

## Contents

The Souris River Study Unit.....	1
Description of the Souris River Study Unit .....	1
Physiography.....	1
Drainage .....	6
Climate.....	6
Landforms and Soils .....	7
Flora and Fauna.....	9
Other Natural Resource Potential .....	11
Overview of Previous Archeological Work.....	11
Inventory Projects .....	11
Formal Test Excavation Projects .....	18
Stone Circle and Cairn Sites .....	21
Assessment of Sampling Designs and Testing Strategies.....	21
Major Excavation Projects.....	22
National Register of Historic Places .....	23
Other Work .....	23
Paleo-Indian Period.....	24
Paleo-Environmental Modeling.....	24
Cultural Chronology .....	25
Settlement Behavior.....	27
Native Subsistence Practices.....	28
Technologies .....	28
Artifact Styles .....	28
Regional Interaction.....	29
Historic Preservation Goals, Priorities, and Strategies .....	29
Plains Archaic Period.....	30
Paleo-Environmental Modeling .....	30
Cultural Chronology .....	30
Settlement Behavior.....	31
Native Subsistence Practices.....	31
Technologies .....	32
Artifact Styles .....	32
Regional Interaction.....	33
Historic Preservation Goals, Priorities, and Strategies .....	33
Plains Woodland Period.....	34
Paleo-Environmental Modeling .....	34
Cultural Chronology .....	34
Settlement Behavior.....	35
Native Subsistence Practices.....	36
Technologies .....	36
Artifact Styles .....	36
Regional Interaction.....	37
Historic Preservation Goals, Priorities, and Strategies .....	37
Plains Village Period.....	38
Paleo-Environmental Modeling.....	38

Cultural Chronology .....	38
Settlement Behavior.....	39
Native Subsistence Practices.....	39
Technologies .....	39
Artifact Style.....	39
Regional Interaction.....	40
Historic Preservation Goals, Priorities, and Strategies .....	41
Equestrian/Fur Trade Period .....	41
Paleo-Environmental Modeling .....	41
Cultural Chronology .....	42
Settlement Behavior .....	42
Technologies .....	43
Artifact Styles .....	43
Regional Interaction.....	43
Historic Preservation Goals, Priorities, and Strategies .....	43

## **The Souris River Study Unit**

Paul R. Picha, Michael L. Gregg, and Amy C. Bleier  
2016

The Souris River Study Unit (SRSU) is located in north-central North Dakota. Saskatchewan and Manitoba border it to the north. The Sheyenne River and Northern Red River study units (SU) border it to the east, and the Garrison and Southern Missouri River SU border it to the south.

### Description of the Souris River Study Unit

Included are all or parts of the following counties: Benson, Bottineau, Burke, Divide, McHenry, McLean, Mountrail, Pierce, Renville, Rolette, Sheridan, and Ward. It encompasses 9,118 mi<sup>2</sup> of the state. Figures 11.1 and 11.1A illustrate the SU and Table 11.1 provides a complete list of townships within it.

### Physiography

Portions of two physiographic provinces, the Central Lowlands and the Great Plains, cut across the SU. The Central Lowlands are represented by the Drift Prairie district throughout much of Renville and Ward counties. The Drift Prairie is essentially a ground moraine exhibiting generally low relief with numerous potholes (Pettyjohn and Hutchinson 1971). When rainfall was adequate in the past, the pothole country attracted game which in turn attracted people who lived by hunting and gathering. Prehistoric sites abound around pothole lakes throughout the prairie pothole country of North Dakota, Minnesota, and Iowa.

The Missouri Coteau district represents the Great Plains province in the southern and western half of the SU. The Coteau rises in elevation above the Central Lowlands. This land is hilly, having been formed by stagnation moraines, end moraines, and ground moraines during glacial times (Pettyjohn and Hutchinson 1971:4). Knob-and-kettle glaciated terrain is prevalent, and like the Drift Prairie, there are numerous sloughs and depressions (Freers 1973) that attracted prehistoric settlement when they held water.

Four other prominent topographic features attracted prehistoric settlement. The Des Lacs and Souris River valleys cut through the Central Lowlands terrain. These glacial meltwater channels are incised into the glacial till plain. The Missouri Escarpment parallels the Missouri Coteau running along its northeastern boundary through the SU. Prehistoric campsites abound along the upper edge of the Escarpment perhaps because of the overlook characteristics of that setting. The Turtle Mountains uplift at the eastern edge of the basin is another prominent topographic feature. But it represents more than mere topographic variation. It represents ecological diversity that was important in presenting resource diversity which was of considerable value to prehistoric peoples.

Figure 11.1: Map of the Souris River Study Unit.

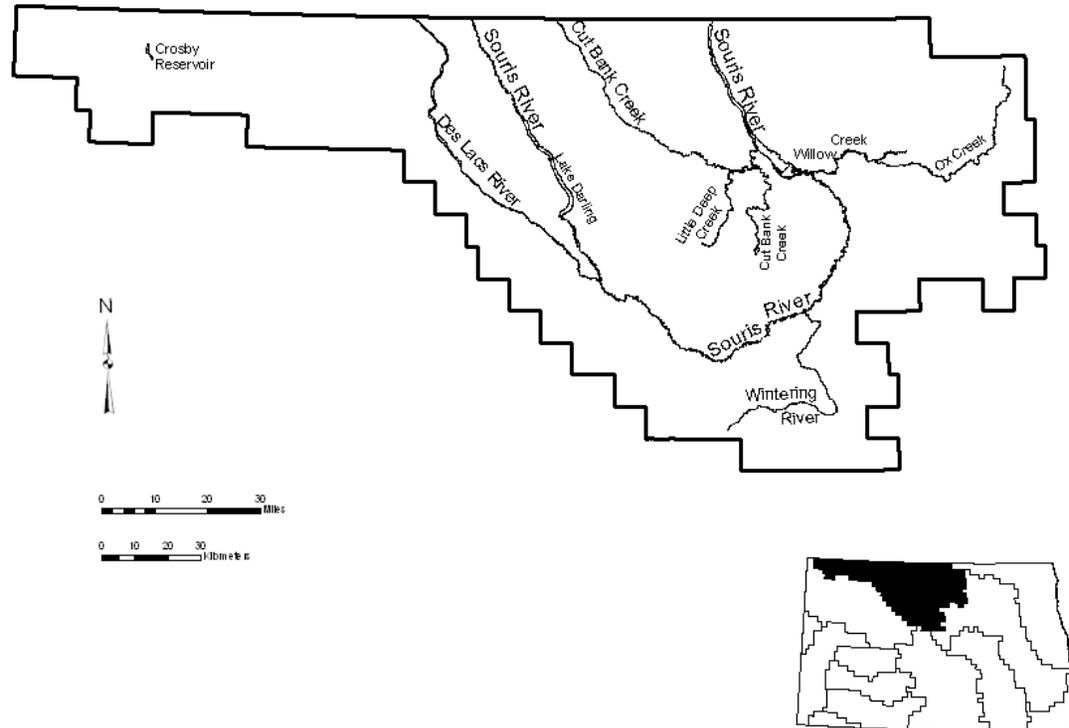


Figure 11.1A: Shaded Relief Map of the Souris River Study Unit.

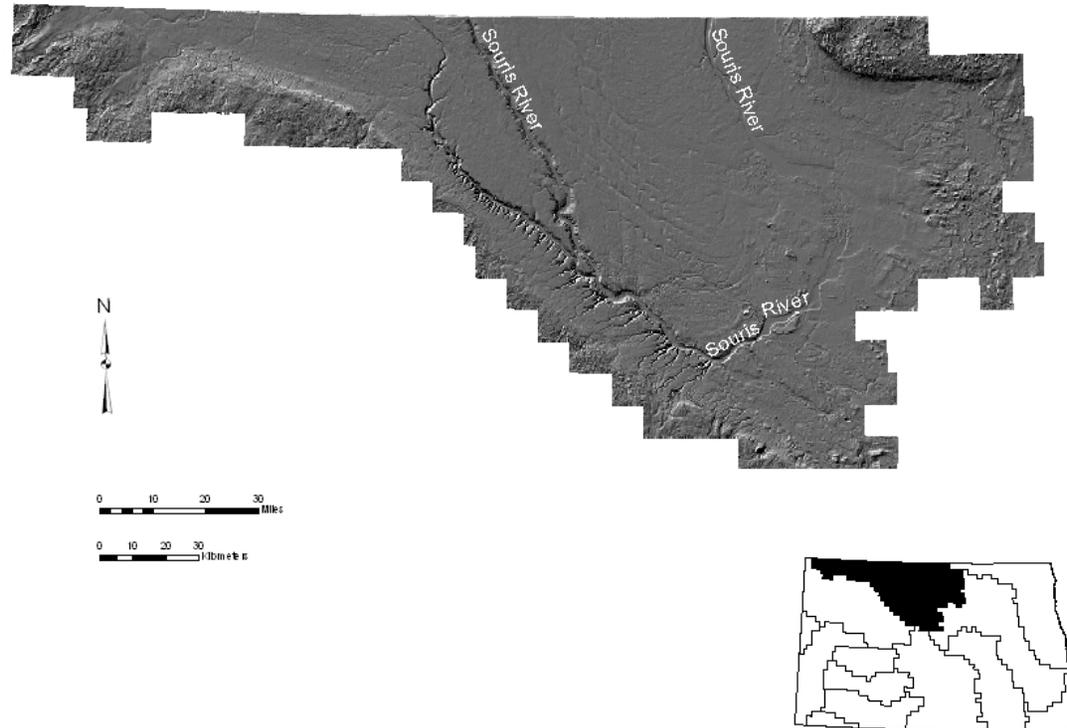


Table 11.1: Townships in the Souris River Study Unit.

TOWNSHIP	RANGE
150	75
150	76
150	77
150	78
150	79
151	76
151	77
151	78
151	79
151	80
151	81
151	82
152	75
152	76
152	77
152	78
152	79
152	80
152	81
152	82
152	83
153	75
153	76
153	77
153	78
153	79
153	80
153	81
153	82
153	83
153	84
154	76
154	77
154	78
154	79
154	80
154	81
154	82
154	83
154	84
154	85
155	71
155	74
155	75
155	76

TOWNSHIP	RANGE
155	77
155	78
155	79
155	80
155	81
155	82
155	83
155	84
155	85
155	86
156	70
156	71
156	72
156	73
156	74
156	75
156	76
156	77
156	78
156	79
156	80
156	81
156	82
156	83
156	84
156	85
156	86
156	87
157	70
157	71
157	72
157	73
157	74
157	75
157	76
157	77
157	78
157	79
157	80
157	81
157	82
157	83
157	84
157	85
157	86

TOWNSHIP	RANGE
157	87
158	71
158	72
158	73
158	74
158	75
158	76
158	77
158	78
158	79
158	80
158	81
158	82
158	83
158	84
158	85
158	86
158	87
158	88
159	70
159	71
159	72
159	73
159	74
159	75
159	76
159	77
159	78
159	79
159	80
159	81
159	82
159	83
159	84
159	85
159	86
159	87
159	88
159	89
160	70
160	71
160	72
160	73
160	74
160	75

TOWNSHIP	RANGE
160	76
160	77
160	78
160	79
160	80
160	81
160	82
160	83
160	84
160	85
160	86
160	87
160	88
160	89
160	90
160	91
160	92
160	93
160	94
160	98
160	99
161	70
161	71
161	72
161	73
161	74
161	75
161	76
161	77
161	78
161	79
161	80
161	81
161	82
161	83
161	84
161	85
161	86
161	87
161	88
161	89
161	90
161	91
161	92
161	93
161	94
161	95

TOWNSHIP	RANGE
161	96
161	97
161	98
161	99
162	70
162	71
162	72
162	73
162	74
162	75
162	76
162	77
162	78
162	79
162	80
162	81
162	82
162	83
162	84
162	85
162	86
162	87
162	88
162	89
162	90
162	91
162	92
162	93
162	94
162	95
162	96
162	97
162	98
162	99
162	100
162	101
163	73
163	74
163	75
163	76
163	77
163	78
163	79
163	80
163	81
163	82
163	83

TOWNSHIP	RANGE
163	84
163	85
163	86
163	87
163	88
163	89
163	90
163	91
163	92
163	93
163	94
163	95
163	96
163	97
163	98
163	99
163	100
163	101
164	73
164	74
164	75
164	76
164	77
164	78
164	79
164	80
164	81
164	82
164	83
164	84
164	85
164	86
164	87
164	88
164	89
164	90
164	91
164	92
164	93
164	94
164	95
164	96
164	97
164	98
164	99
164	100
164	101

## Drainage

Overall drainage in the northwestern part of the state is dictated by the location of the Missouri Coteau, a subcontinental divide. Streams located to the southwest of the Coteau flow into the Mississippi River system to the Gulf of Mexico while those to the northeast drain to Hudson Bay. The Missouri Coteau itself is essentially a closed system with internal drainage. Rainfall, snowmelt, and groundwater collect in numerous potholes and sloughs. All lands within the SU either are along the perimeter of the Coteau and undrained or lie within the Hudson Bay drainage.

The Des Lacs and Souris (Mouse) rivers originate in Canada. The Souris forms a loop into North Dakota (the Souris Loop) which eventually flows back northward. The Souris headwaters are located near Weyburn, Saskatchewan. After flowing approximately 338 km through North Dakota, the Souris reenters Canada and empties into the Assiniboine River near Treesbank, Manitoba. The Des Lacs River originates near the North Dakota-Saskatchewan border and flows southeastward entering the Souris in north-central Ward County. Both of these are major permanent rivers with deep, broad, well established valleys that were originally cut by torrents of glacial meltwater. The Des Lacs and Souris in North Dakota are fed by numerous tributaries including the Wintering River, Seven Mile Coulee, Little Deep Creek, Oak Creek, Willow Creek, Stone Creek, Cut-Bank Creek, Spring Coulee Creek, Boundary Creek, and West Cut-Bank Creek.

