation, Benson Co., ND	9906
2006	Barrett, H.	R. Berg	Documentation of Buildings #1, #16, #20, and #44 (Historic) Wahpeton Indian School (Present) Circle of Nations School the City of Wahpeton Richland Co., ND	9909
2006	Bleier, A.		Bridge #106-27.0: A Class III Cultural Resource Inventory in Richland Co., ND	9873
2006	Bleier, A.		Bridge #123-14.0: A Class III Cultural Resource Inventory in Richland Co., ND	9872
2006	Bleier, A.		Bridge #124-12.0: A Class III Cultural Resource Inventory in Richland Co., ND	9871
2006	Bleier, A.	E. Stine et al.	Keystone Pipeline Project: Class I, II, & III Cultural Resource Investigations in Eastern ND, Vols. 1 & 2	9969
2006	Burns, C.		The Kinn Gravel Pit: A Class III Cultural Resource Inventory, Richland Co., ND	9901
2006	Burns, C.		The Nehring Borrow Area: A Class III Cultural Resource Inventory, Bottineau Co., ND	9776
2006	Burns, C.		The Riverwood Addition Shared Use Path Survey, Cass Co., ND: A Class III Cultural Resource Inventory	9912
2006	Burns, W.		45th Street South and 52nd Avenue South Survey: A Class III Cultural Resource Inventory, Cass Co., ND	9727
2006	Burns, W.		The Honsey Survey, Rolette Co.: A Class III Cultural Resource Inventory	9703
2006	Burns, W.		The Klefstad Stock Pile Survey, Sargent Co., ND: A Class III Cultural Resource Inventory	9770
2006	Burns, W.		Wallmann Survey, Richland Co.: A Class III Cultural Resource Inventory	9874
2006	Christensen, B.		Fargo Sheyenne River Pedestrian Bridge Class III Inventory Report, Cass Co., ND	9666
2006	Harken, N.		A Class III Cultural Resources Inventory for Vantage Point-Red River Rural Telephone Association-Buried Cable, Richland Co., ND	9676
2006	Harty, J.		Improvements Along I-29 From North Fargo to Argusville: A Class III Cultural Resource Inventory, Cass Co., ND	9854
2006	Hiemstra, D.		Bridge #124-11: A Class III Cultural Resource Inventory for a Proposed Bridge Replacement Project in Richland Co., ND	9965
2006	Hiemstra, D.	L. Hafermehl	Bridge #127-20.0: A Class III Cultural Resource Inventory of a Bridge and Surrounding Areas in Sargent Co., ND	9988
2006	Hiemstra, D.		County Road #1 Survey: A Class III Cultural Resource Inventory in Sargent Co., ND	9683
2006	Hiemstra, D.		County Road #1: A Cultural Resource Pedestrian Survey for Proposed Road Improvements East of Hankinson in Richland Co., ND	9902
2006	Holley, G.		Class III Cultural Resource Survey, Oak Grove and Drain 27 Trails (Shared-Use Paths) in Fargo, Cass Co., ND	9689
2006	Jackson, M.		Dakota Valley Electric Cooperative Buried Electric Lines Class	9870

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			III Cultural Resources Inventory, Richland, ND	
2006	Kinney, W.		A Proposed Richland Co., ND Borrow Area for NDDOT Project Number SC-BRC-3906(055). A Class III Cultural Resource Inventory Report	9722
2006	Klinner, D.		Southeast Water Users District, LaMoure Reservoir to West Lisbon Reservoir & Water Pipeline: A Class III Cultural Resource Inventory in LaMoure & Ransom Counties, ND	9782
2006	Klinner, D.		Southeast Water Users District, Water Treatment Plant Expansion & Two Water Wells and Pipelines: A Class III Cultural Resource Inventory in Richland Co., ND	9641
2006	Kluth, D.		A Cultural Resource Inventory of the Proposed Cogswell Tap Access Road, Sargent Co., ND	9737
2006	Michlovic, M.		Cultural Resources Survey of the US Bio Plant Project Area, Hankinson, Richland Co., ND	9743
2006	Stine, E.		Dakota Avenue: A Class III Cultural Resource Inventory in Richland Co., ND	9684
2006	Wermers, G.		ROW-167 Class III Inventory Report, Richland Co., ND	9773
2006	Wermers, G.		ROW-169 Class III Inventory Report, Ward Co., ND	9791
2007	Burns, C.		The Tagus Borrow Area: A Class III Cultural Resource Inventory, Ward Co., ND	9986
2007	Florin, F.	J. Lindbeck	Phase I Cultural Resources Investigation of a Revised Levee Alignment at the City of Wahpeton, Richland Co., ND	10126
2007	Harty, J.		52nd Street Borrow Area: A Class III Cultural Resource Inventory, Cass Co., ND	9972
2007	Kinney, W.		Richland County ND Bridge Replacement Project #BRO-0039(033). A Class III Cultural Resource Inventory Report, Richland Co., ND	10097
2007	Klinner, D.		Ground Surface Reservoir and Satellite Water Treatment Plant: A Class III Cultural Resource Inventory, Cass Co., ND	10070
2007	Michlovic, M.		Cultural Resources Survey of the Hankinson Well Fields, Richland Co., ND	10124
2007	Picha, P.		Class III Cultural Resource Inventory for New Interpretive Center at Fort Abercrombie State Historic Site (32RI777), Richland Co., ND	10065

Table 10.8: Summary of 1978 Prehistoric Archeological Sample Survey in Clay County, Minnesota (adapted from Minnesota Historical Society 1981:Table 3g).

Sample Strata	Stream-Shore	Lake Agassiz Beach Ridge(s)	Intersection Beach Ridge(s) and Rivers	Away-From-Water	Total
Estimated total units in sample universe	680	1,711	128	9,322	11,841
Number of units surveyed	41	42	16	32	131
Number of units containing prehistoric sites	9	2	2	1	14
Percentage of units containing sites	22	5	13	3	11
Estimated total units in sample universe containing prehistoric sites	150	82	16	242	490

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 with aerial photographic coverage (cf. USDA 1937). Recent digital imagery is available from several internet sources, including (Google Earth 2008; ND GIS 2008; NRCS 2008a, b, c):

North Dakota GIS Hub (ND GIS): http://www.nd.gov/gis/
Natural Resource Conservation Service: http://www.nrcs.usda.gov/
Google Earth: http://earth.google.com/

In all, Michlovic (1979:15) reported 44 prehistoric sites were discovered during the survey. An additional 30 sites were documented through working with local informants and spot checks of likely locations such as stream confluences not examined during the probabilistic survey.

Michlovic (1984a) and Minnesota State University Moorhead continued with archeological reconnaissance in Wilkin and southern Clay counties, Minnesota. A 12 mile (19 km) stretch of Red River frontage between the Wolverton Creek confluence near Cornstock and Breckenridge, Minnesota to the south was inspected for prehistoric archeological sites. Twenty-six previously unrecorded sites were found. Of the two known sites, Femco (21WI1) was revisited and tested (cf. Wilford 1970; see below).

Another pedestrian survey was conducted in Cass County, North Dakota during 1986 by Minnesota State University Moorhead. A small portion of that survey falls within the SRRSU comprising portions of the Sheyenne River, Wild Rice River, and Red River drainages. Four sites were recorded within the SRRSU:

two along the Red River and one each along the Wild Rice and Sheyenne rivers (Michlovic 1987).

Artz (1988a) conducted small-scale surveys of nine proposed parking areas within the Tewaukon Game Management Area, a part of Tewaukon National Wildlife Refuge in Sargent County. Four prehistoric archeological sites, including 32SA40, were identified. It was suggested that 1) proximity to available water, 2) availability of a view, and 3) access and availability of knappable stone were important factors conditioning prehistoric settlement in the Wild Rice River valley environs (ibid.).

Deaver and Bergstrom (1989) reported a survey covering a 302 mi stretch of 40 ft right-of-way in Ransom, Richland, and Sargent counties. Five prehistoric sites and four isolated finds were recorded. Prominent among these is 32SA48, a cairn and rock feature site of ceremonial importance to the Sisseton-Wahpeton Dakota. This site is situated along the edge of the Prairie Coteau.

Floodman (1990) recorded 32RIX97 consisting of two flakes of red chert in a blowout of a dune area in the Sheyenne National Grasslands. The only other artifacts were a few scattered bone fragments, and these items were not definitively associated with the flaking debris. Of particular interest was the occurrence of two buried soils (paleosols) exposed in the dune setting. Some potential for intact cultural deposits may exist in such contexts. Gregg et al. (1991) discuss positive survey results from a physiographically similar 8 mi^2 (5,120 acre) tract located directly south in Brown and Marshall counties, South Dakota.

