1981

10-An Archaeological Survey of Calhoun and Jackson Counties, Michigan: 1980 Multiple Transect Survey in the Upper Kalamazoo River Valley

William M. Cremin
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Report Number: 10

DEPARTMENT OF ANTHROPOLOGY
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ACKNOWLEDGEMENTS

This project has been funded, in part, through a grant from the United States Department of Interior, Heritage Conservation and Recreation Service (under the provisions of the National Historic Preservation Act of 1966) through the Michigan Department of State.

The authors wish to express their appreciation to those persons who served on the survey teams, both permanent party and student volunteers from the WMU archaeological field school, and to the residents of Calhoun and Jackson Counties who so willingly assisted surveyors in the collection of information regarding the archaeological resources of the areas investigated. We further offer our thanks to those students in the Department of Anthropology who assisted in various phases of the analysis of data, making the preparation of this report possible.

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1. Prehistoric Site Survey in the Kalamazoo River Valley

In 1976 archaeologists at Western Michigan University initiated systematic site survey in the Kalamazoo Basin as a necessary first step in delineating and explaining prehistoric settlement and subsistence patterns in this universe. Being one of two research programs established in the basin for this purpose, the Kalamazoo Basin Survey, under the direction of Dr. William Cremin, can be distinguished by its focus on that portion of the drainage traversed by the Kalamazoo River, itself. Nine cross-valley transects, totaling 749 km^2, or 14% of the area drained by the Kalamazoo, have been established and investigated in an attempt to locate prehistoric sites and identify those environmental variables influencing site selection in the past (Fig. 1).

With this writing, our fourth annual report to the Michigan History Division, the Kalamazoo Basin Survey, as initially conceived, has been completed. During the five year period of fieldwork, survey teams have evaluated by means of surface reconnaissance 135 km^2, or 18% of the total area included within transect boundaries. Three hundred and twenty two new sites have been discovered by surveyors in the process, and an additional 31 sites have been recorded outside of the transects as a result of surveyor interviews with local landowners having some knowledge of area prehistory and the whereabouts of collector locations.

Briefly, the history of KBS is as follows:

1976 In the initial year of the survey, a team under Cremin's direction investigated a 41.0 km^2 area encompassing the immediate environs of the multicomponent Hacklander site, located approximately 7.0 km above the mouth of the Kalamazoo River, and extending upstream as far as the confluence of the Kalamazoo and Rabbit Rivers. Twelve km^2 of this transect were investigated and 25 new sites were added to those which had been previously recorded (Cremin 1980; Neusius 1978).

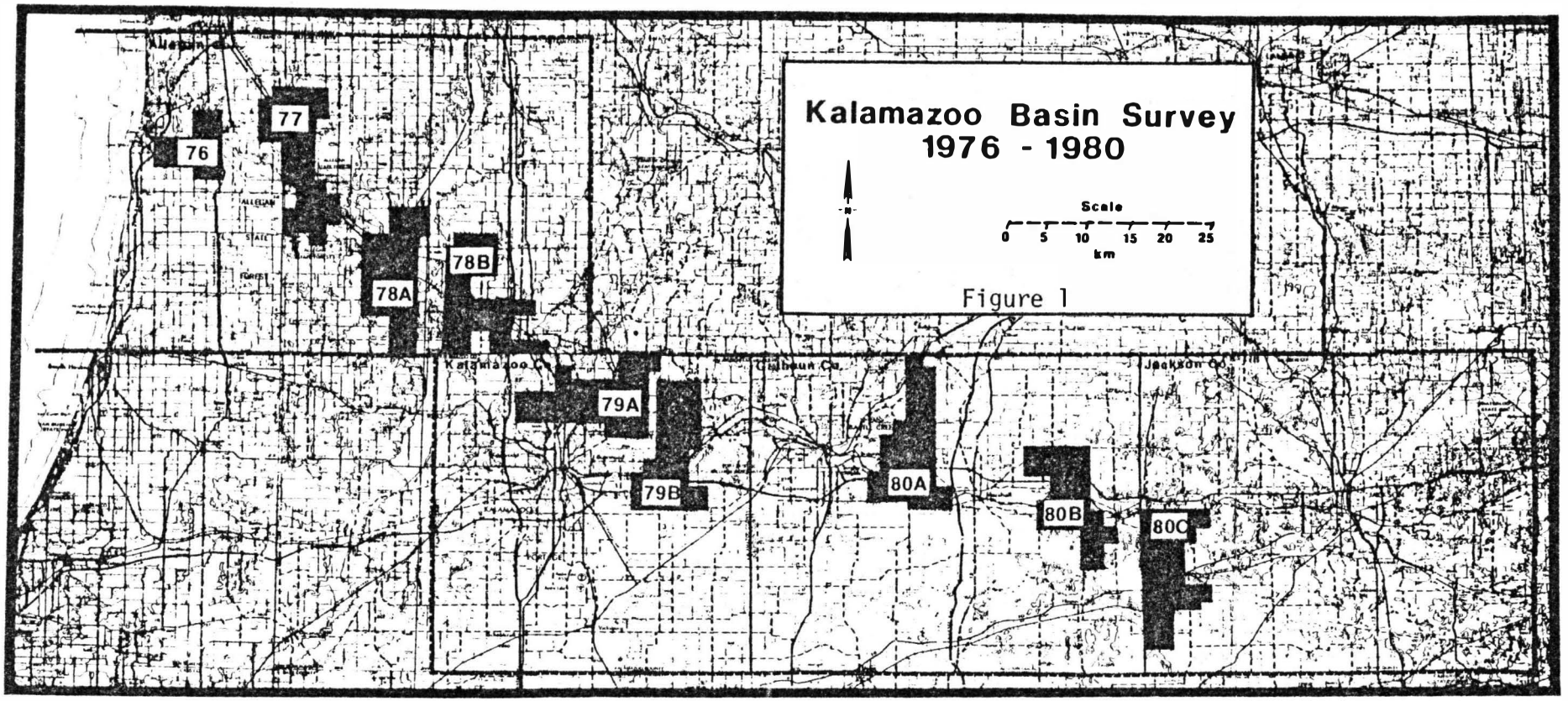

Kalamazoo Basin Survey
1976 - 1980
N
Scale
0 5 10 15 20 25
km
76
77
78A
78B
79A
79B
80A
80B
80C
Kalamazoo Co.
Calhoun Co.
Jackson Co.

