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The Grand River Study Unit

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The Grand River Study Unit (GRSU) is near the southwestern corner of the state along the South Dakota border. The two adjacent “archaeological management regions” of the South Dakota State Plan are named “Sandstone Buttes” and “Grand/Moreau Tablelands” (Winham and Hannus 1989:48).

Description of the Grand River Study Unit

There is a very short reach of the Grand River in North Dakota, and this is the North Fork of the Grand River. The North Fork and the South Fork come together just south of Lemmon, South Dakota. The small portion of the North Fork lying within North Dakota is right along the state line south of Bowman. Bowman-Haley Reservoir, inundated to capacity in 1969, lies in the locality of the confluence of Crooked Creek, Alkali Creek, and Spring Creek with the North Fork of the Grand River.

The area of this Study Unit (SU) is 864 mi² (Figures 8.1 and 8.1A). Drainage is toward the southeast, ultimately to the Missouri River in South Dakota. Parts of Adams and Bowman counties are included. Table 8.1 is a complete list of townships within the SU.

Drainage

The valley of the North Fork of the Grand River is relatively broad and shallow. It averages about 1.5 miles in width with a drop of about eight feet per mile. The river, meandering down this valley, drops about four feet per mile. The main tributaries of the Grand River in North Dakota are Spring Creek, Lightning Creek, Buffalo Creek, and Flat Creek (formerly Hidden Wood Creek). These tributary streams are typically dry most of the year. Buffalo Creek (or Buffalo Spring Creek) is a spring-fed stream with a “reliable water flow” (Artz et al. 1987:6.17). Alluvial deposits in the stream valleys have surely capped and preserved numerous archaeological deposits intact. The general lack of permanent water would have prohibited long-term residential settlement through most of prehistory everywhere in this SU except near the North Fork.

In addition to streams, the area may have contained lakes during mesic periods. Bowman Playa between Twin Buttes and Talbot Butte is one example (Artz et al. 1987:6.23). Further, marshy areas such as those along Flat Creek may have been lakes during years of above-average rainfall. When rainfall is adequate, wetlands attract a broad array of creatures including people.

Figure 8.1: Map of the Grand River Study Unit.

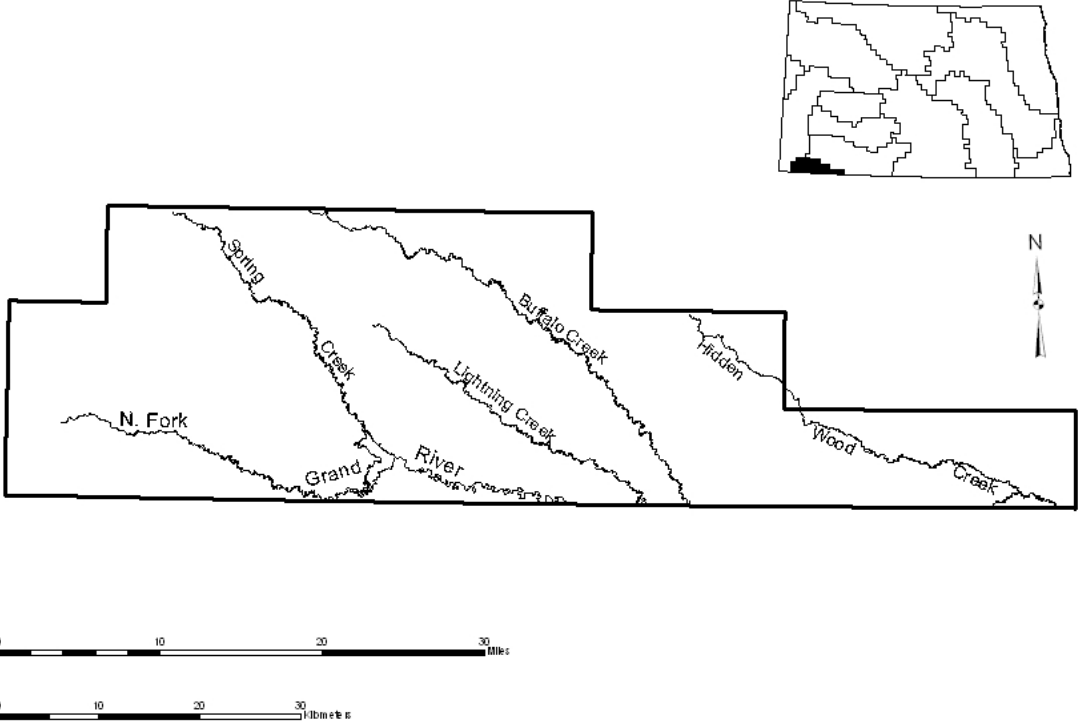


Figure 8.1A: Shaded Relief Map of the Grand River Study Unit.

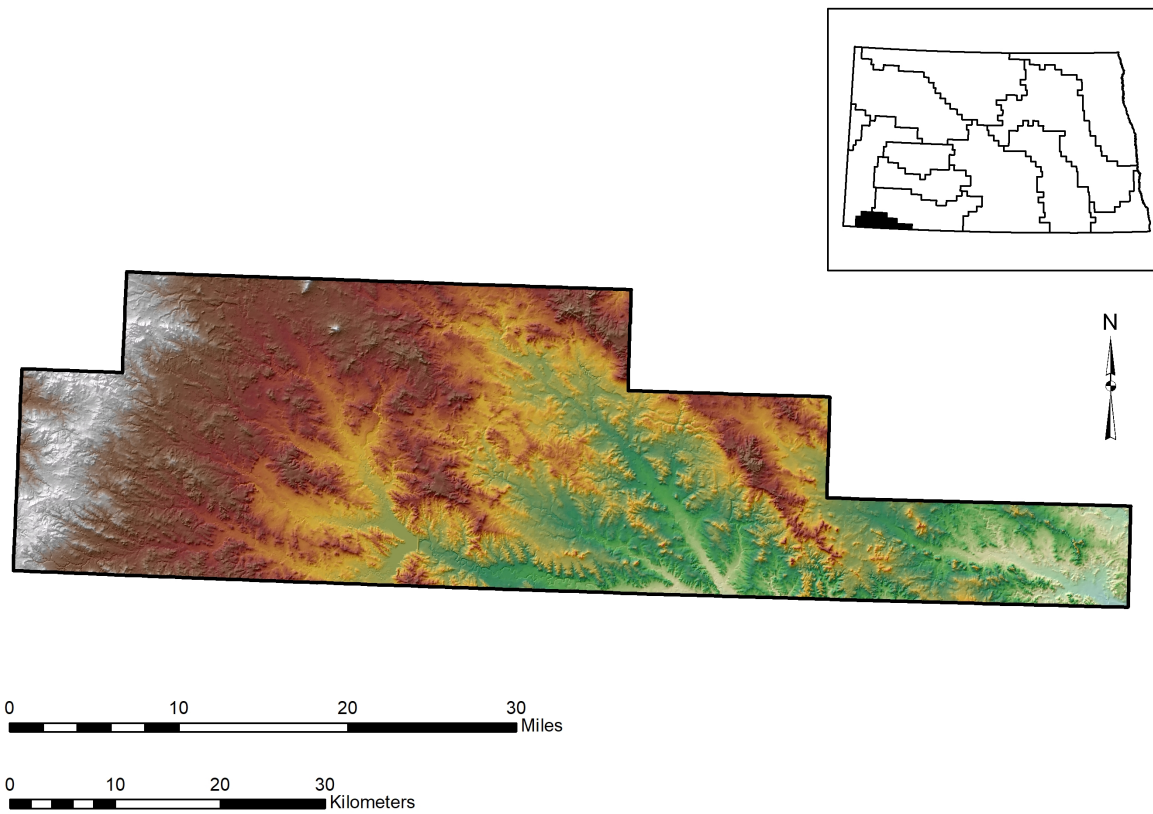


Table 8.1: Townships in the Grand River Study Unit.

