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16-The Indian and the Prairie: Prehistoric and Early Historic Utilization of Native Grassland Environments in Kalamazoo County) Michigan, with Emphasis on Gourd-Neck Prairie in Schoolcraft Township. Project No. S85-212

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DEPARTMENT OF ANTHROPOLOGY
WESTERN MICHIGAN UNIVERSITY

ARCHAEOLOGICAL REPORT NO. 16
1986

THE INDIAN AND THE PRAIRIE: PREHISTORIC AND EARLY HISTORIC
UTILIZATION OF NATIVE GRASSLAND ENVIRONMENTS IN KALAMAZOO COUNTY,
MICHIGAN, WITH EMPHASIS ON GOURD-NECK PRAIRIE IN SCHOOLCRAFT TOWNSHIP.
PROJECT NO. S85-212

A REPORT OF RESEARCH CONDUCTED BY WESTERN MICHIGAN
UNIVERSITY, KALAMAZOO, MICHIGAN, UNDER THE DIRECTION OF
DR. WILLIAM M. CREMIN, WITH THE ASSISTANCE OF MR. DAVID
DE FANT AND MR. CONRAD KAUFMAN, BETWEEN 20 MAY-4 JUN 85.

ACKNOWLEDGEMENTS

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The authors wish to express their appreciation to Mr. Conrad Kaufman, the third member of the field party, and to the residents of the Gourd-Neck Prairie study area who so willingly gave of their time and in other ways assisted us in collecting information about archaeological resources in the research area.

ABSTRACT

With grant support from the National Park Service, Department of the Interior, administered by the Bureau of History, Michigan Department of State, a team of archaeologists from Western Michigan University has undertaken a program of fieldwork (with appropriate literature search and review of the documents) to identify archaeological sites and ascertain the nature of the activity conducted from them in an attempt to explain the nature of the relationship between the native inhabitants of Kalamazoo County and the former grassland environments that occurred here.

A review of the relevant literature prior to initiating a program of survey on Gourd-Neck Prairie in southern Kalamazoo County during Spring 1985, strongly suggested that contact period village sites and prehistoric works including mounds, earthen enclosures, and garden beds were associated with the former prairies in the county. However, reconnaissance level survey work undertaken in 1979 on Gull and Toland's prairies by teams of experienced surveyors had resulted in confirmation of a single previously recorded site and the discovery of no new sites; albeit surveyors systematically evaluated more than 5.4 km² of farmland affording excellent conditions of surface visibility.

Before concluding that the documents provided by early American residents were inaccurate or incorrect, a more vigorous test of the hypothesis that Indians intensively occupied the prairies prior to American settlement of the county was required. Gourd-Neck Prairie in Schoolcraft Township (T4S R11W) was selected for several reasons:

(1) the prairie is reported to have encompassed slightly more than 10 km², making a target of 100% surveyor coverage attainable with a small field party and a brief period in which to accomplish the fieldwork; (2) the personnel participating in the project were already familiar with the area, having established important landowner and collector contacts during the 1982 and 1984 field seasons; and (3) the former prairie was now characterized by extensive commercial farming operations, providing for anticipated surface visibility that would be excellent for a program of research employing surface reconnaissance procedures to record archaeological observations.

During a two week period in Spring 1985, a team of three surveyors evaluated 818 ha (2022 acres) or 81% of the area formerly supporting prairie vegetation. In addition, we surveyed 319 ha (788 acres) in adjacent areas that formerly supported oak savanna and bur oak openings. Fourteen new sites were recorded, and four previously recorded sites were revisited during the course of fieldwork. Of the new sites, six occur on the prairie and eight are located near creeks or standing bodies of water to the north, east, and south of the former native grassland. Similarly, all previously recorded sites lie between the prairie and Portage Creek and the north shore of Barton Lake on the southeast margin of Gourd-Neck Prairie.

Our analysis of these data suggests that sites occurring on the former prairie represent very task specific or limited activity loci (e.g. the loss of a projectile during an episode of hunting), with the more intensively occupied settlements being situated in oak savanna and bur oak openings affording greater access to resources (e.g. wood)

deemed critical to support a camp or village and also closer proximity to nearby, resource rich wetlands and the lakes and streams that they flanked.

Clearly, our research to date strongly suggests that the historical documents must be more critically evaluated before recording locations referenced in them as bona fide archaeological sites providing distributional information useful in better understanding settlement patterns (and subsistence practices) of the native inhabitants of Kalamazoo County, Michigan.

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SECTION I: INTRODUCTION TO KALAMAZOO COUNTY, MICHIGAN

Encompassing approximately 1468 km² of land area, the County of Kalamazoo is the second county east of the Lake Michigan shoreline in the second tier of counties north of the Michigan-Indiana state line. It is bordered on the north by Allegan and Barry, on the east by Calhoun, on the south by St. Joseph, and on the west by Van Buren County.

Topography, Drainage, and Presettlement Vegetation

Located in what Peters (1969) has called "Inner Michigan", the land surface of Kalamazoo County exhibits the characteristics of a generally level landscape. However, upon closer inspection, it is revealed that elevation ranges from 222 m above sea level where the Kalamazoo River exits the county on the north to 312 m ASL in Oshtemo Township, providing for overall relief of 90 m, and that there are present in the county four distinct geomorphic features formed through the complex action of glacial ice--moraines, till plains, outwash plains, and ponded areas (Austin 1979).

Two modest belts of moraines, typified by hilly or knoblike features alternating with pothole depressions, can be distinguished; one is in the northwestern part of the county, commencing near the northern border of Cooper Township and extending in a southwesterly direction as far as the western limits of Texas Township, and the second in eastern Kalamazoo County, where a ridgelike feature takes form in Charleston Township and reaches for a short distance to the

south, terminating near the Village of Scotts in Climax Township. Till plains, with their characteristic undulating surface, are a prominent feature of the landscape only in the southeastern part of the county, while nearly level outwash plains are the dominant landscape feature throughout. Poned areas, mainly concentrated along the old glacial spillway or meltwater channel now occupied by the Kalamazoo River, also have restricted occurrences in the Township of Pavilion in the south central part and in Alamo Township in the extreme northwestern corner of the county (Austin 1979).

The Kalamazoo River, from which the county takes its name, rises near the Jackson-Hillsdale county line in south central Lower Michigan. Flowing from its source in a generally westerly direction, the river enters Kalamazoo County from the east at a point about 6.5 km south of the northeastern corner of the county. Upon reaching the City of Kalamazoo, the river makes a bend to the north and exits the county just west of the midpoint on the northern county line. The northern two-thirds of the county are drained by the Kalamazoo and its major tributaries, including Augusta Creek, Gull Lake Outlet, Portage Creek, and Spring Brook, while the remaining one-third lies in the watershed of the St. Joseph River and is drained by numerous south-flowing branches of this stream, most notably Portage River and its tributaries, Big Portage, Little Portage, and Bear creeks (Austin 1979; Durant 1880).

Standing bodies of water occur throughout the county, excepting for the till plains region in the southeastern part, and comprise an estimated 40 km² of surface area. Most notable among the county's

Takes (together with their approximate size) are: Gull (809 ha); Austin (526 ha); Indian (283 ha); Long (247 ha); Barton (162 ha); Gourd-Neck (150 ha); Eagle (142 ha); and West (121 ha)(Durant 1880: 57).

Following Durant (1880) and Hodler et al. (1981), the following plant communities can be identified in the county at the time of American settlement:

1. Upland Associations

The climax forest where mesic conditions prevailed was the beech-sugar maple association, aggregating an estimated 348 km² (24.4%) of land area. Characterized by the strong dominance of these two species, this forest also contained small numbers of basswood, ironwood, white ash, tulip poplar, bitternut hickory, and shagbark hickory.

Xeric uplands supported vegetation in which the oak tree was everywhere dominant. In total, the county's varied oak associations covered an estimated 819 km² (57.4%). Bur oak openings featured scattered but often pure stands of the bur oak and few other trees. Typically, this community bordered dry prairies, and the recorded tree density of from 1-15 mature trees per acre indicates a very open canopy. The understory was very sparse, if even extant, and ground cover consisted of herbaceous species similar to those of the adjacent prairies.

Oak savanna, similarly supporting from 1-15 mature trees/acre, can be differentiated from the aforementioned association by the strong dominance of the white oak. Yellow oak was second in abundance, with the black oak, bur oak, pignut hickory, and shagbark hickory present in small numbers.

Most prevalent of the hardwood associations in the county was oak (oak-hickory) forest. While the dominance of the white oak and general species composition are characteristics shared with oak savanna, oak forest can be distinguished by its much greater tree density, resulting in a more closed canopy, and the notable addition of the red oak.

2. Bottomland Associations

Wetland communities of all kinds comprise 175 km² (12.2%) of the presettlement vegetation. Major river floodplains in the county were densely timbered with forests in which American elm or slippery elm, silver maple, and red maple dominated. Less abundant in the canopy were the water tolerant cottonwood, sycamore, and black willow, where bottoms were frequently inundated, and hackberry, honey locust, and black maple. Drier sites on river floodplains, however, were notable for patches of beech-sugar maple forest.

A variation of this floodplain association occurred on wetlands located away from major river bottoms. Here occurred the so-called swamp forest, dominated by the American elm or slippery elm and red maple, but with small numbers of black gum occurring throughout. Minor species shared by both wetland forest associations included swamp white oak, butternut, black walnut, and green ash.

Wetland communities referred to in the documents as swamp, marsh, or bog supported vegetation representing stages in the succession from open bog or fen to forest. These included swamps dominated by tamarack, white pine, or black ash, cat-tail and bulrush marshes, sedge meadows, and mosaics including elements of the above associations together with thickets of dogwood, willow,

and alder.

3. Prairie

Dry prairie remnants or isolates numbered eight (or nine, if Coguaiack Prairie near Augusta in Charleston Township is added) at the time of American settlement, ranging in size from 121 ha to 53 km² and aggregating about 85 km² (6.0%) of the Kalamazoo County landscape. Prairies occurred on nearly level plains, often the highest land in a particular locale, and they were characterized by fewer than one mature tree per acre and a vegetative cover consisting of grasses and forbs. The dominant species were of the genus Andropogon; specifically big bluestem and little bluestem or wiregrass. This plant community will be presented in more detail in the following section of this report.

Previous Archaeological Research in the County

The most recent printout (Run #37, 22 Nov 85) from the Bureau of History, Michigan Department of State lists 235 archaeological sites in Kalamazoo County, not including those recorded during the Gourd-Neck Prairie Archaeological Survey project and reported herein. Of this number, 108 sites are, on the basis of information available, designated simply as "prehistoric". Information derived from a number of privately owned collections or acquired through survey (and in 10 cases, test excavation) from the remaining 127 sites reveals that a minimum of 185 prehistoric and historic components are present. The breakdown by cultural stage is as follows:

Paleo-Indian	- 9	Early Woodland	- 3
Archaic	-22	Middle Woodland	- 9
Early Archaic	- 3	Late Woodland	-16

Middle Archaic	- 0	Upper Mississippian	- 1
Late Archaic	-25	Early Historic (Indian)	- 8
Woodland	-50	Late Historic (American)	-39

The 235 previously recorded sites are rather evenly distributed between the two major drainage systems, with 123 (52.3%) occurring in the Kalamazoo River Basin and 112 (47.7%) being located in that portion of the county drained by the St. Joseph River. However, before attaching too much significance to this observation, it must be reiterated that the Kalamazoo River drains more than twice as much land area in the county as the St. Joseph River and, secondly, that current survey coverage in the county favors the Kalamazoo River Basin by a ratio of almost 5:1. This latter consideration will be more fully discussed below.

The sources for these site data (and the number of sites contributed by each) include:

1. historical documents (50 sites; 21.3%)
2. landowner/collector interviews (28 sites; 11.9%)
3. compliance projects, including both survey and excavation programs (28 sites; 11.9%); and
4. site files compiled as part of Western Michigan University's long-term program of archaeological research in southwestern Michigan, including this county (129 sites; 54.9%).