The proposed construction of an approximately 1,845-mile long crude oil pipeline (TransCanada), originating in Canada and terminating in Illinois and Oklahoma, necessitated Class I, II, and III cultural resource inventories in eastern North Dakota (Bleier et al. 2006). Driven by a geomorphologist, the Class II inventory covered 100 percent of the original pipeline route. The Class III inventory was a 31 percent sample of the proposed pipeline route(s). The sample segments represented higher probability areas (ibid.:ii). The pedestrian survey was supplemented by shovel probes in areas of reduced ground surface visibility. Counties within the SRRSU include portions of Ransom and Sargent. Terrain along the proposed route varies from prominent riparian forests along stream valleys to flat farmland to gently rolling plains with intermittent wetlands. More specifically, the contemporary landscape comprises cultivated fields, pasture, and fields in the Conservation Reserve Program (CRP).

Generally, the remainder of the cultural resource inventories (Table 10.7) has produced few significant archeological sites which merit further discussion here. In summary, most of the reported cultural resource sites occur in settings near permanent water and sometimes command a view of the surrounding terrain.

Test Excavation Projects

Controlled test excavations have been reported from a few sites in the SRRSU (Table 10.9). The earliest known testing completed in the region probably was undertaken at mounds and village sites along the Sheyenne River by W. D. Strong in the 1930s. Much of that work has not been formally reported. Two decades later, between 1959 and 1962, University of Minnesota archeologists conducted investigations at a number of locations in the Lake Agassiz Basin of North Dakota (Johnson n.d.; Johnson and Evans n.d.). This University of Minnesota work may have included limited testing at sites along the Red, Sheyenne, and Wild Rice rivers as well as Dead Colt Creek and other places where prominent prehistoric deposits occur. Project records from this work merit review.

Test excavations were conducted in 2006 at 32CS4999 within the city of Fargo (Morrow 2006). A total of 56 body sherds and two rim sherds of prehistoric pottery were recovered through Phase II investigations. The ceramics recovered are broadly similar to pottery of the Late Prehistoric period found over a large region of the Northeastern Plains (ibid.: 33).

NRHP and NDSHSR

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

General information and links to specific information: http://www.nps.gov/nr/
National Register Information System: http://www.nr.nps.gov/

Table 10.9: Test Excavation Projects in the Southern Red River Study Unit, 5-Sept-2007.

Year	First Author	Second Author	Title	Ms #
1990	Michlovic, M.		Sewer Improvement in the Vicinity of Archaeological Resources in Section 18, T138N, R48W, Cass Co., ND	5094
1993	Lewis, R.		Archaeological Testing of a Proposed Building Site Tewaukon National Wildlife Refuge in Sargent Co., ND 93TWK001	6057
1998	Stine, E.	M. Cassell et al.	Alliance Pipeline Project: Phase II Testing & Evaluation of 37 Sites in ND, Vols. I & II	7212
1998	Stine, E.	M. Hannum et al.	Phase II Testing and Evaluation of 21 Sites & Five Sites Revisited An Addendum to Alliance Pipeline Project: Phase II Testing and Evaluation of 37 Sites in ND	7329
2000	Fassler, T.		Phase II Cultural Resource Investigation of Site 32RI790 at the City of Wahpeton, Richland Co., ND	7634
2001	Kelly, K.		Preliminary Report of Field Investigations of Fort Abercrombie [32RI777], Richland Co., ND	10129
2006	Morrow, T.		Phase II Archaeological Testing & Evaluation of Site 32CS4999, City of Fargo, Cass Co., ND, Section 205 Flood Control Project	9950

Major Excavation Projects

The most extensive excavations reported as of 2007 for the SRRSU were completed by UND at Lake Tewaukon (32SA211) in 1975. Haberman (1978) reported that of seven test units were dug. Table 10.10 summarizes information concerning the excavations.

Table 10.10: Summary of Information for 1975 Excavations at the Lake Tewaukon Site (32SA211; from Haberman 1978).

XU	Size (m)	Depth (cmsd)	Comments
XU 1	2 x 2	0-130	
	1 x 2	130-190	F4, hearth (?) in level 16
	1 x 1	190-240	Yellowish clayey till at base
XU 2	1 x 1	0-60	Grid 1
	1 x 0.25	0-60	Grid 2
XU 3	2 x 2	0-50	Grid 1
	2 x 2	0-30	Grid 2
XU 4	1 x 1	0-30	
XU 5	1 x 1	0-80	Grid 1
	1 x 1	0-110	Grid 2; waterscreened
	1 x 1	0-70	Grid 3
	1 x 1	0-80	Grid 4
	1 x 1	0-70	Grid 5
	1 x 1	0-70	Grid 6
XU 6	1 x 1	0-100	
XU 7	1 x 1	0-40	Grid 1
	1 x 1	0-20	Grid 2

The excavations revealed that the peninsula area of Lake Tewaukon was repeatedly occupied during the prehistoric and protohistoric periods. Middle and/or Late Plains Archaic deposits were buried 1.5 m deep in XU1. Protohistoric artifacts (e.g., glass trade beads) were recovered during waterscreening activities from buried contexts (60-70 cmsd) in XU5.

Haberman (1978:21) likens the variability in projectile point styles encountered at Lake Tewaukon with corner-notched, side-notched, and stemmed specimens reported by McNerney (1970) from Blue Dog Lake in northeastern South Dakota. It remains to be seen if there are regionally distinctive styles within such restricted portions of the Northeastern Plains.

The proposed construction of an approximately 890-mile long 36-inch diameter crude oil pipeline (Alliance), in North Dakota, Minnesota, Iowa and Illinois necessitated data recovery excavations at 32RI785 in southeastern North Dakota (Dobbs et al. 2001). The investigations revealed a significant amount of new information about the Plains Archaic period in that part of the state. Two distinct components were identified at the site including early Middle Archaic and Late Plains Archaic which may be associated with the Pelican Lake complex. In Excavation Block 8, the early Middle and Late Plains Archaic components are

separated stratigraphically and can be compared to evaluate changes in the Archaic over time (ibid.:ii). Based on the available evidence, it appears the early Middle Plains Archaic component at 32RI785 represents a residential base camp(s) (cf. Binford 1980). The Late Archaic component likely functioned as a field camp focused on hunting activities (Dobbs et al. 2001:iii).

Table 10.11: Major Excavation Projects in the Southern Red River Study Unit, 5-Sept-2007.

Year	Author	Title	Ms #
1978	Haberman, T.	Archaeological Test Excavations at Lake Tewaukon (32SA211)	962
2001	Dobbs, C.	Alliance Pipeline L.P.: Excavations at 32RI785, Richland Co., ND, Vols. I & II	7958

Other Work

Table 10.12 lists various studies from adjacent regions of the SRRSU. Because of its geographic location and physiographic setting, southeastern North Dakota is influenced by the historical events and cultural processes of western Iowa and Minnesota and eastern North Dakota and South Dakota.

Table 10.12: Other Regional Works Near the Southern Red River Study Unit.

Year	Authors	Abbreviated Title
1990	Anfinson	Archeological Regions in MN and Woodland Period
1989a	Dobbs	Minnesota Historic Contexts: Contact Period (AD 1630-1820)
1989b	Dobbs	Minnesota Historic Contexts: Prehistoric Period (ca. 12,000 BP–AD 1700)
1981	Franke	Cultural Resources Management Plan Garrison Diversion Unit 130/57, 131/57, Sargent County
1969	Hoffman	Prehistory in Souris-Red-Rainy Basins
1962	Johnson	Prehistory of the Red River Valley
1981	MHS	MN Statewide Archeological Survey
1988	Michlovic	Archeology of the Red River Valley
1985	Peterson	Lidgerwood Bottle Collection 130/52, Richland County
1991a	Ritterbush	Context Fur Trade Northeastern ND
1977a	Schneider	Investigations Garrison Diversion Unit Control & Southern Sections 130/55, Sargent County
1977b	Schneider	Literature Review Garrison Diversion Unit 130/57, Sargent County
1990	Winham and Hannus	SD State Plan: Archeological

Table 10.13: Other Work in and near the Southern Red River Study Unit, 5-Sept-2007.