Souris is a French word for mouse. No original native Indian name has been documented for the river (Russell 1989:37). One of the upstream tributaries in Saskatchewan, Broken Shell Creek, was named by Native Americans after an event involving the breakage of a shell spoon (ibid.:48,56). The upstream portion of the Souris was a cultural headwaters area which was not explored and historically documented until 1881 (ibid.:40).

## Climate

Today's climate is a northern continental type climate characterized by extreme fluctuations in temperature, and sporadic and erratic precipitation. Summary information for the SU is provided by the USACOE (1978), Jensen (1972), and North Dakota State Planning Board (1939c). Temperatures can vary from as high as 114° F in the summertime to as low as -54° F during the winter. The mean average temperature is 39° F (USACOE 1978:19). The mean annual precipitation is about 15 inches; approximately 75% of this falls in the summer. Winds are typically persistent. During the winter, winds are predominantly northwesterly while during the summer the prevailing breezes are from the south. While it would make sense from today's perspective for hunter-gatherers to have moved into this area for the warm seasons and migrate to the south for winters, prehistoric residents probably lived in the area on a year-round basis. People aimed to dry and store enough food to last the winter, then settled in family-size groups in sheltered valley bottom settings close to water and wood for the winter.

A model of climatic conditions for the past 13,000 years has been constructed using information gathered from various parts of North Dakota plus other regions of the Northern Plains. During this period, a series of climatic episodes are hypothesized to have affected the SU.

Changes in vegetation and animal life are believed to have coincided with the climatic shifts (cf. Boettger 1986; Clayton et al. 1976). Biotic changes certainly affected human land use practices, especially when only primitive technologies were available to cope.

The early Holocene Boreal climatic episode in the SU was characterized by the warming trend that caused glacial recession. Following the retreat of the Late Wisconsin Souris Lobe at ca. 11,300 BP (Clayton and Moran 1982), a massive “spillway” carrying torrents of meltwater from glacial Lake Arcola and glacial Lake Regina to the north likely drained through the Souris valley southeastward into the James and Sheyenne drainages (Christianson 1979; Kehew and Lord 1986, 1987; Lord 1984; Lord and Kehew 1987). When land surfaces were exposed during the Boreal Episode of ca. 9000-6000 BC, a series of vegetative changes were initiated which culminated in the mixed grass prairie of early historic times. The Des Lacs-Souris basin was forested during the late Glacial and early Boreal climatic episodes, first by spruce forest then succeeded by deciduous forest. The transition likely occurred after 8640 BP given the occurrence of dated spruce wood remains in deep core samples from the Souris valley (Boettger 1986).

During the period between 6000 and 3000 BC, there is posited to have been a decrease in precipitation and increase in temperature as the regional airflow was dominated by mild, dry, Pacific air masses (Bartlein et al. 1984). Grasslands, better adapted to the warmer, drier climate, succeeded stands of woodlands. As a result of these mid-Holocene climatic conditions of the Atlantic episode, vegetative cover in the Des Lacs-Souris basin diminished and land became susceptible to erosion. This period of climatic and landform instability is also referred to as the Altithermal (Boettger 1986; Clayton et al. 1976).

For the past 5,000 years, climatic conditions fluctuated between moist and dry several times. During at least two major episodes, the Sub-Atlantic and the Neo-Atlantic, moister conditions prevailed, enabling buildups of the regional biomass. These changes surely influenced human settlement in the basin. Whenever plant and animal resources abounded, it is likely that there were people around to exploit them.

## Landforms and Soils

Landforms in the Des Lacs-Souris basin include (1) upland till plain, (2) valley wall side slopes, (3) valley wall foot slopes, (4) alluvial fans, (5) river terraces, and (6) river floodplains (cf. Howey et al. 1974; Thiele et al. 1977; Whitehurst et al. 1989). On each of these landforms, different kinds of soils formed under the influence of a variety of pedogenic factors. Different soils support different floral communities which in turn are used by different sorts of animals. Resource diversity was greatest where landform variation was greatest: along the alluvial valleys.

### *Floodplains*

A floodplain is that portion of a river valley subject to annual flooding by overbank flow of the river and its tributary streams. In the SU, floodplain surfaces are broadest along the Des Lacs and Souris. Flooding during spring melt only became a concern in the 20th century when people began to build permanent settlements on the floodplain. This new and ill-advised pattern

of permanent modern settlement led to a need for flood control measures such as the construction of levees and other diversions, especially along the Souris River.

The Souris River floodplain is a linear depositional environment (cf. Butzer 1976) characterized by the meandering course and numerous old channel scars, oxbow lakes, and developing point bars. The floodplain of the Souris consists of alluvial sediments that have built up to thicknesses of 25-287 feet (7.5-87 meters) during the past 10,000 years since the retreat of the Pleistocene glaciers (Boettger 1986:20-21). Vanstone (2012) also documents severe low flow events occurring in the late 1810s, mid-1830s, and 1860s.

### *Terraces*

Terraces are former stream beds or former floodplains that now lie at elevations above the present floodplain. In the upper Souris valley, McFaul (Whitehurst et al. 1989:157-180) identified the remains of two glaciofluvial terrace remnants of Pleistocene age. The older upper one of these terraces (PT2) has soils developed from glacial outwash deposits (Thiele et al. 1977; Whitehurst et al. 1989). These include Renshaw, Sioux, Embden and Swenoda (ibid.). The lower, more recent one, (PT1) lies 7.5 meters (25 feet) below the PT2. Soils on the PT1 are of the Svea, Swenoda, and Sioux Series (ibid.). It is posited that patches of these terraces may be found here and there throughout the Souris Loop.

Three Holocene age terraces (HT1, HT2, and HT3) have also been identified by McFaul (Whitehurst et al. 1979). The highest and oldest of these--the HT3--is situated approximately seven meters (23 feet) above present river level. McFaul indicates that this terrace comprises three sediment units. The basal unit is a massive layer of dark gray sand. A second thick layer of dark grayish brown sand and silt loam overlies this unit. The upper zone consists of a 2 m thick layer of silt loam alluvium. McFaul reports the occurrence of seven buried former topsoils in one profile he studied. A radiocarbon date of  $2590 \pm 60$  BP (Beta 27604) on cottonwood (*Populus deltoides*) from the second sediment unit of dark grayish brown sand indicates the upper zone of this terrace was deposited during the past 2,500 years.

A second Holocene terrace (HT2) is located approximately 2 m below the upper terrace. The sediments comprising this terrace fill are alluvial deposits of fine-grained sandy loam. McFaul did not report finding evidence of buried topsoils in this stratigraphic section.

The third Holocene terrace (HT3) is situated 2 m above present river level. Sediments comprising this terrace are an upper 30 cm thick zone of weakly developed sandy clay loam underlain by numerous beds of poorly sorted sands. A single thin possible buried A soil horizon may have been present in the sampled location. Sandy sediments continued downward to the water table.

Each of the three Holocene terraces exhibits a distinctive soil composition based on SCS pedological survey work. In Renville County, the HT3 terrace is mapped as the LaDelle Series consisting of weakly developed cumulic soils of silty clay loam (Thiele et al. 1977). Buried topsoils occur in these sediments overlying sand. A part of the HT2 is mapped as the Ludden Series of alluvially deposited clayey sediments. The remainder of HT2 and HT1 consist of Velva

Series loamy soils. A similar soil classification is reported for Ward County (cf. Howey et al. 1974).

### *Valley Walls*

The walls of the major river valleys are mantled with glacial till deposits. Classification of the soils is largely dependent on slope. Zahl-Max soils develop from till on the steep sided portions of the valley sidewalls and other areas of major topographic relief.

### *Alluvial Fans*

Alluvial fans are another feature of both the large and small drainage valleys. These are fan shaped bodies of sediment that have been carried into the valleys by permanent and ephemeral tributary streams and coulees. Alluvial fans afforded several advantages for prehistoric settlement. A major one was ecological diversity with riparian bottomlands below, upland grasslands above, and woody draws often extending upwards from the fans.

### *Upland Plains*

The river valleys are incised into a low relief glacial till plain. This till plain is mantled with glacial outwash and ice-marginal deposits. Throughout the SU, a number of different weakly developed soils are mapped in upland settings. These are areas of ground moraines and kettle plains. Included here are a host of soils grouped under the Barnes-Swea association (Howey et al. 1974) in Ward County and the Swenoda-Embsen-Barnes association in Renville County (Thiele et al. 1977).

Natural Resources Conservation Service (NRCS) official soil survey resources are available online (NRCS 2016a, b, c). The Web Soil Survey in particular may be useful, as it has replaced the traditional county soil survey books.

- Electronic Field Office Technical Guide: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/>
- Soil Data Mart: <http://sdmdataaccess.nrcs.usda.gov/>
- Web Soil Survey: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

### Flora and Fauna

Ecologically, the SU is located within the Temperate North American Grasslands Biome (Odum 1971). Within the confines of the SU specifically, Kuchler (1964) identified four specific vegetation communities: (1) medium-to-tall grassland, (2) oak savanna and grassland, (3) aspen parkland, and (4) northern floodplain forest. Much of this floral summary is abstracted from Barkley (1977), Burgess et al. (1973), USACOE (1978), and Lautenschlager (1964).

The medium-to-tall prairie grasslands comprise primarily needle grasses (*Stipa* sp.), slender wheat grass (*Agropyron trachycaulum*), needle and thread (*Stipa comata*), and grama grasses (*Bouteloua* sp.). These native prairie grasses extend over much of the Drift Prairie and Missouri Coteau within areas which have not been tilled or mined.

The oak savanna and grasslands community consists of scattered stands of bur oak (*Quercus* sp.) and bluestem (*Andropogon* sp.) grasses found at the heads of smaller valleys and coulees draining to the Souris and Des Lacs rivers. Here acorns of the bur oak would have been available as a food resource.

Aspen parkland characterizes a transition zone between native prairie grasslands to the south and the boreal forests to the north in Saskatchewan and Manitoba. Here, grassland communities are mixed with stands of the aspen poplar (*Populus* sp.). This zone is present in the extreme northeastern corner of the SU.

The Northern floodplain forest occurs in the Souris valley bottom. Forested areas are dominated by cottonwood (*Populus* sp.), willow (*Salix* sp.), and elm (*Ulmus* sp.) (cf. Burgess et al. 1973). Box elder (*Acer negundo*) and green ash (*Fraxinus pennsylvanica*) are reported as well. Understory consists of mixed grasses and shrubs such as chokecherry (*Prunus* sp.), juneberry (*Amelanchier alnifolia*), buffaloberry (*Shepherdia argentea*), and wild rose (*Rosa* sp.). Some of the floodplain forest has been cleared by Euro-American settlers for agricultural lands.

These four floral communities provide suitable habitat for a variety of fauna. The rivers, streams, and potholes are also home to a variety of aquatic and semiaquatic creatures. Larger game animals inhabiting the basin today are white-tailed deer (*Odocoileus virginianus*) and pronghorn antelope (*Antilocapra americana*). Early in the century, mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), and grizzly bear (*Ursus horribilis*) were reported (Bailey 1926). Moose (*Alces americanus*) and caribou (*Rangifer caribou*) may have been present at certain times in the past (ibid.). Bison (*Bison bison*) flourished on these grasslands before being extirpated.

Predators include the coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and the long-tailed weasel (*Mustela frenata*) (ibid.). Semi-aquatic fur bearing mammals present in the rivers and marshes include beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), and mink (*Mustela vison*).

A great variety of waterfowl can be seen today on the Upper Souris Wildlife Refuge including coot, ducks, and geese. In the past, the marshes formed by relict oxbows of the river in the bottomlands and the prairie potholes of the upland Coteau also supported large populations of waterfowl except during droughty times.

The Souris and Des Lacs rivers presently support 24 identified fish species (USACOE 1978:66; Russel 1975). Northern pike, yellow perch, black and brown bullhead, and walleye may have been food species for prehistoric groups at times. Numerous aquatic mussels, pill clams, and snails also occur in the Souris and its tributaries (Cvancara 1983). Freshwater mussels may have been a supplemental dietary item at times. Mussel shell also served a variety of purposes in native technologies.

## Other Natural Resource Potential

In addition to the floral, faunal, and water resources which provided food, fuel, and shelter, a number of other raw materials merit mentioning. Lithic raw materials were very important to peoples with stone age technologies. Wattrall (1976:21-23) indicates that brown petrified wood, chert, moss agate, and jasper have been reported from the Souris gravels in Saskatchewan. Artifacts made from these stones occur in collections from archeological sites in the Souris basin in Saskatchewan (Finnigan 1988a) and to a lesser extent in Manitoba (Leonoff 1970). In the Souris valley of North Dakota, Swan River chert (SRC) and Knife River flint (KRF) were the preferred stones used to make chipped stone tools (Floodman and Friedman 1986; Good and Fox 1978; Good and Hauff 1980; Whitehurst et al. 1989). Much of the SRC was probably collected locally. The quantity and quality of KRF in the Souris gravels in North Dakota remain to be assessed.

Glacial outwash gravel deposits on the Missouri Coteau are another likely source of flakeable stones (Pettyjohn and Hutchinson 1971). Cobbles of granite are abundant. Granite cobbles served as a construction material, as a heat source for food preparation (i.e., stone boiling and baking), and as a stock for making heavy stone tools.

## Overview of Previous Archeological Work

This section provides information concerning past archeological work conducted in the SU with an emphasis on the portion of the basin in the United States. It is organized according to types of archeological investigation undertaken. Four types of studies are identified by the Archeology and Historic Preservation Division at the State Historical Society of North Dakota (SHSND): (1) inventory projects, (2) test excavation projects, (3) major excavation projects, and (4) other works.

### Inventory Projects

As of 5 August 2015, there were 309 archeological sites and 1,810 archeological site leads and isolated finds recorded in the North Dakota Cultural Resource Survey (NDCRS) for the SRSU. Considering actual sites alone, with the 9,118 mi<sup>2</sup> area of the SRSU, there is one site recorded per 29.5 mi<sup>2</sup>. If both sites and site leads are considered, there is one site recorded per 4.3 mi<sup>2</sup>. While a modern-day on-the-ground survey would show that there are actually several sites per square mile overall, the latter figure is fairly high from a statewide comparative perspective.