This last source, the WMU site files, illustrates the importance of a regional research design and the implementation of systematic survey procedures for both the recovery and interpretation of site distributional information. Since 1979, the senior author and his associates (Cremin, Hoxie, and Marek 1979; Cremin, Stout, and Murphy 1982; and Cremin, De Fant, and Adams 1984) have surveyed almost 42 km² of the

Kalamazoo County landscape, recording all but five of the 129 sites contributed by this source. Data on site size, site density, and occupational intensity, together with information permitting the correlation of site location decision-making with certain ecological variables, have enabled us to make some meaningful statements about prehistoric land use patterns (e.g. see Cremin 1981) and formulate hypotheses by which sites in the two drainages can be compared and these data, in turn, compared with data sets from elsewhere in southwestern Michigan.

For example, while the implications of the following comparisons remain to be fully analyzed, we regard it as potentially quite significant that the data set collected along Portage River near Indian Lake in 1982 shows sites in this portion of the St. Joseph drainage to be almost four times as large on the average as the mean site size calculated for the Kalamazoo Basin Survey sites. Moreover, the number of sites recorded per km² surveyed (i.e. site density) in the 1982 study area is almost five times greater than the site density recorded for two transects across the Kalamazoo River in the northern portion of the county (Cremin 1981; Cremin, Stout, and Murphy 1982: 26). Clearly, that more sites are currently recorded for the Kalamazoo River Basin in this county may be regarded as a reflection of greater archaeological activity in this area than in that portion of the county drained by the St. Joseph River. A major objective of our current and future research in the county is to address this imbalance and seek to correct for it.

SECTION II: THE INDIAN AND THE PRAIRIE

Within a short time of his arrival at WMU in 1975, the senior author became acquainted with certain documents that hinted at a

special relationship between Kalamazoo County's native residents and the dry prairies which constituted but a minor portion of the natural landscape of the county at the time of American settlement. In addition to frequent references to the locations of favored campsites and villages on the prairies during the first two decades of American presence in the county, there were also numerous comments regarding "mounds, earthworks, and garden beds" associated with the prairies; phenomena about which the current Indians, when questioned, seemed to have little or no knowledge. Thus, early American settlers of the county concluded that their "beautiful grasslands" must have held great appeal for the prehistoric occupants of the area as well.

In this section of the report, we will briefly examine the native prairie environment, summarize references to the presence of both prehistoric and historic Indian sites on the prairies, and review WMU's earlier efforts to systematically evaluate the prairie environment for its archaeological resource potential.

The Dry Prairie

As previously noted, eight prairies, ranging in size from 121 ha to 53 km² and aggregating about 85 km² (6.0%) of the Kalamazoo County landscape, are frequently mentioned in the documents. These (together with their approximate land area) are:

<u>Name</u>	<u>Area (ha)</u>
Prairie Ronde	-5,261
Gull	-1,133
Gourd-Neck	-1,012
Climax	- 324
Grand	- 324
Toland's	- 202

Genesee	- 162
Dry	- 121
	<hr/>
	8,539

(after Durant 1880:58)

A ninth prairie, Coguaiack, near Augusta in Charleston Township, while delineated in Hodler et al. (1981), remains problematic given the documents and, especially, current soils data compiled by the USDA-Soil Conservation Service (Austin 1979). And the area known as "Indian Fields" in Portage Township, although the site of a major village and planting ground in the early 19th century, was clearly by all accounts not the former location of a dry prairie.

Prairies in Kalamazoo County typically occupied nearly level plains elevated about the surrounding area and were characterized by fewer than one mature tree per acre and a ground cover of grasses and forbs. According to Veatch (1928), who cites an eminent botanist of the last century, the following species comprised the vegetation of Michigan's dry prairies:

Grasses

<u>Andropogon gerardi</u>	-big bluestem
<u>Andropogon scoparius</u>	-little bluestem or wiregrass
<u>Bouteloua curtipendula</u>	-tall grama-grass
<u>Elymus</u> spp.	-wild rye
<u>Triodia flava</u>	-tall red-top

Forbs

<u>Amorpha canescens</u>	-lead-plant
<u>Asclepias verticillata</u>	-milkweed
<u>Baptisia leucantha</u>	-prairie false indigo
<u>Coreopsis palmata</u>	-tickweed

<u>Echinacea pallida</u>	-prairie cone-flower
<u>Filipendula rubra</u>	-queen-of-the-prairie
<u>Helianthus rigidus</u>	-prairie sunflower
<u>Phlox bifida</u>	-cleft phlox
<u>Silphium terebinthinaceum</u>	-prairie-dock
<u>Viola pedatifida</u>	-prairie violet

Since the plant species listed above no longer comprise a recognizable community on the landscape of the county, verifying the former locations of dry prairies has rested with reconstructions of presettlement vegetation based upon the original Government Land Office Survey fieldnotes and plats (Brewer 1979; Hodler et al. 1981). However, it is also noteworthy that soil scientists have established a strong correlation between the present distribution of soils of the Schoolcraft Series and former dry prairies.

Schoolcraft soils are found on nearly level to gently rolling uplands (with slopes ranging from 0-6%) and are formed in glacial outwash. They are well drained loams overlying sand and gravel, and because they formerly supported prairie vegetation they have a much darker colored surface layer (0-30 cm) than soils in surrounding areas. Interestingly, these soils are reported to comprise about 75 km² in those areas where six prairies formerly occurred; the remaining two areas of prairie have been dramatically altered by urban expansion and are now mapped by soil scientists as "Urban Land". If we consider only the land area formerly assigned to the six prairies that remain primarily in agricultural land use, the total is estimated at about 81 km². This figure compares quite favorably with the 75 km² mapped as Schoolcraft soils, especially when we consider that the prairies, as delineated more than 150

years ago, included within their limits occasional small, irregular areas that would not have supported prairie vegetation (e.g. pothole depressions with their characteristic wetland plant associations). These are recognized by the soil scientist and mapped according to their own soil type (e.g. the Houghton or Sebewa Series soils of ponded areas), certainly contributing to the modest difference in land area recorded for former dry prairies and Schoolcraft Series soils (Austin 1979).

Prehistoric and Historic Indian Sites on the Prairies as Recorded in the Documents

The historical record of Kalamazoo County commences with the explorations of French missionaries who, in the late 17th century, crossed the county while searching for a land route from Fort St. Joseph near Niles, Michigan to Detroit. Their diaries and journals depict dense hardwood forests interspersed with a few grass meadows, the latter being the locations where the Indians resided.

In addition to these early references to an Indian presence on the prairies, the comments of the earliest permanent American settlers entering the county in the late 1820s bear witness to the remains of the area's prehistoric residents in the form of earthen mounds, banked enclosures, and garden beds on the prairies. There follow some selected references to these prehistoric and historic phenomena:

1. Prairie Ronde

Many documents describe a series of sites for this native grassland, including the Village of Sagamaw (20KZ1) where, according to Durant (1880: 435, 444, 446), there resided 250 Potowatomi and Ottawa Indians in 40 lodges. This village was located near the

northwest corner of the prairie, with fields and two burial grounds nearby. Durant notes that John and Robert Nesbitt came to the prairie in 1829-1830 and purchased land that had long been cultivated by the Indians in Section 9 of Prairie Ronde Township (T4S R12W) and, furthermore, that in the orchard of George Nesbitt in Section 3 there was a burial ground (20KZ2), with a second being located about 40 rods to the west.

E.J. Stevens' (1923) Archaeological Map of Kalamazoo County, Michigan and the map on page 4 in W.B. Hinsdale's (1931)

Archaeological Atlas of Michigan reference these same sites, but with respect to the former source it is perhaps noteworthy that Stevens has placed the village site in the center of Section 3 just north of the line between Sections 3 and 10 and the two burial grounds in the northeast corner of Section 9 to the south and west of the village. Hinsdale's placement appears to follow that of Stevens.

From the Government Land Office Survey fieldnotes and plats prepared by John Mullett on 29 Nov 1825 and William Brookfield on 7 Apr 1827, it is possible to place Sagamaw's Village even more precisely. These surveyors noted that the "Indian Village of Prairie Ronde" "bears N 84 links and W about 2 1/2 miles" from the quarter section post on the east side of Section 12 of Prairie Ronde Township, or just north of the center of Section 10. This would place the site on the very edge of the prairie (Fig. 1).

Both Stevens and Hinsdale document the "indefinite" location of an earthwork (horseshoe enclosure; 20KZ3) in the northwest corner of Section 15 in Prairie Ronde Township as well as the garden beds (20KZ49) near the northeast corner of the prairie

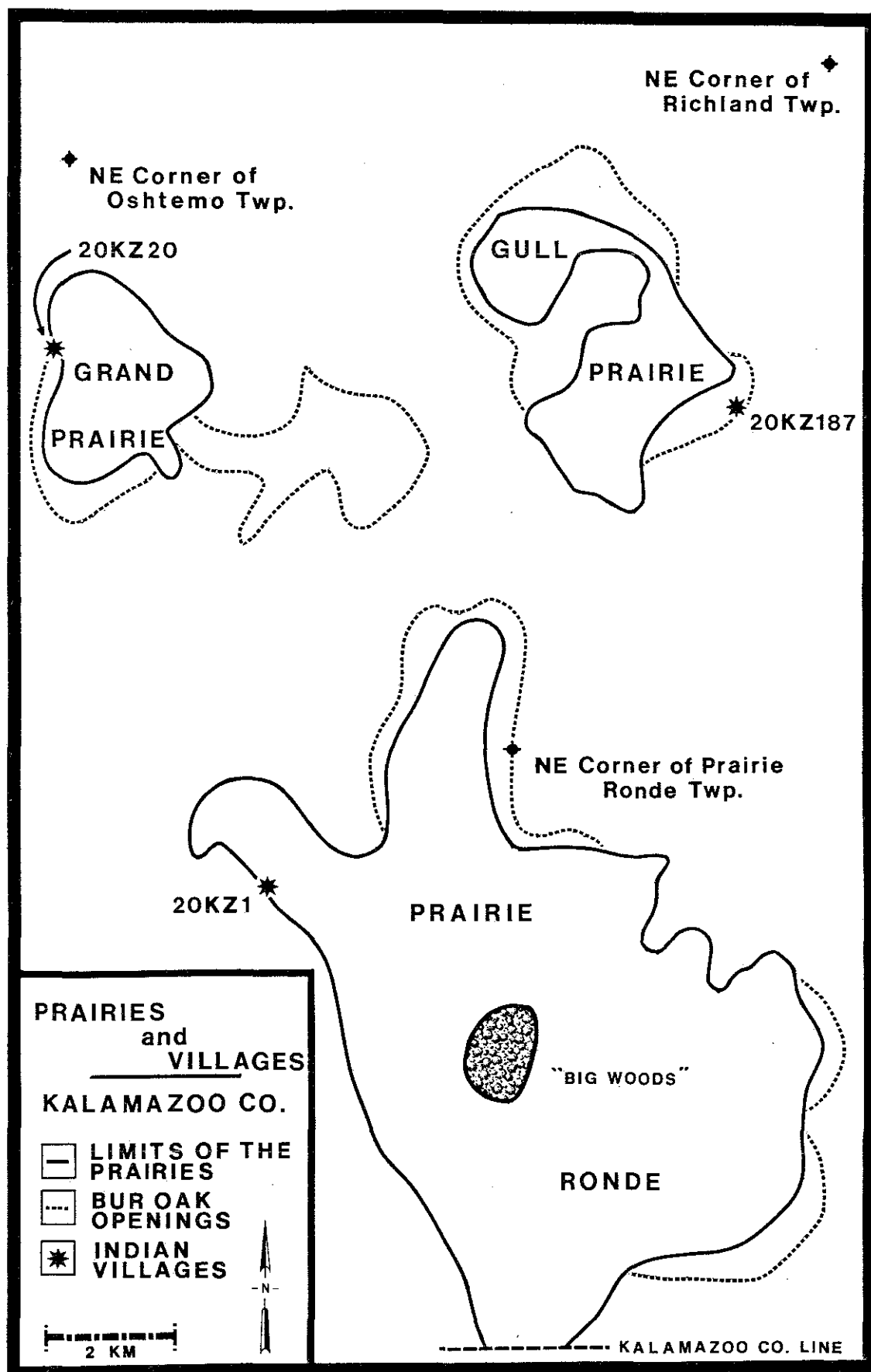


Figure 1.

in Sections 7 and 8 of Schoolcraft Township (T4S R11W).