Year	First Author	Second Author	Title	Ms #
1965	Anonymous		Historic Sites Under the Authority of the State Historical Society of North Dakota as Established by The 39th Legislative Assembly	2011
1966	Mallory, O.		An Appraisal of the Archeological Resources of the Garrison Diversion Project, ND	96
1977	Schneider, F.		Archaeological & Historical Investigations in the Garrison Diversion Unit, ND: Central & Southern Sections	99
1978	Haberman, T.		Archaeological Test Excavations at Lake Tewaukon (32SA211): A Protohistoric Occupation Site in Southeastern ND	962

Year	First Author	Second Author	Title	Ms #
1979	Starr, D.	W. Reynolds	Final Report of an Architectural & Historical Survey on Approximately 121,265 Acres in Central ND, Dickey, Sargent, LaMoure, Stutsman, Eddy, Wells & Sheridan Counties	2477
1980	Crampton, E.	J. Anderson	Rutland Historic Structures Survey, Sargent Co., ND	5943
1985	Peterson, J.		The Lidgerwood Bottle Collection: A Temporal Assessment, Richland Co., ND	3835
1985	Vyzralek, F.		Report of an Architectural & Photographic Survey of Churches in Cavalier, Dickey, Cass, Traill, Grand Forks, Nelson, Ramsey, Walsh, & Pembina in Nine Eastern ND Counties.	5945
1987	Schweigert, K.		An Historical Evaluation of the Brushvale Through-Truss Bridge Wilkin Co., MN & Richland Co., ND.	4208
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
1992	Good, K.		Wyndmere Bridge Replacement and Approach Road Project Richland Co., ND	5970
1993	Holzkamm, T	D. Dormanen	Fargo Historic Context Study, Cass Co., ND	7229
1994	Halverson, M.		Narrative of 67 4th St North Fargo, Cass Co., ND 58102	6342
1994	Penny, D.		Results of a Historic Architecture Study Along Portions of the University Drive/10th Street Project, Fargo, Cass Co., ND	6406
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	Toom, D.	C. Kordecki	Flood Damage Assessment Survey of Twenty-Eight Archeological Sites Along the Cannonball, Heart, James, Maple, Red and Sheyenne Rivers, ND	6222
1996	Mutchler Bartram Architects		North/West Elevations Federal Courthouse Building Fargo, ND Historical, Photographic and Drawing Documentation	8320
1998	Sluss, J.		Historic Context Grade Separation in Fargo, Cass Co., ND	8810
1999	Jackson, M.	Toom, D.	Cultural Resources Overview Studies of the Tewaukon National Wildlife Refuge, Sargent Co., ND, & the Waubay National Wildlife Refuge, Day Co., SD	7458
2001	Hafermehl, L.		Report on a Reconnaissance Survey of Main Avenue Between 25th and 45th Streets in Fargo, Cass Co., ND	8078
2001	Mitchell, B.	G. Peterson	Architectural History Investigations Along 1st Avenue North/NP Avenue From University Drive to 25th Street North in Fargo, Cass Co., ND	8012
2001	Mitchell, B.	G. Peterson	Architectural History Investigations Along University Drive From 1st Avenue North to 1st Avenue South in Fargo, Cass Co., ND	8011
2004	Kelley, K.	D. Johnson	Geophysical Survey as a Management Tool for Historic Properties Two Examples From the MN Territorial Frontier-Ft. Ripley & Ft. Abercrombie Richland Co., ND	8922
2004	Kulevsky, A.		U-BRN-8-010(020)940 Fargo Main Street Bridge Replacement Cultural Resource Investigation, Cass Co., ND	8905
2005	Hafermehl, L.		ND Highway Bridge Number 13-920.047 Photographic Documentation of the Structure & a Brief Narrative Describing its Appearance and the History of its Construction & Widening, Richland Co., ND	9541
2005	Hufstetler, M.	J. Goff	Historic Bridges in North Dakota 2004 Revision	10128
2005	Morrison, J.	L. Hafermehl	Wild Rice River Bridge: An Assessment of National Register Eligibility for Bridge 11-141.391 in Sargent Co., ND	9573
2006	Hafermehl, L.		ND Highway 13 Dakota Avenue, Wahpeton from 12th Street to the Bois de Sioux River Bridge, Richland Co., ND	9810

Paleo-Indian Period

The Paleo-Indian period spans the era between 9500 and 5500 BC when the SRRSU would have been open for habitation following glacial recession and the draining of Glacial Lake Agassiz.

Paleo-Environmental Modeling

Buchner and Pettipas (1990:51) discuss the diversity and evolution of macro- and micro-environments associated with fluctuating lake levels in the Agassiz basin. Biotic "mosaics" would have influenced initial settlement and land use by Paleo-Indian groups (cf. Guthrie 1984; Nicholas 1988). Information concerning pedologic data and associated cultural deposits may be available from the USGS, NDGS, and NRCS which could be used to build a better picture of SRRSU Holocene geomorphology.

Another pertinent matter concerns current models of past climate. As Todd (1991:230) suggests,

> Repeated warnings that Pleistocene biotic communities do not have modern analogs also apply to the nature of Pleistocene seasonality. Thus, in attempting to characterize human adaptations of late Pleistocene, we cannot assume that our current perceptions of hunter-gatherer seasonal foraging patterns are directly applicable.

Cultural Chronology

The Paleo-Indian cultural chronology for eastern North Dakota including the SRRSU is the same as that proposed for the surrounding region. Terrain within the Lake Agassiz Basin during the late Pleistocene was open for settlement following glacial recession.

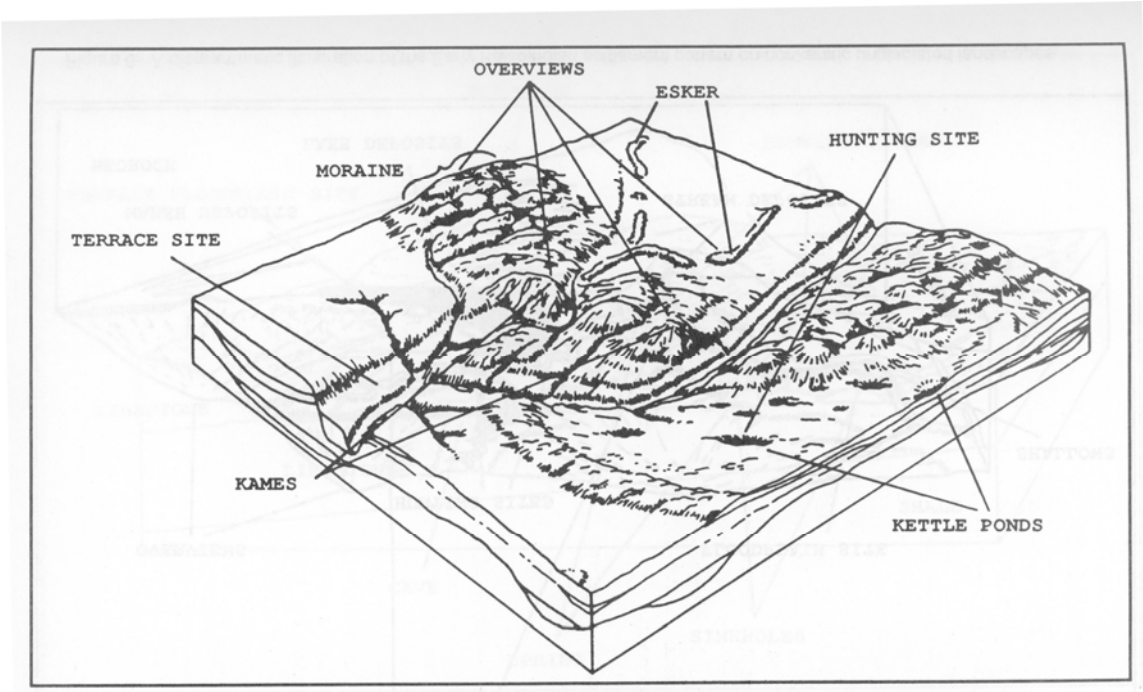
Among the known Paleo-Indian remains in the SRRSU, Johnson (1962:161-162) reported Folsom points from the Sheyenne Delta area. Munson (1990) also reported fluted points from private collections in the Lake Traverse area of Minnesota. What is the range of Paleo-Indian complexes represented in private collections which have become known since Schneider's (1982f) review?

Settlement Behavior

Settlement strategies of Paleo-Indian peoples along glacial Lake Agassiz are unknown. Camps and procurement sites can be expected to occur in locations other than the often mentioned strandline and Sheyenne Delta settings of the basin (cf. Jackson and McKillop 1991; Tankersley et al. 1990). Figure 10.2 depicts

possible Paleo-Indian settlement locations plotted on the glaciated SRRSU landscape away from glacial Lake Agassiz. Continued interactions between

Figure 10.2: Diagram showing the sorts of settings where Paleo-Indian settlements may have been situated on glacial landscapes within the Southern Red River Study Unit (from Tankersley et al. 1990:311).



geomorphologists, archeologists, geologists, and others will aid in identifying processes of early Holocene landform evolution and associated patterns of land use in the region. Can Geographic Information Systems (GIS) be applied to modeling early Holocene landform evolution and human settlement?

Native Subsistence Practices

Discussions of subsistence include stressing the importance of incorporating prey behavior as part of studies focusing on prehistoric hunting strategies, especially for the Paleo-Indian case. As Frison (1991:28, 30) states, "Human hunting behavior can be better understood through more thorough use of the many sources already at hand. These include considerations of the prey species involved, hunting group size, quantity of meat products and their condition, and butchering and processing." Many of the modern analogs and perceptions about prehistoric hunting stem from misconceptions regarding prey behavior (ibid.). Did Paleo-Indian peoples rely on "ruminophagism" (eating the prey's stomach contents) to supplement their diet as Todd (1991) suggests?

Technologies

A few fluted and parallel-flaked stone projectile tips are about the only solid evidence for Paleo-Indian technologies we have to study in the SRRSU. Undoubtedly, these stones are one of many materials utilized by early hunter-gatherers. Frison (1988) has provided evidence for a flourishing bone technology among Paleo-Indian peoples based on studies of Northwestern Plains assemblages. Johnson (1988:8) illustrates a perforated elk antler flaker tool from the Pelican Rapids (Minnesota Woman) burial. What are the diagnostic implements of these other technologies in the SRRSU?