TOWNSHIP	RANGE
129	94
129	95
129	96
129	97
129	98
129	99
129	100
129	101
129	102
129	103
129	104
130	97
130	98
130	99
130	100
130	101
130	102
130	103
130	104
131	99
131	100
131	101
131	102
131	103

Physiography

This area may be classified in the Unglaciaded Missouri Plateau subsection, of the Missouri Plateau section, of the Great Plains physiographic province (Fenneman 1931; Hunt 1974; Pirkle and Yoho 1977). The South Dakota portion of the basin is described physiographically as “part of the Cretaceous Tablelands Section of the Missouri Plateau Division of the Great Plains” (Winham and Hannus 1989:89).

Beyond the stream valleys, the uplands are a gently rolling to somewhat rugged dissected plateau completely outside the glaciaded portion of North Dakota (Murphy et al. 1993). There are scattered buttes and ridges with exposures of sandstone and other bedrocks of the Bullion Creek, Ludlow, Cannonball, and Slope Formations. The southern part of the Medicine Pole Hills lies within the northwestern part of the unit. The Medicine Pole Hills are on the drainage divide between the Grand and Little Missouri rivers. The southwestern portion contains part of the Pommès Blanches Hills. Hunting lookout stations should abound atop the buttes. The northern end of the North Cave Hills also straddles the state line extending into this unit. Named buttes here include Moga Butte, Talbot Butte, Rocky Ridge, and Twin Buttes. Buttes such as these were landmarks which attracted settlement and were used to mark travel routes. Within a few miles to the south in South Dakota are Lodge Butte, Tepee Buttes, and the Eagle’s Nest Hills.

Climate

For the Grand River National Grasslands, the climate is described as semiarid or subhumid continental. Rainfall averages 16 inches per year, but periodic droughts render this unreliable (Beckes and Keyser 1983:151). The driest time of the year typically is winter. “The soil usually freezes prior to significant saturation and is usually blown bare of snow by high winter winds” (ibid.).

The southwestern part of North Dakota has been somewhat warmer than other parts of the state during the AD 1900s-2000s. Was this generally true throughout all of prehistory? With high temperatures, low precipitation, and the high evapotranspiration rates of the plains, this area has been more susceptible to drought and loss of permanent water sources than any other part of the state. Was there any time during prehistory when occupational intensity here was higher than in other parts of North Dakota?

Landforms and Soils

Ridges, hills, buttes, and other elevated landforms are often the bedrock exposures. Sediments exposed by wind erosion have been redeposited nearby in aeolian depositional contexts. Sediments in such contexts underwent soil development during mesic eras (cf. Clayton et al. 1976). A buried soil of possible Paleo-Indian (Paleo) age was found in proximity to a Scottsbluff dart point at 32AD10 several miles southwest of Rocky Ridge (Artz et al. 1987:6.36). Soils in this SU develop from sediments eroded from Sentinel Butte, Bullion Creek, Slope, and White River Formation parent materials.

Natural Resources Conservation Service (NRCS) official soil survey resources are available online (NRCS 2021 a, b).

- Electronic Field Office Technical Guide: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/>
- Web Soil Survey: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/>

Flora and Fauna

Most of this area is grassland. Indian breadroot (*Psoralea esculenta*), a favored food of Native Americans, grows on the prairie here. There are small patches of juneberry (*Amelanchier alnifolia*) and buffaloberry (*Shepherdia argentea*) in protected areas; cottonwood (*Populus deltoides*) occurs near water, and American elm (*Ulmus americana*), box elder (*Acer negundo*), and green ash grow (*Fraxinus pennsylvanica*) in draws.

Mosaic patterns of rainfall typify the Plains. The grasslands required adequate moisture at critical growth periods to develop grazing conditions which attracted bison. Increased forage in the region led to increased bison grazing, bigger herds, and heightened potential for communal kills (Allen and Dibenedetto 1988). Effective moisture is the key to good grazing conditions. Information is sorely lacking regarding eras of adequate versus inadequate rainfall during prehistory. Radiocarbon dating of archaeological deposits found in paleosols would be a productive first step in identifying general periods of time with greater effective moisture and soil development.

Other Natural Resource Potential

Freshwater springs presented another water source for game animals and people to use. Spring locations can be a clue to archaeological site locations here as in other SU. It would be advantageous to know the locations of springs throughout the drainage. All are likely to have attracted settlement at one time or another in the past.

Tongue River silicified sediment (TRSS), porcellanite, and many varieties of agatized wood are knappable stones found here. Agatized wood carpets many of the low hills and ridges in the Bowman-Haley Reservoir locality (Hume and Hume 1964). It is necessary to compile specific information about the source areas of various materials and determine if there is any high-grade porcellanite present. Porcellanite is formed by underground lignite burns (Fredlund 1976), and several such burns have been active in Adams County since the mid-AD 1900s. Tongue River silicified sediment may be most abundant along a zone where there are surface exposures of the contact between the Slope and Bullion Creek Formations (cf. Ahler 1977b:117). “Where erosion has removed the Bullion Creek and all or part of the Slope Formation, TRSS often occurs as a dense surface lag deposit of large angular boulders scattered across hill tops and stream terraces” (Keyser 1987:233).

In 2021 the South Dakota State Historical Society published *Tool Stone Found at South Dakota Archaeological Sites* edited by Renee M. Boen. The document contains

information, photographs, and maps on raw stone materials found at archaeological sites in South Dakota and will be a valuable reference for archaeologists in North Dakota as well. Craig Johnson’s *Chipped Stone Technological Organization: Central Place Foraging and Exchange on the Northern Great Plains* (2019) is likewise a valuable resource regarding lithics resources and provides important research questions for future studies.

Overview of Previous Archaeological Work

The GRSU has witnessed relatively little archaeological investigation, in part because the area is small (864 mi²). Another factor has been the scarcity of large federally funded or licensed projects such as reservoir developments and strip mines which destroy large areas of the natural landscape and consider how of historic properties could be affected. A review of reports of the work which has been carried out, show that samples from site inventory work are clearly more substantive overall than samples from excavation.

Inventory Projects

As of 31 December 2020, there were 145 archaeological sites, and 137 archaeological site leads or isolated finds in the state site files for this SU. With an area of 864 mi², there is one recorded archaeological resource per 3.1 mi². The total area inventoried at a Class III level in the GRSU was 33,518 acres on 31 December 2020.

The following table shows the breakdown of cultural resource inventories in the GRSU. More basic inventory work needs to be done.

Table 8.2: Inventory Data for the Grand River Study Unit, 31 December 2020.

Project Type	Number of Projects	% Of All Projects	Acres Inventoried
Transportation*	70	40%	9,255.38
Land use	43	25%	5,753.05
Energy	33	19%	41,832.56
Telecommunications	18	10%	14,693.96
Southwest Pipeline	11	6%	6,524.66
*Transportation includes airports			

Table 8.3 summarizes archaeological site coding for feature types and landforms. Sites in upland settings account for most of the sample. Stone circle and other stone feature sites make up approximately 26% of the sample revealing a discrepancy between the site files and results of a sampling survey of BLM coal study areas where stone feature sites were not represented at all (see below). As of 31 December 2020, no stone feature sites have been formally tested or mitigated in the GRSU.