That the site density is actually higher is also evidenced from the observations of Thad Hecker who wrote in 1937 that in McHenry County, “Before the land was plowed up and especially before the Pioneers gathered the Buffalo bones from the surface, Indian campsites could be seen on every quarter section” (State Archives, Series 226, Box 17).

The first reported “archeological survey work” conducted within the SU was undertaken by Hecker, an avocational archeologist, from about the turn of the century into the early 1940s. Fortunately, Hecker summarized his lifetime of discoveries and insights and inferences in a

series of written reports during the late 1930s when he was employed by the Works Progress Administration (WPA). **These written reports and reams of supplementary information and maps are housed in the [State Archives of North Dakota](#)** (2016). Most of the 1,810 archeological site leads in the NDCRS are derived from maps upon which Hecker plotted locations of sites that he visited. Unfortunately, no professional archeologists have yet taken up the task of studying the Hecker archival materials and “ground truthing” the site leads information. It would be an enormous task that would take years, but it would certainly yield a wealth of useful information if it was done adequately. In addition to recorded information, Hecker collected samples of artifacts for the SHSND from a number of the sites he visited. [SHSND archeological collections](#) (2016) contain materials labeled “Hecker-Souris Basin 1942.” Hecker’s investigations certainly demonstrate the presence of an abundance of prehistoric cultural resources in this SU. The contributions of all the subsequent inventory projects pale in comparison to Hecker’s work.

If more were known about the site leads, there would be a very useful sample of sites for the SU from which predictions, inferences, and comparisons could be drawn. However, there is complete information only for the 309 recorded archeological sites. Some of these data are summarized in Table 11.2. The table considers the variables of the landforms upon which sites are situated and the feature types represented. More than one variable may be recorded for a single site. For example, a late prehistoric site might be very extensive and straddle floodplain and terrace landforms. This would result in the recording of two landform occurrences for a single site.

It is very likely that some of the sites recorded as scatters of cultural material (cultural material scatters) were originally stone circle sites. In 1937, Hecker wrote that the “area of rolling hills dotted with small lakes” lying “between the southern and eastern outlets of ancient Lake Souris” in McHenry County was once “covered with surface rock but the homesteaders have cleared the land of rock leaving only a few places where tepee rings or fireplaces show today” (State Archives, Series 226, Box 17).

More characteristics of the recorded site sample can be inferred from the table. Most recorded sites are situated in areas where the greatest amount of survey work has been conducted (floodplain and terrace areas surveyed by the St. Paul District of the United States Army Corps of Engineers [USACOE]), and in areas where there has been very little sedimentation during the Holocene so that surface sites from 6,000 years ago are still on the surface (upland plains, hills, and ridges).

Features of this sample of recorded sites can be generalized from the Table 11.2. For example, mounds are not common. Earthen burial mounds are very prominent sites and are usually among the first sites recorded when archeologists go to work in an area. This seems to be confirmed by Hecker’s observations regarding the types of burial sites he encountered. He mentioned tree burials, platform burials, and surface burials cribbed with sticks or logs, surface burials cribbed with rocks, and subsurface burials with no surface indications (State Archives, Series 226, Box 17).

Table 11.2: Feature Type by Landform for Archeological Sites in the Souris River Study Unit, 5 August 2015.

	Cairn	Conical	CMS	Village	Grave	Hearth	Mound	ORF	Pit	Art	Shelter	Circle	Misc	TOTAL
Alluvial fan			1			1								2
Beach/River bank			6			1							1	8
Beachline (glacial)			2									1		3
Butte	1		1		1			1	1	1		1		7
Floodplain			37	1		8	1	1				1		49
Hill/Knoll/Bluff	19		30		3	1	1	14	1		1	47	2	119
Lacustrian plain												2		2
Other			2					2				3		7
Ridge	7		9					3				35		54
Saddle												1		1
Spur												4		4
Swale			1									2	3	
Terrace	5	1	48		2	1	1	6	1			19	1	85
Upland Plain	2		15			1	1	1		1		7		28
Valley wall foot slope	3		8		2	1	1	2				9		26
TOTAL	37	1	160	1	8	14	5	30	3	2	1	132	4	398

Conical=Timber Conical Lodge; CMS=Cultural Material Scatter; Village=Earthlodge Village; ORF=Other Rock Feature; Art=Rock Art; Shelter=Rock Shelter; Circle=Stone Circle; Misc=Miscellaneous

From Table 11.3, it can be derived that cultural/temporal affiliation was recorded as unknown for the nearly all of the sites, site leads, and isolated finds. This is common to the samples of recorded sites in all SU in the state. After years of studying archeological sites in the SU, Hecker concluded that the vast majority of them represented recurrently occupied locations with artifacts representing several cultural/temporal affiliations: “I spent the greater part of 1934, 1935 and 1936 on the blown areas of McHenry and Bottineau Counties trying to find a campsite where only one culture occurred. During that time I visited nearly every blown area...and failed to find a place where less than two cultures occurred. On the 80-acre campsite northeast of Buffalo Lodge Lake I found examples of every culture that is general in the Souris Basin” (Hecker:State Archives, Series 226, Box 17).

Table 11.3: Cultural/Temporal Affiliation of Archeological Resources in the Souris River Study Unit, 5 August 2015.

<b>Paleo-Indian</b>	
Folsom	1
Goshen	1
Unspecified	2
<b>Total</b>	<b>4</b>
<b>Archaic</b>	
Oxbow	1
McKean/Duncan/Hanna	2
Pelican Lake	3
Unspecified	6
<b>Total</b>	<b>12</b>
<b>Woodland</b>	
Sonota/Besant	11
Avonlea	1
Unspecified	1
<b>Total</b>	<b>13</b>
<b>Plains Village</b>	
<b>Total</b>	<b>9</b>
<b>Plains Nomadic</b>	
<b>Total</b>	<b>1</b>
<b>Late Prehistoric</b>	
Unspecified	18
<b>Total</b>	<b>18</b>
<b>Historic</b>	
Chippewa	4
Unspecified	5
<b>Total</b>	<b>9</b>
<b>Unknown</b>	<b>2,063</b>

The earliest formal report covers a three-day survey of the Des Lacs drainage in Divide County conducted by the Smithsonian Institution prior to construction of the proposed Crosby Reservoir. Bauxer (1947a) recorded no sites in his project area. Little information is available concerning the survey procedures that he employed. He did go outside his project area and record one site (32DV1) containing stone circles and cairns reported to him by a local informant. Someone who had done some digging at the site said one of the cairns capped a human burial. Hecker wrote in 1937, “surface burials that were cribbed up with rocks have nearly all been dug into or rifled by relic hunters” (State Archives, Series 226, Box 17).

During this same excursion to north-central North Dakota, Bauxer (1947b) conducted a one-day survey of the proposed Des Lacs reservoir areas. Due to time constraints, only a “spot check” survey was made of a 10-mile reach along the west side of Upper Des Lacs Lake. (The Upper Des Lac Lake was first dammed by a series of low dikes in 1938.) No sites were reported, although test pits were dug at one “promising location” (see Test Excavation Projects section below). Bauxer (1947b:5) recommended that a more intensive reconnaissance be undertaken along the reaches of the prospective 25-mile-long reservoir. Apparently, his recommendation was not followed and the area of project effect was never intensively surveyed.

A period of nearly 20 years elapsed until the next reported inventory was conducted. During the initial phases of the Garrison Diversion project funded by the Bureau of Reclamation, some preliminary site survey work was conducted by Mallory (1966). There were also some surveys in 1973 for lands to be impacted by construction activities in the Garrison Diversion Unit (Schneider 1976).

During the mid-1970s, an increasing number of small surveys were completed in compliance with new public laws and regulations requiring that important prehistoric and historic cultural resources be considered in the process of planning developments that modify the landscape. As indicated in a tabulation of inventory reports, there have been 922 archeological inventories at the Class III level (Table 11.4). Transportation accounts for more projects than any other project type.

Table 11.4: Project Types and the Number of Projects in the Souris River Study Unit, 5 August 2015.

Type of Project	Number of Projects	Percentage of the Total
Transportation	417	45.2%
Energy	183	19.8%
Land use	158	17.1%
Telecom	109	11.8%
Water lines	55	6%

A reconnaissance survey along stretches of US Highway 2 from Rugby to Leeds at the eastern edge of the SU was conducted by the SHSND in June 1975. No archeological sites were recorded in the highway corridor for the ca. 27 mile (43 km) length of the survey transect (Franke 1975). Additional inventory work for the Highway 2 project were carried out by the SHSND in 1976 (Dill 1976a, 1976b) and 1978 (Dill 1978). One prehistoric site was identified

during the survey. This site was subsequently tested and found to be a disturbed surface scatter which did not warrant further work (Dill 1978:1-2).

In April 1976, a small survey was undertaken of prospective coal strip mine areas near Velva, North Dakota. Dill (1976) reported one previously unrecorded prehistoric lithic scatter in a surveyed area of approximately 1,200 acres.

During the 1970s, plans were unveiled by the USACE to construct the Burlington Dam across the Souris River in the central part of the SU. In response to this proposed action, preliminary survey work was conducted by the SHSND during 1974 and 1975. Franke (1975) reported finding eight sites. One of these, which was said to have formerly included an earthen mound (32WD103), had been completely destroyed prior to the survey. All of the recorded sites were located on the upland till plain overlooking the valley bottomlands. No sites were found on the floodplain.

An additional follow-up pedestrian survey of the Burlington Dam and Lake Darling project areas was conducted by the UND for the USACE during the fall of 1977. One goal was to identify sites, objects, and structures important to the prehistory of the area. A second goal was to provide input concerning management of the cultural resources present in the flood control project area. Forty previously unrecorded archeological sites were found during this reconnaissance (Good and Fox 1978).

Several years passed before the next flurry of USACE-sponsored inventory work along the Souris River took place. During the intervening period, plans for the proposed Burlington Dam had been shelved, and alternative flood control measures were devised by the USACOE. The next major cultural resource inventory along the Souris was conducted by Powers Elevation in late 1982. That work centered on three USACE flood control project areas: (1) the Velva Levee, (2) the upper Souris bottomlands above Lake Darling, and (3) the Burlington to Minot levees and the Sawyer levee. These investigations documented 21 previously unrecorded prehistoric sites in the three project areas (Floodman et al. 1985).

A USACE-sponsored survey was conducted in the north-central portion of the SU by Cultural Research & Management, Inc. during May and June 1988. The survey area was a seven-mile stretch along the Souris River extending southward from the Canadian border in northern Renville County. Within this 3,000 acre tract of surveyed bottomland, 19 previously unrecorded prehistoric sites and four isolated finds were documented (Whitehurst et al. 1989).

A host of other inventories have been completed in other parts of the SU. One of the first of these inventories was a long transect surveyed by UND in 1979 for the proposed Saskatchewan Intertie 230 kV Transmission line linking power exchange between Saskatchewan Power Cooperation and Basin Electric Power Cooperative. The surveyed right-of-way was a 38 m wide strip extending 217 km southeast from near Noonan, North Dakota, to a terminus south of Minot. Transects crossed the Drift Plains, a small segment of the Missouri Plateau, and a much larger segment of the Missouri Coteau. The survey identified 58 previously unrecorded prehistoric sites (Fox 1980). Most of these sites contained stone features, predominantly stone circles.

Pedestrian surveys in the last couple of decades have been undertaken almost exclusively for transportation and energy projects. Linear road surveys and borrow pits are common. Energy projects include exploration, development and transmission of oil, gas, electric, and wind power. More recently tracts have been surveyed for rural water lines and cellular phone towers (Table 11.4).

Pedestrian survey of the Alliance Pipeline occurred in 1996 and 1997. The pipeline enters North Dakota from Canada, beginning north of the community of Sherwood, running southeasterly, and exits Richland County near the intersection of the North Dakota, South Dakota, and Minnesota borders (Stine et al. 1998b). The linear corridor width ranged from 200-300 feet with much of the pipeline paralleling the previously constructed Dome Pipeline. The Alliance Pipeline segment within the SRSU runs through Renville, Bottineau and McHenry counties. Two archeological sites and four prehistoric isolated finds were recorded along the segment. Site 32MH143 was found on the north side of the Deep River. It consists of numerous small- to large-sized mammal bone fragments and one brown chert flake, paleosols also were noted (ibid.:31). Site 32MH143 was tested in 1997 (Stine et al. 1998a, c). An additional two flakes and 11 pieces of bone were recovered. No further work was recommended. Located on the south side of the Deep River, 32MH144 is recorded as a buried cultural material scatter. Shovel probes at the site contained flakes, charcoal, and burned and unburned bone. They also revealed the presence of two to three buried A horizons (Stine et al. 1998a). Later testing resulted in expansion of the site boundaries, however the site was avoided by rerouting the pipeline (Stine et al. 1998c).

Geomorphological and landform modeling as a research tool in the SU has been underutilized. Geomorphological considerations by McFaul (in Whitehurst et al. 1989) represent an important step. Modeling of the sort that McFaul developed serves as a guide for surveyors to look more carefully and explore specifically in certain areas and at certain depths below the surface. The McFaul study should also be useful for helping plan test excavation sampling strategies in the basin.