Artifact Styles

A Plano point (Agate Basin or Angostura type) has been reported in the artifact collection at the Lake Tewaukon Wildlife Refuge Headquarters. Other reported Paleo finds in the SRRSU are rare. Schneider (1982f:33) mentions two points possibly from Richland County, North Dakota localities. Michlovic (1988:57) reports of a KRF Agate Basin point from a Clay County, Minnesota survey.

To the southeast, Munson (1990:Table 1) has reported three fluted (Folsom) points from the Lake Traverse area in Big Stone County, Minnesota. Also to the south, Lass (1980) lists a find of an Alberta point from 39DE9 in north-central South Dakota. Johnson (1988) indicates that later parallel-oblique flaked styles are more common in Minnesota collections. What is the range of stylistic variability in Plano assemblages usually termed Angostura (in North Dakota) or Browns Valley (in Minnesota)?

Regional Interaction

Indications of Paleo-Indian regional interaction for the SRRSU are best approached by examining raw material usage coupled with spheres of influence governing lithic projectile point stylistics (cf. Tankersley et al. 1990). The few illustrated regional specimens suggest use of principally Northern Plains stone sources. For example, the Browns Valley Plano specimens are made of KRF, while the two fluted Folsom points from the Sheyenne Delta appear to be made from light colored chert (Johnson 1962:161). Michlovic (1988:57) illustrates a KRF Agate Basin point collected from a Clay County, Minnesota location. What other indicators of long-distance interaction occur in Paleo-Indian aggregates? Is the Atlantic or Gulf Coast marine shell pendant reportedly associated with the Pelican Rapids burial (Johnson 1988) actually of Paleo-Indian age, and if so, what are the implications for considerations of regional interaction?

Historic Preservation Goals, Priorities, and Strategies

Efforts should be devoted to applying Geographic Information Systems (GIS) as a modeling tool (cf. Alien et al. 1991; Kvamme and Kohler 1988) for early Holocene landform evolution and prehistoric settlement in the SRRSU. Coupled with this approach, there should be an inventory of 1) private collections and 2) NDCRS files in order to update the existing database (cf. Kvamme 1988).

Plains Archaic Period

Plains Archaic prehistory in the SRRSU is subdivided into Early, Middle, and Late periods. Intact Archaic age deposits have been encountered within the Study Unit. Other dated Archaic components sampled by excavation have been reported in Minnesota along the Red River to the north (e.g., 21NR9, 21NR29; Michlovic 1984a, 1986). Most of the available information occurs as surface finds in private collections (cf. Johnson n.d.).

Paleo-Environmental Modeling

Seismic equipment was used to profile the subsurface stratigraphy of an ancient channel of the Minnesota River to the southeast of the SRRSU (Dobbs and Christianson 1991). Darwin et al. (1990) previously discussed the results of a similar investigation along the Cooper River in northern Texas.

As Bettis (1990:26) has suggested for drainage basins in northwestern Iowa, mid-Holocene cultural deposits can occur in shallowly buried contexts in the upper reaches of stream networks. However, cultural deposits of the same relative age will lie more deeply buried in the larger (higher order) valleys. Michlovic's (1984b, 1986) investigations of buried Archaic components in the Red River valley suggest that important paleo-environmental data routinely can be collected as part of the work undertaken at these sites.

Was there a climatic shift toward more mesic conditions in the Northeastern Plains (SRRSU) that coincided with increased Hanna and Pelican Lake settlement in the region?

Cultural Chronology

To the southeast, Dobbs and Christianson (1991) report an Early Plains Archaic component at the Peterson site (21YM47) along an ancient channel of the Minnesota River in Yellow Medicine County. Investigations in 1988-1989 revealed a deeply buried bone bed. Among the recovered artifacts are three side-notched projectile points. A single radiocarbon date of 7050±120 BP has been reported (ibid.).

Early Archaic deposits have been reported at the Smilden-Rostberg site (32GF123) to the north in the Turtle River drainage in the Northern Red River

Study Unit (cf. Larson and Penny 1991). Late Archaic components occur along the Red River to the north at the Canning (21NR9) and Mooney (21NR29) sites (Michlovic 1984b, 1986). Were there times during the Plains Archaic when cultural complexes in the SRRSU were more closely affiliated with Midwestern complexes than with Northern Plains complexes?

Settlement Behavior

Johnson (1964) reported finds of Old Copper artifacts from six locations south and east of the SRRSU at elevations above the Herman beach line. These represent probable remains of both campsites and burials. Johnson (1964:16) commented,

> Prehistoric burials in Lake Agassiz beach ridges are quite common and many of the later burial mounds are built directly upon these beach ridges. This does not indicate a contemporaneity of Lake Agassiz and the burials but probably reflects the fact that the sand and gravel of the beach ridge offered a better situation for excavation of burial pits than did the heavy clay and silt deposits of the lake bottom itself. The beach may also have offered an easily identifiable burial site in that they are easily recognized elevations on the flat valley floor.

Michlovic (1979c:7) reported three copper projectile points from old lake bed locations in a Clay County, Minnesota survey. An updated distributional study of Old Copper materials (after Johnson 1964) from the SRRSU should be undertaken.

Native Subsistence Practices

The Hanna complex bone bed at the Canning site produced the remains of at least 20 bison, mostly cows and juveniles (Michlovic 1986). There were also 17 beaver incisors which were either drilled or split (ibid.: 19). What other plant and animal foods along with bison comprised the diets of regional Old Copper and Pelican Lake groups?

Technologies

Native copper ore from Upper Great Lakes sources was fashioned into a variety of tools and ornaments by Archaic “Old Copper” craftspeople (cf. Mason 1981:181-195; Rapp et al. 1990). During climatically favorable periods within the Late Archaic, parts of the Red River valley may have been frequented by ever-increasing populations of Archaic settlers.

Some of the worked beaver incisors from Canning were drilled. Michlovic (1986:19) suggests that these may have been ornaments. It may be possible to determine if the holes in these incisors were drilled with copper implements.

As with the preceding Paleo-Indian period, little is known about Archaic shelter and architecture. Do settlements like Canning contain structural remains and other architectural information relevant to Archaic period housing?

Artifact Styles

The Early Plains Archaic period virtually is undocumented at present in the SRRSU. As collections from securely dated contexts such as Peterson (21YM47) along the Minnesota River drainage and Smilden-Rostberg (32GF123) to the north are reported, the range of Archaic stylistic diversity becomes illuminated. Thus, it will become possible to identify Early Archaic sites through cross dating of point styles in collections.

The occurrence of Old Copper artifacts from scattered sites in eastern North Dakota suggests that Old Copper groups were utilizing the prairie biome. What Old Copper artifact styles occur in the SRRSU?

Other regional Middle/Late Archaic projectile point forms include materials similar to Parkdale Eared and corner-notched and stemmed styles. McKean complex deposits at the nearby Canning site (21NR9) produced Hanna projectile points/cutting tools associated with a bison bone layer (cf. Michlovic 1986). Late Archaic remains associated with the regional Pelican Lake complex could be among the best represented components in the SRRSU. Seasonal bison hunting forays onto the prairie brought groups with diverse backgrounds into contact with one another.

Regional Interaction

The lithic aggregate from Canning includes locally occurring stones such as Swan River chert as well as KRF which was probably procured from western North Dakota quarry sources. At Canning, KRF was used primarily for scrapers and retouched flake tools while Swan River chert use was directed toward projectile points/cutting tools and other bifacial forms (ibid.:15).

The meager evidence presently available suggests that interaction networks for these populations were centered in the Northeastern Plains. Favorable climatic conditions during parts of the Sub-Boreal would have stimulated settlement in the SRRSU. What are the specific source areas for the various Old Copper artifacts occurring within the SRRSU (Rapp et al. 1990)?

Historic Preservation Goals, Priorities, and Strategies

A distributional study of Old Copper artifacts within eastern North Dakota would be an important first step in compiling and updating the regional database necessary for exploring Archaic settlement patterns.

Gravel mining operations, particularly along the Agassiz strandlines, should also be monitored to avoid the needless destruction of Archaic settlements and possible cemetery locations.

Plains Woodland Period

Plains Woodland remains in the SRRSU are expected to represent the entire range of Early, Middle, and Late periods. These are Early Woodland (unnamed), Middle Woodland (e.g., Sonota, Laurel, and Malmo), and Late Woodland (e.g., Arvilla, Kathio, Blackduck, and Sandy Lake) manifestations.

Paleo-Environmental Modeling

Environmental conditions throughout the Woodland era are thought to have been periodically mesic and xeric coinciding with the Sub-Atlantic, Scandic, and Neo-Atlantic climatic episodes. It is important to remember that climatic conditions were not continuously favorable or unfavorable during these episodes. Anfinson and Wright (1990:221) suggest the onset of the Archaic-Woodland transition was not marked by any significant climatic change, "Whether or not one views the cultural transition as gradual or sudden, whether or not it is just a change in social structure and ideology, or just a change in technology, it is quite apparent that no major environmental shifts occur in the Midwest during the Transition period." However, this transition likely occurred during times of resource abundance and human population growth.