Table 8.3: Feature Type by Landform of Archaeological Sites in the Grand River Study Unit, 31 December 2020.

SU 8	Cairn	CMS	Eagle	Grave	Hearth	Jump	ORF	Pit	Quarry	Circle	Trail	Misc	TOTAL
Beach/River bank		5			3	2			1				11
Draw		3				1				1			5
Floodplain	1	8			1		1			1			12
Hill/Knoll/Bluff	8	48	1	1	2		3	3	4	13	2	4	89
Other		1							1			1	3
Ridge	9	10		2	1		2		2	9		1	36
Saddle										1			1
Spur		3	1				1			4			9
Swale		2											2
Terrace	2	38			8	1	1	3	3	4	1		61
Upland plain	3	11							1	2			17
Valley wall foot slope		1			1	1		1	1				5
TOTAL	23	130	2	3	16	5	8	7	13	35	3	6	251
CMS=Cultural Material Scatter; Eagle=Eagle Trapping/Catching Pit; ORF=Other Rock Feature; Circle=Stone Circle; Misc=Miscellaneous													

Table 8.4: Cultural/Temporal Affiliation of Archaeological Resources in the Grand River Study Unit, 31 December 2020.

Paleo-Indian	
Folsom	1
Plano (Cody)	2
Total	3
Archaic	
Unspecified	3
McKean/Duncan/Hanna	7
Pelican Lake	2
Total	12
Woodland	
Sonota/Besant	1
Avonlea	1
Late Woodland	1
Total	3
Late Prehistoric	
Unspecified	2
Plains Village	1
Total	3
TOTAL	21

The earliest reported archaeological investigations in this SU were surveys of the proposed Bowman-Haley Reservoir. The sequence of Bowman-Haley work has been summarized by Tibesar (1982:29). The first was a survey conducted in 1964 (Hume and Hume 1964), and 36 sites were identified. A resurvey was conducted by Oscar Mallory in 1965. This led to two months of excavations at sites 32BO207 and 32BO213 in 1966 directed by Mallory. Post-inundation surveys were conducted by Chris Dill in 1976 and Larry Robson (1981). The excavations yielded important information regarding Middle Archaic period occupations.

A survey of five BLM coal study areas (CSAs) in western North Dakota found that about 50% of the sample units in the Bowman-Gascoyne CSA were untilled native prairie (Metcalf et al. 1988:284). The Bowman-Gascoyne CSA straddled parts of three SU: Little Missouri River, Cannonball River, and Grand River. The only sort of prehistoric sites found were lithic scatters and isolated chipped stone artifacts. No stone features sites were encountered.

The Bowman-Gascoyne CSA survey covered just one 160-acre sample unit in the Grand River drainage. Artifacts observed at the single site found in this sample unit were primarily agatized wood flintknapping workshop debris. Part of a sandstone mano was observed (ibid.:110). Some cultural resource managers and researchers might see interesting research prospects in the excavation of an intact agatized wood workshop.

Site survey for the Southwest Pipeline encountered archaeological properties in two transects within this SU; 24 sites were recorded along ca. 30 miles of right-of-way (Artz et al. 1987:Figure 6.1). Lithic raw material procurement activities were well represented, focused on naturally occurring agatized wood and Knife River flint (KRF). While these sites were in proximity to reliable water sources, surveyors can expect to find procurement sites representing “short-term activities carried out in forays away from residential base camps far removed from permanent water” (ibid.:6.20).

In October 1995, UNDAR-West worked to locate and re-evaluate cultural resources along a portion of the proposed Southwest Pipeline. Two sites were recorded, and 13 sites re-evaluated (Klinner 1996). One site of note, 32AD75, consisted of four cairns, four stone circles, and one stone circle with a cairn attached, all well-sodden (ibid.). Additionally, a sparse scatter of debitage was present. The debitage comprised moderately patinated petrified wood flakes and shatter (ibid.).

In general, site avoidance, rather than formal testing and/or mitigation, has been the choice of applicants. The result is initial documentation of many new sites but relatively few evaluative investigations, and therefore little new knowledge about the prehistory of North Dakota in this study unit.

Formal Test Excavation Projects

There are two reports which address archaeological test excavation in this SU (Table 8.5).

Table 8.5: Formal Testing Projects in the Grand River Study Unit, 31 December 2020.

Year	First Author	Second Author	Title	Sites Tested	MS #
1993	Otto, R.		National Register Testing at 32BO35, A Cultural Material Scatter Located at Bowman-Haley Reservoir, Bowman Co., ND	32BO35	6830
2005	Bleier, A.		US Highway 12: Evaluative Testing at 32BO106, 32BO109, 32BO174 & 32BO279 Bowman Co., ND	32BO106 32BO109 32BO174 32BO279	8822

In 1982, mapping and “testing” were conducted at seven prehistoric sites at Bowman-Haley Reservoir (Tibesar 1982). These properties were identified as cultural material scatters and one stone circle site. Late Plains Archaic and generically identified late prehistoric remains were encountered. A total of 119 shovel probes were dug at seven sites.

In spring 2004, four sites were tested along ND Highway 22 (Bleier 2005). All have been categorized as lithic reduction sites located on uplands overlooking drainages of Buffalo Creek. Disturbances to the sites include road, railroad, fence, and pipeline construction, fiber optic cable and utility pole installation, agriculture, and

erosion/deflation and re-deposition. Generally, the artifact assemblages consisted of debitage, chipped stone tool fragments, cores, and tested raw material comprising petrified wood, chert, and chalcedony. The author noted that some of the debitage may be the result of freeze/thaw action (ibid.).

The four tested sites include 32BO106, 32BO109, 32BO174, and 32BO279. Holocene deposits at 32BO106 were 5-10 cm thick with blended cultural deposits due to past deflation episodes (ibid.). At 32BO109, debitage was heavily patinated suggesting the site may date to the Plains Archaic (ibid.). The thickness of Holocene deposits was not determined. There was scant evidence of Holocene deposits at 32BO174, as the higher area(s) of the site previously had been used for borrowing. Testing yielded a biface fragment, a core fragment, and a retouched flake in addition to debitage. Site 32BO279 differed somewhat from the others in the diversity of the artifact assemblage and raw material types. Recovered chipped stone tools include a fine-grained TRSS Paleo (possibly Eden) projectile point and a possible Besant point fragment (ibid.). However, the points were collected from stratigraphically unstable locations so even relative dating is suspect (ibid.:42). One obsidian flake was recovered from gravels in a deflated portion of the site. Though intact Holocene deposits were virtually nonexistent, a poorly defined paleosol was present approximately 85-95 cm below surface (ibid.:41). A sample of the paleosol was dated to 7180±80 BP or 6220-5890 BC (ibid.:41). An organic sediment sample at the base of a sterile level (50-60 cm below surface) dated to 410±60 BP or AD 1420-1640 (ibid.:41). Unfortunately, these dates may not be accurate due to the disturbed context of the site.

The Highway 22 management summary of the testing project indicates that the sites cannot be dated to specific temporal periods due to the lack of integrity caused by natural and man-made processes. Testing of intact deposits is needed in the SU.

Stone Circle and Cairn Sites

Stone features, such as circles and cairns, are commonly recorded site types in the GRSU (Table 8.3) but none have been **formally** tested.