Figure 1

1977 The area investigated by KBS in 1977 is located 9.0 km upstream of the 1976 transect and included an area of 93.0 km^2. Fourteen km^2 were evaluated and 62 new sites were recorded by surveyors (Cremin 1980; Cremin, Hoxie and Weston 1978).

1978 In the third year of the project, surveyors investigated two transects in the Middle Kalamazoo Valley of eastern Allegan County. Each transect encompassed 93.0 km^2, and surveyors achieved coverage of 16.6 km^2 and 16.1 km^2 in the transects. For our efforts we realized an addition of 157 new sites to the nine which had previously been known to occur in the project area. (Cremin 1980; Cremin and Marek 1978).

1979 Two transects in the middle valley of Kalamazoo County were surveyed in 1979. They comprised 93.2 km^2 and 83.5 km^2, and surveyors evaluated 22.2 km^2 in Transect A and 11.7 km^2 in Transect B. The Kalamazoo County portion of our reserach program yielded a total of 29 new archaeological sites (Cremin, Hoxie and Marek 1979).

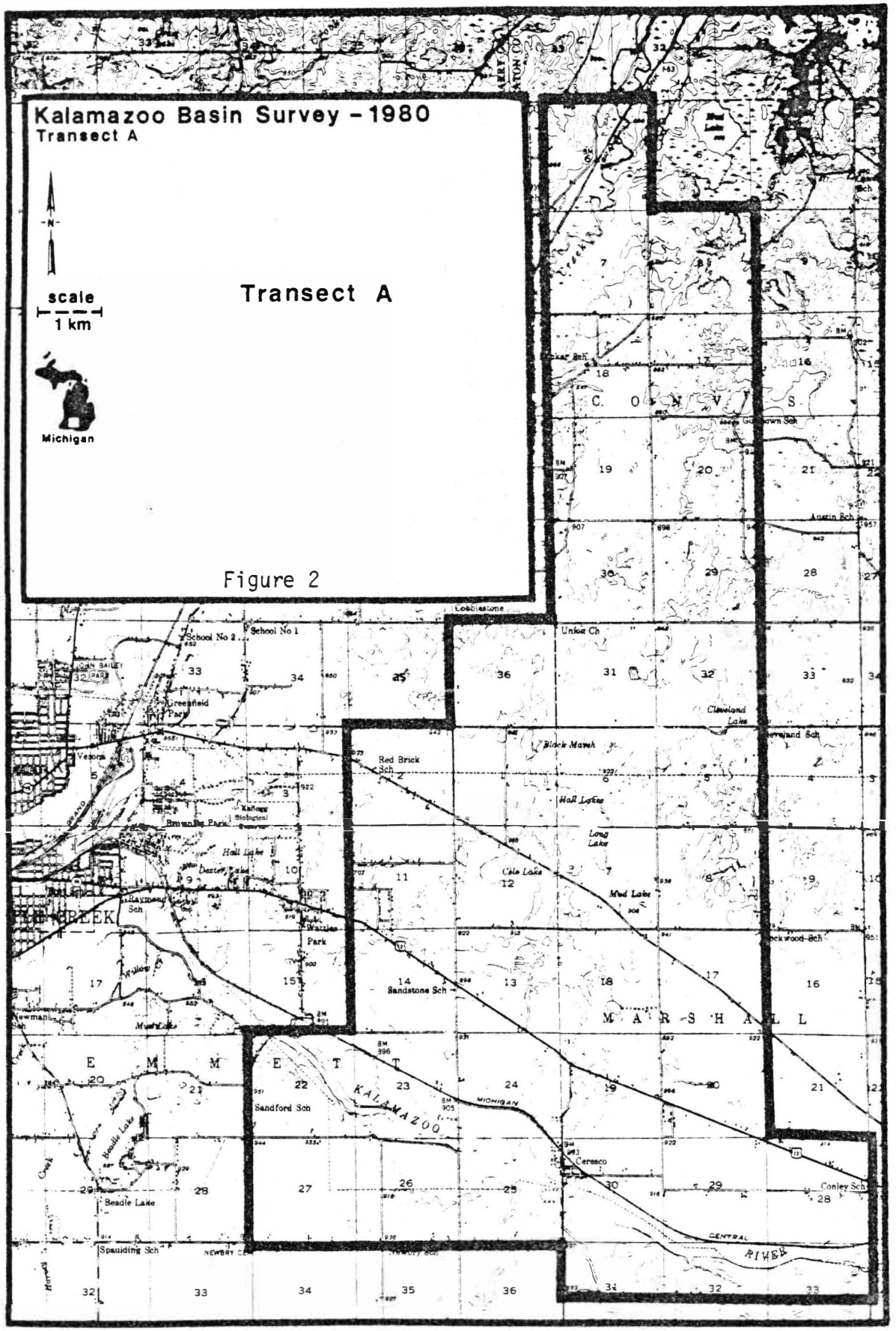
1980 During the past year KBS moved into the upper valley of Calhoun and Jackson Counties, where three transects were established for systematic investigation. There follows a report of the activities of the 1980 Kalamazoo Basin Survey, together with a brief description of the project and those sites which were recorded during the six week field program.