The paucity of Middle Woodland components identified in the Red River valley may be accounted for by geomorphic/hydrologic processes associated with site preservation. It has been shown that Middle Woodland cultural deposits on the natural levees adjacent to the Red River are buried by a meter or more of flood-deposited sediments. Middle Woodland deposits might be very common, but lacking present-day surface manifestations, such deposits will not be identified unless a special effort is made to explore for them. How can buried sites be identified along the Red River?

Michlovic (1984b:17) indicates, "Preliminary geomorphic and pedological studies from both the Mooney and Canning sites suggest that the longer term climatic trends may mask some shorter climatic fluctuations which quite likely had some significant affect on the presence or abundance of certain resources in this region." For example, during the time of the Neo-Atlantic when regional biotic resource bases were generally burgeoning and human population densities were high, there are likely to have been periods of several years when short-term

droughts acted to reduce bison herds. Sites in Red River levee deposits offer good potential for refining regional paleo-environmental models.

Cultural Chronology

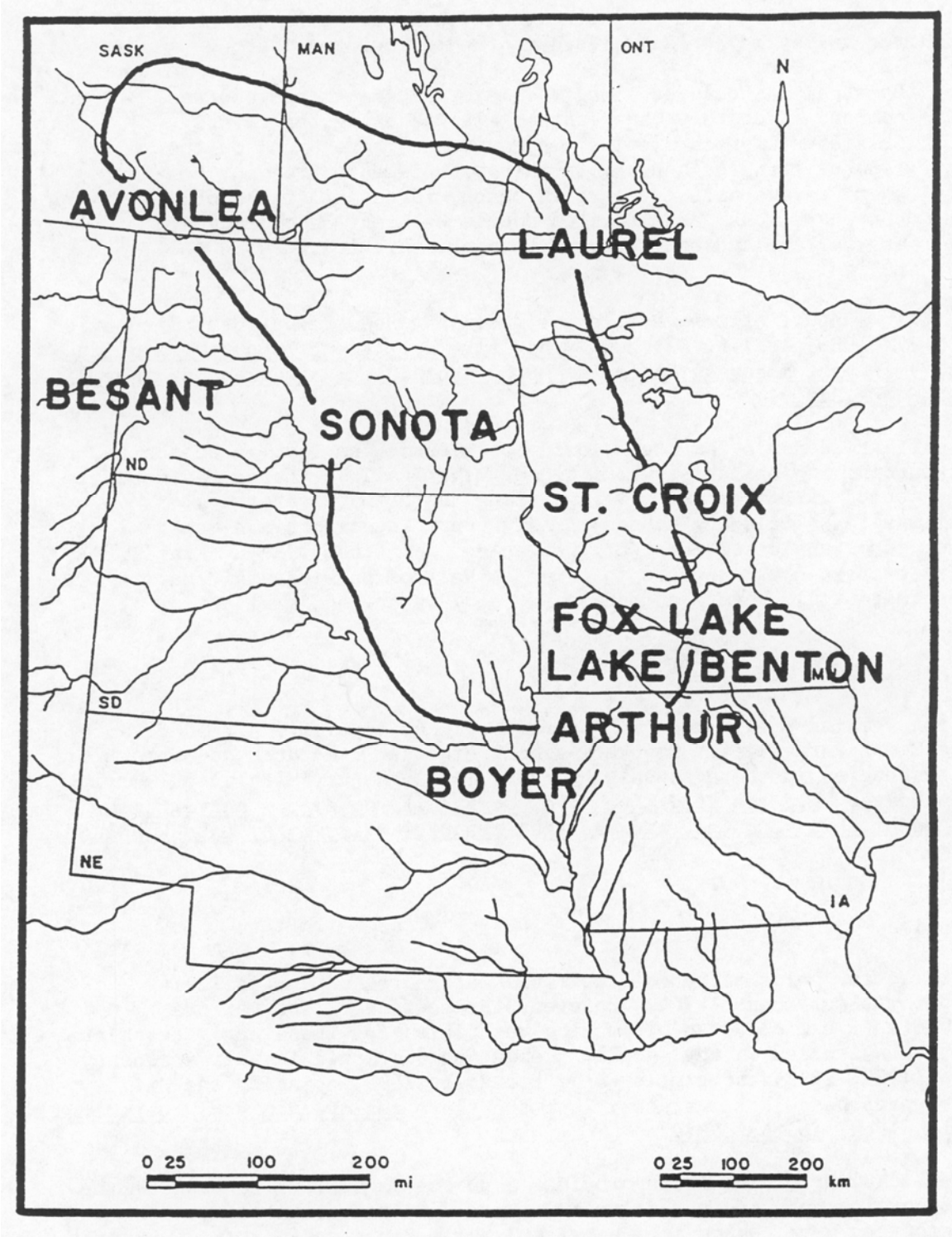
The Plains Woodland cultural chronology for the SRRSU is subdivided into Early, Middle, and Late periods. Early Woodland remains are not well known in the Study Unit. However, their presence is suspected based on known or probable occurrences to the east, north, and west. Wilford et al. (1969:25-27) reported the Graham Lake Mound Group (21OT5) located along the Otter Tail River some 50 mi east of the SRRSU. A ceramic vessel of possible Early Woodland age was recovered from an interment containing the remains of a small child in Mound 1. Other associated artifacts included several flakes of brown chalcedony and some tiny fragments of red ochre (ibid.:26). Another possible Early Woodland deposit has been reported at the Dahnke-Reinke site (32CS29) by Thompson (1990). Further afield, Early Woodland remains have been reported from the James River valley (cf. Gregg and Picha 1989b).

Middle Woodland deposits at 32CS29, just north of the SRRSU, are securely bracketed by a suite of five dates between 2200 and 1860 BP (Thompson 1990:29). These remains share affinities with both Sonota and Laurel. Malmo remains occur along the Otter Tail River and extend east to the Mille Lacs Lake region of Minnesota (cf. Gibbon and Caine 1980; Wilford et al. 1969:16-18, 21-28). Sonota components are well-represented to the west along the Sheyenne and James rivers (cf. Gregg and Picha 1989b; Haury 1990).

Terminal Middle Woodland manifestations in the Red River valley include St. Croix (Anfinson 1990:220; Gibbon and Caine 1980) and mounds grouped as part of the Arvilla complex (Johnson 1973). Figure 10.3 geographically depicts some of these regional Middle and Late Woodland complexes.

The prominent Late Woodland period marker in the SRRSU is Sandy Lake (cf. Cooper and Johnson 1964; Michlovic 1984b:33-37, 1987:64-65). Sandy Lake ceramics are a common occurrence at sites in the Red River valley and beyond. Does Sandy Lake appear to represent the most prominent Woodland manifestations here simply because it is the most recent, or does it actually indicate a peak of regional population density?

Figure 10.3: Major Middle Woodland cultural complexes of the Northeastern Plains.



Settlement Behavior

Anfinson (1990:159) has suggested the following for Woodland settlement behavior in the Red River valley:

> Base camps should be along the major rivers where wood was common. Temporary camps should also be along the rivers. Subsistence procurement sites may be anywhere based on the type of resource sought. Lithic procurement sites may be where rivers have cut through beach ridges exposing cobble concentrations. Mound sites should be along beach ridges, as they are the only prominent topographic features in the region.

Some data in support of this settlement model has been reported by Michlovic (1979:15-17; 1985; 1987:64-67). Do Sandy Lake settlements occur with great regularity in bottomland settings in North Dakota along stretches of the Bois des Sioux River?

Similar Woodland locational behavior can be posited for surrounding regions outside of the Red River valley. Large residential sites may occur in bottomland settings along the primary waterways. Ceremonial sites (including mounds) likely occur in uplands and other prominent topographic settings (cf. Deaver and Bergstrom 1989). Temporary camps can be expected to occur in various physiographic settings wherever there would have been access to food, water, and shelter.

Native Subsistence Practices

Bison remains predominate in the few Woodland samples analyzed to date from the Red River valley. However, a host of other creatures do appear in lower frequencies in these faunal inventories (cf. Michlovic 1987:15, 66; see above). Did the Wild Rice River derive its name from harvestable quantities of this resource, and was that resource utilized by Late Woodland groups?

Technologies

Ceramic technologies were established in the region during Early Woodland times (cf. Benn 1990). However, the sources of the various constituents (i.e., clays and tempering materials) for these early ceramics have not been studied in detail. Petrographic investigations by Stoltman (1989, 1991) and others (Begg and Riley 1990) point to the utility of such approaches. For instance, were the clays employed in early ceramic production local to the SRRSU?

The Red River of the North provides a unique laboratory to examine the roles of physiography and environment in Late Woodland technology. Mussel

shell resources were common in the valley, while stone was not (cf. Ashworth and Cvancara 1983). Was mussel shell used to produce tools equivalent to chipped stone forms used for functionally similar tasks? Hovde (1990) has summarized shell use at the Rainbow site in northwestern Iowa indicating that projectile tips and scraping tools were fashioned from indigenous mussel shell.