National Register of Historic Places

Currently, there are no sites in the GRSU listed in the National Register of Historic Places (NRHP). See the National Park Service website for sites in North Dakota listed in the NRHP.

Major Excavation Projects

The excavations carried out at the Fisher (32BO207) and Red Fox (32BO213) sites are the only major projects reported for this SU (Table 8.6). Leigh Syms' Master's thesis (1969) provides the most comprehensive treatment of the 1965 work. While the excavations in the Bowman-Haley Reservoir locality were conducted by Mallory on

behalf of the SIRBS, neither Mallory nor the SIRBS ever reported the results in any detail. Quoting from Tibesar (1982:31):

A month was devoted to the excavation of the Fisher site (32BO207), a small station on the right bank of the North Fork of the Grand River at the western terminus of the reservoir. The work produced evidence of five cultural components, although definitive materials were recovered from only the two stratigraphically oldest units. These were in a dark clay soil between 5.0 and 7.5 feet below the surface. Both contained rock-lined fire pits and projectile points associated with the early McKean Complex.

Another month of excavation was carried out at the Red Fox site (32BO213), a multi-component locus on Spring Creek. The uppermost occupation resembles late Coalescent [*sic*] Tradition sites like those found along the Missouri River. Interposed between this level and the lowest zone were two intermediate components not as yet identified culturally. Excavation in the fourth and lowest component revealed numerous stone tools, rock-filled fire pits, and a portion of a pit about 15 feet in diameter which may have been part of a dwelling structure. The findings in this bottom level component associate it with the McKean Complex.

The evidence accumulated from excavation, materials gathered from the surface, and private collections lead to the conclusion that the region was occupied by a succession of groups, probably intermittently, from McKean times to the ethnographic present (Smithsonian Institution 1966:8).

Table 8.6: Major Excavation Projects in the Grand River Study Unit, 31 December 2020.

Year	Author	Title	MS #
1965	Smithsonian Institution	SIRBS Progress Report 10 for the 1965 Field Season	Not on file
1967	Mallory, O.	Bowman-Haley Excavations	Not on file
1969	Syms, E.	McKean as a Horizon Marker in Manitoba & on the Northern Great Plains	ND SHPO Library

Other Work

Syms' 1969 Master's thesis involved data from Bowman-Haley Reservoir Duncan components in a comprehensive review of the McKean complex throughout the Northern Plains. He concluded that the oldest McKean components of ca. 3000 BC lie in the mountains around the Big Horn Basin (1969:163).

Keyser (1982) presented another treatment of the Red Fox site data. In comparing remains from Red Fox with those from test excavations at the Lightning Spring site 30

km to the south in the upper Grand River drainage of South Dakota, he concluded that lithic reduction strategies and Duncan point styles between the two sites are identical and indicate the very same local group may have deposited the material remains sampled at each site (ibid.:31).

Publications

It is critical for archaeologists to publish their work to enhance public support and understanding of the value of conducting formal archaeological investigations. In the 2021 edition of the Archaeological Component of the State Plan, we include a table (Table 8.7) in each study unit of selected publications available to general audiences.

Table 8.7: Selected Published References for the Grand River Study Unit.

Author(s)	Year	Reference
DeMallie, Raymond J., and Elaine A. Jahner (editors)	1991	<i>Lakota Belief and Ritual</i> by James R. Walker. University of Nebraska, Lincoln.
Floodman, Mervin G.	2012	<i>Prehistory of the Dakota Prairie Grasslands: An Overview</i> . US Forest Service, Bismarck, North Dakota.
Graber, Kay (editor)	2004	<i>Sister to the Sioux: The Memoirs of Elaine Goodale Eastman</i> . University of Nebraska Press, Lincoln.
Johnson, Craig M.	2007	<i>A Chronology of Middle Missouri Plains Village Sites</i> . Smithsonian Institution, Washington, DC.
Johnson, Craig M.	2019	<i>Chipped Stone Technological Organization: Central Place Foraging and Exchange on the northern Great Plains</i> . University of Utah Press, Salt Lake City.
Keyser, James D., and John L. Fagan	1987	ESP: Procurement and Processing of Tongue River Silicified Sediment. <i>Plains Anthropologist</i> 32(117):153-194.
Keyser, James D., and Michael A. Klassen	2001	<i>Plains Indian Rock Art</i> . University of Washington Press.
Kornfeld, Marcel, George C. Frison, and Mary Lou Larson	2010	<i>Prehistoric Hunter-Gatherers of the High Plains and Rockies, Third Edition</i> . Left Coast Press, Walnut Creek, California.
Murray, Wendi Field, and Fern E. Swenson	2016	Situational Sedentism: Post-Contact Arikara Settlement as Social Process in the Middle Missouri, North Dakota. <i>Plains Anthropologist</i> 61(240):336-360.
Parks, Douglas R.	1996	<i>Myths and Traditions of the Arikara Indians</i> . University of Nebraska, Lincoln.
Posthumus, David C.	2016	Hereditary Enemies? An Examination of Sioux-Arikara Relations Prior to 1830. <i>Plains Anthropologist</i> 61(240):361-382.
Wood, W. Raymond	1980	Plains Trade in Prehistoric and Protohistoric Intertribal Relations. In <i>Anthropology on the Great Plains</i> , pp. 98-109, edited by W. Raymond Wood and Margot Liberty. University of Nebraska Press, Lincoln.

Paleo-Indian Period

Prospects should be good for the discovery of Paleo sites in this unglaciated country. A possible late Paleo site (39PE11) is recorded in the South Dakota portion of the Grand River basin (Winham and Hannus 1989:93). There should be others in the

North Dakota portion. The late Paleo date from a buried soil plus the find of a probable Eden point fragment reported by Bleier (2005) are additional hints of Paleo presence in this drainage. A Scottsbluff point was present at 32AD10 (Artz et al. 1987).

Paleoenvironmental Modeling

What were the local environmental conditions during Clovis, Goshen, and Folsom times? Were there lush grasslands and playa lakes to attract big game animals and the people who hunted them in the early Holocene? Understanding the nature of subsequent vegetational shifts would illuminate the search for intact paleo landscapes where early sites are likely to be found.

Some environmental conditions can be reconstructed from studying dated soils. A dark clayey zone of sediments with well-developed blocky structure was identified by bucket auguring in proximity to a Scottsbluff point find at 32AD10 (Artz et al. 1987:6.36). If this stratum is the 7,000-9,000-year-old Leonard paleosol of the Aggie Brown member of the Oahe Formation (cf. Clayton et al. 1976), then it would be evidence that mesic conditions prevailed in this southwestern corner of the state as they did elsewhere during Paleo times. What are the environmental indicators from buried Holocene topsoils in the GRSU? Are there any remnants of pre-Holocene-age paleosols in this SU?

Cultural Chronology

Because the landscape of this area has not been altered by glaciation at any time since people arrived in the Americas, sites of all Paleo complexes are to be expected here, beginning with Clovis. Goshen sites should also be anticipated in the western portions of this unit because of proximity to the Mill Iron site (24CT30) in Montana, about 50 km to the west (Frison 1985, 1986, 1987, 1988b). Across the state line, 39PE11 recorded by Wheeler (1949a:3) produced a “ribbon flaked, flat-based, projectile point” of “high antiquity” (Beckes and Keyser 1983:154). This indicates a representation of the Parallel-Oblique Flaked complex. A possible Eden point was recovered at 32BO279 overlooking Buffalo Creek; however, the point was from a stratigraphically unstable context (Bleier 2005:42). What is the range of Paleo complexes represented in privately held surface collections of artifacts from sites in the SU?