2. The 1980 Project Area

In 1980 the Kalamazoo Basin Survey moved upstream into the upper valley of Calhoun and Jackson Counties, establishing and investigating three transects located between the communities of Battle Creek on the west and Concord on the east (Fig. 1). Transect A encompasses 94.5 km^2 of Convis, Emmett, Marshall and Pennfield Townships in Calhoun County. Transect B comprises 74.1 km^2 of Albion, Eckford, Marengo and Sheridan Townships in the same county. Transect C includes 82.9 km^2 of Concord and Pulaski Townships in Jackson County and represents the final transect to be investigated as part of the project. As in past years, transect boundaries are purposefully irregular, reflecting our desire to include within each survey universe as much ecological diversity as possible.

In contrast to those portions of the middle valley surveyed last year (Cremin, Hoxie and Marek 1979), beech-maple forest and prairie are absent from the 1980 transects. In aggregate, the three transects studied this year encompass 251.5 km^2, with oak and oak-hickory forest covering 140.8 km^2 (56.0%), bur oak forest occupying 79.0 km^2 (31.4%), and wetland forest representing the dominant vegetation in areas totaling 31.7 km^2 (12.6%). In the case of the last community, it is noteworthy that extensive swamp or bog associations of the wetland forest are not prevalent along major streams, as was so often observed in previously investigated transects located downstream from this year's project. Here, such plant communities are more common in upland areas bordering small lakes, potholes and springs.

With respect to location, Transect A (Fig. 2) lies to the east of Battle Creek and extends from the Eaton County line on the north across the Kalamazoo River near Ceresco on the south, providing an overall length of 18.5 km. East-west dimensions vary from 1.6 km to 9.7 km, with the average width of the transect being 6.0 km. Within the area delineated, surveyors found numerous opportunities to evaluate large, contiguous parcels of land where surface visibility


Kalamazoo Basin Survey - 1980
Transect A
N
scale
1 km
Transect A
Michigan
Figure 2
Cobblestone
Union Ch
Cleveland Lake
Black Marsh
Red Brick Sch
Hall Lake
Long Lake
Cole Lake
Mud Lake
Sandstone Sch
Sandford Sch
Ceresco
Conley Sch
Beadle Lake
Spaulding Sch
KALAMAZOO
MICHIGAN
CENTRAL
RIVER
C O N W A Y S
M A R S H A L L
E M M E T T

was typically excellent. This was especially the case in the southern portion of the transect bordering the Kalamazoo River, where several landowners are today farming very large tracts of river floodplain and immediately adjacent upland areas.

Transect B (Fig. 3) lies about 17.0 km above Transect A and crosses the Kalamazoo Valley immediately to the west of Albion in eastern Calhoun County. This transect begins near the North Branch of Rice Creek on the north and extends to a point on the South Branch Kalamazoo River approximately 6.0 km south of Albion, providing an overall length of 14.5 km. East-west dimensions range between 2.4 km and 7.4 km, with the mean width of the transect being about 5.0 km. Here, surveyors were again fortunate to gain access to many large, contiguous parcels of land under cultivation and affording excellent surface visibility. And, as was the case in Transect A, surveyors found conditions for surface reconnaissance to be especially good on the thousands of ha of farmland owned by Starr Commonwealth School and flanking the Kalamazoo River for several km below Albion.

Transect C (Fig. 4) is located just across the Calhoun-Jackson County line from Transect B and slightly south of it. This transect crosses both the North Branch and the South Branch Kalamazoo River west of the community of Concord. It commences on the north at a point about 1.6 km south of I-94 and extends to within 3.2 km of the Hillsdale County line on the south. This transect has an overall length of 16.1 km. East-west dimensions vary between 3.2 km and 8 km, with the average width of the transect being 5.3 km. Here, parcels of land under cultivation were not as extensive nor as contiguous in their distribution as had been the case in the other transects. Be that as it may, the survey teams gained access to numerous small fields, usually on the order of 16-32 ha in size, throughout the area and benefited from generally good