Stone tool technologies for Woodland groups have not been investigated in sufficient detail to discuss possible differences in lithic material utilization between Red River valley sites and those located outside the valley. In what forms were lithic raw materials transported into central valley residential sites?

The paucity of Early, Middle, and Late Plains Woodland settlements which have been sampled limits our knowledge concerning settlement landscape, including architecture. At present, little is known about the types of habitation structures which were used by these groups. What procedures should be employed to reduce the chances of failing to identify residential structural features in Woodland sites along the Red River? Boreal forest archaeologists have had success identifying house floor areas by examining artifact distribution across 4 or 5 cm thick excavated levels rather 10 cm or 6 inch thick levels. In settings where post holes can seldom be detected, house floors must be identified by artifact distributions rather than physical traces of house construction features. This type of excavation requires more precise vertical controls and recording than routine excavation. This is not something that would happen without special sponsor support in the world of low bid contract archaeology.

Artifact Styles

Early and Middle Woodland ceramics found in the SRRSU conform to styles identified elsewhere in the prairie-forest ecotone of the Northeastern Plains (cf. Benn 1990). Projectile point styles common to the Woodland era include large and small side-notched forms such as Besant and Samantha (cf. Kehoe 1974). Do Early Woodland stemmed bifaces occur in local private collections?

Much of the Late Woodland ceramic stylistic variability observed in the SRRSU can be subsumed under existing wares (i.e., Kathio and Sandy Lake). Late Woodland arrowpoints include small side-notched specimens as well as unnotched triangular forms (Haberman 1978:78). Are there any expectations that the natural resource conditions of the SRRSU might have acted upon cultural systems to generate any distinctively styled items of material culture?

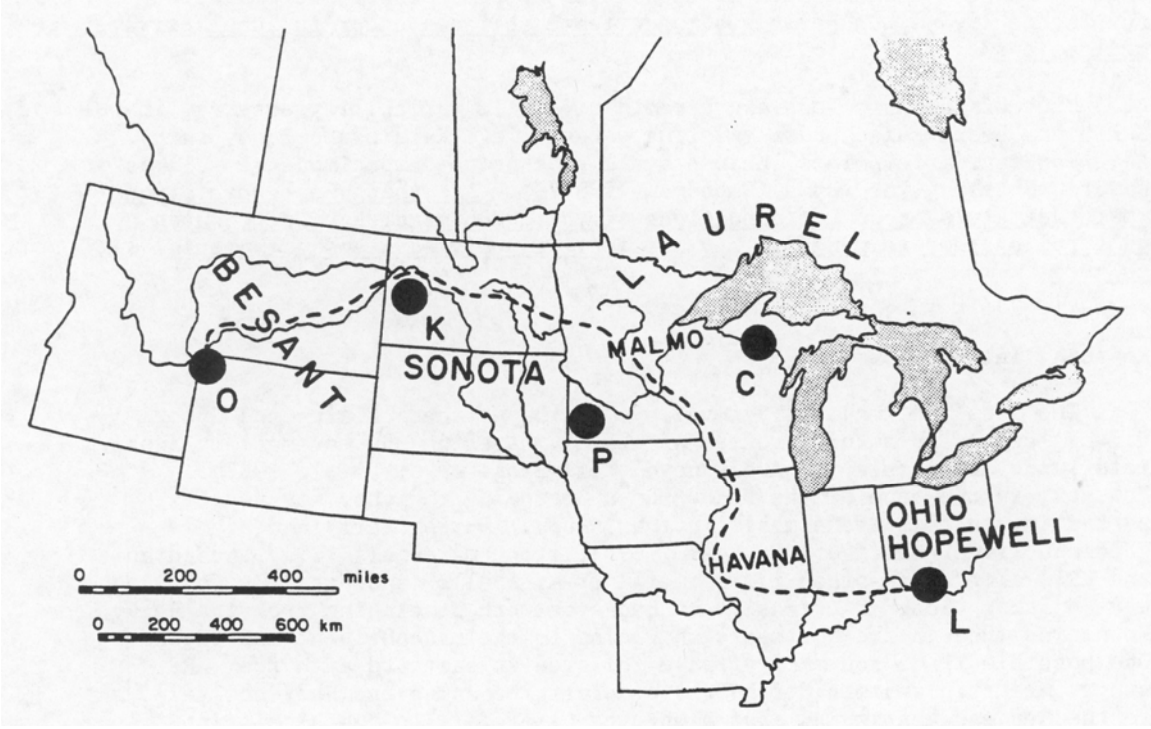
Regional Interaction

The idea that major river valleys of the Northern Plains and Upper Midwest served as natural routes of travel fostering the movement of ideas, materials, and people is hardly novel (cf. Brose 1990; Little 1987). However, in the case of the SRRSU and surrounding regions, key aspects pertaining to this

issue merit further study. During Early and Middle Plains Woodland times (ca. 400 BC-AD 600), stone materials (i.e., obsidian and KRF) along with other items (metal ores, shells, and possibly fossils) were passing along an extensive exchange network stretching from the Rocky Mountains through the Northeastern Plains to the midcontinent and beyond. One possible trade route might have followed an eastward path from KRF quarry areas in western North Dakota across the James River and Sheyenne River valleys to the Red River and continuing east along the Otter Tail River to the Mississippi River headwaters (including Mille Lacs Lake). This particular route is depicted in Figure 10.4. Interaction was likely ongoing between Middle Woodland groups with Besant, Sonota, Malmo, and Laurel material culture (cf. Clark 1982, 1984; Gregg and Picha 1989b; Thompson 1990:172). Were the early historic east-west trails across the Red River valley used during earlier Woodland times?

Later Woodland (ca. AD 600-900) trade networks were also expansive as indicated by the diversity of exotics encountered in Arvilla sites to the north (Johnson 1973). Do these exotics indicate continued or renewed long distance exchange following the decline of Hopewell after AD 400?

Figure 10.4: A likely trade route for long-distance exchange during the Middle Plains Woodland period. (O=obsidian, K=Knife River flint, C=copper, L=*Leptoxis*, and P=catlinite.)



Historic Preservation Goals, Priorities, and Strategies

Woodland mound sites in the SRRSU should be thoroughly documented through a concerted effort of archival research, landowner interviews, aerial photography, and follow-up on-the-ground surveys. What other unreported exotic materials occur in Middle Woodland collections from the region?

Plains Village Period

Late prehistoric times (ca. AD 1000-1600) within the SRRSU seem to have been a complicated mix and coalescence of diverse cultural influences. Some taxonomic indications of this diversity are denoted by use of terms such as "Mississippianization" and "Sandyeota" to describe items exhibiting admixtures of material culture traits in the archeological record. Shay (1990) outlines some of the behavioral consequences of intra- and inter-group interaction. The major cultural complexes of the middle part of this period are illustrated in Figure 10.5.

Paleo-Environmental Modeling

Anfinson and Wright (1990:224) propose that the "demise of the Plains Village cultures of southwestern Minnesota cannot be attributed solely to climatic change, although a deteriorating climate may have contributed to other stresses on these cultures. The most telling argument against the climatic factor is the fact that Blue Earth Oneota was thriving when the eastern Plains Village cultures disappeared." In the SRRSU, what roles did climate change and soils play in the adoption of prehistoric corn agriculture by Plains Villagers?

Cultural Chronology

The late prehistoric cultural chronology for the SRRSU is illustrated in Figure 10.6. As indicated, three major cultural traditions are identified on an AD 1400 time level. These include remains associated with Late Woodland (e.g., Sandy Lake), Northeastern Plains Village (some Cambria-like), and Oneota traditions. The lack of sites with absolutely dated components dictates that the existing chronology has been formulated primarily from artifact cross dating within the Study Unit.

Late Woodland Sandy Lake pottery is ubiquitous in the southern Red River valley. Cord-roughened sherds with either shell or grit temper abound in regional collections (cf. Michlovic 1984b). Investigators should be on the lookout for distinctive types of Sandy Lake ware within the SRRSU.

Figure 10.5: Later prehistoric cultural complexes in the Northeastern Plains, AD 1200-1400.