Settlement Behavior

Playa lakes may have attracted settlement, and sites should be anticipated along former shorelines. Hunting overlook locations ought to be represented on ridges and hills. Intact deposits may be anticipated on lee slopes and immediately behind windward edges of ridges where aeolian sediments have built up over the millennia. What is the range of functional variability that should be expected for Paleo hunter-gatherer settlements in this SU?

Native Subsistence Practices

Subsistence practices of Paleo peoples are completely unknown for the GRSU. Immediately to the west at the Mill Iron site, groups using Goshen-style spear or dart points killed and butchered bison nearly 11,000 years ago. The nature of the big game resource base was changing rapidly at that time. A few hundred years earlier, people were hunting mammoths, camels, and llamas. By Goshen times, those fauna were in the process of extirpation at this latitude in the Northern Plains. Knowledge of the floral and faunal resource bases cannot be gained without archaeological excavations. When early Holocene soil exposures are identified, they can be analyzed for pollen and phytoliths to provide an indication of local flora. Any early Holocene paleontological discoveries should be professionally excavated, and radiocarbon dated to gain some understanding of the animal species present at different points in time through the Paleo period.

Technologies

Paleo flintknapping typically involved the production of large biface preforms which were reduced to make the various styles of projectile points. Large blocks of smooth TRSS available in this SU would seem to have been suitable for such a purpose. Were other materials available here such as pebbles of KRF and agatized wood, of the high quality desired by Paleo knappers, too small to have attracted procurement and workshop parties use of sufficient intensity to have produced detectable archaeological sites? Workshop sites could be approached from a technological perspective in attempts to identify Paleo components.

Artifact Styles

A Scottsbluff point was collected from the surface of 32AD10 near Hidden Wood Creek (Flat Creek) a few miles southwest of Rocky Ridge (Artz et al. 1987:Figure 6.21). The point has a very distinct haft element, but the shoulders at the base of the blade are not prominent. Indistinct shoulders are more typical of southern and western Scottsbluff point forms than eastern ones. Eastern styles tend to have more pronounced shoulders. Even the Scottsbluff points recovered by Ralph Thompson from the Southern Missouri River SU have distinct shoulders. Do these differences in Scottsbluff point styles represent temporal differences, or do they represent geographic differences? Do differences in point styles between eastern and western North Dakota indicate cultural distinctions between various groups of late Paleo hunting and gathering peoples?

Regional Interaction

In this and other SU in the southwestern part of the state, there are great varieties of good quality lithic materials available for flintknapping. To be able to address questions of Paleo exchange of lithic materials, it will be necessary to identify the range of materials available in this unit. Aside from the fact that quartzites, TRSS, agatized woods, silcrete, chalcedony, and KRF occur here, little is known of the actual ranges of

variation in material characteristics. It would be helpful for archaeologists working in the state to apply uniform criteria for identifying these and other lithic raw materials.

Historic Preservation Goals, Priorities, and Strategies

An effort should be made to identify landforms where surfaces of Paleo-age can be surveyed for sites. One approach to this problem is through collector-informant interviews. When informants can identify places where they found Paleo points, those places can be checked for possible remnants of early Holocene surfaces.

Plains Archaic Period

Sites of the Middle Plains Archaic Duncan complex appear to be well-represented in the upper Grand River basin. The Duncan and McKean Lanceolate components at the Red Fox and Fisher sites are among the most prominent components of those complexes investigated in North Dakota (cf. Syms 1969; Tibesar 1982).

Paleoenvironmental Modeling

Eras of cultural florescence and population expansion during the Plains Archaic periods were likely times with rainfall sufficient to support lush grasslands and overall abundant biotic resources. Site 32BO111 is situated adjacent to a playa lake which now holds water seasonally. A Middle Plains Archaic Duncan point was found at this site (Artz et al. 1987:Figure 6.2c). Holocene climatic reconstruction is presently inadequate to determine if the playa was a body of permanent water during the era of the Duncan complex. Were the heydays of the Duncan, Oxbow, McKean Lanceolate, Hanna, and Pelican Lake complexes generally more mesic than the present?

The numerous distinct levels in the Fisher, Red Fox, and Lightning Spring Middle Plains Archaic deposits indicate pronounced fluctuations in periods of adequate rainfall alternating with periods of drought. These physical remains of cycles of sediment deposition and then stabilization, soil development, and human occupation offer rare opportunities to conduct detailed studies of the climatic conditions of the Middle Plains Archaic period.

Cultural Chronology

Sites of the Early Plains Archaic period (with diagnostic Hawken or Simonsen points) have not yet been identified here. The Reva site along the Little Missouri River in nearby northwestern South Dakota reported by Gant in 1961 may be Early Plains Archaic (Metcalf et al. 1988:23). The GRSU lacks Early Plains Archaic radiocarbon dates, but there are Middle Plains Archaic dates from the Bowman-Haley Reservoir sites, and there are Middle and Late Plains Archaic dates from the nearby Lightning Spring site in the upper Grand River basin just over the state line in South Dakota. At the Red Fox site, occupation zone 4, about one meter below surface, yielded six complete points and 10

fragments, all but one of which were identified as Duncan (Syms 1969:134). A radiocarbon date on charcoal from the zone was 3770±90 BP (ibid.)

Radiocarbon dates for the Duncan levels at the Lightning Spring site range from 3430±270 BP to 4190±110 BP (Beckes and Keyser 1983:101).

Large samples of artifacts recovered by excavation from the distinct levels of several of sites should yield samples which would provide a good test of the proposition that McKean Lanceolate, Duncan, and Hanna are distinct styles representative of different cultural complexes.

One of two Pelican Lake components at Lightning Spring is dated AD 30±120 (Beckes and Keyser 1983:221; Keyser and Davis 1984), contemporary with Plains Woodland Besant/Sonota components. This lends further support to B.O.K. Reeves' proposition regarding the contemporaneity of the Napikwan and Tunaxa "traditions." Settlement Behavior

During the era of the Duncan complex, some sites appear to have been situated near ponds. Examples include 32BO111 adjacent to the Bowman Playa and perhaps the Red Fox site at Bowman-Haley Reservoir which may have been the site of a permanent lake during mesic times. It has been suggested that there was a local group with Duncan material culture which may have regularly spent all or most of the year in the upper Grand River drainage. This suggestion is based on inferred contemporaneity between two sites 30 km separate (cf. Artz et al. 1987:6.25; Keyser 1982, 1985; Keyser and Davis 1984; Syms 1969).

Are Duncan sites more common here than sites of any other Plains Archaic complex? Do sites of the Duncan complex represent a broader-based adaptation to the resources of the upper Grand River basin than sites of other Plains Archaic complexes? Syms (1969:169) suggested that people who made McKean Lanceolate, Duncan, and Hanna points were like historically recorded hunter-gatherers such as the Cheyenne in that they lived much of the year in small groups and combined into large aggregates during the summer (or whenever feasible) for communal buffalo hunts.

Native Subsistence Practices

Food remains from "McKean" components throughout the Northern Plains range from predominantly bison, indicative of a heavy meat diet, to predominantly small game, wild plants, and insects signifying a diet somewhat comparable to that of the Desert Archaic (Syms 1969:167). This suggests considerable variation in McKean subsistence practices. Does this reflect seasonality, regional variation, cultural preferences, archaeological sampling error, or something else?