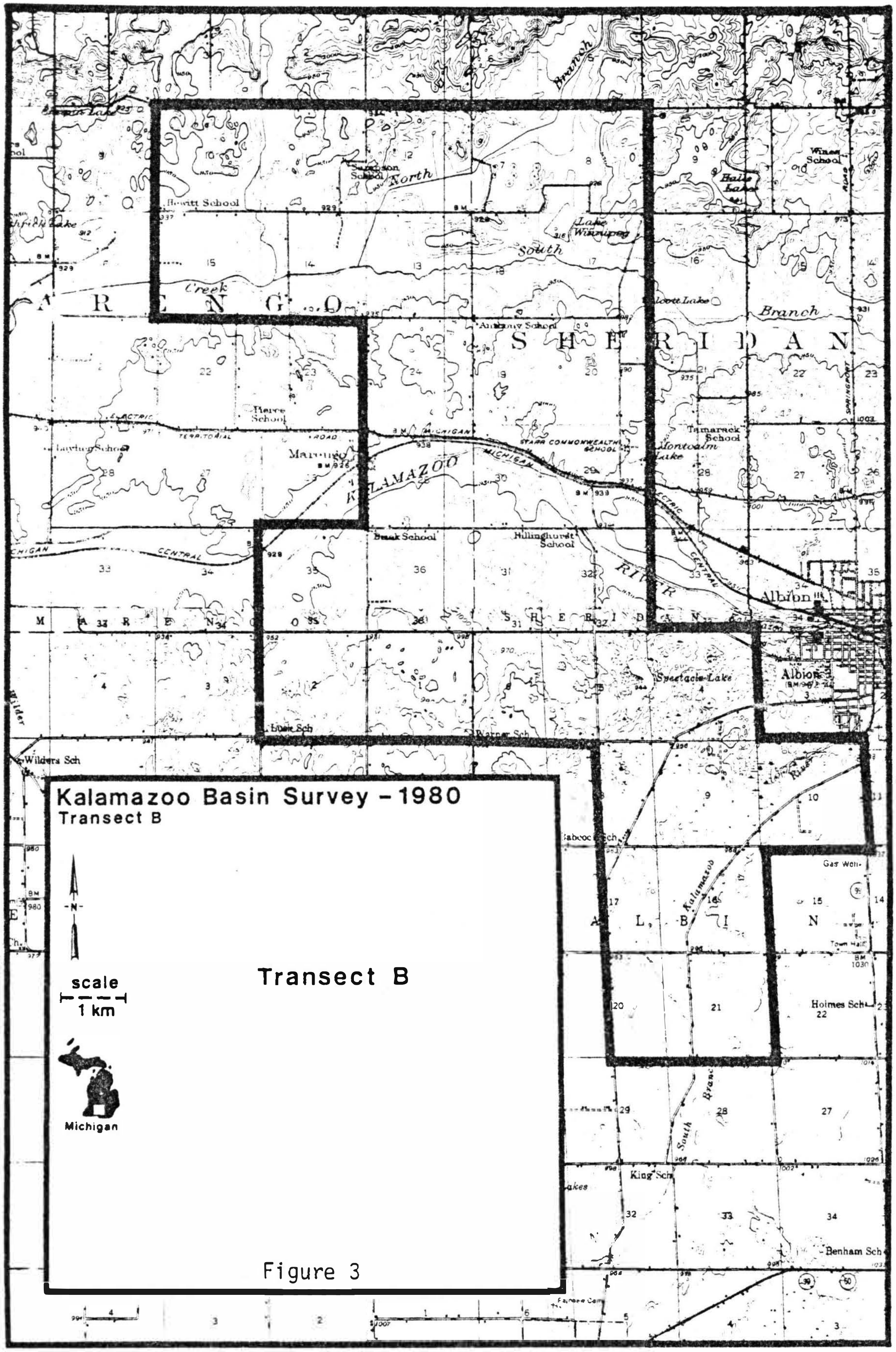
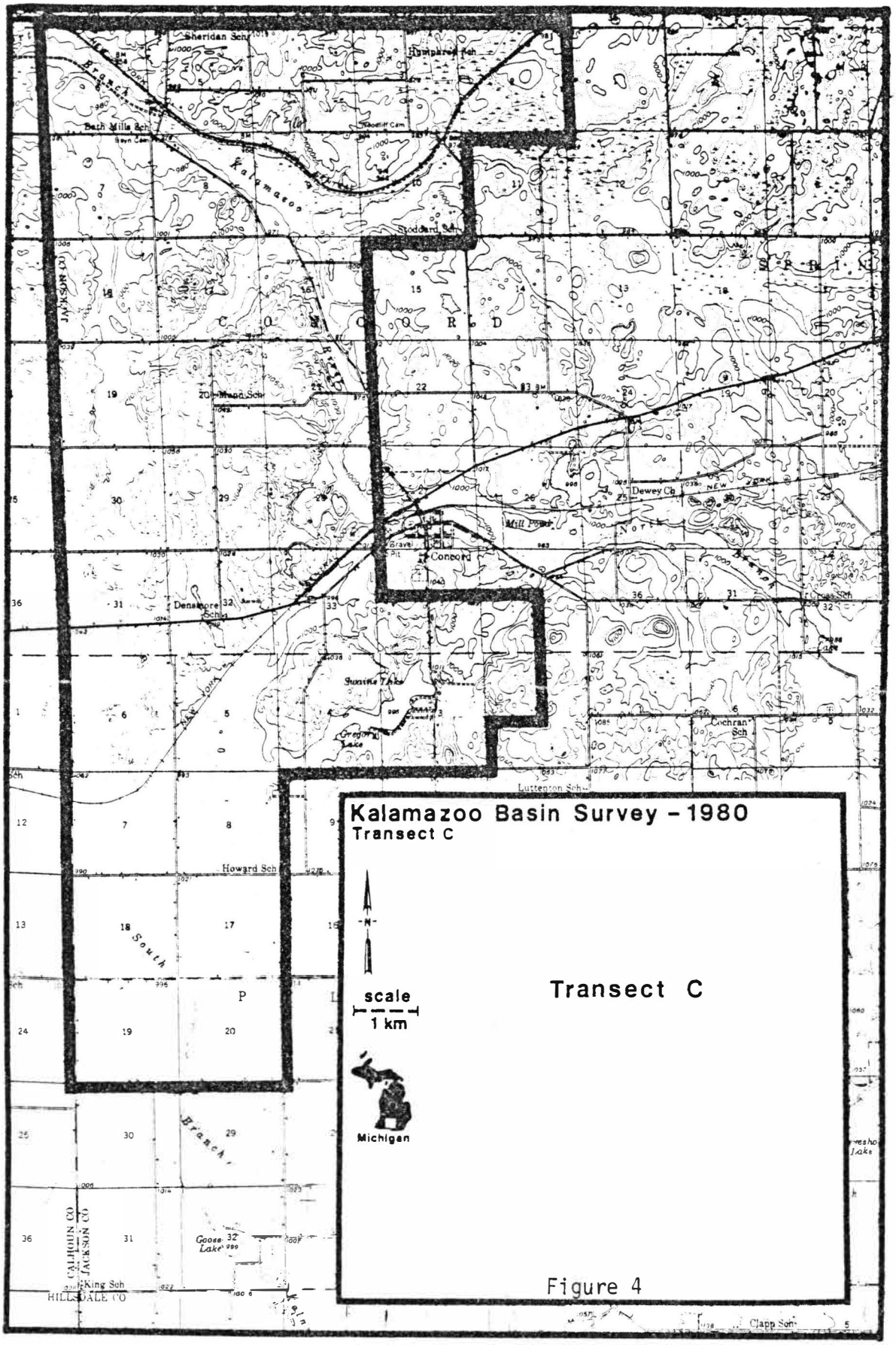