Certainly, the Hecker archival materials need to be studied as previously discussed, and the sites that he noted need to be revisited and recorded. Then, with the very large resultant sample of site data, more precise models can be formulated regarding prospects for sites in different settings. Following is an example of the kind of information related to this topic which is immediately available in the State Archives:

In looking over the surface for Indian relics or evidence of occupation, you will find [several] types or conditions of surface area in McHenry County. (1) Cultivated fields where the plow brings to the surface or wind erosion uncovers artifacts or other evidence of occupation. (2) Hay meadows where the more rapid soil growth has covered any lost or discarded Indian relics that may have been left on their surface. (3) Level pasture land still in the natural state. This land is usually light, sandy loam or gravel unfit for agriculture. In these sandy pastures wind erosion working on spots where the sod is broken or dust wallows made by stock, blowouts from a few square rods to several acres in extent develop uncovering campsites or casual artifacts. This condition prevails in the northeast

one-fourth of McHenry County. (4) Pasture land along the banks of coulees, on glacial hills, and the bluffs along the Mouse River where the land is too rough for cultivation. On this rough land where the surface rock has not been removed...can be seen tepee rings, tepee sites, fire places, graves, etc. As the Indian preferred to camp on level ground, only a small amount of evidence of occupation can be seen on this rough land. (5) In the brush covered sand hills where the wind is constantly shifting small areas, artifacts are uncovered and covered again by every shifting wind. (6) On dry lake beds and beaches, wind erosion uncovers campsites. In the timber along the Mouse River, the falling leaves, brush, and soil growth has buried practically all evidence of Indian occupation (State Archives. Series 226, Box 17).

### Formal Test Excavation Projects

The beginnings of controlled test excavations at archeological sites in the SU were in the 1970s (Table 11.5). Early professional archeologists generally focused on the Missouri and Red River valleys. With the passage and adoption of major cultural resources management legislation and regulations (National Historic Preservation Act of 1966, as amended; Archeological Resources Protection Act of 1984; Executive Order 11593; Code of Federal Regulations, Volume 36 Part 800), it became necessary to conduct test excavations in order to objectively evaluate the significance of sites.

Table 11.5: Formal Testing Projects in the Souris River Study Unit, 5 August 2015.

Year	First Author	Second Author	Title	Sites Tested	Ms #
1976	Schneider, F.		Archeological Investigations in the Proposed Lonetree Reservoir, Garrison Diversion Unit, North Dakota: 1974 Investigations: Part 1, Wells County, and Sheridan County, ND	32SH126	53
1980	Good, K.	Hauff, J.	Archeological Testing and Survey: Testing of Three Sites and Survey of a Road Detour Within Proposed Project Construction Zones, Burlington Dam Flood Control Project Area, Upper Souris River, Ward County, ND	32WD401, 32WD407 to 408	960
1984	Floodman, M.	G. Firebaugh	Preliminary Report of Archeological Testing at Site 32MH3 at the Proposed Velva Levee, McHenry County, ND	32MH3	3034
1984	Floodman, M.		Preliminary Field Report of the 1983 Archeological Testing Program on the Upper Souris River, Renville County, ND	32RV12, 32RV15, 32RV419 to 422	3520
1986	Floodman, M.	P. Friedman	Final Report of the 1983-1984 Archeological Testing Program for the Lake Darling-Souris River Project, McHenry County and Renville County, ND	32RV9, 32RV12, 32RV15, 32RV419 to 422, 32RV429	3674
1995	Borchert, J.		32RO19 Evaluative Testing in the Turtle Mountains	32RO19	6627
1996	Christensen,		US Highway 52 Archeology: Evaluative	32WD396	6843

Year	First Author	Second Author	Title	Sites Tested	Ms #
	R.		Testing at 32WD396		
1998	Stine, E.	M. Cassell	Alliance Pipeline Project: Phase II Testing and Evaluation of 37 Sites in ND, Volumes I & II	32MH143-32MH144	7212
1998	Stine, E.	M. Hannum	Phase II Testing and Evaluation of 21 Sites and Five Sites Revisited An Addendum to Alliance Pipeline Project: Phase II Testing and Evaluation of 37 Sites in ND	32MH93 to 95	7329
2001	Morrison, J.		Into the Mud with the Bugs Along an Old Trail: Evaluative Testing of Seven Sites and Geoarcheological Investigations at Seven Locales Along Forty Miles of US Hwy 52, in Renville and Ward Counties, ND	32RV271, 32RV243/32WD97, 32WD99, 32WD1475 to 1476	7956
2001	Morrison, J.		State Option Gravel Pit #0403: Evaluative Testing of 32MH115, McHenry County, ND	32MH115	8049
2001	Morrison, J.		Deep Into the Mud Along an Old Trail: Testing of a Deeply Buried Site, 32WD1555: Ward County, ND	32WD1555	8457

It seems that Bauxar (1947b) conducted the first excavations within the SU near the Des Lacs dam. The report is inadequate. There is no information regarding whether screens were used, and there is no description of what was really found. Apparently, only bone remains were recovered.

The first testing project associated with the proposed Burlington Dam project was conducted by UND in the fall of 1978. Three sites (32WD401, 32WD407, 32WD408) were sampled by test excavation and mechanical auger probing. This represents the first use of auger probes in the SU to collect information for the purpose of defining site boundaries and locating buried cultural deposits. Data recorded concerning artifact density from auger probes served to aid in the selection and placement of test units at the three sites. At each of the three sites, single test units measuring 2-x-2-m in size were excavated. The Washak site (32WD408) evinced a buried cultural deposit containing stone tools, chipped stone flaking debris, fire-cracked rock, and bone remains. Temporally/culturally sensitive artifacts were not recovered and the deposit was not dated. The other two sites did not yield substantial artifact samples.

An extensive testing project conducted by Powers Elevation during 1983 and 1984 (Floodman and Friedman 1986). Twenty-one previously recorded prehistoric sites along the Souris River in McHenry and Renville counties were investigated. The purpose of this work was to provide evaluations of National Register of Historic Places (NRHP) eligibility for these properties. Of the 21 sites, eight were sampled by formal test excavation (test units 1-x-1-m or larger in size), and the remaining 13 were sampled with smaller shovel probes of varying dimensions. Four sites on the Souris River floodplain were found to contain buried, intact cultural deposits beneath the zone of plowing disturbance. At site 32RV429, a fire hearth feature was excavated. A buried deposit of culturally modified bone remains was encountered at 32RV9; culturally or temporally diagnostic artifacts were not found in association. Work at 32RV15

revealed a buried cultural zone that yielded a small side-notched projectile point. All of these sites were assessed as NRHP eligible.

Test excavation was conducted at 32MH144 in September 1997 to determine its size, significance, and impact of the Alliance Pipeline. Testing included 59 shovel probes, three 1-x-1-m units, and one 2-x-2 m unit (Stine et al. 1998:50). The cultural assemblage consisted of a feature, chipped stone tools, flaking debris, fire-cracked rock, and numerous faunal remains (ibid.:53-54). The feature consisted of grey ash and grey-brown mottled ash below (ibid.:52). The function and age of the feature are unknown. Investigators speculate that due to the type of feature fill there are likely hearths in the vicinity. Seventy percent of the flaking debris was recovered from the feature. Bone was located in association with a paleosol but that investigation was limited by safety concerns. Investigators propose that the site may date to the Plains Archaic period (ibid.:55).

As part of a transportation project along US Highway 52, seven sites were tested in the summer of 2000. Two of the sites (32WD1475 and 32WD97/32RV243) were recommended as eligible for listing in the NRHP. Further, geoarcheological investigations were conducted at seven locales, resulting in the recordation of one archeological site (32WD1555; see below).

Site 32WD1475 is located southwest of the highway on the edge of a “coulee fan terrace” (Morrison 2001a:33). Artifacts recovered from multiple cultural layers include medium- to large-sized mammal bone fragments, burned turtle shell, flaking debris, chipped stone tools, and one ground stone fragment. The sole diagnostic tool is a Prairie side-notched point dating to 1250-650 BP (ibid.:36). The analysis of flaking debris suggests that cores were imported to the site and then reduced in order to create blanks (ibid.:42). Faunal analysis revealed that the bone had been modified (burned, charred, spirally fractured, or marked from butchering). Investigators surmise that the site was a temporary camp with recurring occupations (ibid.:49).

Site 32WD97/32RV243 is situated south of US Highway 52, east of a drainage in a flat farm field (ibid.:58). The artifact assemblage, recovered from multiple cultural layers, includes faunal remains, flaking debris, a chipped stone tool, fire-cracked rock, and a shell fragment. A Prairie side-notched point was recorded during the initial survey of the site. The analysis of flaking debris and faunal remains (ibid.:61) and the site’s stratigraphic pattern indicate that it functioned similarly to 32WD1475 discussed above (ibid.:68).

Site 32WD1555, located west of US Highway 52 on a coulee terrace in the Des Lacs River valley, was discovered during geoarcheological investigations of a backhoe trench (Morrison 2001:ii). The site consisted of a hearth remnant of oxidized earth and organic fill two meters below ground surface (Morrison 2001b:28). Radiocarbon tests date the site to 9700±120 BP (ibid.). Test excavations resulted in an artifact assemblage of flaking debris, chipped stone tools, bone fragments, and snail shells. The investigators were surprised by the paucity of artifacts. They suggest: “Based on the artifact assemblage and the geomorphic data the feature appears to be (a) on the edge of a paleo-landform, (b) testing was skewed too far to the south/east and/or (c) the site was not an extensive occupation” (ibid.).

## Stone Circle and Cairn Sites

As of August 5, 2015, 132 stone circle sites have been identified during surveys (see Table 11.2) in this SU. Table 11.6 lists the stone circle sites that have been tested or excavated. For sites to be listed in this table there had to be formal testing (at least one 1-x-1-m unit) at the site. Review of the literature reveals the changing research questions addressed over time for stone circles. Table 11.6 was developed so these data are readily available for researchers.

The monograph on stone circle sites in *Plains Anthropologist Memoir 19* is a valuable source of information (Davis 1983). Compilations of radiocarbon dates from sites in McLean, Mercer, and Oliver counties can be found in Strait and Peterson (2007:4.6-4.8), in McLean County (Thomas and Peterson 2010:6.2-6.3) and from Besant/Sonota sites in Deaver and Deaver (1987). A useful discussion of single stone circle site function based on ethnographic accounts is available in Gregg et al. (1983:[3]864-869). An assessment of nomadic settlement-subsistence structure and bison ecology is discussed by Hanson (1983b:1342-1417). Additional references for stone features sites can be found in the reference section of the [Cultural Heritage Form](#).

Thirty-seven stone cairn sites have been recorded in the SRSU (see Table 11.2). Suggested uses of cairns include markers for events and travel routes, bracing poles for a variety of camp structures, caches, drive lines, or covering a burial.

Table 11.6: Stone Features Formally Tested within the Souris River Study Unit, 5 August 2015.

Site Number	Tested Feature Type	Test Unit Location	Cultural Material	Comments	Cultural/Temporal Affiliation	Ms #
32RO19	Circle	Inside, Outside	Yes	Fire-cracked rock		6627
32RV12	Circle	Inside	Yes			3520
	Circle	Inside	Yes			3674
32RV419	Circle	Inside	Yes			3520
	Circle	Inside	Yes			3674
32RV420	Circle	Inside	Yes			3520
	Circles	Inside	Yes	Fire-cracked rock Charcoal stain feature Radiocarbon dating	Modern era	3674
32RV421	Circle	Inside, Outside	Yes			3520
	Circle	Inside	Yes			3674
32RV422	Circles	Inside	Yes	Charcoal Fire-cracked rock		3520
	Circles	Inside	Yes			3674
32SH126	Circle	Inside	Yes			53

## Assessment of Sampling Designs and Testing Strategies

Archeological sites often need to be formally tested in order to evaluate their content and structure and integrity. This information is necessary in order to evaluate sites for NRHP eligibility. Because this evaluation phase is so important in the Section 106 process, the Professional Council for North Dakota Heritage developed a set of Standards for test excavations in North Dakota (PCNDH 1986). However, much of the site evaluation work that has been done

in the SU has employed shovel probing rather than test excavation as the procedure for assessing site content, structure, and integrity.

Moreover, in an archeologically perfect world, all testing projects would include exploration for deeply buried artifact deposits by some means, even if it is only through small-diameter core sampling. Stratified and deeply buried sites do occur in the SU. Hecker mentioned several deep blowouts in one particular township which revealed “stratas of black soil below stratas of sand drift showing various surface levels during the past several thousand years. In one place...I found artifacts embedded in a blow ten feet below the present surface” (State Archives, Series 226, Box 17).

### Major Excavation Projects

Formal data recovery was conducted at 32WD397 in 1995 by archeologists with the North Dakota Department of Transportation. The cultural material scatter straddles US Highway 52, on an alluvial fan in the Souris River valley. In light of the cultural materials recovered, it appears to be a 5,000 year old temporary campsite that saw repeated occupation (Christensen 2001:110). The density of artifacts, particularly bone and fire-cracked rock, found in Stratum E evince an intense occupational episode (*ibid.*). Faunal analysis and the lack of middens and/or bone concentrations indicate that inhabitants processed bison on a small-scale at the site for immediate food preparation (*ibid.*). Investigators note that 32WD397 has enhanced “understanding of the area paleoecology and climate, cultural chronology, and other aspects of prehistoric lifeways” and “demonstrated that deeply buried and stratified cultural components can exist in alluvial fan sediments in the Souris River valley” (*ibid.*:112).

Proposed construction of the Alliance Pipeline resulted in data recovery at 32MH94 in 1999 (Stine et al. 2001). The site is located on the border of an upland sand plain and the bed of former Glacial Lake Souris (the floodplain of the Souris River). Based on the recovery of diagnostic chipped stone tools and radiocarbon dates, at least four components have been identified at the site. These components include: Woodland or Late Prehistoric, Late Archaic (Besant), Middle Archaic (Oxbow and the McKean Complex), and Archaic (*ibid.*:i-iii). The cultural chronology of the site is not definitive; however, it is supported by the complex stratigraphy identified at the site. That is, the site has undergone repeated eolian erosional and depositional episodes dating back to the Middle Holocene (*ibid.*:ii). Radiocarbon dates were obtained and the date ranges at two Sigma are 3985-3830 BP to 1420-1300 BP (*ibid.*:ii). Late-stage tool production appears to have been a prehistoric activity at the site. The predominant raw material type of the Late Archaic assemblage is KRF, followed by local materials and one obsidian tool. In contrast, local raw materials comprise the majority of the Middle Archaic assemblage. Lithic analysis further revealed that biface production was the primary goal of manufacture during the Late Archaic, whereas unpatterned flake tool manufacture was favored during the Middle Archaic (*ibid.*:iii). Recovered faunal remains from the site almost exclusively consist of bison bone. The amount of identifiable bone present suggests that light butchering and processing of bison killed in the vicinity of the camp is a probable scenario. Investigators conclude that the site was a camp revisited over time but used less frequently after the Middle Archaic, due in part to past peoples’ adaptation to a changing environment (*ibid.*:v).