According to Durant (1880: 69):

On the farm of J.T. Cobb, section 7, town of Schoolcraft, the beds were quite numerous as late as 1860. There must have been fifteen acres of them on his land. The sets' would average five or six beds each. Neighbors put the number of acres covered with them in 1830, within the space of a mile, at one hundred.

2. Gull Prairie

In May 1830, the first party of American settlers reached this prairie in northern Kalamazoo County. They were met by Indians who guided them to their village (20KZ187) on the east side of the prairie, where the settlers camped for the night. According to Durant (1880: 76, 468), the village consisted of 50 lodges of Potowatomi Indians who were at that time settled on the land in Section 24 of Richland Township (T1S R10W) where Mr. Giddings would later erect his long house. The Giddings property in the NE 1/4 of Section 23 and W 1/2, SW 1/4 of Section 24 is said to have comprised 120 acres of prairie and 120 acres of bur oak openings.

Henry Little (cited in McKean et al. 1981: 102), a lifelong resident of the area and an authority on ancient works and Indian lifeways, later recalled this village on the edge of the prairie, noting that it had featured a "great council hall". The structure measured 9.2 m long by 4.9 m wide and stood 4.6 m high, and it was the place of "solemn convocations, and ... upon great state occasions the great dignitaries of the land poured forth their torrents of burning eloquence".

A final documentary reference to this village site is to be found in a letter by Mrs. C.M. Little. Entitled "Early Life in

the Settlement", this recollection appeared in the Kalamazoo Daily Telegraph on 26 Aug 1881 and included a note about the Indian village and burial ground on the Rockwell May Farm adjoining the Giddings property in Section 24.

Again, the GLO survey fieldnotes and plats provide a very precise location for an Indian community that would appear to represent the location of this large village in 1830. In 1826, John Mullett placed a quarter section post "in an Indian town containing 7 houses" while establishing the line between Sections 23 and 24 in the southeast corner of the township. Referencing surveyor comments regarding vegetation along the lines in this portion of the township, it is quite apparent that the location in question was in bur oak openings flanking Gull Prairie on the southeast side (Fig. 1).

References to prehistoric phenomena on or near Gull Prairie include: (1) garden beds (20KZ188) on the edge of the prairie among the trees about one mile east of the Village of Richland. According to Henry Little (1874), the beds were laid out side by side, with the longest dimension oriented east-west. They were about 6 m long by 1.8 m wide and separated from one another by a 30 cm wide, deeply indented trench, and perfectly flat with a number of large old trees growing on and among them. Both Stevens (1923) and Hinsdale (1931) show these same beds, but provide locations that vary somewhat from Little's account; (2) one or two mounds (20KZ24) on the south side of Gull Prairie are illustrated in Stevens (1923) and Hinsdale (1931), but they note the location to be either "indefinite" or "vague"; and (3) two mounds in the northeast corner of Section 15 (20KZ23) and

four mounds a few rods to the west in the northwest corner of Section 14 (20KZ22) are referenced in Durant (1880: 468), Little (1874), McKean et al. (1981: 103), and Stevens (1923). These represent questionable burial mounds, as nothing was ever reported as being found in them when they were leveled. But in the case of the latter group there exists a collection of artifacts from the property where they formerly stood that supports, among others, a Middle Woodland Hopewell temporal placement for the Gull Prairie 1 site (Cremin and Clark 1983). Importantly, these mounds were not situated on the prairie, but rather stood in the bur oak opening beneath the narrow neck connecting the two main bodies of Gull Prairie.

3. Gourd-Neck Prairie

A concerted effort to locate references to archaeological sites on this grassland has yielded negative results. However, a brief comment regarding a visit by Dr. N.M. Thomas to the home of William Hunt on Section 22 of Schoolcraft Township (T4S R11W) in May 1830 indicates that the wigwams of Sagamaw and Tauwaw were pitched near the south side of this prairie at the time of his visit (Durant 1880: 506).

Following the removal of Sagamaw's people from their village on the northwest corner of Prairie Ronde to the Nottawaseepee Reservation (embracing the eastern portion of Gourd-Neck Prairie) in 1833-1834, this group is reported to have taken up residence near this prairie where the American settlers had broken up 80 acres for them to farm. According to A.H. Scott (cited in Durant 1880: 302), Sagamaw's people in June 1833 resided in "a small village or collection of wigwams in the grove just east of the

prairie, on the farm now owned by James N. Neasmith, Esq." Today, the property in question is well known to us, and the grove where the Indians had their village in 1833 is now part of the holdings of the Simpson Paper Company of Vicksburg, Michigan. During WMU's testing of the Simpson Paper Company site (20KZ226) in 1984, excavators recovered a gun flint of British or French manufacture from the plow zone immediately overlying Feature 10. In 1986, the WMU archaeological field school will return to this site in an effort to ascertain whether this clearly multicomponent site may have included among its residents the band of Chief Sagamaw. Our current understanding of 20KZ226 is summarized in the section where we present information on previously recorded sites in the Gourd-Neck Prairie study area.

4. Climax Prairie

This native grassland formerly occupied 324 ha in Sections 25, 26, 34, 35, and 36 in Charleston Township (T2S R9W) and Sections 1, 2, and 3 in Climax Township (T3S R9W), and it is associated with the greatest number of prehistoric sites of any prairie in the county; albeit none has been confirmed by professional archaeologists. No fewer than 13 numbers in the state site files have been assigned to garden beds, mounds, and earthworks reported by early settlers residing on and near the prairie. Three burial mounds are shown by Stevens (1923) and Hinsdale (1931) on and near Climax Prairie, with Hinsdale (1931) locating a fourth to the northwest of the prairie near the north end of Portage Lake. Five garden beds (Willow Plains, 20KZ35; Stephen Eldred, 20KZ36; D. Lawrence, 20KZ33; Climax

Prairie, 20KZ39; and T.B. Eldred, 20KZ40) are referenced and/or illustrated in Durant (1880: 325), Stevens (1923), and Hinsdale (1931). Finally, two earthworks or enclosures are recorded as simply a circular enclosure (20KZ5) or Climax Prairie Earthwork 1 (20KZ34) and Climax Prairie Earthwork 2 (20KZ38).

These last sites, while illustrated on the Stevens Map and on the map on page 4 in the Hinsdale Atlas, are presented in considerably more detail in Durant (1880: 325) and, especially, Hodgman (1905: 29-30). According to the former County Surveyor, Frank Hodgman, 20KZ38 was known to local residents as the "Old Fort". It was located on the crest of a knoll in the southwest part of the Village of Climax, in the SE 1/4 of Section 3. The knoll was at the time of American settlement of the prairie covered with large oaks, but as late as the 1880s it was still possible to discern that the summit of the knoll was surrounded by a ditch 60-90 cm deep and 3 m or more wide, with the earth from this excavation banked up on the sides of the ditch. He further describes the "Old Fort" as forming "a perfect ellipse, or oval enclosing 1 3/10 acres of the summit of the hill. Its major axis pointed N 30° E. Its greatest diameter is 330 feet and the lesser diameter 210 feet" (Hodgman 1905: 30).

A similar but smaller fort was formerly located near the center of the NE 1/4 of Section 1. Here, a circular embankment 60 cm high enclosed an area of 0.1-0.2 ha. According to Durant (1880: 325), there was no ditch, but at intervals along the embankment there were pits from which the earth for it had been taken.

Unfortunately, our review of the historical documents has not produced a single reference indicating Indian occupation of Climax Prairie at the time of American settlement.

5. Grand Prairie

This prairie, located on the line between Oshtemo (T2S R12W) and Kalamazoo (T2S R11W) townships, was occupied by Indians when the first American settler, Benjamin Drake, took up his claim in 1830. Durant (1880: 409) states that when Drake arrived on the NE 1/4 of Section 13 in Oshtemo Township, there were three Indian villages located nearby, with the largest being on his farm and consisting of 300 Potowatomis. Corn hills were observed everywhere, attesting to the nature of their activity while residing on Grand Prairie.

This general location was visited in June 1835 by a party from the Town of Bronson that included among its numbers a Mrs. Jacob Hudson. She commented on an Indian camp located in a clump of shrubbery among the bur oaks on the west side of the prairie where:

squaws were cooking a dish of salmagundi; three Indians were lounging near a wigwam; half a dozen papooses were rocking to and fro in their hammocks swung from some scrub oaks--several others strapped in their birchen cradles (to make their limbs grow straight), were placed upright by the wigwams.... Some of the Indian girls were beading mocassins, others were braiding mats of corn husks and making baskets....It is a romantic spot, vines eglantine, wild plums, thorn, and grape vines interlaced. Here is the prettiest Indian burial ground I have ever seen (Hudson 1880: part 8).

A very precise location for this or another village occupied by Indians is provided by George W. Harrison, who in December 1829 surveyed the east-west line between Sections 12 and 13 of Oshtemo Township. At a distance of 68 chains east of the

corner of Sections 11, 12, 13, and 14, he entered an Indian settlement consisting of perhaps 16 houses at that point where thick woodlands gave way to prairie. This village is probably 20KZ20 (Fig. 1), and it was situated on the trail from Carey Mission to the Grand River Mission where the trail left the woods and entered Grand Prairie from the southwest.

The burial ground mentioned by Mrs. Hudson during her visit to the aforementioned Indian encampment in 1835 may be the mound site depicted by Hinsdale (1931) and recorded with the state as 20KZ21. However, from her remarks it is not possible to ascertain whether this was a cemetery or burial mound(s). Nor does the location she visited and the placement of the mound site in the Hinsdale Atlas correspond especially well. Be that as it may, this possibly Woodland period mound is the only clearly prehistoric site recorded for the area that includes this prairie.

6. Toland's Prairie

According to several residents of the Galesburg area (G. Torrey, cited in Durant 1880: 57; Turner 1911: 572), there was an Indian village on this prairie in 1830 and it was here, according to tradition, that the name "Kalamazoo" had its origin. While no recorded site is associated with this historic Indian settlement, it is perhaps significant that the map published by Stevens (1923) shows a village just south of the line separating Sections 14 and 23.

According to Durant (1880: 69), a burial mound was formerly located on the Tuttle Farm in the E 1/2, SW 1/4 of Section 13, Comstock Township (T2S R10W). The Tuttle Mound (20KZ18) is

described as having been small and circular in form, 75 cm in height and 7.5 m in diameter. This feature is also depicted on the Stevens Map of 1923 and in the Hinsdale Atlas published in 1931. Unfortunately, whether this mound contained human remains and/or cultural material is not known.

On the farm established by William Toland in Section 13 in 1829, were five acres of garden beds in the form of parallelograms, circles, and triangles (Durant 1880: 69). Identified in the state site files as 20KZ43, the Toland Garden Beds site is also shown by Stevens (1923) and Hinsdale (1931).

A second set of garden beds, located near where the prairie approached the Kalamazoo River from the north in Section 23, is illustrated in Hinsdale (1931). Recorded as the Roswell Ransom Garden Beds site (20KZ70), it is situated between the river and the location given by Stevens (1923) for the previously mentioned Indian village in the center of the N 1/2, N 1/2 of Section 23.

7. Genesee Prairie

No explicit references to prehistoric or historic Indian sites have been found in the documents relating to this prairie, albeit one of the "stray" garden beds shown by Hinsdale (1931) appears to correspond with the eastern arm of this prairie where it extended from Section 36 of Oshtemo Township into Section 31 of Kalamazoo Township.