For the Duncan complex, Lightning Spring provides evidence for a wide range of wild plant and animal food procurement and processing at a site which is thought to have witnessed repeated short-term occupation. There are antelope and bison bones, with

antelope predominating in samples from test excavation (Keyser and Davis 1984). The occurrence of slab milling stones and manos indicate plant grinding was a common activity.

Duncan components in this SU appear to present unusual potential for yielding subsistence-related data from relatively dense archaeological deposits. Was there a richer subsistence resource base available to Duncan hunter-gatherers than to other Plains Archaic people who used the upper Grand River basin?

Technologies

Jim Keyser (1985) conducted a technological analysis of projectile points and scrapers, including the production sequences represented, from the Red Fox and Lightning Spring sites. Seven stages were identified in the point-making process (Keyser 1982:37-39). Production sequence studies are lacking for other Plains Archaic artifact types. To what extent are production sequence similarities attributable to cultural behavior versus limitations imposed by raw material characteristics?

Artifact Styles

The Middle Plains Archaic levels at the Fisher, Red Fox, and Lightning Spring sites offer unusual opportunities to document stylistic variation and conformity in large samples of points from tightly controlled stratigraphic and temporal contexts. Type styles are well known, but stylistic variation is poorly understood. Is there evidence from any of these discrete components that McKean Lanceolate, Duncan, and Hanna were contemporary?

Regional Interaction

The Middle Plains Archaic components (or cultural zones) at the Red Fox, Fisher, and Lightning Spring sites offer exceptional potential to investigate variations in regional interaction as well as other aspects of culture change through time. This is due to the stratification of the deposits. Such stratification is uncommon in North Dakota archaeology. Excavations at the Red Fox site revealed five “stratigraphically distinct occupation zones” (Syms 1969:132). Within the McKean Lanceolate zone at the Fisher site, there were “nine closely-spaced occupation levels” (ibid.:136). At Lightning Spring (39HN204), there are four Duncan levels plus seven later and other earlier levels (Beckes and Keyser 1983:221-222). With the sorts of stratigraphic separation presented by these sites, studies of nonlocal and exotic lithic raw materials would be likely to yield exceptional information regarding characteristics of regional interaction through time. It might even be possible to detect hints of seasonal differences in regional interaction if specific cultural zones could be attributed to specific seasons.

Historic Preservation Goals, Priorities, and Strategies

Components of the Early Plains Archaic period are underrepresented in comparison with those of the Middle and Late Plains Archaic periods. The paucity of Early Plains Archaic sites may be attributable to Mid-Holocene drought. Sedimentological and geomorphological studies of stratified columns in the lowest levels of Middle Plains Archaic sites could yield information about the Atlantic climatic episode conditions.

The Fisher site is situated above the pool level of Bowman-Haley Reservoir, and the Red Fox site is periodically accessible at times of low water (Robson 1981; Tibesar 1982:36). National Register of Historic Places nominations and salvage excavations have been called for at both sites by both Robson (ibid.) and Tibesar (ibid.). Not only do they hold important information, but they have also been damaged by reservoir shoreline erosion.

Plains Woodland Period

Early Woodland sites containing pottery may not be expected this far out into the Northwestern Plains subarea. However, contemporary cultural complexes should be anticipated, and they would be classifiable as Pelican Lake or some other complex representing a Plains Archaic adaptation. Components attributable to the Besant/Sonota continuum should be present, but again, the lifeways represented ought to be reflective principally of Plains Archaic rather than Plains Woodland adaptations. The same should be true for Late Plains Woodland, although it is difficult to guess what archaeological complexes beyond Avonlea might be represented.

Paleoenvironmental Modeling

It has been posited by Gregg that the Besant/Sonota cultural florescence was made possible by a protracted period within the Sub-Atlantic climatic episode during which mesic conditions persisted throughout the Northern Plains, and overall biotic resource potential was high. This period is marked by a thick, well-developed paleosol in floodplain stratigraphic sequences in the James River valley of eastern North Dakota (Gregg and Swenson 1987:68). If the proposition is correct, this soil should have developed in places in the GRSU, and it ought to be preserved in some places as a paleosol. If this paleosol is identified during inventory projects, it should be examined closely for artifacts.

Cultural Chronology

Late Plains Archaic components contemporary with the Early Plains Woodland period may be expected to contain small corner-notched dart points classifiable as Pelican Lake. Metcalf and Black (1985:132) reported finds of such diminutive corner-notched points from 39HN152 and 39HN163 in the North Cave Hills of nearby northwestern

South Dakota. At 39HN163, one was found in a zone between strata dated 3000 and 2500 BP.

A Middle Plains Woodland component is reported from 32BO32 at Bowman-Haley Reservoir where a Besant side-notched point was found (Tibesar 1982:19). The point was made from a brown colored Morrison silicified sediment or Morrison quartzite (other terms for TRSS) (ibid.:7). A possible Besant point fragment was recovered at 32BO279 overlooking Buffalo Creek; however, the point came from a stratigraphically unstable context (Bleier 2005:42).

What artifacts are diagnostic of Plains Woodland components in the upper Grand River basin? Will Late Plains Woodland components here resemble those in the Southern Missouri River SU or possibly Avonlea components to the northwest and south? The archaeological cultures evincing Plains Woodland adaptations along the Missouri River should have been distributed westward to the headwaters of the major drainages feeding the Missouri River.

Settlement Behavior

For a full range of Besant/Sonota settlement types to be represented in the upper Grand River basin, some local group would have had to establish a core area here with a residential base settlement. There would be semi-permanent lodge features, midden areas, and mortuary sites. The fact that no such sites and features have yet been identified in the SU may be an indication that the area was not settled as a core area by Plains Woodland peoples. Plains Woodland sites need to be inventoried and settlement types appraised, even if appraisals are based on surface artifacts and features. Occurrence of earthen mounds would point to possible use of this region as a core area by some Woodland group.

Native Subsistence Practices

Plains Woodland lifeways were based primarily on hunting and gathering and sometimes involved gardening. The more sedentary the lifeway seemingly, the more important was gardening. But semi-permanent residential settlements were not necessary. Historically, “older Cheyenne, even after becoming nomadic, retained some horticultural practices” (Wood 1971:68). The parameters of hunting and gathering practices would have been established by resource availability which can be estimated as part of paleoenvironmental modeling. What was the flora and fauna resource potential of the upper Grand River basin during Early, Middle, and Late Plains Woodland times?

Technologies

The era of the Besant/Sonota complex (ca. 100 BC-AD 600) spans the period when the bow and arrow supplanted the atlatl and dart as preferred weaponry. This was a technological shift with archaeological implications. First, dart points are generally distinguishable from arrow points based on size with arrow points typically weighing

about one gram and dart points two grams and more. Secondly, the flintknapping reduction processes employed to make large, patterned bifaces involved more use of percussion flaking, while arrowpoints were produced primarily by pressure flaking. Further, arrowpoint production did not require the large spall blanks and biface preforms necessary for making large dart points. Production of flake blanks by bipolar percussion increased in prevalence (cf. Ahler and VanNest 1985) and enabled the exploitation of pebble-sized pieces of stone. Procurement-workshop sites in areas where only pebble-sized materials are available are more likely to be Late Plains Woodland, Plains Village, or generically late prehistoric than procurement-workshop sites where large-sized materials are available. Also, spent bipolar cores and bipolar flaking debris are often indicators of late prehistoric artifact deposits.