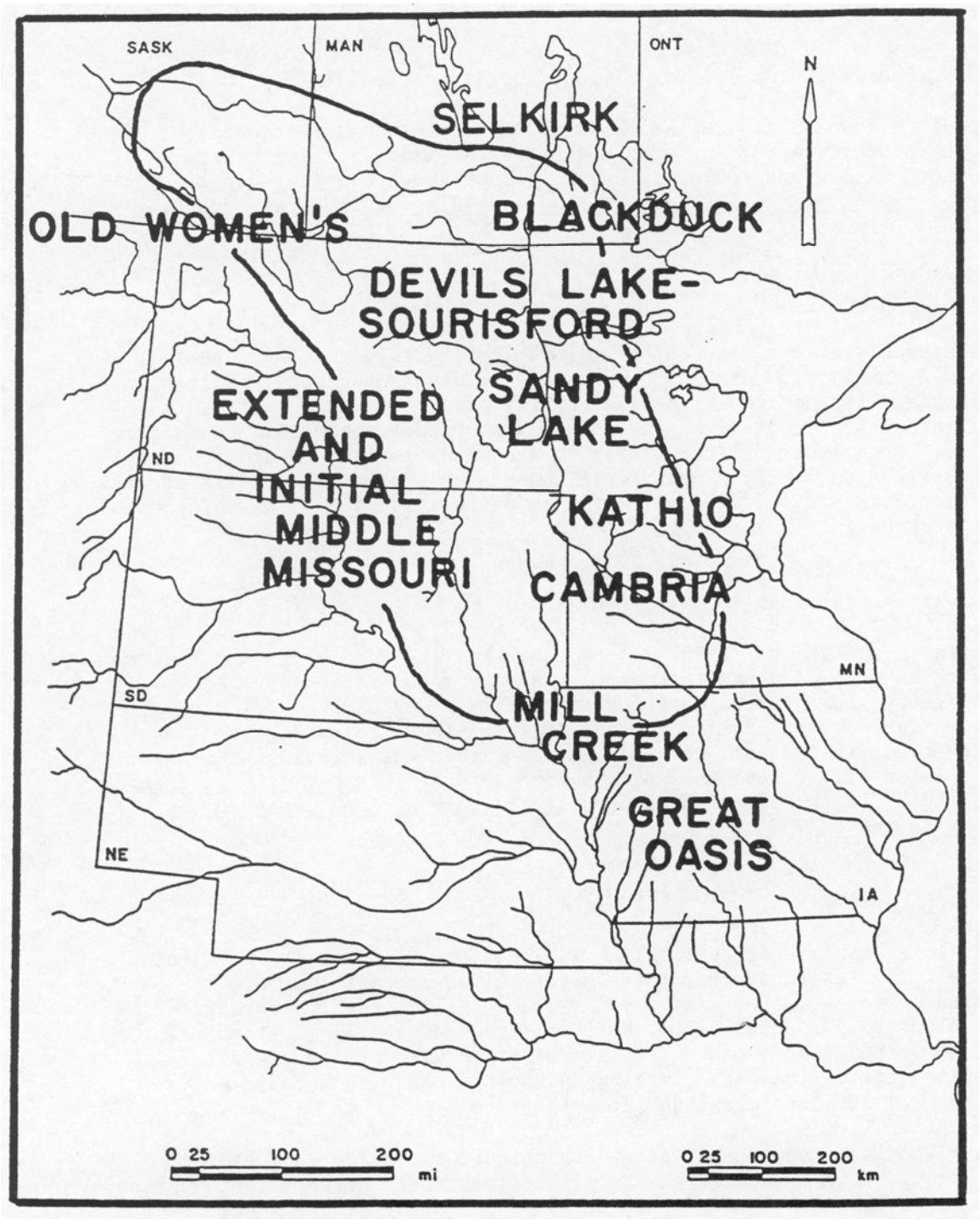
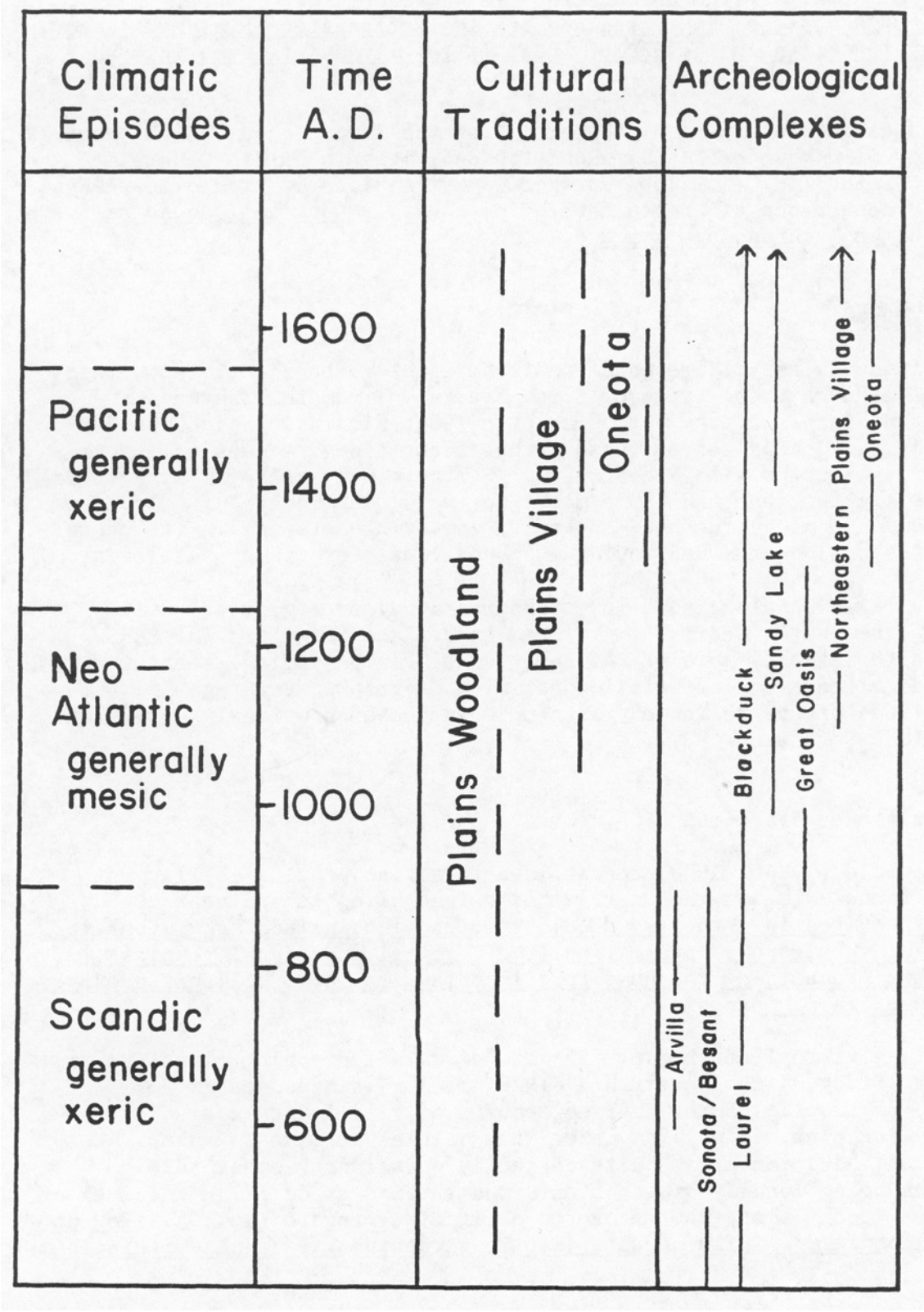


Figure 10.6: Late prehistoric cultural chronology for eastern North Dakota.



Northeastern Plains Village materials occur at Lake Tewaukon (32SA211) and sites in the Red River valley as well. Johnson (1962:165) alludes to Cambria-like materials from an unnamed site near Fort Abercrombie. What is the distribution of tool-impressed
and trailed Northeastern Plains Village ceramic-bearing sites in the SRRSU? Does it totally overlap that of Sandy Lake?

Oneota ceramics have been recovered from the Femco Mounds (21WL1) and the McCauleyville Mounds (21WL2) along the Red River in Wilkin County, Minnesota (Wilford 1970:15-21). Further investigations by Michlovic (1984a) suggest the occurrence of Oneota habitation as well. How well does the proposed cultural chronology stack up?

Settlement Behavior

Fortified Plains Village encampments have yet to be identified within the SRRSU, although these types of sites are known from the Sheyenne River and Maple River drainages nearby (cf. Michlovic 1988; Michlovic and Schneider 1988). Temporary campsites of these groups occur along reaches of the Red-Bois des Sioux and the Wild Rice rivers. Semi-permanent villages like those found along the Sheyenne and Maple rivers might not have been located in flood-prone bottomlands along the Red River. However, low-lying settings in the dense gallery forests along the Red River would have been reasonable for winter settlement.

Future research along some lower order drainages (e.g., Dead Colt Creek) and other water bodies (e.g., Swan Lake, Lake Fedge) in the SRRSU could serve to identify more of the spectrum of Plains Village settlement types. A detailed study of existing aerial photographic coverage (ca. 1939-1968) of the region may turn up evidence of previously unrecorded site locations (cf. Svec 1987).

Native Subsistence Practices

Michlovic's (1984a, 1988) investigations provide the largest samples of faunal remains thus far gathered from sites in and near the SRRSU. Subsistence activities and site function at 32RI785 can be inferred from the small sample of animal bone and tool assemblage recovered at the site (Dobbs et al.:iii). Further testing programs should specifically include provisions for collection of subsistence information (i.e., floral and faunal remains). It is known that products of the hunt were important to local Villager groups but what about garden crops?