8. Dry Prairie

Only a single reference (Donahue 1970) to a possible garden beds site has been found for this very small prairie in the northwest corner of Portage Township (T3S R11W). According to an article

written by James Donahue and appearing in the Kalamazoo Gazette on 19 Apr 70, Bela Hubbard received in 1873 a letter from Mr. E.S. Moore of Three Rivers regarding a trip he made by horseback across some garden beds on his way to Kalamazoo.

I recollect in an early day in traveling to Kalamazoo that when we got on to those beds they were so prominent as to check all speed of the horse and on that account took some pains to notice them....They covered perhaps 10 to 15 acres of land, were laid out regularly from 4 to 6 feet wide and many of them 10 to 15 and 20 feet long. They were so marked that no man would pass the place without giving attention to them.

While Moore's assignment of these beds to the area known as Dry Prairie may indeed be correct, several points require that this location be carefully considered prior to recording the site with the state. First, none of the early residents of Dry Prairie mentions garden beds in the neighborhood of his claim. Secondly, assuming that early travelers from Three Rivers to Kalamazoo followed the long established Indian trail linking these communities, it is noteworthy that this route of travel would have brought a party of horsemen across the northeast corner of Prairie Ronde some 11 km due south of Dry Prairie and very near to the farm of J.T. Cobb in Section 7 of Schoolcraft Township. Here, as we noted earlier, were sets of garden beds that were still numerous and visible as late as 1860. And as Durant (1880: 69) stated, "there must have been fifteen acres of them on his land....(and) neighbors put the number of acres covered by them in 1830, within the space of a mile, at one hundred".

Previous Archaeological Research on the Prairies of Kalamazoo County, Michigan

The only prior systematic survey work on the dry prairies of this county was undertaken by the senior author and his associates (Cremin, Hoxie, and Marek 1979) during the Kalamazoo Basin Survey program in 1979. In that year, two cross-valley transects, one north of Kalamazoo and the second to the east of the city, were established so as to encompass portions of Gull Prairie in Richland Township and Toland's Prairie in Comstock Township, respectively.

Transect 1979A was surveyed by a five person team under the supervision of R. David Hoxie. Of 39.5 km^2 included in the stratified random sample of quarter-sections targeted for intensive reconnaissance level survey, 22.2 km^2 were evaluated. This total included 478 ha, or 42.2% of the land area assigned to Gull Prairie. Although surveyors gained access to large contiguous land holdings where surface visibility was typically very good to excellent, not a single new site was discovered and recorded! In fact, only three prehistoric sites, including two findspots and a lithic scatter of limited spatial extent, were located within a distance of 1.5 km of Gull Prairie. Furthermore, surveyors were unable to confirm any of those previously known sites listed in the prior discussion of this dry prairie; albeit they frequently left the transect to seek out such sites, confirm their existence, and evaluate their current status or condition.

In Transect 1979B, the five person team led by Jean Marek experienced coverage problems relating to the absence of extensive tracts of land affording good surface visibility. Here, typically small and discontinuous parcels of farmland resulted in coverage

of only 11.7 km², or 35.4% of the 33 km² of land area included within the stratified random sample of quarter-sections in our research universe.

Included in the surveyed portion of Transect B were four parcels of land on what was formerly Toland's Prairie. Coverage of this native grassland aggregated 65 ha, or 32% of the estimate given in the literature for the prairie near Galesburg, Michigan. While surveyors failed to locate any new sites, a lithic scatter was observed to occur a short distance north of the Kalamazoo River in the W 1/2, NE 1/4 of Section 23. This site would appear to correspond with the location given in the documents for the Roswell Ransom Garden Beds (20KZ70).

SECTION III: THE GOURD-NECK PRAIRIE ARCHAEOLOGICAL SURVEY

This project was conceived following WMU's 1984 field season, during which the archaeological field school, under the direction of the senior author, undertook to: (1) survey several areas of shoreline along Barton Lake on the southeast side of Gourd-Neck Prairie; and (2) conduct test excavations at the potentially significant Simpson Paper Company site (20KZ226) which is located on a prominent bluff overlooking the wetlands flanking the course of Portage Creek just before it enters Barton Lake from the north.

More specifically, the GNPAS was initiated to test the proposition, derived mainly from the documents, that dry prairie environments (and their adjacent bur oak openings) held considerable attraction for both prehistoric and historic Indians of the county, as reflected in their decisions to locate main habitation areas and/or special purpose sites such as earthworks and mortuary sites

(i.e. burial mounds, burial grounds or cemeteries) on or adjacent to these native grasslands. Although, on the basis of previous forays into areas of dry prairie by experienced survey teams in 1979, the hypothesis derived from the historical documents seemed not to "hold water", without a more adequate test of this proposition it would be premature to ignore the numerous references to a strong Indian presence on the prairies of Kalamazoo County.

Gourd-Neck Prairie in southern Kalamazoo County was selected for the proposed test of the aforementioned hypothesis for several good reasons. First, WMU personnel were already quite familiar with this area, inasmuch as archaeological field schools had been held in the Vicksburg area in 1982 and 1984. We had also established potentially valuable landowner and collector contacts in the course of our fieldwork in the area. Secondly, Gourd-Neck Prairie was reportedly of a size that a target of 100% surveyor coverage by a small field crew over a period of several weeks was potentially an attainable goal. Finally, the area formerly supporting prairie vegetation was now characterized by extensive commercial farming operations throughout, providing for anticipated surface visibility that would be excellent for a program of research employing reconnaissance level survey procedures to record archaeological data.

The fieldwork accomplished and described below was undertaken in 10 field days between 20 May and 4 Jun 85 by the authors and Mr. Conrad Kaufman, with grant support from the National Park Service, U.S. Department of the Interior as administered by the Bureau of History, Michigan Department of State and with matching funds being provided by the grant recipient, Western Michigan University.

The Gourd-Neck Prairie Setting

The area formerly known as Gourd-Neck Prairie lies entirely within the Township of Schoolcraft (T4S R11W) in southern Kalamazoo County and is today characterized by intensive agricultural activity (Fig. 2). Having a gourd-like shape or configuration, with the bulbous or basal end pointing north, and aggregating slightly in excess of 10 km², it includes all or portions of Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, and 27. Together with adjacent areas formerly supporting oak savanna and bur oak openings, the land area included in our research universe totals about 12 km² of this township.

As delineated in Fig. 3, the prairie is today divided into quadrants by Portage Road and VW Avenue, with the intersection of the two approximating the geographical center of the prairie. An elevation of 258 m above sea level is recorded for this intersection, and elevations across the length and breadth of the former native grassland do not generally deviate from this elevation by more than about 3 m in either direction. Exceptions are the small potholes that dot this landscape and the large area of depressional topography that intrudes into the E 1/2 of Section 14. Here, the lowest elevation (249 m ASL) recorded for our study area occurs.

Figure 3 illustrates the approximate configuration of the prairie as derived from the GLO survey fieldnotes and plats and the present distribution of Schoolcraft Series soils (Austin 1979). Moreover, it shows that Gourd-Neck Prairie is virtually surrounded by standing bodies of water, streams, and the low wetlands that are drained by these creeks.

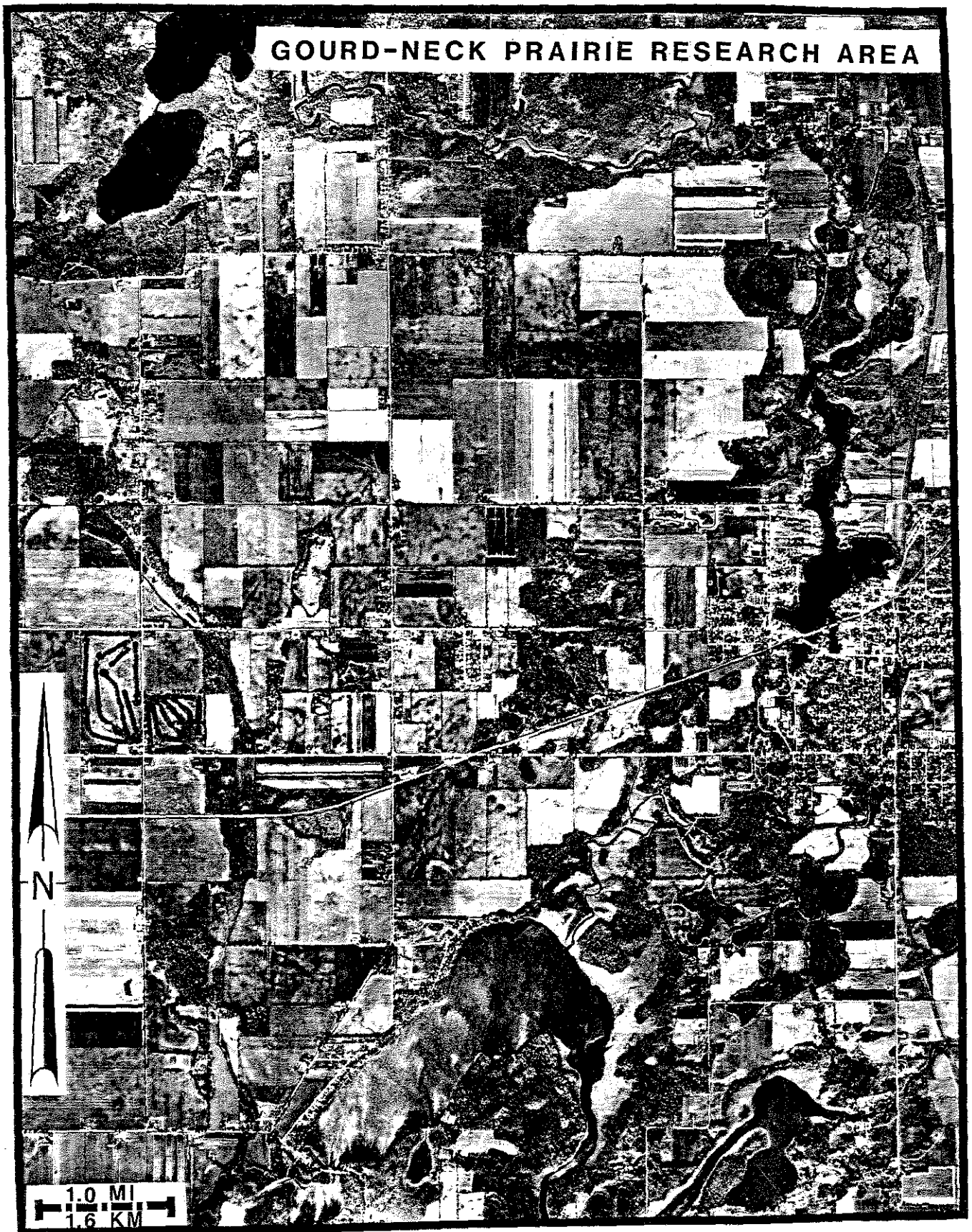


Figure 2.