Artifact Styles

Besant/Sonota ceramics can be identified by their decorations in combination with considerations of sherd thickness, rim profiles, exterior surface treatment, and interior surface treatment. The most common decoration involves a row of punctates on the exterior rim, usually creating slight nodes on the interior (Neuman 1975). Sometimes a band of dentate stamps or other impressions occurs along with the punctates on the exterior rim. Other decorative modes include cord impressions on the lip (Neuman 1975), cord-wrapped object impressions on the lip (Johnson 1977a), and transverse or oblique tool impressions on the lip (Wood and Johnson 1973:43). At the Porcupine component along the Missouri River in Sioux County, North Dakota, some vessels have interior bosses without exterior punctates, and some lips are incised (Wood 1967:118). Besant/Sonota body sherd thicknesses range from 4-15 mm (cf. Neuman 1975; Wood and Johnson 1973:43), overlapping considerably with the range of thicknesses for Late Plains Woodland and Plains Village sherds. Therefore, sherd thickness alone cannot be viewed as temporally diagnostic. Do Besant/Sonota vessels from sites in the interiors of the major Missouri River tributary basins differ in form from those from residential base sites along the Missouri River, as do Plains Village vessels?

Regional Interaction

When Plains Woodland sites are identified, regional contacts will be evidenced by projectile point styles (e.g., Besant side-notched) and ceramic vessel decorative treatments which link the study area with the overall geographic extents of those traits. Obsidian of Rocky Mountain origin should be anticipated. It has been posited that Besant/Sonota exchange systems articulated with the interregional Hopewell Interaction Sphere (HIS) (cf. Caldwell 1964; Struever and Houart 1972). People with Besant/Sonota material culture were participants in this intersocietal network of exchange (Gregg and Picha 1989b:45). Obsidian and KRF were moved eastward across the Northwestern Plains, Middle Missouri, and Northeastern Plains subareas into the HIS. Was South Dakota obsidian or nonvolcanic natural glass of lignite-burn origin (cf. Frison 1974a) utilized by Middle Plains Woodland people to the extent that Rocky Mountain obsidian material will be obscured in local archaeological deposits?

Historic Preservation Goals, Priorities, and Strategies

There are major data gaps concerning Early, Middle, and Late Plains Woodland archaeological components in this SU. A top priority is to determine if components of all three periods are indeed present. Plains Woodland sites likely will be identified based on the occurrence of ceramic remains. However, the problem of differentiating Early, Middle, and Late Plains Woodland and Plains Village sherds may be more difficult here than in eastern riverine core areas, where large samples of sherds can be collected from residential base settlements. If the upper Grand River drainage was used by Plains Woodland groups predominantly as a secondary area, other influences such as concern for vessel portability could have had obscuring effects on ceramic technological and stylistic attributes. More Woodland sites need to be identified and sherd samples collected to determine ranges of technological and stylistic variation.

Plains Village Period

A Plains Village occupation is indicated at 32BO32 in the Bowman-Haley Reservoir locality (Tibesar 1982:15-19). The resources of the upper reaches of the Grand River basin should have been exploited at least annually by Villagers ranging out of their earthlodge village residential bases along the Missouri River.

Paleoenvironmental Modeling

A period(s) of drought seems to have occurred during the Pacific climatic episode of ca. AD 1250-1500. The drought(s) came after Plains Village cultures had adapted to many places throughout the Northern Plains where local climatic conditions allowed for gardening. The adverse environmental conditions caused by drought and cultural adaptations to those conditions are thought to have led to conflicts between groups (Lehmer 1971:105; Zimmerman and Bradley 1982). Depositional contexts of Plains Village components in the upper Grand River drainage may yield important information regarding climatic conditions to the west of the Middle Missouri subarea. Early Plains Village (Initial and Extended Middle Missouri variants) site deposits situated in aeolian, or alluvial depositional contexts may be capped with sediments which separate them from late Plains Village Coalescent variant deposits.

Cultural Chronology

The occupation of 32BO32 along the North Fork of the Grand River in the Bowman-Haley Reservoir locality is estimated to date AD 1450-1850 based on typological similarities to points from the tightly dated stratigraphic sequence at the Vore site (48CK302) (Tibesar 1982:19). During that period, most earthlodge villages in the Grand-Moreau region of the Middle Missouri subarea are classified as Extended Coalescent and Post-Contact Coalescent. If drainage basins were controlled by the Villagers as secondary use areas (cf. Syms 1977), are components such as the one at 32BO32 likely to be Coalescent? There is a lack of information concerning chronological placement of Plains Village components in this SU.

Settlement Behavior

The Villagers' use of the plains west of the Missouri valley was typically seasonal and temporary in historic times. But Villagers probably relied on the bison grazing lands of the drainage basin interiors for hunting territories throughout the year. Prehistorically as historically, hunting groups would have hunted and butchered and established field camps throughout the Grand River basin. Plains Village sites need to be identified and functional site types determined.

Native Subsistence Practices

In the field camps of Villagers, some faunal remains resulted from provisioning efforts while others relate to direct consumption. Variations in the ways animals were processed may be attributable to weather conditions, conflicts with other groups using the territory, and the ability of hunting parties to process all the game they killed. Foods that were common in the villages may have been used infrequently in the field camps. Dogs, for example, were eaten at residential sites, sometimes in conjunction with ceremonies or when food stores were low (cf. Snyder 1988), but dogs may seldom have been eaten at field camps. Samples of faunal and floral remains from Plains Villages sites in the upper Grand River basin of North Dakota are inadequate for any considerations of subsistence practices.

Technologies

There is Village pottery from two cultural zones at Ludlow Cave near the drainage divide between the Grand River and Little Missouri River drainages in South Dakota not far to the southwest of the SU. Ceramic vessel exterior surface treatments on those sherds are smoothed (or plain), smoothed-over cordmarked, and smoothed-over simple stamped (Alex 1979). Some sherds were smoothed to the extent that they are polished. Some pastes are tempered with sand and others with crushed granite. Estimates of interior neck diameters range from 10-20 cm. These are small pots of the size that would be expected of people on the move (cf. C. Johnson 1983:9.60). Is there any reason to expect to find remnants of large prehistoric ceramic vessels in this SU? Are there any exceptionally good clay sources here that would have been exploited by the Villagers to fabricate pots while residing at temporary campsites in the area? Are the small Ludlow Cave sherd samples indicative of early (pre-drought) Initial or Extended Middle Missouri occupation rather than later Coalescent occupation?

Artifact Styles

The Plains Village vessels from the lower two cultural zones at Ludlow Cave are globular jars with constructed necks and straight to outcurved rims (Alex 1979). Lip forms are variable, and decorations were executed by cord impressing and fine incising. Fine incising appears to be a very late prehistoric to protohistoric trait in southeastern North Dakota (Gregg et al. 1987:495-496) and may well have been of similar antiquity in the southwestern part of the state. Do Plains Village ceramics from the GRSU show

greater affinities to Coalescent ceramics from the Grand-Moreau region of the Middle Missouri subarea than Extended and Terminal Middle Missouri ceramics of the adjacent Cannonball River SU?

Regional Interaction

The “uppermost occupation” at the Red Fox site was described in the 1966 SIRBS field report as “resembling late Coalescent sites” such as those found along the Missouri River (Tibesar 1982:31), although it was not stated what those resemblances were (e.g., pottery styles). If the Plains Village sites in the upper Grand River drainage are more typically Coalescent than Middle Missouri, then material remains evincing regional interaction should reflect those of Coalescent cultures. At 32BO32, a Plains side-notched arrowpoint made from purple Spanish Diggings quartzite and a plate chalcedony bifacially prepared knife fragment were found during the surface collection (Tibesar 1982:15). Both are Coalescent indicators: “Coalescent villagers in the Grand-Moreau region used more solid quartzite, jasper/cherts, and flattop and plate chalcedonies than their Extended Middle Missouri neighbors” (C. Johnson 1984:300). What other sorts of artifacts, having information potential regarding the topic of regional interaction, may be expected in Plains Village sites in the upper Grand River basin?