Table 11.7: Major Excavation Projects in the Souris River Study Unit, 5 August 2015.

Year	First Author	Second Author	Title	Sites Excavated	Ms #
2001	Christensen, R.		US Highway 52 Archeology: 32WD397 Excavation	32WD397	7008
2001	Stine, E.	T. Madigan	Alliance Pipeline L.P.: Excavations at 32MH94, McHenry County, ND, Volumes I and II	32MH94	7959

### National Register of Historic Places

The current list of archeological sites in North Dakota listed on the NRHP is available on the National Park Service website. The following internet links are useful (NPS 2016a, b):

- General information and links to specific information: <https://www.nps.gov/nr/>
- National Register Information System: <https://www.nps.gov/nr/research/>

### Other Work

Few reports in the North Dakota State Historic Preservation Office (ND SHPO) manuscript collection fall into the “other” category for the SU. Several publications are noteworthy. The prehistoric ceramics of the Souris basin have intrigued several archeologists over the years. While the subject pottery sherd collections have not come from well controlled contexts, they do reflect use of the basin by many groups who made and used different kinds of pottery. W. Raymond Wood has described sherds and vessels that indicate occupations by Middle Woodland peoples with Besant-Sonota material culture and by Late Woodland peoples perhaps with Mortlach material culture (Wood 1959, 1962).

Several other artifact finds have gained the attention of professionals and have been described in print. Carved stone effigy pieces from collections in the Velva and Carpio areas were reported by Johnson in 1955 (cited in Whitehurst et al. 1989:43). A stone atlatl weight from the Kenmare vicinity was described by Metcalf and Carlson in 1971 (ibid.).

Upstream along the Souris in southeastern Saskatchewan, archeologists from the Saskatchewan Research Council have conducted inventories, site evaluations, and mitigating excavations in the areas of the proposed Rafferty and Alameda dams and reservoirs and several associated proposed coal fired electric generating plants. The inventories recorded hundreds of prehistoric and historic sites. The sample is dominated by upland stone circle sites, but there are also a number of other sorts of prehistoric “heritage resources” in alluvial bottomland settings. Souris River floodplain sediments have been demonstrated to contain deeply buried, stratified columns of artifact deposits dating back perhaps 4,000 years. Reports of results are available as publications of the Saskatchewan Research Council in Saskatoon (Finnigan 1986; Finnigan and Klimko 1987; and Finnigan 1988b).

A 2006 *Plains Anthropologist* volume (Nicholson et al.), titled “Changing Opportunities and Challenges: Human-Environmental Interaction in the Canadian Prairies Ecozone,” is devoted to an interdisciplinary project north of the SRSU. Integrated research in archeology, ethnohistory, geoarcheology, geomatics, landscape analysis, oral traditions, paleo-environmental

studies, soils science, and zooarcheology is the focus of the Study of Cultural Adaptations in the Canadian Prairie Ecozone (SCAPE) funded by the Social Sciences and Humanities Research Center in Canada (ibid.:231). The six goals of the project, as stated by Nicholson et al. (ibid.:232), are:

- 1) to reconstruct the “natural” and “cultural” landscapes of selected locales at ca. 9000 BP; 6,000 BP; 3,000 BP; 1,500 BP; and 500 BP;
- 2) to recover data on landscape use by human groups in dune field, riverine and upland environments through time and to compare our results with published works on other ecologically diverse localities in the Canadian Prairie Ecozone;
- 3) to understand the perceptions and cultural responses of groups, at particular times and places, to ecologically diverse localities within the Canadian Prairie Ecozone;
- 4) to characterize areas of high biodiversity within the larger Canadian Prairie Ecozone biome through collection of geoarcheological data;
- 5) to identify ways in which human groups intentionally modified their environment through practices such as fire ecology and selective hunting;
- 6) to model human adaptive strategies to areas of high biodiversity in the context of the Canadian Prairies Ecozone using Geographical Information Systems technology.

The program is enhanced by the use of current technology and information from native oral traditions. Two subsequent volumes are planned that will expound on researchers’ theories and models, and cultural patterns in an environmental context of the region.

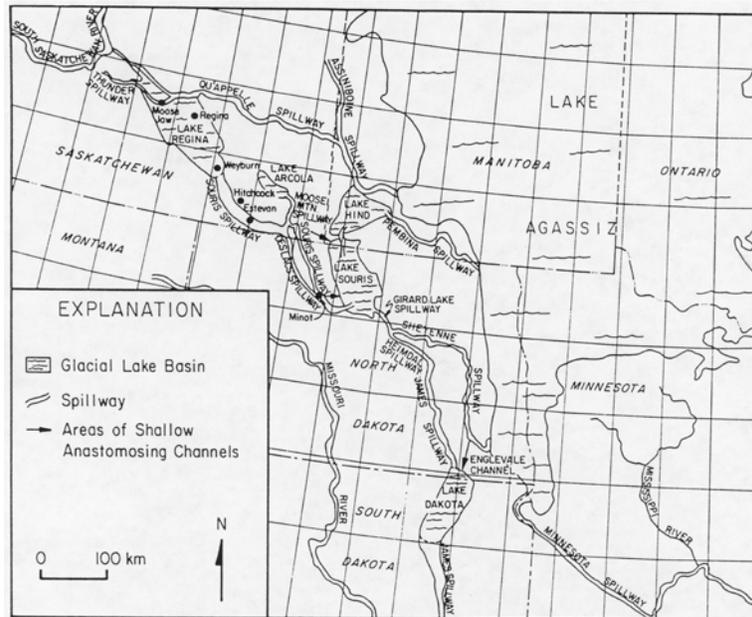
### Paleo-Indian Period

The Paleo-Indian (Paleo) cultural tradition dominated a 4,000 year span from 9500-5500 BC. This cultural tradition (or lifeway) represents the adaptation of native aboriginal groups during the initial peopling of the SU following the recession of terminal Wisconsinan glaciation. Paleo lifeways involved hunting and gathering adaptations to early Holocene climates, animals, and plants.

### Paleo-Environmental Modeling

A late glacial chronology applicable to the SU has been presented by Clayton and Moran (1982). About 14,000 years ago, a major glacial re-advance occurred, covering most of north-central North Dakota. During the following 3,000 years, the glacial ice retreated, re-advanced, and stagnated several times creating the hummocky pothole terrain of the Missouri Coteau. During a final glacial re-advance into Dakota territory about 11,800 years ago, two blocks of ice (termed the Souris Lobe and the Leeds Lobe) covered the SU (Boettger 1986:Figure 5). Following the final retreat of glaciation, both the Souris River and the Des Lacs River acted as spillways carrying torrents of meltwater from Glacial Lake Souris which resulted from the wasting of the Souris Lobe (Kehew 1982; Kehew and Clayton 1983; Kehew and Lord 1986; Lord 1984) (Figure 11.2).

Figure 11.2: Map of a Portion of the Northern Great Plains Showing Locations of Proglacial Lakes and Spillways (from Kehew and Lord 1986:Figure 1).



Climatic conditions during terminal glacial times were those of the Boreal climatic episode. After the ice retreated, spruce-aspen forests and marshy terrain came to characterize much of the landscape. Boettger (1986:113) found organic peat deposits containing woody stems deeply buried within Souris valley alluvium. Two radiocarbon dates obtained from this horizon are  $9440 \pm 100$  years BP and  $8840 \pm 100$  years BP. Over the next several thousand years, prairie vegetation succeeded the boreal forests, the Paleo period ended, and Early Plains Archaic period began. What was the duration of this period of transition?

The environmental model can be refined by contributions of new information concerning variations in environmental conditions across the entire basin at different points in time. Was the entire SU covered with boreal forest until at least 7000 BC? How long did boreal forest conditions persist in some localities? What were the floral and faunal resources of different parts of the basin at different times within the Paleo period?

### Cultural Chronology

The Paleo cultural chronology for the Des Lacs-Souris basin is based upon typological cross-dating of projectile points. Schneider (1982:33) reports that the SHSND collections contain 14 Paleo specimens acquired from the Souris basin by Hecker during the late 1930s to early 1940s. These specimens were accessioned on 28 September 1942. While the exact find locations are apparently not part of the accession records, it is quite possible that locational information for some or all of these specimens can be derived from the Hecker archival materials in the State Archives (Series 226, various boxes). Scanning through those archives, it is evident that Hecker observed artifacts from most or all of the Paleo complexes that are recognized today: Folsom, Hell Gap-Agate Basin, Cody, and Parallel Oblique Flaked. (He used the term “Yuma” for the

Parallel Oblique Flaked materials.) He also may have used the term Folsom for at least one possible Clovis specimen. In a letter dated May 10, 1937 to Edward W. Milligan, Field Supervisor Western Area, W.P.A. Project #1083, Hecker mentioned a number of Folsom specimens that he had seen in collections from the SU. He specifically mentioned one specimen found near Columbus, North Dakota, and another from near Enniskillen, Saskatchewan. He included a sketch of another specimen found by a fellow working his garden in Renville County north of Tolley. Based on the outline profile and the fluting, this appears to be a Clovis point. Hecker may not have been able to identify the piece as a Clovis point because he may not have been aware of the discovery in New Mexico of Clovis fluted materials predating Folsom. The first professional reports concerning Clovis were in 1937 in Pennsylvania publications which would probably have been rather “obscure” from a North Dakota perspective. Hecker mentioned that “Folsom type” points occur as “casual finds in the Souris Basin,” and that while he had never been fortunate enough to find a complete one himself, he had found “more than a few broken pieces” (State Archives, Series 226, Box 17).

Miller (1992) examined private surface collections from Bottineau County. Of the 119 Paleo projectile points, there were 103 complete specimens and 16 fragments (ibid.:29). The spatial distribution of the artifacts includes 72 points collected in the Glacial Lake Souris Plain and 25 from the Glacial Till Plain (ibid.:36). Table 11.8, adapted from Miller (1992:Table 1), summarizes information from his study regarding Paleo point and lithic raw material types. The information from Hecker and Miller indicates that Paleo sites may be as numerous in the SU as in any other part of North Dakota.

Agate Basin, Cody, and Parallel-Oblique Flaked specimens displayed at an artifact show at Dakota College at Bottineau in February 1989 also lend confirmation to the generalization that Paleo sites are within the SRSU (M. Gregg, personal observation). Specimens from all three complexes were reportedly found both within the Souris Loop and outside it. Based on conversations with the collectors, there were no apparent concentrations of these Paleo finds. Pieces had been found variously in eastern and northern Renville County, central Bottineau County, and northern McHenry County. These specimens in collections indicate a steady presence of people from about 8000 BC to perhaps 5500 BC or so. Points that resemble Pryor Stemmed were also present in several collections. This may be the terminal Paleo complex in this area contemporary with the Caribou Lake complex in areas to the east and north.

Table 11.8: Paleo Point and Lithic Raw Material Types from Private Surface Collections in Bottineau County, North Dakota. Adapted from Miller (1992:Table 1).

Point Type	Raw Material Type									Total
	KRF	Clear Chalcedony	SRC	Antelope Quarry Chert	Porcellanite	Jasper/Chert	Flattop Chalcedony	Coarse Tongue River	Basaltic	
Clovis			1							1
Folsom	3					1				4
Hell Gap	4									4
Agate Basin	5					1				6

	Raw Material Type									
Fragments			2	1						3
Alberta	14						1			15
Scottsbluff	19	2			1				1	23
Eden	17	1				1		1		20
Cody Knife	5									5
Fragments	5									5
Plainview	4					1				5
Milnesand	7									7
Angostura	7	1		1	1	1				11
Frederick	2									2
Fragments	6	2								8
Total	98	6	3	2	2	5	1	1	1	119
	82.4%	5%	2.5%	1.7%	1.7%	4.2%	0.8%	0.8%	0.8%	100%

## Settlement Behavior

A geomorphological study of the Souris valley by McFaul (in Whitehurst et al. 1989:Table 11) suggests low potential for archeological deposits older than 12,500 years BP because of the “catastrophic” events associated with the floodwaters draining through the SU. The settlement behavior of the earliest native groups would have been greatly affected by environmental conditions. During the Boreal climatic episode, after the valley was cut by torrents of meltwater, several landforms might have been open to human settlement following final glacial retreat. This would have included terrace and floodplain areas as well as expanses of the upland till plain.

Within the Souris valley, Paleo cultural deposits should be present (1) on the remnant surfaces of early river terraces, (2) buried within alluvial fans, and (3) more deeply buried in floodplain contexts. Floodplain sites can be expected to be well beneath the water table in most cases (Boettger 1986; Whitehurst et al. 1989:Table 11). In upland till plain areas, finds of Paleo artifacts may be more common because extensive areas of this terrain have either witnessed minimal deposition of sediments or have actually lost sediments over the past 10 millennia.

In the letter from Hecker to Milligan cited above, Hecker describes the locations of two of the “Folsom” point finds. He concluded that one find spot had been “in the bed of a small ancient lake that once covered about 3000 acres.” Another was “also in an ancient lake bed.” Perhaps based on these and other finds in similar settings in North Dakota, he planned to “take a couple of days off and look around in Canada in the area covered by Ancient glacial Lake Saskatchewan [for] specimens of Folsom type culture” (State Archives, Series 226, Box 17). Whatever his success or lack of it in Saskatchewan, it seems that in the SU, as throughout the Great Plains, Paleo peoples tended to situate some of their settlements in playa lake settings. There needs to be a study of Paleo site locations in order to determine the factors that influenced

the settlement behavior of those people. Were those factors different than they were for subsequent hunting and gathering peoples?