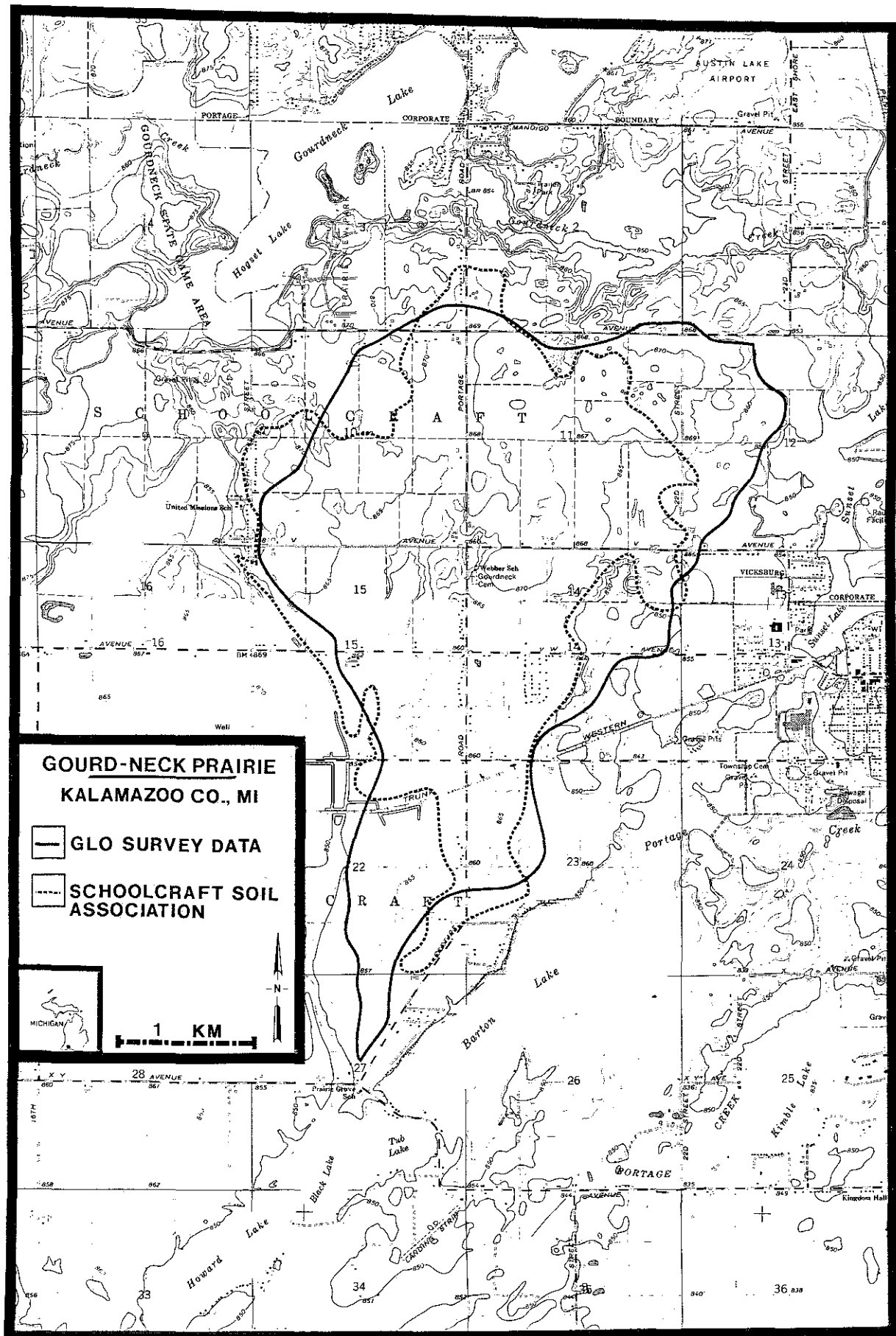


Figure 3.

On the northwest corner of the prairie are Hogset and Gourd-Neck lakes. They drain by means of Gourd-Neck Creek, which exits the lake of the same name in the NE 1/4 of Section 3 and flows in an easterly direction across Sections 2 and 1 just to the north of the prairie. In the SE 1/4 of Section 1, this stream is joined by the south flowing Austin Lake Outlet, and from their confluence the creek continues in a southerly direction along the east side of the prairie to eventually enter Sunset Lake; the old mill pond created by a dam erected in the Village of Vicksburg about 150 years ago.

The stream exits this lake as Portage Creek, flowing first in a southerly and then westerly direction to approach to within 1 km. of the prairie in the NE 1/4 of Section 23. Here, it is joined by a small unnamed stream draining the large depression in the E 1/2 of Section 14, after which Portage Creek enters Barton Lake near the center of the SE 1/4 of Section 23.

Barton Lake, together with Howard, Black, and Tub lakes, and their adjacent wetlands, mark the terminus of the prairie on the south. They are drained by Portage Creek as it exits Barton Lake in the NE 1/4 of Section 26. From here the creek's course is generally east and south, until it exits the county about 6 km southeast on the prairie on the line between Sections 31 and 32 of Brady Township (T4S R10W).

The western margin of the prairie follows the course of a small unnamed stream that drains an extensive wetland occupying the SE 1/4 of Section 9. From its source this stream flows in a generally southerly direction until it enters Black Lake at a point about 600 m south of the tip of Gourd-Neck Prairie near the center of Section 27.

It would appear that this small stream drainage is all that separated Gourd-Neck Prairie from its larger neighbor, Prairie Ronde, to the west. Were it not for the intervention of this water course, the two prairies would have in all probability formed one continuous expanse of native grassland in southern Kalamazoo County.

Previous Research in the Study Area

Although no prior archaeological research has been undertaken on Gourd-Neck Prairie, the WMU archaeological field school in 1984 did conduct limited site survey along Barton Lake and Portage Creek in Section 23, revisiting the previously recorded Barton Lake site (20KZ182) and locating three new sites (20KZ225, 226, and 227) in the process (Fig. 4). In addition, limited test excavations were undertaken on 20KZ226, the Simpson Paper Company site.

The aforementioned sites were again visited during the 1985 GNPAS project, enabling us to report that their status remains unchanged from that noted in the previous year (Cremin, De Fant, and Adams 1984). In this section we will provide a brief description of each, referring the reader to the previously cited source for the complete inventory of cultural material recovered from the four sites.

20KZ182

The Barton Lake site is located in the oak savanna zone flanking Gourd-Neck Prairie in the center of the E 1/2, NE 1/4, SW 1/4 of Section 23, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61911 466224). The size of the site is not known, but it occupies the edge of the bluff overlooking the north end of Barton Lake and is reported to exhibit a very substantial Middle Woodland component as well as a Late Woodland occupation. Unfortunately, this possibly very important site was destroyed in the spring of 1983 in an effort to curb erosion of the bluff into the lake. Individuals who were present during the bulldozing of the drainage basin and excavation of standpipe wells reported the discovery of numerous artifacts and the exposure of cultural features; all of which are now gone! Our examination of the margins of the drainage basin in 1984 and again in 1985 revealed nothing more than a few flakes of chert--none of which is diagnostic.

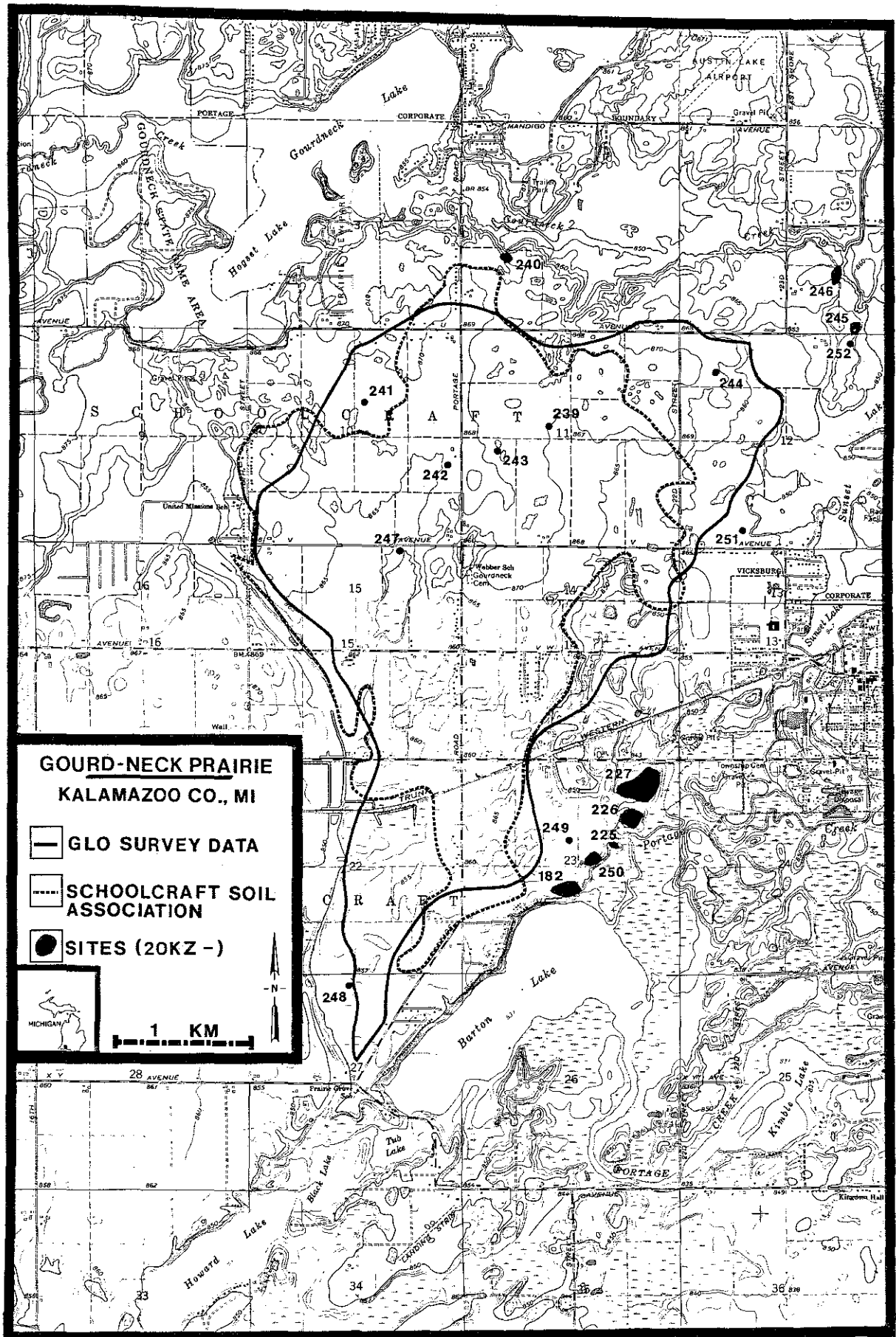


Figure 4.

20KZ225

The Scratch site is located in a heavily wooded area about 450 m northeast of the Barton Lake site in the NE 1/4, SE 1/4, SW 1/4, NE 1/4 of Section 23, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61945 466261). It occupies about 2500 m² of a partially destroyed ridge spur or finger of land extending from the uplands eastward into the floodplain bordering Portage Creek. Approximately 50% of the landform once occupied by this site has been removed during construction of an access road permitting vehicular movement from the bluff top to stream's edge. The undisturbed portion of 20KZ225 was intensively shovel tested by the 1984 archaeological field school, resulting in the recovery of a moderate collection of lithic debris and fire-cracked rock. However, nothing found proved diagnostic. Similarly, our visit to this site in 1985 failed to produce any cultural items suggestive of the site's age or probable cultural affiliation.

20KZ226

Situated within the oak savanna flanking the east side of Gourd-Neck Prairie, the Simpson Paper Company site is characterized by a relatively dense scatter of lithic debris and FCR over a pronounced ridge in the NW 1/4, NW 1/4, SE 1/4 and SW 1/4, SW 1/4, NE 1/4 of the NE 1/4 of Section 23, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61956 466280). Encompassing an estimated 2.7 ha, this site overlooks the Portage Creek floodplain to both the east and south. Intensive surface collection and test excavation of this site in 1984 resulted in the recovery of prehistoric debris suggestive of a dominant Late Woodland occupation, together with possible Late Archaic and Middle Woodland components, and the discovery of a gunflint of British or French manufacture, together with this site's location relative to the prairie, indicates the presence of a historic component possibly associated with Sagamaw's Village in 1833. Our revisit to this site in 1985 did not produce any diagnostic or even interesting cultural items, but given the presence of cultural features associated with a wealth of ceramic and lithic data in excavation units opened in 1984, this site will again be the focus of WMU archaeological field school activities in 1986.