Kalamazoo Basin Survey - 1980
Transect B
-N-
scale
1 km
Michigan
Transect B
S H E R I D A N
Albion
KALAMAZOO
RIVER
Spectacle Lake
Lake Winnipeg
Hewitt School
Pierce School
Tamarack School
Hillinghurst School
Holmes Sch
Benham Sch
King Sch
Wilders Sch
Gas Well
Town Hall

Figure 3


Kalamazoo Basin Survey - 1980
Transect C
N
scale
1 km
Transect C
Michigan
Figure 4

to excellent surface visibility. The variety of water associations noted for the 1980 project area is nowhere greater in evidence than in Transect C, and with our reasonably good coverage of this transect we are perhaps better able to interpret the significance of drainage patterns for site distribution than for either of the Calhoun County transects.

3. Previous Archaeological Research in the Project Area

As has been the case in almost every transect studied by KBS to date, the 1980 project area has received almost no prior archaeological attention. A thorough examination of the site files maintained by the Michigan History Division revealed a total of only two sites recorded for the three 1980 transects. One site had been reported for Transect A (Fig. 5) and a second was known to exist in Transect C (Fig. 6) prior to our arrival in the upper valley.

In keeping with our past practice of revisiting known sites, KBS surveyors did make every effort to both confirm their reported locations and to assess their current status, i.e. to determine whether either of them had been adversely impacted since their having been recorded. In addition, we also sought out areas shown as "sites" in Hinsdale's (1931) Archaeological Atlas of Michigan, and in two instances we believe that we have located (confirmed) village sites reported in that source (see site descriptions for Transect A in Section 5 of this report).

Briefly, the previously recorded (and KBS confirmed) sites in the 1980 transects are as follows:

A. Previously Known Site in Transect A

20 CA 15 This site, located in the center, NE¼ of Section 22, Emmett Township, T2S R7W, Calhoun County, is a findspot reported by Doug Schmuck to date to the Late Woodland period. Fire cracked rock was observed by KBS surveyors at this location, but no other cultural debris was recovered.

B. Previously Known Site in Transect C

20 JA 150 The Sanuskar site is located near Swains Lake in the SE¼, NE¼, NW¼ of Section 3, Pulaski Township, T4S R3W, Jackson County. Reported