Plains Village ceramic traits alone may be insufficient to positively identify ceramic components as Plains Village. Not far to the west in southeastern Montana, a “Powder River ceramic tradition” has been defined which is posited to have been developed by a regional population which picked up ceramic traits from Extended Middle Missouri people living in the distant Missouri River Trench with whom they interacted seasonally (Keyser and Davis 1982:300-301).

Historic Preservation Goals, Priorities, and Strategies

Village pottery at sites in the interior Grand River basin is not necessarily an indication of an occupation by Villagers in a hunting and gathering mode. The Crows, who began fissioning from the Hidatsas in the 1500s (Bowers 1948; Medicine Crow 1979; Wood and Downer 1977), also made pottery which is sometimes indistinguishable from Village pottery (Frison 1976a; Mulloy 1942:99-102). What range of Plains Village ceramic technological and stylistic attributes should we anticipate at sites in this SU? Definitions could be based on general attributes of Coalescent pottery tempered with considerations of the limitations on form imposed by settlement and travel far removed from core areas.

Plains Equestrian Period

Sites of equestrian peoples as well as groups of horse-mounted Villagers are expected here. But it may prove more difficult to identify these sites than to identify prehistoric sites because there are often fewer physical traces of the occupations. During equestrian times, there came to be greater reliance on metal tools and utensils, and chipped stone artifacts and potsherds were less frequently used, lost, discarded, cached,

and abandoned. Stone circle sites lacking visible chipped stone artifacts should be metal detected to check for historic period artifacts.

Environmental Modeling

The cool and moist Little Ice Age conditions of the Neo-Boreal climatic episode enabled bison populations to expand between AD 1500 and 1800 (Reher and Frison 1980:50). The beginning of the Equestrian period overlaps with the later years of the Little Ice Age. The parameters of shortgrass plains adaptations were set by climatic conditions. The productivity of the shortgrass ecosystem is highly dependent on effective moisture, and the biomass can drop as much as 90% during a drought period (ibid.). Can historic climatic conditions recorded at settlements in the East such as St. Louis, perhaps in conjunction with data from the Southwest (e.g., Santa Fe), be used to refine paleoenvironmental modeling for the Equestrian period in the Northwestern Plains (cf. Penman 1988)?

Cultural Chronology

When Equestrian period sites are identified, they are more likely to be attributable to Equestrian peoples than Villagers. After the smallpox epidemic of AD 1780-1782, Village populations were greatly diminished, and their cultures disorganized (Lehmer 1971:32). Thereafter, aggressive equestrians such as the Dakota began to assert themselves on the Northern Plains, and they had the effect of restricting the movements of the Villagers (cf. C. Johnson 1984:299). What material characteristics will enable differentiating sites of the Equestrian tradition from Equestrian period sites of the Plains Village tradition?

Settlement Behavior

Equestrian groups occupied rock shelters in the Cave Hills portion of the Grand River drainage just over the state border in South Dakota. Excavation of the most recent cultural zone at Ludlow Cave in the Bull Creek drainage, a tributary of the South Fork of the Grand River, yielded feathered arrow shafts, glass or porcelain beads, brass finger rings, and metal arrowpoints which William H. Over attributed to historic Siouan occupation (Alex 1979:55). While there may be no rock shelters in the North Dakota portion of the Grand River drainage, it can be suggested based on South Dakota sites such as Ludlow Cave and protohistoric rock art sites in the Cave Hills (cf. Beckes and Keyser 1983:232-236) that temporary campsites can be expected throughout the upper Grand River basin.

Native Subsistence Practices

Ethnohistoric accounts confirm a subsistence focus on bison coupled with hunting for hides for the Euro-American trade in the 1800s. As during other times in prehistory, the fundamental need for stores of bison meat and other foods was to enable subsisting through the winter and early spring, “the major limiting seasons in the shortgrass

ecosystem” (Reher and Frison 1980:137). Considering the great numbers of bison and the intensity of hunting in the Northwestern Plains during this period as evidenced by the stratigraphic sequence at the Vore site (ibid.), bison kill, and processing sites of this age should be expected in the SU. Site leads could be gleaned from historic records such as diaries written by turn-of-the-century homesteaders who made notations concerning locations from which bison bones were collected for sale as part of the late 19th century bone commerce (Barnett 1972).

Technologies

The century of the Equestrian period in the Northern Plains was one which saw a steady influx of material items of European and Euro-American manufacture gradually replace those of native manufacture (cf. Goulding 1980; Toom 1979). Archaeologically, the most prominent representations of this process are seen in metal tools replacing those of chipped stone and metal pots supplanting native-made ceramic vessels. Stone and native ceramic artifacts are well represented in sites dating to the late 1700s such as Midipadi Butte (32DU2) in the Garrison SU (Kuehn et al. 1984). Such traditional native products are not as common at settlements occupied in the late 19th century such as Like-a-Fishhook Village (32ML2) in the Garrison SU (Smith 1972). In fact, the proportions of native to European technologies represented in an archaeological deposit can sometimes enable quite accurate typological dating. Technologies characteristic of various times throughout the Equestrian period should be represented at sites in this SU, but information is sorely lacking on the topic. What criteria may be used to distinguish early historic Indian sites from non-Indian sites dating to the Equestrian period in the upper Grand River drainage?

Artifact Styles

Extensive movements of different ethnic groups during the Equestrian period resulted in more ethnic variation in the use of specific secondary areas, tertiary areas, and even specific communal kill sites than during earlier prehistoric times. This phenomenon is evidenced by greater arrowpoint stylistic variation in the upper protohistoric levels than in the lower late prehistoric levels at the Vore bison kill site 200 miles to the south of the SU in the Black Hills (Reher and Frison 1980:142). Basally notched Plains side-notched forms may be diagnostic of this period, although the style may have had its inception slightly prior to AD 1780 (cf. ibid.:25). Given the intensity of regional interactions, artifact styles diagnostic of this period throughout the Northern Plains may also be expected to occur in this SU. What extents of regional interaction are indicated by artifact styles in Equestrian period components in the upper GRSU?

Regional Interaction

Interactions between groups were certainly more intensive (or frequent) during this period than during most other eras of Native American culture history. With horses enhancing speed of travel and extending ranges, prospects were heightened for both friendly and hostile encounters. Rates of trade and other forms of exchange increased, as

did warfare. Protohistoric rock art sites in the Cave Hills in the Grand River headwaters region of nearby South Dakota display biographic petroglyphs of people on horseback in combat scenes (Beckes and Keyser 1983:236). Warfare is a dominant theme in the “ledger book art” of the late 1800s. What are forms of archaeological evidence of intensive social interactions between people who used the upper Grand River country during this period?

Historic Preservation Goals, Priorities, and Strategies

The primary data gap for these Equestrian period contexts in the upper GRSU is simply the lack of identified sites. The top priority for developing these contexts is to build a sample of recorded sites through a specific inventory effort. One strategy for finding site locations of this period is to review early historic records of various sorts for notations concerning Indian camps, villages, trails, and other activity areas. The goals of ethnohistoric research and archaeological investigations can be complementary. Were the Medicine Pole Hills and Tepee Buttes named for early historic Indian associations?