20KZ227

Simpson North Ridge is located due north of and across a 30-40 m wide depression from 20KZ226 in the center of the W 1/2, NE 1/4 of Section 23, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61966 466303). It covers approximately 5.0 ha and is characterized by an extensive lithic and FCR scatter. Because the ridge upon which this site is located occurs in the same cultivated field as 20KZ226, this site was intensively collected along with the Simpson Paper Company site. Surface survey resulted in the recovery of a substantial quantity of lithic material, and the presence of soil stains in the freshly plowed field suggested the presence of subsurface cultural features. Our observations of potential significance with respect to the presence of archaeological context tended to concentrate in the

eastern portion of the surface debris scatter, overlooking the creek and its very marshy floodplain. The artifacts identified in the collection suggest a multicomponent occupation of 20KZ227, with Archaic and Woodland components represented by projectile points and an occupation dating to Late Middle Woodland/ Early Late Woodland transition indicated by the presence of Upper Mercer chert. Revisitation in 1985 resulted in no new information useful in better assessing the prehistoric occupations being recovered.

Research Methodology

1. Field Procedures

The research proposal called for systematic pedestrian or reconnaissance level survey of all land under cultivation and accessible to the survey team in the area of the former prairie and its adjacent oak openings. Inasmuch as we estimated that the area to be evaluated was no more than 12 km², coverage of 100% seemed an attainable goal or objective for a project of two field weeks duration. During the course of fieldwork, we gained access to every parcel in the study area then under cultivation, with the exception of a single 28 ha field in the SE 1/4 of Section 3 that had just been planted in corn, and to which we were denied access by the landowner, and four fields supporting dense stands of winter wheat.

Without exception, the fields surveyed afforded excellent to very excellent surface visibility. Inasmuch as most of the landowners were engaged primarily in the production of seed corn under contract to the Pioneer Seed Company, fields had been unusually "well fitted" (i.e. plowed, disked, and dragged) prior to planting and were also very free of undesirable plant growth. Furthermore, corn, and elsewhere, soybeans, were barely breaking the surface at the time we commenced fieldwork, and plants were typically no taller than about 15 cm in the last fields we surveyed prior to terminating the field phase of the project.

Thus, we routinely employed an interval of 20 m between surveyors and were able to move quite rapidly across fields without forsaking appropriate observations along the way. The relative frequency with which we spotted isolated artifacts and the rare but always light scatters of lithic debris in these fields, without the "telltale" associated scatters of FCR so frequently relied upon to signal the possible presence of an archaeological site in our survey work undertaken elsewhere in southwest Michigan, attests to the condition in which we found the fields, the experience of surveyors in scanning the landscape for cultural debris, and the overall adequacy of the 20 m interval employed while reconnoitering fields in the study area. Parenthetically, we are unable to explain why FCR is virtually absent from fields lying within the former limits of the prairie; unless the absence of naturally occurring rocks suitable for hearthstones on the prairie represents a possible explanation for the paucity of sites found here.

2. Record Keeping

Daily survey activities were recorded in the project log kept by the project director. Entries commonly included comments regarding: the field conditions and observations; site locations; acreage covered by parcel and per day; local topography, drainage, and vegetation; informant data and site collections; and mileage traveled each day. In addition, the log became the receptacle for ideas, thoughts, and speculations that our "brainstorming" between fields and during breaks produced.

Site data were also entered on specially prepared forms that required specific responses to various questions regarding: site location in the larger environmental context; quantification of

data recovered by raw material, tentative tool function and/or use, debris category, etc; and an estimate of the time spent making a collection from each site. Finally, a sketch map on the back of the site form was completed, showing the site on the landscape with reference to both natural and cultural features which would permit it to be relocated at a future date. When the cultural material had been examined and recorded in the log and/or on the site form, it was placed in a collection bag labeled with the appropriate provenience information and returned to the Department of Anthropology.

3. Curation of Cultural Material and Survey Records

All cultural material was cleaned, labeled, and examined and identified by the junior author, Mr. De Fant, preparatory to accessioning the items into the collections maintained by the Department of Anthropology. Finally, each site and the material recovered from it was assigned a state site number whereby the site could be entered into the computerized site files maintained by the Bureau of History, Michigan Department of State.

A copy of this report, together with all written and photographic records from the GNPAS project, will be placed in the files that are kept together with the artifactual information in the collections at Western Michigan University.

SECTION IV: RESULTS OF THE GOURD-NECK PRAIRIE ARCHAEOLOGICAL SURVEY

During two weeks of fieldwork in spring 1985, the survey team gained access to 51 parcels of cultivated land in 11 Sections. These range in size from 4-85 ha, averaging a little more than 22 ha. Daily coverage for the three person team varied between 76 ha (190 acres) and 183 ha (451 acres), with the norm for a day on the prairie being

114 ha (285 acres).

In aggregate, surveyor coverage for this project was 1137 ha (2810 acres), or 11.4 km^2 (4.4 mi^2). Relying on 19th century sources to estimate the area of Gourd-Neck Prairie at 1012 ha (2500 acres), our coverage totaled 818 ha (2022 acres), or 81%. The remaining 319 ha (788 acres) that were surveyed during this project comprise land that formerly fringed the prairie and supported either oak savanna or bur oak openings. Parcels of land that were systematically evaluated by the survey team are shown in Fig. 5.

Descriptions of Sites Recorded and Catalog of Surface Collections

This project has resulted in the recovery of data for 14 sites that had previously been unrecorded, six of which occur within the area delineated as prairie and eight that lie off the prairie in adjacent areas of oak savanna or bur oak opening (Fig. 4).

With respect to the site descriptions that follow, the cultural affiliation and/or temporal placement, when provided, are based entirely upon our assessment of diagnostic artifacts (Fig. 6) and/or identified sources of lithic raw material and the appearance of the various cherts in southwest Michigan over time. These should be regarded as tentative, however, as the GNPAS sites have provided little in the way of information with which to work.

The relative importance assigned to each site reflects our evaluation of its potential interpretive value with respect to both chronological reconstruction and determination of aboriginal utilization of this prairie environment (as well as that of adjacent areas supporting either oak savanna or bur oak opening). In accordance with these objectives, a "low, moderate, or high priority" is assigned

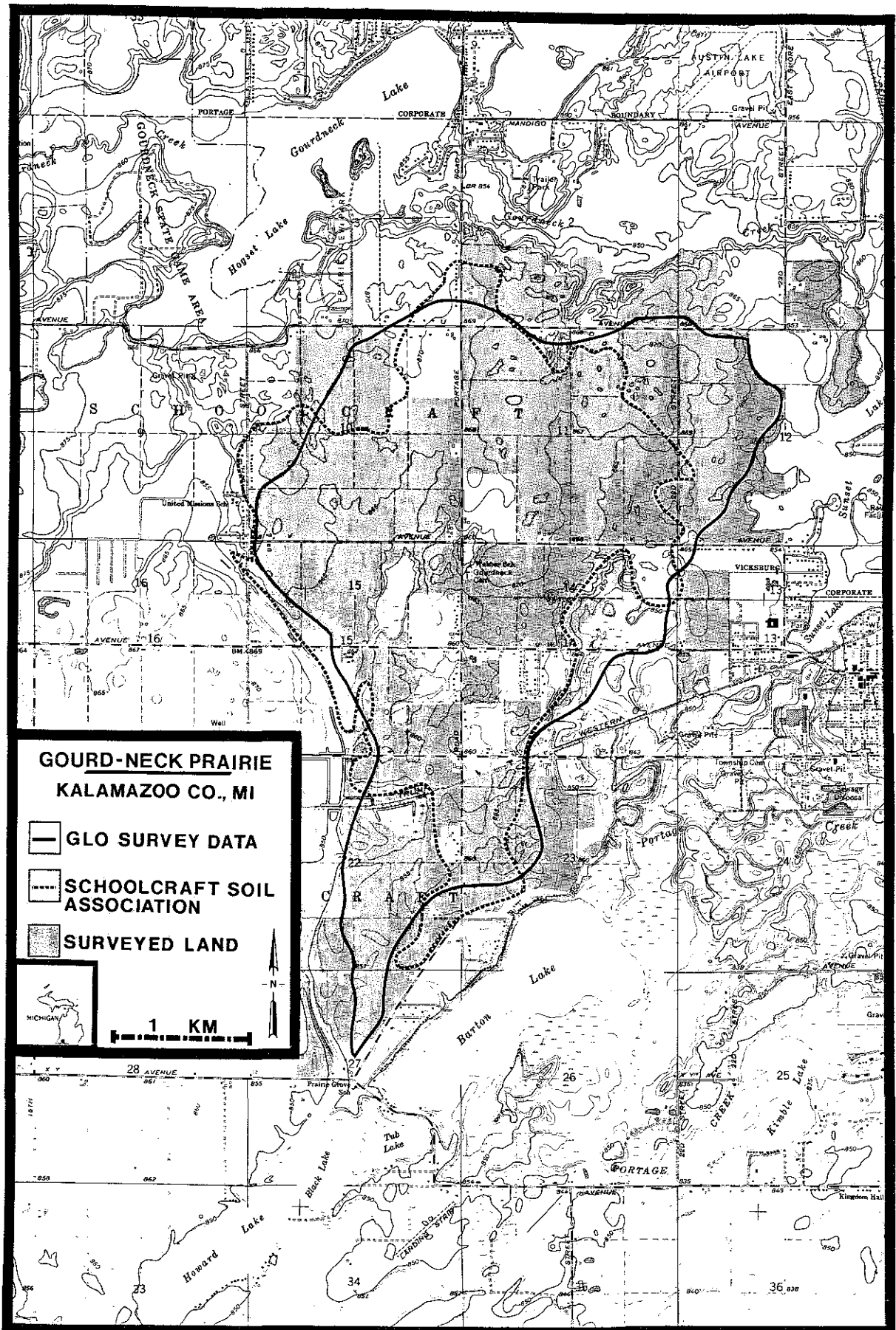


Figure 5.

to each of the sites recorded and described below.

In every case, the cultural material acquired through surface reconnaissance and inventoried below is thought to be inadequate or insufficient for purposes of making an assessment of each site's eligibility for listing in the National Register of Historic Places. Only those sites which are assigned a moderate or high priority are at this time felt to warrant additional evaluation, at least in the form of limited test excavation. Such work, if actually carried out, may produce information requiring that the site(s) be nominated for listing at a later date.

20KZ239

The Bob Schurring site represents a findspot in the W 1/2, SW 1/4, SW 1/4, NE 1/4 of Section 11, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61890 466573). Located on level terrain well within the limits of the prairie, this find represents a large unifacially retouched quartzite flake that in all probability reflects expedient utilization of raw material found by its user on the prairie. The cultural affiliation and/or temporal placement of this site cannot be determined on the basis of this isolated artifact. Low Priority.

1 unifacially retouched flake of quartzite

20KZ240

Encompassing approximately 800 m², the Harsha site consists of a moderately dense lithic and FCR scatter situated about 500 m north of the prairie in the NE 1/4, SE 1/4, NW 1/4, SW 1/4 of Section 2, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61860 466708). Occupying a sandy ridge overlooking Gourd-Neck Creek to the north, this site produced an attractive collection of lithic debris, but nothing that can be regarded as diagnostic. Be that as it may, the presence of exotic lithic raw materials may argue for a Woodland temporal placement. Low Priority.

2 utilized flakes of local till chert

4 flakes of Purple chert

1 flake of Indiana Hornstone

1 flake of Flint Ridge chert

9 flakes of locally available till chert

20KZ241

The Scholten site is a findspot near the northwest limits of the prairie in the SW 1/4, NW 1/4, SW 1/4, NE 1/4 of Section 9,

Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61749 466589). The lone artifact of heat-treated chert recovered here is similar to the Adena point, suggesting the possibility of an Early Woodland temporal placement for this site. Low Priority.

1 biface, fabricated on an unidentified chert

20KZ242

The Gilmore site is located in the heart of the prairie in the NW 1/4, SW 1/4, NE 1/4, SE 1/4 of Section 10, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61815 466543). The shallow side notched point recovered at this locus is made of Bayport chert and is remarkably like the Lamoka point. Hence, a Late Archaic temporal placement is suggested. Low Priority.

1 projectile point of Bayport chert

20KZ243

Situated midway between site 20KZ239 and 20KZ242, the Lucy Gilmore site is a findspot in the NW 1/4, NE 1/4 NW 1/4, SW 1/4 of Section 11, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61854 466555). This location produced a very large knife of Bayport chert. Based upon what he regards as a rather extravagant use of this chert, the junior author regards this isolated find as being suggestive of an Archaic temporal placement. Low Priority.