### Native Subsistence Practices

Among the game animals hunted by those earliest Dakotans would likely have been “megafauna” such as mastodons, mammoths, giant bison, and camels. Later in the Holocene, based on evidence from elsewhere in the Plains, the focus shifted entirely to bison. Areas that were spruce-aspen habitat did not support the large herd animals (Schneider 1982). There ought to have been grazing lands sufficient to support the large herd animals in grassland areas adjacent to major waterbodies such as the Souris River after grasslands succeeded boreal forest (cf. Bamforth 1988). A variety of plant resources would have been available throughout the annual cycle.

Whereas a relative great deal is known of the paleo-environmental conditions of Paleo times, there are many important questions about correlations between occupations by people who used the different Paleo artifact complexes and local or regional environmental conditions. For example, Boettger’s work indicates the presence of a deeply entrenched upper Souris valley with boreal forest vegetation in the bottomlands around 7000-6000 BC. This is beyond the time of the Clovis, Goshen, Folsom, and Hell Gap-Agate Basin complexes and into the time of the Cody complex. Yet Folsom and Agate Basin materials are certainly represented in the SU. Adaptations of people with Folsom and Agate Basin material culture in boreal settings are unknown and need to be studied.

### Technologies

The few reported finds of Paleo artifacts in the Des Lacs-Souris basin are limited to stone remains. Based upon ethnographic analogy, the people probably also had bone and wood technologies, but this remains to be demonstrated. None of the Paleo complexes are adequately described in terms of the technologies that they include.

High-grade stone resources were available in the KRF primary source area immediately to the southwest in Dunn County, North Dakota (Ahler 1986). Knife River flint Agate Basin, Scottsbluff, Cody knife, and Frederick pieces in the collections displayed at Bottineau evince steady reliance upon the KRF quarries as a primary source of high-grade raw material for toolmaking. There is a lack of information regarding possible preferences for use of other materials to fashion into tools other than projectile points. Single component Paleo deposits need to be excavated to quantify variations in raw material use. Locally available lithics such as SRC were probably used for certain purposes.

### Artifact Styles

Paleo peoples made a number of distinctive lanceolate shaped projectile points and blades. Whitehurst et al. (1989:Appendix B) illustrate one possible example from the Emmel collection. Floodman and Friedman (1986:21) report the occurrence of a Scottsbluff point from the Curtis Ones collection. In SHSND collections, there are the points collected by Hecker

(Schneider 1982). Private collections from the Souris displayed one day at Bottineau included several Agate Basin pieces, an eared Scottsbluff, a straight stemmed Scottsbluff, a Cody knife, an Eden, a Frederick, and other Parallel-Oblique Flaked forms. Miller (1992) documented Clovis, Folsom, Hell Gap/Agate Basin, Alberta, Scottsbluff, Eden, Plainview, Milnesand, Angostura, Frederick projectile points and a Cody knife, from Bottineau County, held in private collections (Table 11.8).

Sample sizes are potentially large enough here to enable a comparative study of Paleo point styles between the SU and surrounding areas to search for differences that could indicate cultural or temporal differences between peoples with the “same” artifact complexes. This is a special consideration for the Agate Basin type because there are indications that this complex persisted much longer in parkland ecotone between the boreal forest and grasslands than it did in the plains proper.

### Regional Interaction

One of the best indicators of regional interaction is the occurrence of artifacts made from non-local raw materials. Schneider (1982:Table 2) identified the lithic raw materials from which the Paleo points he documented in his statewide survey were made. Knife River flint was the most common material represented (77%) followed distantly by porcellanite (7%). A number of the specimens were made from nonlocal cherts and other materials that could not be sourced. The results of Miller’s (1992) study of private collections from Bottineau County resemble those of Schneider. That is, 82.4% of Miller’s (ibid.:29) assemblage was identified as KRF and the remainder comprised eight other material types, including Antelope Quarry chert (Table 11.8). Occurrences of non-local lithic materials suggest regional interaction or population movements to distant areas. Several such examples were represented in the collections that were viewed at Dakota College at Bottineau by Gregg in 1989. Arden Tagestad had an Agate Basin point made from a brownish-red chert, possibly Phosphoria chert from the Big Horn Mountains of Wyoming. A flake of similar chert was found in the Paleo deposits at the Benz site (32DU452) in the KRF quarry area (M. Gregg, personal observation). It is speculated that people with Agate Basin material culture interacted throughout the Northern Plains and into the boreal forest.

Any study of Paleo artifacts from the SU should include identification of the stone materials from which they were fashioned and consideration of the directions of regional interaction that are represented. Stylistic studies could yield information related to this topic.

### Historic Preservation Goals, Priorities, and Strategies

Collectors should be interviewed and the Hecker archival materials reviewed in order to get some of the Paleo sites and find spots recorded. Then, the locations should be studied with reference to the early Holocene landforms that attracted settlement and use (e.g., glacial lake beach ridges, river terraces, and valley overlooks). Settings with potential to hold Paleo sites should be given special attention in development planning processes.

## Plains Archaic Period

The Plains Archaic tradition which dominated the North Dakota cultural scene during the Early, Middle, and Late Plains Archaic periods was based on hunting and gathering adaptations, much like the preceding Paleo tradition, except the adaptations were to essentially modern resources.

## Paleo-Environmental Modeling

Climatic conditions in the Souris basin during the mid- to late Holocene when Plains Archaic lifeways dominated are characterized by three episodes, termed Atlantic, Sub-Boreal, and Sub-Atlantic. Arid, droughty conditions are thought to have prevailed during much of this time with brief, intervening episodes of a few tens of years or a few centuries of more favorable mesic conditions that would have favored biomass buildup and human settlement. Periods of more favorable conditions are thought to have been more numerous and frequent during the Sub-Boreal and Sub-Atlantic than during the Atlantic. It is posited that much of the fine-grained alluvial fill in the Des Lacs and Souris valleys was deposited during the Atlantic and Sub-Boreal (Whitehurst et al. 1989:173-174).

It is further hypothesized that the rate of valley infilling slowed down considerably during the Sub-Boreal episode. The basis for this proposition is the discovery of artifacts attributable to the Duncan complex on the surface of an alluvial fan along the edge of the Souris valley in Saskatchewan. If there are 3,800 year-old materials on the surface of an alluvial fan, that fan must have attained its essentially contemporary form by that time.

It would also be useful to know what differences there were, if any, in the species compositions of the grasslands of pre-Atlantic and post-Atlantic times. When range conditions were optimal, were the grazing conditions of the post-Atlantic grasslands better than those of pre-Atlantic times? How many years of drought did it take to impair grazing conditions to the extent that bison populations were adversely affected? Did the Souris River ever dry up completely? Were there times when there was no water whatsoever available in the SU?

## Cultural Chronology

It seems quite possible that much of the Souris basin may have been uninhabitable during most of the Atlantic and Sub-Boreal episodes due to severe drought conditions. This proposition appears to be supported by the lack of early, large side-notched points such as Simonsen and Hawken in regional collections. Efforts should be made to test this proposition and determine just how much Early Archaic settlement there actually was and the attributes of the climates under which such settlement occurred.

Any Archaic components that are encountered should be radiocarbon dated and described in detail. Results of radiocarbon dating have been reported for a couple of sites within the SRSU. A Late Paleo/Early Plains Archaic date (9700±120 BP) was obtained from a hearth remnant at 32WD1555 (Morrison 2001b:28). Date ranges of 3985-3830 BP to 1420-1300 BP at two Sigma were documented for 32MH94 (Stine et al. 2001:ii). Diagnostic artifacts recovered from the site

complement these results. The Oxbow occupation at the Oxbow Dam site in southeastern Saskatchewan is dated ca. 3250 BC (Wormington and Forbis 1965:49). Oxbow components at the Long Creek site, also in southeastern Saskatchewan, are dated ca. 2650 BC and 2700 BC (Wettlaufer 1960a:52, 59).

Pelican Lake and other unnamed Late Plains Archaic components should be relatively common in comparison to components from earlier cultures. This remains to be demonstrated. DiMv-93 in southeastern Saskatchewan is a stratified site on the Souris floodplain with Pelican Lake, Besant, and other cultural zones associated with paleosols (Finnigan 1988b:167-169). There should be similar sites on the North Dakota side of the international border (cf. Whitehurst et al. 1989).

### Settlement Behavior

Early Plains Archaic settlement practices are not well known. Floodman et al. (1985:106) documented an Oxbow component on a terrace along the Souris at 32RV3. During the Middle Plains Archaic period, occupational intensity appears to have increased based on the presence of larger numbers of McKean Lanceolate, Duncan, and Hanna points than earlier forms in private collections (Whitehurst et al. 1989:Appendix B). Late Plains Archaic forms such as Pelican Lake are even better represented. Middle and Late Plains Archaic groups appear to have used Souris basin territory on a fairly regular basis.

The range of settlement types expected to occur includes residential bases, temporary camps, and burial locations. Brink and Baldwin (1985) have reported preliminary findings concerning Late Plains Archaic burial modes to the northwest of the SU in the Canadian prairies. Some people with Pelican Lake material culture were apparently interred in shallow pits that were capped with cairns. This burial mode can be viewed as somewhat analogous to later Plains Woodland burial modes that involved capping grave pits with earthen mounds. However, the practice of capping interments of the remains of the deceased with rock piles continued from at least as early as Late Plains Archaic times into the Plains Village period in other parts of the state (cf. Gregg et al. 1983b). Hecker's archival documents state that cairn burials were common in the SU, although "nearly all [as of 1937] have been dug into or rifled by relic hunters" (State Archives, Series 226, Box 17). Data are missing for determining the ages of cairn burials, and a way should be found to date them.

### Native Subsistence Practices

Large ungulates such as bison were undoubtedly of major importance to the diet, although dogs may have played an important role as a supplemental and "storable" food item. It is beginning to appear that dogs may have been relied upon by numerous groups throughout the Plains as a form of storable food surplus (Gregg et al. 1987:486). Wild plant foods were surely gathered throughout the growing season with tuberous roots and berries stored for winter use. Ground stone manos and grinding slabs have been recovered from Late Plains Archaic contexts at the Mondrian Tree site (32MZ58) along the Missouri River south of the western end of the SU (cf. Toom 1983e:12.25-12.36).

In 1990 when the State Plan was originally published, there were no subsistence data pertaining to floral or faunal remains from any Plains Archaic sites in the SRSU. This is no longer the case as revealed through data recovery at 32MH94 (see Major Excavation Projects section above). There is still an emphasis on collecting hard data on floral and faunal remains found at Archaic sites in the SU. When Plains Archaic components are test excavated, some sort of fine-mesh waterscreen or flotation sampling should be performed for samples of non-feature matrix from Plains Archaic cultural zones in attempts to recover floral and faunal remains.

## Technologies

Plains Archaic peoples likely made use of a broad array of stone, bone, and shell raw materials as well as metal ores such as copper to fashion implements and ornaments. Throughout the Plains, stone is typically the best represented material in artifact assemblages from excavated Plains Archaic components of all periods. Sometimes, however, other materials dominate in certain functional artifact classes. For example, at the Ayers-Frazier Bison Trap Pelican Lake component in eastern Montana, excavated samples indicate more butchering was done with expediently fashioned bone tools than with stone tools (Clark and Wilson 1981). Clearly, when Plains Archaic components are excavated in the SU, bone remains should be closely examined for use-wear.

Copper artifacts do not appear with much regularity in Northern Plains components of any periods other than Late Archaic, Middle Woodland, and Plains Village. However, copper beads were recovered from the Pelican Lake component at the Mondrian Tree site (32MZ58) immediately south of the SU along the Missouri River (Toom 1983f), and copper materials should be expected in Late Plains Archaic components here. The question remains as to whether Archaic peoples here actually possessed metal working technologies or simply received finished objects by means of direct or indirect exchange with groups to the east in the Lake Superior region who were mining copper and fabricating copper ornaments and implements.

## Artifact Styles

Stone projectile points from the Des Lacs-Souris basin appear to span all of the Plains Archaic periods. However, early styles are poorly represented. There is one large side-notched form which may be Early Archaic in the Emmel collection (Whitehurst et al. 1989:Appendix B). Oxbow points are better represented (ibid.). Middle Archaic forms such as McKean Lanceolate, Duncan, and Hanna seem to occur even more frequently with Late Plains Archaic Pelican Lake and other corner-notched forms being most common.

The SU seems to be situated within the ranges of distribution of several different styles of corner-notched dart points. Many are referred to expediently and almost generically as "Pelican Lake." Syms (1980:364-365,370) made a distinction in southwestern Manitoba between two forms of corner-notched dart points, "Archaic Barbed" dating between 1200 and 100 BC and "Plains Middle Woodland Pelican Lake" dating between 400 BC and AD 800. He identified Archaic Barbed points as larger, shallow corner-notched forms, and the Pelican Lake points as smaller, with deep notches (1980:365). Plains Middle Woodland Pelican Lake points were reported by Wettlaufer (1960a) from the Long Creek site in the Souris basin just over the

international border into Saskatchewan. They are very thin and delicately made. They have straight to slightly incurvate sides, straight bases, and deep narrow corner notches which create sharply barbed shoulders on the blade element. Differentiating between styles of corner-notched points and accounting for the differences are significant research problems that sites in this SU should yield data to resolve.

## Regional Interaction

The Early Plains Archaic period in the Souris basin is so poorly known that there is not much of a database from which to even speculate about interactions of groups that lived during those times. The same is true for the Middle Plains Archaic period. However, the geographically broad distributions of distinctive point styles such as Simonsen, Hawken, Oxbow, Duncan, Hanna, and Pelican Lake point to extensive networks of human interaction. Regionally available lithic materials, specifically KRF and SRC, appear to predominate in collections of Archaic points from the Souris basin. But a greater reliance on local materials for stone toolmaking is not necessarily an indicator of diminished interaction. Just the opposite may in fact be the case. For example, Middle Woodland groups with Sonota and Besant material culture are renowned for their heavy use of KRF. That means they were quarrying and otherwise collecting KRF to a greater extent than most other peoples in prehistory. They had an abundance of this high grade trade commodity which facilitated increased, not decreased, exchange interactions during Middle Woodland times. This may also have been the case for some Archaic cultures.