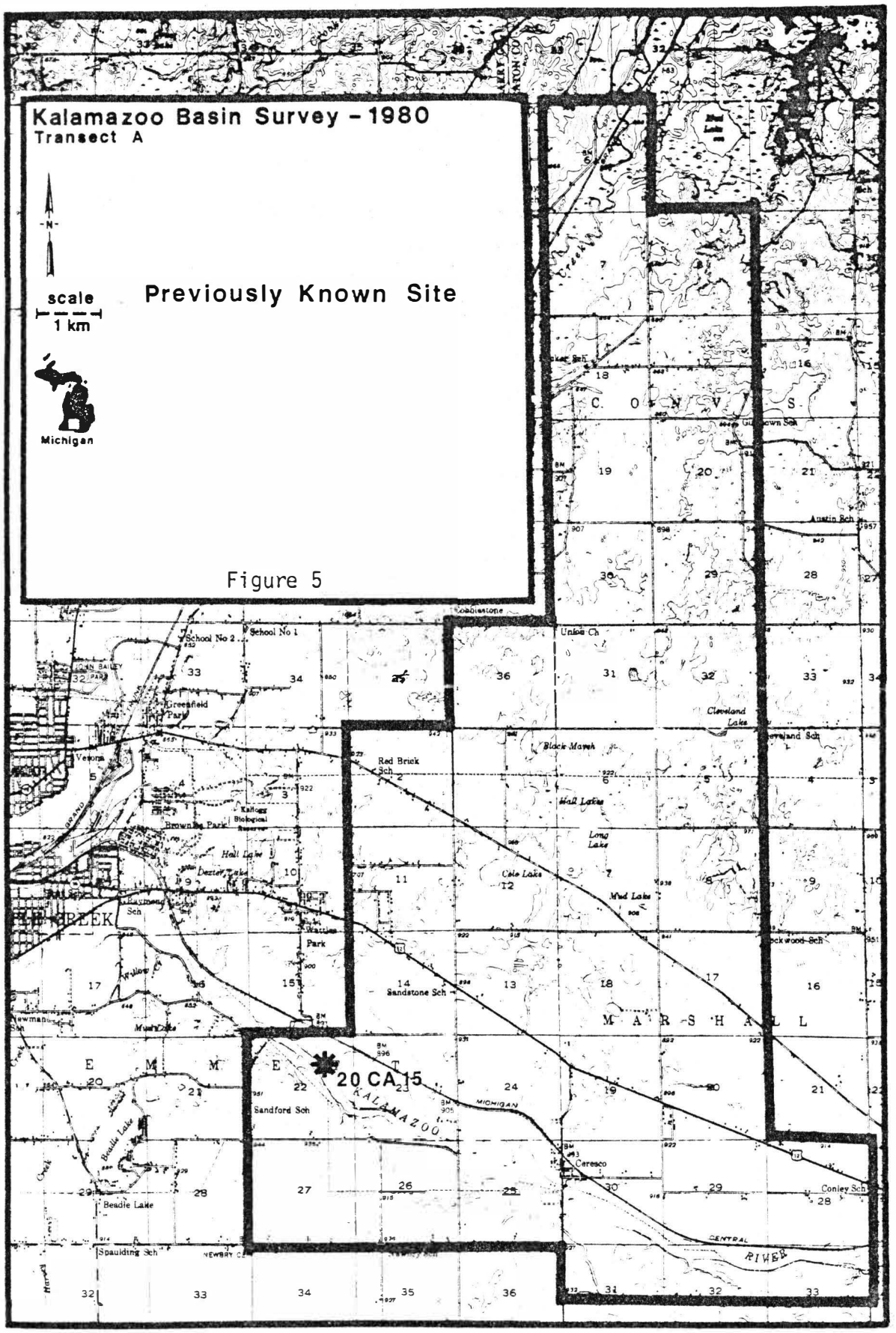

Kalamazoo Basin Survey - 1980
Transect A
N
scale
1 km
Michigan
Previously Known Site
20 CA 15
KALAMAZOO
MICHIGAN
CENTRAL
RIVER
C O N W A Y S
M A R S H A L L
E M M E T T
Sandstone Sch
Sandford Sch
Spaulding Sch
Beadle Lake
Coniey Sch
Ceresco
Red Brick Sch
Cleveland Lake
Black Marsh
Hall Lake
Long Lake
Cole Lake
Mud Lake
Greenfield Park
Browning Park
Kalamazoo Biological Reserve
Wattles Park
Union Ch
Austin Sch
School No 1
School No 2

Figure 5

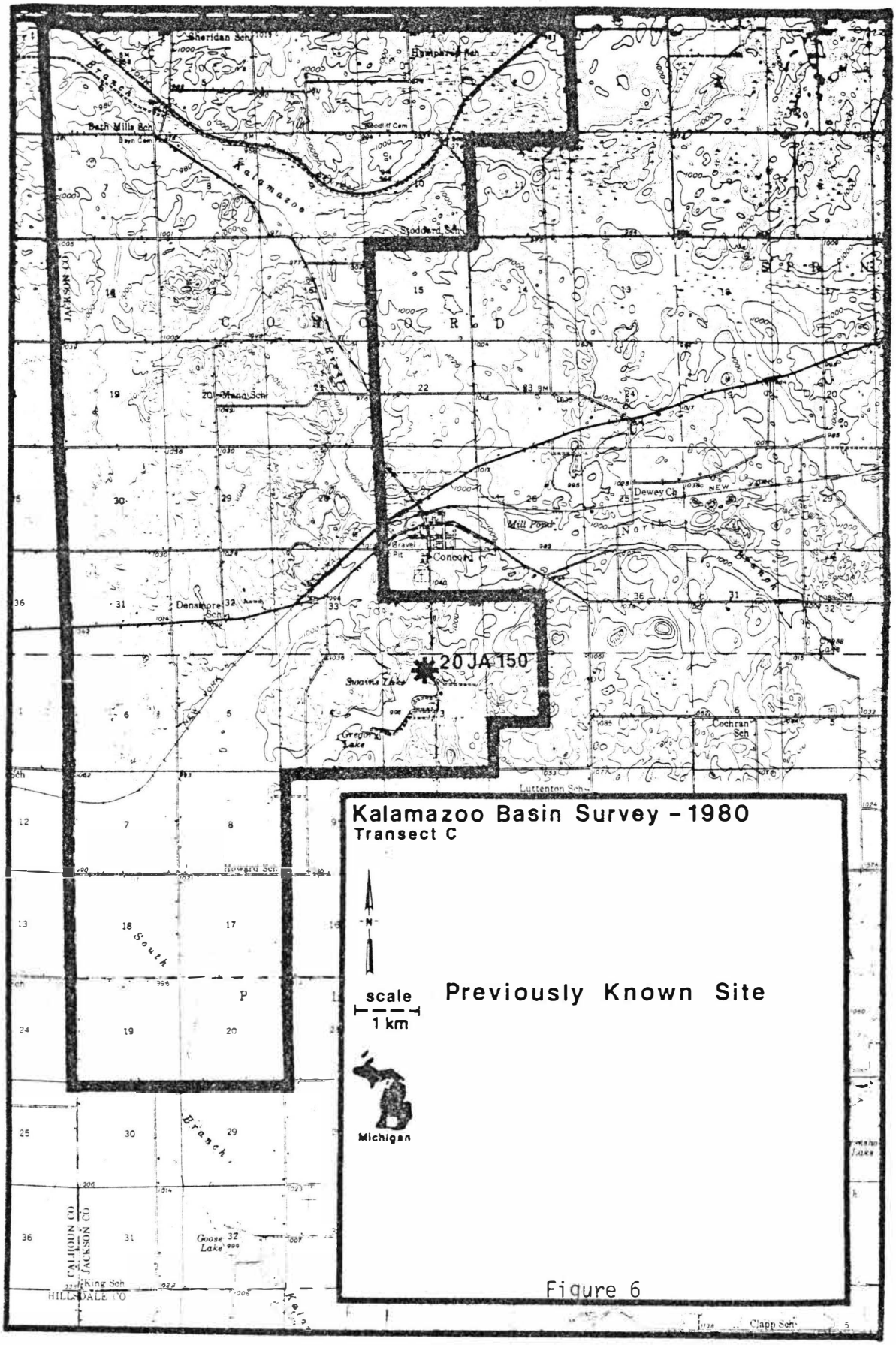

Kalamazoo Basin Survey - 1980
Transect C
20JA150
Previously Known Site
scale
1 km
Michigan
Concord
Dewey Ch
Mill Pond
Gravel Pit
Sheridan Sch
Beth Mills Sch
Stoddard Sch
Mead Sch
Densmore Sch
Cochran Sch
Luttenton Sch
Maynard Sch
Clapp Sch
King Sch
Goose Lake
Gregory Lake
Sunrise Lake
Kalamazoo
South Branch
North Branch
JACKSON CO
CALHOUN CO
HILLSDALE CO