1 biface of Bayport chert

20KZ244

The Fink site is located inside the northeast margin of Gourd-Neck Prairie in the NW 1/4, SE 1/4, NW 1/4, NW 1/4 of Section 12, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 62012 466619). The single artifact found here represents the distal portion of a biface of Attica (Indiana Green) chert. The presence of this chert in southwest Michigan may indicate a Late Archaic temporal placement for this findspot. Low Priority.

1 biface fragment of Attica chert

20KZ245

The Ron Avis site is a moderate lithic and FRC scatter in a small field lying about 600 m northeast of the prairie in the SE 1/4, SW 1/4, SE 1/4, SE 1/4 of Section 1, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 62120 466654). Encompassing about 6000 m², this scatter of cultural debris occupies a slight rise immediately overlooking Gourd-Neck Creek just below its confluence with Austin Lake Outlet. The only artifact found can be assigned to the Thebes Cluster. This diagnostic implement, together with the presence of Norwood chert, argues for a possibly Middle Archaic temporal placement. Because this property is less intensively cultivated than most of the fields we surveyed in the

project area, there is a strong possibility that test excavation might reveal undisturbed cultural context beneath the plowzone. Hence, a Moderate to High Priority is assigned to the Avis site.

- 1 projectile point
- 1 bifacial blank or preform of quartzite
- 1 pitted cobble ("nutting stone")
- 1 flake of Norwood chert
- 1 flake of argillite
- 11 flakes of locally available till chert

20KZ246

The Smith site is located approximately 200 m upstream and to the northwest of the Avis site in the SE 1/4, SE 1/4, NW 1/4, SE 1/4 of Section 1, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 62098 466696). Situated on a somewhat higher ridge and overlooking the same creek and its adjacent wetlands, this lithic scatter occurs over an area of about 8000 m². No diagnostic items were recovered and, consequently, no assignment of cultural affiliation or temporal placement can be offered at this time. Low to Moderate Priority.

- 2 flakes of heat-treated Burlington chert
- 3 flakes of quartzite
- 7 flakes of locally available till chert

20KZ247

The Carter site lies well within the limits of Gourd-Neck Prairie in the NE 1/4, NE 1/4, NW 1/4, NE 1/4 of Section 15, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone, 16 61782 466478). Discovery of an isolated quartzite flake does not permit us to suggest a tentative age or affiliation for this site. Low Priority.

- 1 large flake of quartzite

20KZ248

The Alum site is situated in what was formerly bur oak openings just off the prairie in the NE 1/4, NE 1/4, NE 1/4, NW 1/4 of Section 27, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61749 466152). This very interesting lithic scatter consists of 13 small tertiary flakes of Upper Mercer chert; all found within a radius of 3 m. The most reasonable interpretation of this site is that it represents a single episode of tool resharpening or refurbishing. Although the presence of Upper Mercer chert in southwest Michigan is often regarded as being indicative of a Late Middle Woodland/Early Late Woodland temporal placement, without an associated diagnostic item we are reluctant to assign this "knapping station" to a specific time period. Low Priority.

- 13 flakes of Upper Mercer chert

20KZ249

Prairie's Edge is located just off the prairie in the NE 1/4, SW 1/4, SW 1/4, NW 1/4 of Section 23, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone, 61910 466264). This site occupies level terrain in close proximity to the series of impressive sites described in the previous section on known sites in the project area. Examination of the freshly plowed soil around the locus of a projectile point of the Dustin-Durst type suggests the possibility that the plow passed through a feature(s). But on the basis of our recovery of a single artifact indicating that a Late Archaic temporal placement is appropriate, without any other cultural debris in association, we herein assigned the Prairie's Edge site a Low Priority.

1 projectile point

20KZ250

Rough Road represents a modest scatter of lithic debris and FRC of undetermined extent in the SE 1/4, SW 1/4, SW 1/4, NE 1/4 of Section 23, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 61931 466249). It occupies bluff's edge overlooking that point where Portage Creek enters Barton Lake and is approximately midway between 20KZ182 and 20KZ225. While the occurrence of a flake of Upper Mercer chert in this collection might indicate a Late Middle Woodland/Early Late Woodland temporal placement, we are not at this time prepared to make this determination in the absence of diagnostic artifacts. Low to Moderate Priority.

1 bifacially worked core remnant
1 utilized flake of Bayport chert
1 flake of Upper Mercer chert
4 flakes of locally available till chert

20KZ251

The Schurring site is a findspot located just east of the prairie in the NW 1/4, SW 1/4, SE 1/4, SW 1/4 of Section 12, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 62036 466502). The single biface found here is not diagnostic, and the site's cultural affiliation/temporal placement can not at this time be determined. Low Priority.

1 biface of Purple chert

20KZ252

Veldkamp is located about 600 m northeast of Gourd-Neck Prairie and 50 m to the south of the Avis site in the NW 1/4, NW 1/4, NE 1/4, NE 1/4 of Section 12, Schoolcraft Township (T4S R11W), Kalamazoo County, Michigan (UTM zone 16, 62115 466642). Here, a flake of local till chert was found on a very sandy ridge flanking Gourd-Neck Creek just above that point where the creek enters Sunset Lake. Although the location was thought by the survey team to be ideal for finding a "good" site, especially

in light of the proximity of this field to the one in which we recorded 20KZ245, careful examination of the ground surface revealed almost nothing in the way of cultural debris. The single flake does not permit determination of this site's age or probable cultural affiliation. Low Priority.

1 flake of local till chert

Summary and Conclusions

Between 20 May-4 Jun 85, a three person survey team systematically evaluated 11.4 km² of farmland in the GNPAS research universe, revisiting four previously recorded sites and locating 14 new archaeological sites by means of surface reconnaissance procedures. Analysis and interpretation of the data recovered have been seriously hampered by the fact that: one site (20KZ182) has been totally destroyed in the years since it was originally recorded through excavation of a drainage basin and installation of standpipe wells to prohibit erosion of the bluff overlooking the north end of Barton Lake, and a second site (20KZ225) has been impacted by a road cut through it to permit the movement of vehicles between Portage Creek and the adjacent bluffs, making all further investigation unwarranted; nine sites (20KZ239, 241, 242, 243, 244, 247, 248, 251, and 252) represent nothing more than the loci of a single isolated cultural item; and four sites (20KZ240, 246, 248, and 250), while manifesting light to moderate lithic debris densities, appear to afford little if any opportunity for meaningful interpretation in the probable absence of good archaeological context.

The remaining three sites (20KZ226, 227, and 245) suggest somewhat greater potential based upon: (1) their locations; (2) the spatial extent of the debris scatters delineated; (3) in two cases (20KZ226 and 227), the presence of soil staining indicating possible subsurface features; and (4) the kinds and quantities of cultural material making

up the surface collections. Excavations undertaken by the 1984 WMU archaeological field school have confirmed our suspicions regarding 20KZ226 (Simpson Paper Company site), and both this site and 20KZ245 (Avis site) are being scheduled for testing by the field school in Spring 1986.

With respect to the matter of site distribution, six of 14 new sites are located within the limits of Gourd-Neck Prairie as derived from the GLO survey fieldnotes and plats. These are all findspots; in four cases they are the loci of isolated bifaces, and in the other two cases we have recorded the presence of a quartzite flake knife and a flake of quartzite. Tentatively, three of these sites would appear to date to the Archaic period, and the fourth is represented by a diagnostic point suggestive of an Early Woodland temporal placement.

The other eight new sites all occur off the prairie in either oak savanna or bur oak openings. Three are represented by isolated cultural items without any evidence of association. One has produced an artifact indicative of a Late Archaic temporal placement, while the remaining two yielded nondiagnostic pieces. The other five sites comprise lithic scatters of varying extent; four of which may be accorded tentative temporal placement either on the basis of a single specimen that is typologically distinctive or because of the presence of chert derived from a nonlocal source that was probably brought into the area during a particular period of prehistory. Three of these sites, although lacking diagnostic artifacts, are characterized by exotic cherts suggestive of a Woodland temporal placement; the fourth has yielded a diagnostic biface and exotic chert that may point to a Middle Archaic temporal placement.

Finally, with respect to the four previously recorded sites occurring in our study area, all of which are located where oak savanna formerly intervened between Gourd-Neck Prairie and Portage Creek and the north shore of Barton Lake, one site has produced a prehistoric assemblage for which it is not possible to determine the cultural affiliation and/or temporal placement; the second is reported to have been characterized by both Middle and Late Woodland components, prior to its total destruction during construction work undertaken to control erosion of the bluff top on which the site was situated into Barton Lake; the third suggests both strong Archaic and Woodland components; and the last and seemingly most important site, 20KZ226, has a dominant Late Woodland component, but also indicates minor Late Archaic and Middle Woodland occupations and may prove especially noteworthy if archaeologists can verify that the historic component also in evidence is associated with the Village of Chief Sagamaw in 1833.

Within the approximately 12 km² of land area established for the GNPAS project, the survey team has located 18 new and previously recorded sites during systematic evaluation of 11.4 km² of the former prairie and its adjacent oak openings. In other words, we recorded or confirmed one site for every 63 ha that were surveyed. By way of comparison, it is perhaps noteworthy that the rate of recovery for all systematic survey work undertaken by the senior author and his associates in the Middle Kalamazoo Valley of the county is one site per 54 ha evaluated, and in the nearby Upper Portage River/Indian Lake study area surveyed by the archaeological field school in 1982 and 1984 a site was recorded for every 10 ha investigated.

Inasmuch as very similar survey field procedures were employed in each of these three areas of the county, perhaps the differences noted for rates of recovery reflect on environmental variables that influenced prehistoric groups in their decisions regarding both the location to be selected for occupation and the nature of the activity to be undertaken from a given location. In this regard, it is interesting that 16% of the area that has to date been surveyed in the Middle Kalamazoo Valley lies on what was formerly either Gull Prairie or Toland's Prairie. Here, although survey teams systematically evaluated a total of 543 ha, no new archaeological sites have been recorded and only one previously recorded site has been confirmed. And, with respect to the latter, the Roswell Ransom Garden Beds site (20KZ70) on Toland's Prairie, it cannot be precisely determined whether the beds were laid out on the prairie or occupied a position on the margin of the native grassland.

With respect to the GNPAS project, it is equally important that we consider the extent to which land formerly supporting prairie vegetation contributes to the total area evaluated by the survey team and, hence, influenced the rate of recovery of sites reported above. Of the 1137 ha systematically evaluated by surveyors in Spring 1985, 818 ha (72%) lie within the limits of the prairie as determined from the GLO survey fieldnotes and plats. Here, we found only six sites; all of which are findspots that might best be interpreted as representing isolated episodes of hunting on the prairie and/or "hunkering stations" where someone stopped while crossing the prairie to resharpen a tool, perform a task requiring use of an expediency tool such as a flake knife, etc., but certainly not to establish a camp and take up residence at this location for any length of time!

To the contrary, the area that WMU surveyors have evaluated along the Upper Portage River and around the north end of Indian Lake in recent years formerly supported a wide variety of resource-rich zones in close proximity to streams, lakes, marshes, and bogs, but no prairies. Here, we have located some relatively large habitation sites, not unlike several of those flanking Portage Creek and the north shore of Barton Lake in the GNPAS project, together with many limited activity sites which presumably functioned in ways that were ancillary to the occupation of these main habitation areas. The frequency with which findspots, lithic scatters, and components have been identified in this study area clearly attests to more intensive occupation in prehistoric times than is evident in those areas where native grasslands were formerly a prominent feature on the local landscape.

To further illustrate our contention that native grasslands, and Gourd-Neck Prairie in particular, did not play as critical a role in site location decision-making among the native inhabitants of Kalamazoo County, we offer the quantitative measures of site size, site density, and occupational intensity to support our argument.