During early historic times, there was very little travel east-west across the middle portion Souris basin: “The main trails used by the Métis and freemen bison hunters circled the area either by an arc along the southwest by way of Long Creek or along the north parallel to the Qu’Appelle Valley” (Russell 1989:51). Is there any archeological evidence in support of the proposition that east-west travel across the basin was avoided in prehistoric times?

## Historic Preservation Goals, Priorities, and Strategies

A major deficiency is the lack of descriptions of any Plains Archaic artifact assemblages from this SU. As a priority, there needs to be a determination of the geomorphic settings in which Plains Archaic site deposits can be expected to be discovered. Then, single component sites need to be identified and sampled by controlled hand excavations. The best opportunities for discovering such deposits of Middle and especially Late Archaic deposits will be along the Souris river where layers of late Holocene soils are detectable above river level in cutbank exposures.

Plains Archaic artifact samples could come from single component stone circle sites. Finnigan (1988b) noted that the average number of stone circles per site in his southeastern Saskatchewan Souris basin study area is about four. Figuring about eight people per stone circle, he concluded that four stone circles representing dwellings for 32 people was about right for a small band encampment. In other words, stone circle sites with just a few rings are more likely to represent single component encampments than are larger sites with more rings. Yet it is the larger ring sites that tend to be evaluated as significant and receive more attention when adverse effects need to be mitigated by excavation. It is hypothesized that there tend to be richer artifact

deposits at the larger ring sites because those sites were occupied a number of times, and additional artifacts enter archeological context with each succeeding occupation. But multiple occupations at stone circle sites do little more than obscure the deposition record of site use. The most valuable ring site deposits are those that can be attributed to a single component or occupation. Those sites tend to have low density artifact deposits, but those deposits have greater potential for yielding information concerning artifact content of specific cultural complexes.

### Plains Woodland Period

Plains Woodland adaptations likely shared many similarities with those of the preceding Plains Archaic. The period provides the first indications of lifeways which involved burial mound mortuary practices, some gardening, and the routine production of ceramic vessels for use in cooking. Plains Woodland times, like those of the Plains Archaic, are subdivided into Early, Middle, and Late periods.

### Paleo-Environmental Modeling

The climatic conditions of the Sub-Atlantic climatic episode of 1000 BC-AD 400 are thought to have been generally more mesic than the 1980s. Under such conditions, especially around 2,000 years ago, thick rich topsoils developed in many parts of the Northeastern Plains, and biomass should have increased significantly. Increased biomass and thus increased carrying capacity facilitated Middle Woodland population increase and cultural florescence. (There was an early Middle Woodland and a later Village florescence in the Northern Plains just as there was in the Midwest. The Midwestern developments are described by Robert Hall in his “Two Climax Model” of Midwestern prehistory [1980].)

There is a need to specifically document the hypothesized mesic conditions of the Sub-Atlantic in the Souris basin. The best prospects for this are at buried Middle Woodland sites associated with paleosols in alluvial and colluvial settings. The presence of deposits of this age has been documented along the Souris floodplain in Saskatchewan (Finnigan 1988b:167-169). Also in Saskatchewan, a detailed series of stratified, artifact-bearing sediments were revealed at the Long Creek and Mortlach sites by Wettlaufer (1960b:85).

Climatic changes are posited to have strongly influenced cultural developments in Late Woodland times with the onset of favorable mesic conditions of the Pacific II climatic episode around AD 1500. The Woodland-Plains Village “hybrid” Mortlach complex may represent expansion of Siouan-speaking peoples into a partially depopulated grasslands region at that time (Finnigan 1988b:201).

### Cultural Chronology

Any Plains Woodland cultural chronology for this SU must for now be based on chronologies for surrounding regions in combination with cross dating of surface collected materials. With the possible exception of material from testing at 32RV415 that was radiocarbon dated to 720±120 BP, there is a lack of data from excavations that can be used to build a chronology. Woodland pottery has been recovered from sites along the Souris River within the

United States (Fox 1982). Additionally, Middle and Late Woodland materials representing Besant, Sonota, Avonlea, Valley, and Blackduck occupations have been recovered from sites in Canadian portions of the basin (cf. Fox 1982; Syms 1977, 1980; Wettlaufer and Mayer-Oakes 1960). A priority should be to determine ways in which the Woodland chronology of the SU differs from the statewide chronology.

West-central North Dakota and southwestern Manitoba appear to be near the eastern edge of the geographic extent of the Avonlea complex. Avonlea components are present but uncommon in the Souris basin of southeastern Saskatchewan (Finnigan 1988b:199) and in the Garrison SU to the south (Schneider and Kinney 1978). Was occupation of the southern portion of the Souris basin by people with Avonlea material culture relatively light?

Radiocarbon dates from sites across the international border indicate an enduring Besant/Sonota presence in the basin. A radiocarbon date on a Besant bone bed at the Mullett site (DiMd-7) is 1310±100 BP (SRC 2826) or about AD 650 (Nicholson 1988b:32). The Besant occupation at the nearby Kain site is dated about 400 years earlier (Nicholson 1987:42).

Components with Prairie side-notched points and thick walled, often coarse pottery dating AD 800-1300 or so in the plains and parklands of southern Saskatchewan are attributable to the Old Women's phase (Meyer 1988). Meyer suggested that after AD 1300, while Old Women's persisted to the west in Alberta, it was displaced in southern Saskatchewan by the Selkirk and Mortlach complexes. If this is a feature of the chronology of southern Saskatchewan, it should hold for the lower Souris basin, and only Old Women's sites predating AD 1300 should be expected in northwestern North Dakota.

### Settlement Behavior

The occurrence of a few burial mounds in the SU should be an indication that at least some Woodland peoples used part or all of the southern part of the Souris basin as a core area. But burial mound sites do not appear to be at all common in either the North Dakota or Saskatchewan portions of the basin (cf. Finnigan 1986). The settlement behavior of these Plains Woodland groups can be expected to have been similar to that of neighboring populations with residential settlements principally on floodplain and low terrace terrain within the major river valleys. A buried Besant component was identified, at DiMv-93 along the Souris floodplain (Finnigan 1988b:167-169). Riverine bottomland Besant and Blackduck settlements are reported from the Coe site (DiMd-8) and the Mullett site (DiMd-7) along the Souris in nearby southwestern Manitoba (Nicholson 1988b:31-32).

Were there field camps out on the plains around pothole lakes and in valley rim settings as well as in the bottomlands? The Mad Dog site (DgMs-53) is a stone feature site with 48 rings and a cairn in a Souris valley overlook setting in southeastern Saskatchewan (Finnigan 1988b:69-74). Excavation of the cairn yielded fragmentary skeletal remains from bison, canids, fish, birds, and man. A radiocarbon of 1180±80 BP (S-2966) indicates an Avonlea or Old Women's component (ibid.).

## Native Subsistence Practices

Bison were hunted in the grasslands and prairie adjacent to the valley, and excavated sites in the Canadian portions of the basin provide no exceptions to the generalization that bison remains are typically the most abundant faunal remains in Plains Woodland refuse deposits (cf. Nicholson 1988b:32). A variety of greens, roots, shoots, fruits, and nuts would have been available seasonally throughout the entirety of the SU. When Woodland components are excavated, it should be a priority to attempt to identify floral remains from the deposits that may relate to subsistence practices.

## Technologies

Several reports to date discuss Northern Plains Early Woodland ceramics, including the Naze site (32SN246) south of Jamestown, North Dakota, (Swenson 1987) and possibly Bed H of the Lockport site north of Winnipeg (Brian Lenius, personal communication to M. Gregg, April 1988), there is no reason not to expect the beginnings of ceramic technological experimentation in the SRSU in the first several centuries before the origins of Besant/Sonota. Middle Woodland ceramics are represented by Besant/Sonota sherds from the Buffalo Lodge Lake and Towner localities near the Souris in McHenry County (Wood 1962). A globular straight rimmed, cord roughened, undecorated Late Woodland vessel was reported from near Crosby in Divide County, also by Wood (1959). Information is lacking about ceramic and other technological developments through the Woodland periods in the Souris basin. Thorough technological descriptions should be part of any report concerning Woodland ceramics (cf. Johnson 1985; Whitehurst et al. 1989:129-154).

## Artifact Styles

Distinctive large and small side-notched dart point/cutting tools classifiable as Besant, Samantha, and Avonlea occur in local collections (Whitehurst et al. 1989:Appendix B). Middle Plains Woodland ceramics attributable to Besant/Sonota should be recognized when additional archeological investigations are carried out.

Small side-notched Avonlea points mark the time of transition from the exclusive use of atlatl weaponry to the introduction of the bow and arrow during the early part of the Late Woodland period. Whitehurst et al. (1989:57; Appendix B) reported the occurrence of Avonlea points in both private collections and from their own surface work at 32RV208 along the upper Souris.

Johnson (1986) noted the ceramic diversity present in a small sample of pottery from the upper Souris basin. Among the possible geographical influences represented are Blackduck from the east and Mortlach to the north and west. She does not believe (1985:244) that Sandy Lake ware is present as suggested by Fox (1982:100). Comparative materials seem to be sparse for some of the Woodland ceramics that have been recovered. Test excavations through a buried cultural zone at 32RV415 produced net impressed pottery and materials that were radiocarbon dated 720 BP±120 (Floodman and Friedman 1986:550). The presence of net impressed ceramics on time level of about AD 1250 indicates influences emanating from the parklands and boreal

forest to the north where such ceramics were more common. What are the sources of stylistic influence seen in Woodland artifact assemblages from the Souris basin?

### Regional Interaction

During Middle Plains Woodland times, the pace and expanse of intersocietal exchange grew to include much of the midcontinent. Middle Woodland Besant and Sonata groups were participants in this process. The extent of involvement by Souris basin populations remains to be determined.

In Late Woodland times, and extending to historic contact, native groups in the SU appear to have been in increasing contact with neighboring populations. Evidence to support this thesis includes the incidence of (1) nonlocal or exotic materials in archeological collections dating to this period and (2) blends of ceramic stylistic and technological attributes from different regional cultures. For example, Mortlach ceramics display a mix of Plains Village and Woodland attributes (Johnson 1977:47-48; Joyes 1973:83; Schneider and Kinney 1978:33-36; Syms 1977:125-126; Wettlaufer 1955:19-22). Selkirk traits from the north and northeast on Mortlach pottery are smoothed exterior fabric impressions, cord-wrapped tool impressed decorations on the lip, and a single row of punctates around the rim exterior (Meyer 1988:62). Old Women's traits from the northwest include the occasional sharply angular and decorated shoulders (ibid.).

### Historic Preservation Goals, Priorities, and Strategies

One of the primary historic preservation goals should be directed toward the recording and stewardship of burial mounds which likely remain at a few places along the valley rim of the Souris and its major tributaries. Franke (1975:3-4) reported the destruction of one earthen mound by vandals. While mounds are apparently less common in the southern portion of the Souris basin in the grasslands than in the northern portion in the ecotonal parklands, the few that remain should be preserved. Existing aerial photo collections and LiDAR data covering upland rims overlooking the Souris Basin could be studied for indications of earthen mound features. Follow-up informant interviews with property owners coupled with on-the-ground survey could generate information on mound sites that should be protected. Sometimes property owners are interested in collaborating with historic preservationists in stewardship pacts for such sites (e.g., the Anderson Earthworks site along the James River, south of Jamestown, and the Evans site in the Garrison SU).

Perhaps the majority of the stone circle sites in the Souris basin are Plains Woodland manifestations classifiable as Sonota/Besant, Laurel, Avonlea, Blackduck, or Mortlach. Stone circle sites are probably the most common feature type in the basin as shown by the site file data from North Dakota and survey data from Saskatchewan (Finnigan 1986:142). The Hecker archival materials in the State Archives are full of information regarding stone circle sites. This information should be studied for the insights it contains which would enhance understandings and treatments of such sites.

## Plains Village Period

The Plains Village tradition, which was the dominant lifeway of the Plains Village period, is suggested to have arisen in the southern portions of the Northeastern Plains perhaps as early as AD 950. It endured until the late 1800s along the Missouri River in western North Dakota. Plains Village influences should have been felt in the Souris basin from AD 1050 or so into the late 1800s.

## Paleo-Environmental Modeling

Several dramatic environmental changes are thought to have occurred in the SU during the time of Plains Village influence and occupation. These changes have been documented primarily in areas to the south and remain to be demonstrated for the Souris basin. The expansion northward of horticultural Villagers and Village lifeways corresponded with a time of moister climatic conditions that fostered garden crop productivity. There are hints that peoples in the basin adopted Village lifeways early in the Plains Village period from sites such as Lovstrom in Manitoba based on Nicholson's work out of Brandon University. At the onset of the Pacific climatic episode around AD 1250, droughts may have caused some depopulation of southern Saskatchewan (and the SU). Some Villagers may have abandoned horticulture and taken up mobile, bison hunting lifeways at that time (Finnigan 1988b:201). By AD 1600 or so, climatic conditions may have shifted again and made Village gardening lifeways possible once more. Paleo-climatic studies should be part of all excavation strategies, especially involving Plains Village sites.

## Cultural Chronology

The Plains Village cultural chronology employed here is based upon developments recognized in the Garrison region and the Upper Knife-Heart region of the Middle Missouri subarea located south of the Souris basin. Ancestral populations of the Hidatsa and Mandan were living in semi-permanent villages along the Missouri by AD 1200 (Ahler 1988a:Table 8; Ahler 2003a). Formative Village culture was developing along the Missouri River as early as about AD 950, probably from a Late Plains Woodland base. The Late Woodland base is poorly known, but it may have involved peoples who made Blackduck ceramics. There are sites with these ceramics in the Souris basin (e.g., Nicholson 1988b:31), and immediate pre-Village cultures should have been utilizing the SU.