Figure 6

to MSU in 1978, Dr. William Lovis excavated a number of burials dating to the Late Woodland period from a cemetery following exposure of bones and their recognition as prehistoric human remains by area residents. KBS surveyors revisited this location with a knowledgeable person and also observed some of the artifacts which had been collected from the site prior to the arrival of archaeologists from MSU.

4. Site Survey Methodology

A. Research Design

As in previous years, systematic investigation of the 1980 survey transects was accomplished by means of stratified random sampling. The criteria used to stratify the transects are as follows:

1. the distribution of soils as plotted on the USDA-Soil Conservation Service (1974) map of the Kalamazoo River Basin;

2. rank ordering of all permanent streams flowing through the survey transects, as well as wetland associations (lake/swamp) located in upland areas; and

3. mapping the distribution of three major plant communities found in the Upper Kalamazoo River Valley at the time of Euro-American settlement, as determined from the original land office surveys and other documents (Brewer 1979; Kenoyer 1934; Peters 1969; Veatch et al. 1926).

Soils occurring within the 1980 transects are assigned to five soil associations. These are:

Oakville-Spinks-Oshtemo (3)

Soils of this association are coarse textured and lie on nearly level to steep topography. They are developed in sand, sandy loam, stratified sand and loamy sand, and stratified sand and gravel, occurring primarily on old lake beds, outwash plains and moraines. They are well-drained soils with high permeability rates. Mixed hardwoods and oaks comprise the arboreal vegetation. Woodland suitability information for the soils of this association indicates only that the potential productivity for mixed hardwoods and oak is low to medium. Soils of this association occur only in Transect A, where they aggregate 11 km^2, or 11.6% of the area delineated.

Kalamazoo-Oshtemo (4)

These are also coarse textured soils lying on level to gently sloping topography. They are developed in sand, sandy loam and clay loam overlying

stratified sand and gravel. They are well-drained with medium to high permeability rates. Associated with these soils in the Upper Kalamazoo Valley is the climax oak-hickory forest, together with black walnut, ash, poplar and other deciduous species. The potential productivity of these soils is very high. The soils of this association occur in all three transects, aggregating 69.9 km^2 (74%) in Transect A, 39.0 km^2 (52.6%) in Transect B, and 14.9 km^2 (18%) in Transect C.

Brady-Gilford (6)

Soils of this association are coarse textured and occupy level to depressional topography. They are developed in sandy loam to sandy clay loam outwash material overlying stratified sand and gravel. They are poorly drained with medium permeability rates. In depressional features these soils support various marsh grasses. Dominant arboreal species include the elm-ash-maple community of the swamp forest. Woodland suitability studies indicate that the potential productivity for Brady soils is low to medium, and for the Gilford soils it is low to very low. This association is confined to areas drained by Battle Creek in Transect A and Rice Creek in Transect B, aggregating 10.4 km^2 (11%) in the former and 8.1 km^2 (10.9%) in the latter.

Adrian-Houghton (8)

These are organic soils developed on muck over peat. They are level to depressional with very poor drainage. Potential productivity is moderately high for hardwoods, with red maple, silver maple, white ash, green ash and swamp white oak the dominant natural species. This association occurs only in Transect C, with characteristic swampy lowlands flanking major streams and also in close proximity to numerous upland springs and potholes. In aggregate, Adrian-Houghton soils occupy 13.6 km^2 (16.4%) of this survey transect.

Hillsdale - Elmdale (15)

These are coarse textured soils lying on gently sloping to rolling topography. They are developed in sandy loam and sandy clay loam glacial drift. Hillsdale and Elmdale soils range from moderately well-drained to well-drained and have medium permeability rates. Potential productivity for these soils is high to very high for mixed hardwoods. Common native species like red oak, bur oak, white oak, black walnut, white ash and sugar maple, together with basswood and black cherry, predominate. This association is present throughout the project area, aggregating 3.2 km^2 (3.4%) in Transect A, 27.1 km^2 (36.6%) in Transect B, and 54.4 km^2 (65.6%) in Transect C.

Upon completion of the soil maps for the three transects, the areas occupied by each association were further subdivided on the basis of whether or not permanent streams were present and, if present, their rank order relative to one another. Areas of upland lake or swamp associations were also distinguished for purposes of stratification. For those portions of a given association lacking permanent streams, the number of the soil association (e.g. Kalamazoo-Oshtemo - 4) is followed by a "zero" (0). If an area flanks the Kalamazoo River, the numbers 4-1 are used to distinguish the sampling stratum; 4-2, second order stream; 4-3, third order stream; and 4-4, upland lake/swamp.

Finally, each sampling stratum designation ends with a letter (A-C) referencing one of the three major plant communities formerly occurring in the areas delimited by the transects. These are:

A. oak and oak-hickory forest;

B. bur oak forest; and

C. wetland (swamp or bog) forest.

When all these data are taken together, for example, an area of Kalamazoo-Oshtemo soils flanking the Kalamazoo River and supporting oak and oak-hickory forest at

the time of Euro-American settlement would be included in sampling stratum 4-1-A.