1. Site Size

Sixteen of 18 confirmed and newly recorded sites in the GNPAS project area afforded us the opportunity to estimate site size. On the average, a site in this research area encompassed $5,521 \text{ m}^2$ of area. However, mean size is dramatically affected by those relatively large sites occurring off the prairie in either oak savanna or bur oak openings and also in close proximity to water. We have assigned a mean area of 1 m^2 for the six findspots that actually occur within the limits of the prairie.

The mean area for 54 of 63 sites occurring in the Middle Kalamazoo Valley for which it has proven possible to estimate site size is $3,672 \text{ m}^2$. While the average size of a site in this study area is smaller than that recorded for the GNPAS project, this reflects the absence of any really large habitation sites such as 20KZ226 in all but the East Lake area (Cremin, De Fant, and Adams 1984: 29-30) in this segment of the Kalamazoo drainage. With respect to those areas formerly supporting prairie in the Middle Kalamazoo Valley, nothing about site size can be offered. Not a single new site has been recorded by WMU surveyors in those areas of Gull and Toland's prairie that have been evaluated, and the one previously recorded site that has been confirmed on Toland's Prairie is of undetermined extent.

It has been possible to estimate site size for 65 of 66 sites recently recorded in the Upper Portage River/Indian Lake study area. Those sites in close proximity to Indian Lake average about 2890 m^2 in area, while upstream in the Portage River headwaters sites have been observed to be more than twice ($\bar{X} = 6500 \text{ m}^2$) as large. In aggregate, this data set compares quite favorably with the mean site size recorded for sites in the Middle Kalamazoo Valley. In other words, this area, with a mean of 3612 m^2 , also exhibits an average for site size that is smaller than the mean for the GNPAS project.

That the average size of sites in the three areas would appear to favor the GNPAS research universe may be interpreted to reflect the size of the data sets. While the Middle Kalamazoo Valley and the Upper Portage River/Indian Lake data sets have an occasional large site similar in area to the big sites near

Portage Creek and the north shore of Barton Lake in the GNPAS project, they are simply overwhelmed by the great number of findspots and, especially, the many small lithic scatters that encompass but a few hundred m^2 or less in site area.

2. Site Density

The number of sites recorded (and confirmed) per km^2 surveyed has been calculated for these same three study areas. For the GNPAS project we have calculated an SD of $18/11.4 \text{ km}^2 = 1.58$. For that portion of the study area formerly supporting prairie, the SD is $6/8.2 \text{ km}^2 = 0.73$; while the "off prairie" SD is $12/3.2 \text{ km}^2 = 3.75$. Clearly, the aggregate SD is strongly influenced by those sites that do not occur on Gourd-Neck Prairie.

Similar results have been compiled for the Middle Kalamazoo River Valley. Here, the aggregate SD is $63/33.8 = 1.86$, or slightly higher than the similar value recorded for the GNPAS project. However, when we consider just that portion of this study area that formerly supported prairie, an even more dramatic decline is observed. For Gull and Toland's prairies, a total of 5.4 km^2 of land area has been systematically surveyed, resulting in the confirmation of a single previously recorded site. The SD calculated for native grassland in the Middle Kalamazoo Valley is $1/5.4 \text{ km}^2 = 0.19$. The SD that has been calculated for land area surveyed in all other resource zones is $62/28.4 \text{ km}^2 = 2.18$. With the exception of the aggregate value, site densities for this study area are notably lower than for the GNPAS project, reflecting even less interest

on the part of Native Americans in grasslands situated in northern Kalamazoo County than is indicated by the data now available for Gourd-Neck Prairie. Perhaps this is an indication of greater resource potential in the various zones found in the St. Joseph River drainage, which would have resulted in more frequent visits to or movement across nearby Gourd-Neck Prairie (as well as neighboring Prairie Ronde to the west and, perhaps, Nottawaseepe Prairie to the south in St. Joseph County).

Neither of the aforementioned research areas compares favorably in terms of site density with the Upper Portage River/Indian Lake universe. Here, the SD is $66/6.6 \text{ km}^2 = 10.00$! It is possible that a relatively greater concentration of target resources afforded by zones other than prairie (which was not present in this survey area) is at least in part responsible for the much greater site density recorded in this, the smallest of the three study areas. For here we have observed that sites occur with a frequency almost 6.4 times greater than the SD calculated for the GNPAS project and 5.4 times more frequently than has been noted for the Middle Kalamazoo Valley.

3. Occupational Intensity

As a final check on the potential significance of the empirical observations, we have calculated an index of occupational intensity for the three data sets being compared. In this instance, the values assigned to the various sites are as follows: find-spot - 1; lithic (and FRC) debris scatter - 5; and component - 10. The mean OI value derived from the GNPAS project is 3.83, with the value for sites on the prairie being 1.00 and for "off prairie"

sites, $OI = 5.25$. By way of comparison, the mean OI for the Middle Kalamazoo Valley data set is 3.57, and for the Upper Portage River/ Indian Lake area the mean OI is 4.77. This comparison suggests that prehistoric activity in the last area was greatest, with the GNPAS project second and the Middle Kalamazoo Valley ranking third. However, the difference between the mean OI value for the Upper Portage River/Indian Lake study area and that calculated for the GNPAS project is much greater than the negligible difference noted when we compare the GNPAS project with the Middle Kalamazoo Valley. Again, the index of occupational intensity would appear to "play down" the role of the prairie in Indian site location decision-making behavior.

In the final analysis, our observations during the course of fieldwork and the comparisons generated above illustrate that the most frequently encountered kind of site occurring either on or near Gourd-Neck Prairie is the isolated find of a cultural item--typically a biface that presumably functioned as a projectile point and/or knife. This is not to say that the project area lacks relatively large and impressive sites. To the contrary, several of the sites in our study area (e.g. 20KZ226 and 227) are the equal of any that have been recorded and included in the data sets used for comparative purposes in this section of the report.

But it is important that we note that none of the potentially more significant sites occurs on the prairie or near its margins. In each case, those sites to which we have accorded a moderate or

high priority lies well within former oak savanna or bur oak openings and in close proximity to water, ranging in distance of from 200-600 m of the prairie's edge. This observed proximity to area creeks and lakes would seem to define the distance from the prairie, suggesting that the "pull" exerted by water and adjacent wetland associations was greater than the attraction(s) that the prairie may have held for the sites' inhabitants over time.

Recommendations for Future Research and Management of Cultural Resources

With one exception (20KZ225), the sites recorded for the GNPAS project area occur on land that is today being rather intensively cultivated. Therefore, the archaeological data base is constantly undergoing modification as a result of the use of farm machinery, and in a number of cases potentially valuable information is being irretrievably lost.

Two sites reported and described above have previously been destroyed through land alteration activities. And 9 of the remaining 16 are findspots, providing no feasible opportunity for extracting additional information from the earth at these loci of cultural items lacking associations. Of the remaining seven sites, three may be characterized as light lithic scatters of quite limited extent, without good indications of archaeological context being preserved below the plowzone. However, for the last four sites (20KZ226, 227, 245, and 246), one can argue from a position of concern for their long term welfare that they be more fully evaluated in order to assess their potential significance before the archaeological context is further disturbed.

With respect to the Simpson Paper Company site (20KZ226) and the Avis site (20KZ245), we intend to conduct test excavations at each site in Spring 1986. Previous research at 20KZ226 in 1984 revealed well preserved cultural features and a goodly quantity of lithic and ceramic data in both feature and plowzone contexts. Here (and by implication, at the nearby Simpson North Ridge site), the surface observations foretold of the rich potential for excavation. Following the 1986 field season, we should be in a position to more fully evaluate this site and determine whether listing on the National Register of Historic Places is appropriate.

The Avis site is also interesting, but the surface collection provides much less to go on than is the case with respect to either 20KZ226 or its neighbor, 20KZ227 (Simpson North Ridge). The site's location, the presence of a Middle Archaic component, and the fact that the field in which this site is located has been subjected to less intensive cultivation are considerations in the decision to undertake test excavations in 1986. We are hopeful that undisturbed feature contexts will be found beneath the plowzone, permitting the appropriate evaluation of this site with respect to listing on the National Register.

**20KZ249****20KZ242****20KZ245****20KZ241**

Drawn to Scale

Figure 6.

REFERENCES CITED:

- Austin, F.R.
1979 Soil survey of Kalamazoo County, Michigan. United States Department of Agriculture. Washington, D.C.
- Brewer, R., compiler
1979 Vegetation of southwestern Michigan at the time of settlement. Department of Biology, Western Michigan University. Kalamazoo.
- Cremin, W.M.
1981 Kalamazoo basin survey, 1976-1980: a summary of research objectives and accomplishments. In Kalamazoo Basin Survey, 1976-1980, pp. 1-15, edited by W.M. Cremin. Department of Anthropology, Western Michigan University, Archaeological Report 11.
- Cremin, W.M. and C.P. Clark
1983 An archaeological evaluation of the M-43/M-89 intersection north of the village of Richland, Kalamazoo County, Michigan. Department of Anthropology, Western Michigan University, Technical Report 13.
- Cremin, W.M., D.G. De Fant, and D.L. Adams
1984 An archaeological survey in Pavilion and Schoolcraft townships, Kalamazoo County, Michigan. Department of Anthropology, Western Michigan University, Archaeological Report 15.
- Cremin, W.M., R.D. Hoxie, and J.F. Marek
1979 An archaeological survey of Kalamazoo County, Michigan: 1979 multiple transect survey in the middle Kalamazoo river valley. Department of Anthropology, Western Michigan University, Archaeological Report 5.
- Cremin, W.M., C.B. Stout, and M.L. Murphy
1982 An archaeological survey along Portage River and Dorrance Creek above Indian Lake in Pavilion Township, Kalamazoo County, Michigan. Department of Anthropology, Western Michigan University, Archaeological Report 14.
- Donahue, J.
1970 Mystery of area's ancient garden beds still unsolved. Kalamazoo Gazette of 19 Apr 70.
- Durant, S.W.
1880 History of Kalamazoo County, Michigan. Everts and Abbott, Philadelphia.
- Hinsdale, W.B.
1931 Archaeological atlas of Michigan. University of Michigan Handbook Series 4.
- Hodgman, F.
1905 The old fort. In Early Days in Climax, pp. 29-31, by F. Hodgman. Private printing.

- Hodler, T.W., R. Brewer, L.G. Brewer, and H.A. Raup, compilers
 1981 Presettlement vegetation of Kalamazoo County, Michigan.
 Department of Geography, Western Michigan University.
 Kalamazoo.
- Hudson, Mrs. J.
 1880 Recollections of Kalamazoo since 1834, part 8. Kalamazoo Weekly Gazette of 13 May 1880.
- Little, Mrs. C.M.
 1881 Early life in the settlement. Kalamazoo Daily Telegraph
 of 26 Aug 1881.
- Little, H.
 1874 The mounds, who built them, and where did the builders come from. Kalamazoo Daily Telegraph of 18 Feb 1874.
- McKean, E.C., M.M. Harrison, and C.C. McBride
 1981 Richland: from its prairie beginnings. Richland Community
 Library, Richland, Michigan.
- Peters, B.C.
 1969 Early American impressions and evaluations of the landscape of inner Michigan, with emphasis on Kalamazoo County.
 University Microfilms, Ann Arbor.
- Stevens, E.J.
 1923 Archaeological map of Kalamazoo County, Michigan. Stevens,
 Kalamazoo.
- Turner, J.
 1911 Reminiscences of Kalamazoo. Michigan Pioneer and Historical Collections, 18: 570-588.
- U.S. Government Land Office
 1825-
 1829 Surveyor fieldnotes and plats of Kalamazoo County, Michigan
 (including the records of W. Brookfield for Schoolcraft
 Township-1827; G. Harrison for Oshtemo Township-1829; J.
 Mullett for Prairie Ronde Township-1825; and J. Mullett for
 Richland Township-1826). Western Michigan University Archives,
 Kalamazoo.
- Veatch, J.O.
 1928 The dry prairies of Michigan. Papers of the Michigan Academy of Science, Arts, and Letters, 8: 269-278.