Also, it will be interesting to see the extent to which the detailed chronology of the upper Knife-Heart region of the Middle Missouri subarea can be applied in areas to the north. At times when Missouri River Villagers held sway over vast territories, the Knife-Heart chronology may be of great utility for dating Village components in the SU. For the most part, components in the SU may present a blend of cultural elements derived from the Villagers and Woodland peoples to the north. Thus Des Lacs-Souris prehistory should profit from the development of its own chronology. In southeastern Saskatchewan, archeologists have done chronological modeling by application of the Northwestern Plains model of Early, Middle, and Late Prehistoric periods, and supplementing with many of the named complexes identified in the North Dakota statewide model (e.g., Finnigan 1988b).

A priority is to excavate and radiocarbon date intact Plains Village components. Such deposits have rarely been documented along the Souris, but one was identified at 32RV429 by Floodman and Friedman (1986:551) where the Plains Village cultural zone lies between earlier and later cultural zones. It is Johnson's appraisal that ceramics from 32RV429 bear close similarities to Extended Middle Missouri wares, with one specimen specifically classifiable as Fort Yates ware (1985:240).

### Settlement Behavior

Discoveries of ceramics with attributes similar to Extended Middle Missouri Fort Yates ware and Riggs ware suggest the possibility of early Plains Village occupations in the SRSU (Floodman and Friedman 1986; Whitehurst et al. 1989) as well as in more northerly portions of the Souris basin (e.g., Finnigan 1986:26). Plains Villagers undoubtedly crossed expanses of the Des Lacs-Souris basin while hunting, gathering, and trading. Temporary hunting camps and other briefly occupied types of settlements ought to be common in the basin. The actual range of Plains Village site types needs to be defined. Are the petroforms and rock-lined depressions of the southern Souris attributable to Plains Village cultures as they are in the upper James River valley (cf. Finnigan 1986:146 vis Wheeler 1963)?

### Native Subsistence Practices

Some seasonal movements of bison from the aspen parklands southward into the plains grasslands may have attracted Plains Villagers to sometimes exploit the resources of the SU on a seasonal basis. DhMs-12 in the Souris basin of southeastern Saskatchewan is a bison kill and processing site with check stamped "Middle Missouri influenced" pottery (Finnigan and Klimko 1987:186-189). Very high densities of potsherds, stone tools, flaking debris, and fire-cracked rock (FCR) in addition to bone fragments reflect intensive use of the site by a Plains Village or Plains Village "influenced" group. It will take more work to determine if the site occupants were locals or visitors. Are there any distinguishing features of Plains Village subsistence resource procurement or processing activity areas in the Souris basin?

### Technologies

Prior to Euro-American contact, Plains Village groups employed a broad range of technologies to produce tools, implements, facilities, and structures. Stone, ceramic, bone, and shell materials, among others, served to fashion the material culture of the lifeway (cf. Gilman and Schneider 1987). There is an abundance of comparative data concerning Plains Village technologies from archeological, ethnohistoric, and ethnographic studies of Missouri Valley Villagers. Were there any technological resources in the Souris basin that were of particular importance to Missouri Valley-based Villagers?

### Artifact Style

Diagnostic artifact styles have been identified in Plains Village core areas in the Middle Missouri subarea and more southerly portions of the Northeastern Plains. Prominent among these are a variety of ceramic wares and types (cf. Craig Johnson 1980; Michlovic and Swenson 1998).

Some of these wares and types may be represented at sites in the SU, but the type definitions are so poorly understood that students of Souris basin prehistory typically refer to sherd samples as having “traits resembling” or “attributes similar to” Middle Missouri or Coalescent ceramics. There is a need to identify actual types and wares having distributions from the Middle Missouri and Northeastern Plains subareas into the SU. Johnson (1985) was able to do just this with a collection from 32RV429. She determined that the collection as a whole bore close similarities to Extended Middle Missouri ceramics, and one specimen in particular was classifiable as Fort Yates ware (ibid.:240). With analyses of this sort, it will be possible to differentiate specific Plains Village complexes or phases that are prominent in the archeological record of the Souris basin from complexes and phases for which only occasional traits are represented.

Smooth surfaced sherds from 32RV212 and 32RV229 (Whitehurst et al. 1989:151) with trailed line and tool impressed decorations appear to be attributable to the Northeastern Plains Village complex. Such ceramics are to be expected here because of proximity to Devils Lake-Sourisford mortuary sites where miniature versions of these ceramics are typically found (cf. Swenson and Gregg 1988). These ceramics need to be described in detail and compared with samples of Buchanan Flared Rim ware (Michlovic and Swenson 1998) from sites in the James, Sheyenne, and Red River valleys.

Small, well-made, straight-sided triangular projectile points with deep side notches set up off the base typify the Plains side-notched type in many regional collections. This type-style is a positive indicator of components dating to the Plains Village period (Kehoe 1966). Another possibly diagnostic Plains Village chipped stone tool is the long, thin bifacially prepared unilateral cutting tool that was often hafted in a bison rib handle (cf. Lehmer 1971:73). Nicholson (1988b) has illustrated knives of this sort from the Johnas site (DkMd-11) north of the Assiniboine River in Manitoba, and if the distribution of this style extends that far northward, it is surely represented at Plains Village sites and at contemporary Late Woodland sites along the Souris River.

### Regional Interaction

The Hidatsas and Mandans are descendants of Plains Village groups who had a long history of participating in an intertribal exchange network which encompassed the Northern Plains and adjacent areas (cf. Wood 1972, 1980). Nonlocal stones such as obsidian from sources in the Rocky Mountains and red catlinite pipestone from quarries in southwestern Minnesota were among the durable materials that were exchanged. Some of those durable exotic goods were eventually deposited at sites in the SU. When non-local materials are identified in Plains Village components, those materials should be assessed for their information potential with regard to the topic of regional interaction.

Sometimes non-Plains Village objects are found which are known to date to the Plains Village period, but which may have entered archeological context through the hands of either Plains Village or Plains Woodland peoples. Several exotic shell “gorget-faces” with incised “weeping eye” decorations have been found in the southwestern Manitoba portion of the basin (Syms 1988). These pieces were probably made by people who lived along the Gulf of Mexico and had access to whelk shells that were large enough from which to fashion masks. The

interaction networks of people in the SU linked them with these people in the Southeast. Lippincott (2015) provides an updated summary of marine shell mask gorgets. Any apparently non-local materials from Plains Village deposits ought to be sourced with an eye toward improving understanding of Plains Village exchange relations and the sources from which cultural influences were emanating.

The allure of Euro-American trade goods during protohistoric times lured Plains Village trading parties to travel from the Missouri Valley northward through the Souris basin to fur trade posts along the Assiniboine River in Manitoba. The southernmost portion of the Souris Loop lies less than 40 miles from the northeastern-most reach of the Missouri River in McLean County. Explorations for sites along the Indian trails documented by Hecker on his township maps on file in the State Archives should yield evidence of temporarily occupied sites used by small groups of Villagers. Some of the trails led to trading post locations on the US side of the international boundary. Hecker mentions that the area around the former location of a Hudson's Bay Company trading post along the river in McHenry County "yields, along with the artifacts of early occupation, the relics of the various tribes who came to trade, the relics of the Indian employees of the fur traders, and...trade goods such as beads, pipes, gun flints, brass buttons, jewelry, knives, copper and steel tools, weapons, etc." (State Archives, Series 226, Box 17).

#### Historic Preservation Goals, Priorities, and Strategies

There ought to be ways to differentiate between the archeological deposits of (1) resident Plains Village groups, (2) nonresident Villagers who were in the Souris basin, on a temporary basis, and (3) resident and nonresident groups whose material culture represents a mix of Village and Woodland traits. This is certainly not a simple problem. Even in the upper Knife-Heart Region where the most intensive Plains Village archeology here has been conducted, it has usually been impossible to differentiate the archeological remains of the specific tribal groups.

A priority ought to be to sample several stratified sites that have Plains Village deposits in the sequences and begin to develop a Plains Village chronology for the Souris region of the Northeastern Plains subarea. A second priority should be to identify specific Middle Missouri and Coalescent ceramic wares and types that occur in the Souris basin so as to be able to distinguish between them and other wares and types that may have been locally produced. Several stratified sites along the banks of the Souris should be identified, and the richest ones in eroding bank areas should be sampled by controlled excavation.

#### Equestrian/Fur Trade Period

Equestrian lifeways were late developments on the Northern Plains spanning the dawn of recorded history. Horses were probably rare to nonexistent in the SU until sometime during AD 1725-1750.

#### Paleo-Environmental Modeling

Paleo-climatologically, this was the Neo-Boreal episode or "Little Ice Age." Neo-Boreal conditions are posited to have led to a build-up of the regional biomass, most notably the all-

important bison herds (Reher and Prison 1980). Regarding this research topic, it is a top priority to actually document the conditions of the lower Souris basin during this time and demonstrate there were significant increases in bison. Evidence for cool and mesic climatic conditions may come from analyses of climatically sensitive microfauna such as land snails from site deposits contained within Neo-Boreal age topsoils. Dendrochronometric data presented in Vanstone (2012) suggests periods of low river flow in the AD 1810s, 1830s, and 1860s. These events may indicate xeric conditions during certain episodes of the 19<sup>th</sup> century.

## Cultural Chronology

The only named archeological unit of the Equestrian tradition of protohistoric time is the One Gun complex. It is usually considered to have a distribution extending as far eastward as the Souris basin. However, some Equestrian peoples ought to have had core territories somewhere within the Souris basin. The protohistoric Assiniboine are the best candidates (cf. Denig 1961). A high priority is to identify a regional complex based on excavation of sites which yield evidence of this lifeway. Inventory and test excavations at protohistoric sites in the vicinity of fur trade posts would seem to be a good place to start.

## Settlement Behavior

Equestrian peoples may not have been any more mobile in a qualitative sense than pre-horse hunting and gathering peoples. But quantitatively, horse-mounted groups were capable of moving much greater distances to establish new residential bases. They could also range further away from residential bases and field camps to hunt, gather, trade, and conduct warfare. Many stone circle sites were surely occupied by these peoples (cf. Fox 1980:20), but without the recovery of diagnostic historic era artifacts such as gun flints, glass beads, or actual horse bones, it is difficult to unequivocally attribute stone feature sites to the Equestrian tradition. What are the different ways by which Equestrian period sites can be identified?

Some of the most recent burial locations are likely mortuary sites of regional Equestrian peoples. Such burials do (or did) exist in the US portion of the Souris basin. However, Hecker noted that by 1937, “the tree burials, the platform burials, and the surface burials that were cribbed with sticks or logs [and thus inferred to have been no more than a few hundred years old] have all disappeared” (State Archives, Series 226, Box 17).

## Native Subsistence Practices

The subsistence practices of Equestrian hunter-gatherer populations were directed mainly to bison hunting as were those of hunter-gatherers during the prior thousands of years. Various prairie flora, especially tuberous roots, were important components of the diet as well. Also, mobile peoples traditionally traveled to the stockaded villages of the Mandans and Hidatsas to exchange their products of the hunt for garden produce. In order to have meat and hides to trade, they killed and processed more bison meat and hides than they needed for themselves.

For this context it is a high priority to identify reliable samples of subsistence remains from Equestrian period sites. Of course, one first needs to identify those sites and select those

with meaningful samples of subsistence remains. While it may be easier to identify Equestrian sites from amongst the relatively common upland stone circle sites, preservation of subsistence remains is notoriously poor at such sites where organic artifacts on the surface are especially susceptible to decomposition. Chances are best at bottomland sites where subsistence remains may have been buried and protected against decomposition by caps of flood deposited sediments.

## Technologies

During the protohistoric period, implements that were products of existing native technologies were pitted against those of European derived technologies. The European goods could be gotten by engaging in the fur and hide trades. In the process, aspects of native material culture were often replaced with more durable metal trade goods which resulted in changing technologies (cf. Ahler 1988, 1993; Toom 1979). Sometimes, this process also entailed the refabrication of glass and soft metal trade goods (or fragments thereof) into implements and objects of native design (cf. Hanson 1975). How much technological change took place in native cultures in the Souris basin during AD 1780-1880?

## Artifact Styles

Distinctive artifact styles for Equestrian period groups are not well known. One possible source of information would be renderings of various ethnic or tribal groups and individuals by early artists such as Karl Bodmer and George Catlin. An examination of these works may help identify more specific design motifs or modes of ornamentation which may be used to determine ethnicity in the archeological record.

Another source of information may be existing historic records which document the flow of trade goods from various fur trade establishments on the upper Souris and Assiniboine rivers just north of the SU (cf. Ray and Freeman 1978).

## Regional Interaction

The movement of goods, ideas, and people through the Des Lacs-Souris basin had been going on for thousands of years by the dawn of historic times. Ethnohistoric and ethnographic accounts indicate that numerous travel routes cut across the Souris basin between the Missouri and Assiniboine rivers. The locations of the trails that were traveled can be relocated on the ground by using maps compiled by the original land surveyors supplemented by the maps and notes of Hecker. Hecker in 1937 wrote that the actual trails “except for a few rods in scattered localities have all been obliterated” (State Archives, Series 226, Box 17). Top priorities for this historic context would be to prepare a complete map of the trails of the Souris basin from the original land survey records in combination with a thorough review of the Hecker archival materials.

## Historic Preservation Goals, Priorities, and Strategies

A priority ought to be to intensively survey the area of the confluence of the Wintering River and the Souris River in McHenry County for protohistoric period sites. This was a

rendezvous and trade area for men who brought trade goods westward from the Great Lakes. They wintered and traded in this area and returned to the Great Lakes country the following summer (State Archives, Series 226, Box 17). There ought to be an abundance of Indian sites of this era in this Wintering River confluence locality. A sample of these sites ought to be formally tested in order to collect materials for defining the material characteristics of a regional Equestrian period complex for the southern Souris basin.