There is a virtual absence of subsistence data concerning plant use from sites in the Study Unit. Haberman's (1978:153-154) discussion is an exception. He identified the charred remains of wild fruits including chokecherry and plum, as well as maize from samples at Lake Tewaukon (32SA211). Haberman questions

whether this cultigen was locally grown or obtained through trade given the lack of horticultural tools among the recovered artifact aggregate (ibid.).

How did local soil conditions influence prehistoric gardening strategies within the SRRSU?

Technologies

An aspect of Cambria lithic technology which merits further study concerns an aggregate of five projectile points of yellow jasper associated with Burial No. 10 from Round Mound (21TR1) located along the east shore of Lake Traverse (Wilford 1970:1-6, 27-29). The specimens all appear to be made on small flakes with only minimal modification. These items are similar to certain Middle Mississippian forms from locales further south (cf. Farnsworth et al. 1991). The role of part-time specialization in production of Plains Village commodities such as ceramic vessels as well as items from chipped stone, shell, and bone is worthy of additional investigation (cf. Pauketat 1987).

Artifact Styles

Recent petrographic analyses of native ceramics from Upper Mississippi valley contexts outlined by Stoltman (1991) suggest that locally made "look alikes" can be differentiated from their nonlocal Mississippian counterparts. Studies of this sort coupled with the collection of basic quantitative sherd data will figure importantly in deciphering patterns of culture contact and regional interaction in the SRRSU. For example, is the Northeastern Plains jar from the Lake Tewaukon refuge illustrated by Haberman (1978:25) made from local clay?

Similarly, are there significant differences in lithic technology between early Plains Village assemblages from Lake Traverse-Big Stone Lake and Cambria of Minnesota (Gibbon 1991) and assemblages from contemporaneous Village cultures in the SRRSU?

Regional Interaction

Michlovic (1990) has addressed Northeastern Plains-Woodland regional interaction looking particularly at mediums such as exchange, ceremonialism, and aspects of material culture (e.g., native ceramics). It is well known that a number of commodities, including both durable and perishable items as well as information, were being exchanged throughout the midcontinent during late prehistoric times (cf. Hall 1980; Johnson 1986; Wood 1980). However, the role(s) played by various contemporaneous settlements in the SRRSU at any point in time, say AD 1250, 1400, or 1550, remains to be clarified. Syms' (1977, 1985) important contributions in this regard seriously need to be considered.

Historic Preservation Goals, Priorities, and Strategies

Many of the once conspicuous earthen mounds and possible village settlements located in the SRRSU have likely been damaged or destroyed by decades of land leveling and gravel pit activities. Local landowners who have acted in good conscience should receive recognition for preservation of these important sites.

Equestrian/Fur Trade Period

Equestrian period developments in the SRRSU were initiated by the introduction of Euro-American trade material and the horse in the early-mid 18th Century, and terminated largely by 1860, or shortly thereafter (cf. Howard 1976). The grasslands of the Northeastern Plains became the core territory of groups such as the Yankton and Yanktonai Dakota. The James River Rendezvous and Lake Traverse-Big Stone Lake seasonal gatherings were important territorial events (cf. Howard 1972; Woolworth 1986).

Paleo-Environmental Modeling

The Neo-Boreal climatic episode is suggested to have been cooler and periodically moister with reference to the 1990s (cf. Bamforth 1990). Concomitantly, regional biomass buildup, including increases in bison density is posited. Penman (1988) has recently argued that cooler conditions may have influenced the abandonment of corn agriculture in the Upper Mississippi valley at this time. Regional climatic conditions during the period can be inferred from several lines of evidence. Archival research utilizing the journals of early visitors such as Alexander Henry and John Bourke, among others, may provide salient climatic information (cf. Gough 1988; Rannie 1983; White 1977). Studies of climatically sensitive fauna (i.e., terrestrial gastropods) from contexts such as along the Wild Rice River may provide relevant data for aiding paleoecological reconstruction concerning these issues (cf. Baerreis 1990; Barber 1988).
Cultural Chronology

Chronological sequences of the protohistoric period in the SRRSU can be further developed and refined with a continued effort devoted to interdisciplinary archeological and ethnohistorical investigations (cf. Johnson 1985; Michlovic 1985; Ritterbush 1990). Additional research at sites containing culturally stratified deposits such as those sampled at Lake Tewaukon undoubtedly will serve to provide important information regarding late prehistoric and protohistoric cultural developments in the region.

Inventories of relatively undisturbed pasture lands in the Sisseton Hills along the North Dakota-South Dakota border would likely produce stone circle and other rock feature sites associated with Yankton and Yanktonai use of this region (cf. Rood and Rood 1984). The vast majority of other lands which once contained prominent features of protohistoric Native American land use have

had their surfaces obliterated by mechanized agricultural activities. Concerted coordination with cooperating agencies such as the NRCS in historic preservation will serve to promote the mutual goals of all involved groups.

Settlement Behavior

Nomadic Middle Dakota (Yankton and Yanktonai) bands controlled much of the territory within the SRRSU during the period AD 1700-1860 (Howard 1976:5; Warren 1986:147-149). Temporary seasonal encampments can be expected throughout the SRRSU that were occupied during the spring, summer, and fall. Winter camps of the Dakota were likely selected from the more attractive Red River forested bottoms and other protected locations such as along Lake Tewaukon (cf. Haberman 1978). As late as AD 1883, tipi encampments occurred near present-day Cogswell in Sargent County (White 1903, cited in Deaver and Bergstrom 1989).

Native Subsistence Practices

Discussions pertaining to regional postcontact subsistence strategies appear in the works of Howard (1966), Warren (1986), and Woolworth (1986). Independent confirmation of native subsistence practices merit study with larger samples from sites in the SRRSU. Did native participation in the fur trade alter pre-existing subsistence practices (e.g., the late adoption of gardening by some nomadic Middle Dakota groups)? Is the SRRSU an area where large communal bison hunts were occurring?

Technologies

By AD 1800, and likely decades earlier, Euro-American trade goods and other merchandise would have been available from trading posts/forts such as along Lake Traverse (cf. Nute 1930:379). What impacts did these goods have on native technologies as reflected in the material culture of sites such as Lake Tewaukon and/or did impacts on cultures within the SRRSU differ appreciably from impacts documented by archeological investigations at Plains Villages sites in the Middle Missouri subarea?

Artifact Styles

The nearby catlinite quarries in southwestern Minnesota were extensively utilized by Equestrian groups including the Middle Dakota (cf. Woolworth 1983). What is the distribution of catlinite artifacts in the SRRSU? What particular styles or design motifs can be linked to various Yankton and Yanktonai bands?

Archival research on fur trade stores and provisions quartered at posts and stations such as Lake Traverse could provide information for sleuthing out diagnostic artifact styles at regional sites. Local collections should be examined with this goal in mind.

Regional Interaction

The Red River valley served as a major north-south transportation route (e.g., Red River Trail) throughout the protohistoric period (cf. Gilman et al. 1979; Swagerty 1988). Other ancillary routes followed beach strandlines (Ridge Trail). Existing manifestations of trade routes should be formally recorded as part of the state site file database.

Historic Preservation Goals, Priorities, and Strategies

Ritterbush (1991a:41-46) outlined data gaps and research questions regarding the fur trade in northeastern North Dakota. Many of the same concerns apply to the SRRSU as well. Were the Métis a factor in later cultural developments in the SRRSU?

Prioritization of Historic Preservation Goals in the SRRSU

This section presents a list of prospective research projects which have been mentioned above. The list is prioritized according to research merit, feasibility, and broadness of scope.

1. Conduct additional research at sites containing culturally stratified deposits such as those sampled at Lake Tewaukon in order to provide important baseline information regarding prehistoric and protohistoric cultural developments in the region.

2. Apply Geographic Information Systems (GIS) as a modeling tool (cf. Alien et al. 1990; Kvamme and Kohler 1988) for early Holocene landform evolution and prehistoric settlement in the SRRSU.

3. Conduct a distributional study of Old Copper materials (after Johnson 1964) from the SRRSU.

4. Develop a procedure for locating buried sites along the Red River.

5. Perform a distributional study of tool impressed and trailed Northeastern Plains Village ceramic-bearing sites in the SRRSU and compare this distribution with that of Sandy Lake.

6. Conduct archival research focusing on the journals of early visitors (e.g., Alexander Henry and John Bourke) in order to bring together information regarding protohistoric cultural developments and climatic conditions (cf. Ball 1984; Gough 1988; Rannie 1983; White 1977).

7. Conduct a distributional study of catlinite artifacts in the SRRSU. Attempt to determine if there were particular styles or design motifs linked to the various Yankton and Yanktonai bands.

8. Conduct multidisciplinary research to determine the nature of climatic conditions in the Northeastern Plains (and SRRSU) during the eras of Hanna and Pelican Lake settlement in the region.
9. Assess whether Sandy Lake represents the most prominent Plains Woodland manifestations here simply because it is the most recent or because it coincides with a peak of regional population density.

10. Assess the role of part-time specialization in production of Plains Village commodities such as ceramic vessels as well as items from chipped stone, shell, and bone (cf. Pauketat 1987).