In aggregate, 38 different sampling strata have been delineated in those portions of the Upper Kalamazoo Valley included within the three 1980 survey transects (Figs. 7, 8 9). Briefly, these are (with the proportion of the transects occupied by each):

Stratum 3-0-A: This stratum consists of areas of the Oakville-Spinks-Oshtemo association which lack permanent streams or standing bodies of water and support oak and oak-hickory forest.

Transect A - 6.5 km^2 (6.9%)

Stratum 3-0-B: Same as above, lacking permanent water, but characterized by bur oak forest.

Transect A - 1.9 km^2 (2%)

Stratum 3-4-A: Same as above, but with upland lake/swamp settings amidst oak and oak-hickory forest.

Transect A - 0.6 km^2 (0.6%)

Stratum 3-4-C: Same as above, but with upland lake/swamp settings surrounded by swamp or bog vegetation.

Transect A - 1.9 km^2 (2%)

Stratum 4-0-A: This stratum is characterized by Kalamazoo-Oshtemo soils, lacks permanent water and has oak and oak-hickory forest as the dominant vegetation.

Transect A - 23.3 km^2 (24.7%)

Transect B - 15.4 km^2 (20.7%)

Transect C - 5.2 km^2 (6.3%)

Stratum 4-0-B: Same association as above, lacking permanent water, but characterized by bur oak vegetation.

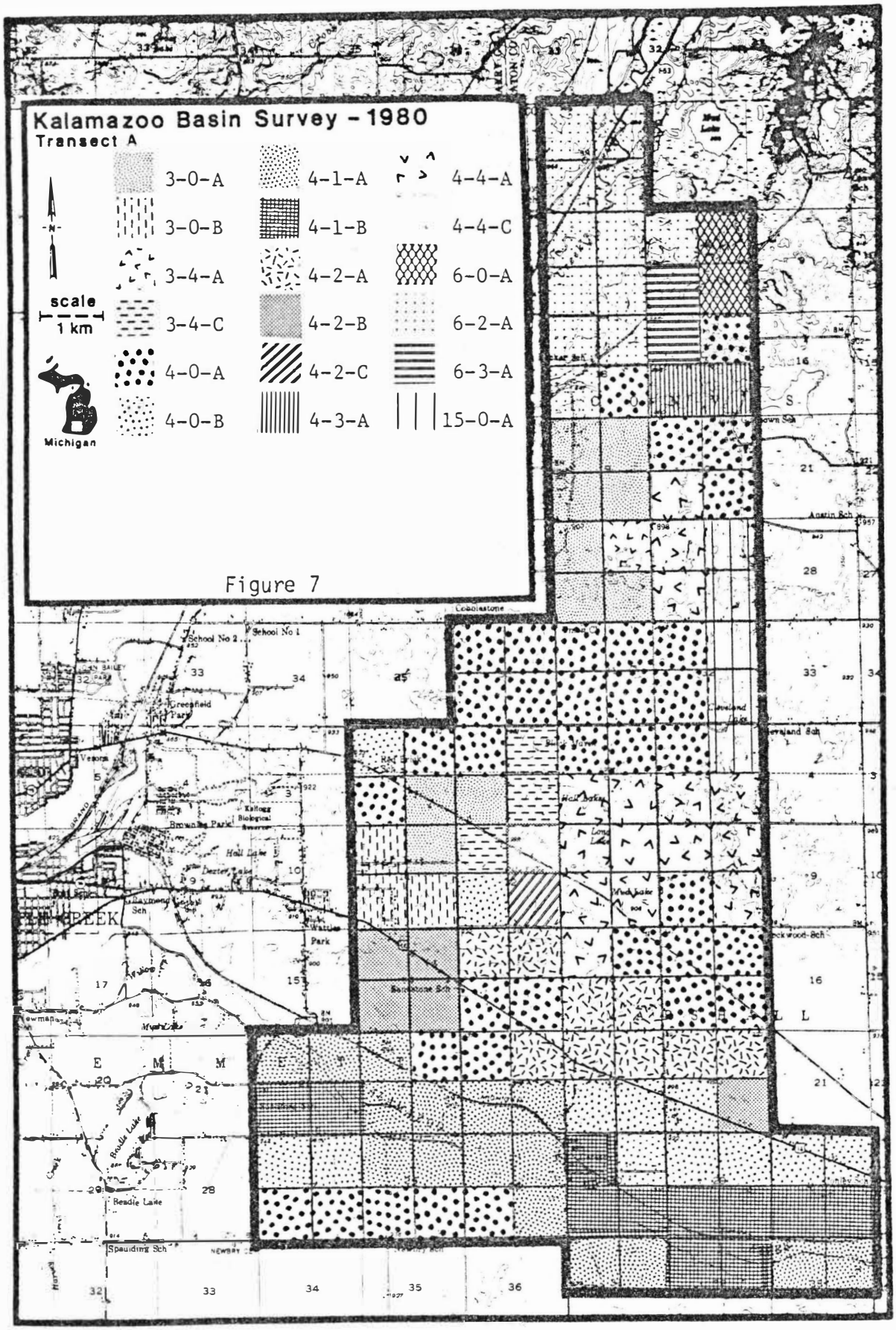

Kalamazoo Basin Survey - 1980
Transect A
3-0-A
3-0-B
3-4-A
3-4-C
4-0-A
4-0-B
4-1-A
4-1-B
4-2-A
4-2-B
4-2-C
4-3-A
4-4-A
4-4-C
6-0-A
6-2-A
6-3-A
15-0-A
N
scale
1 km
Michigan

Figure 7

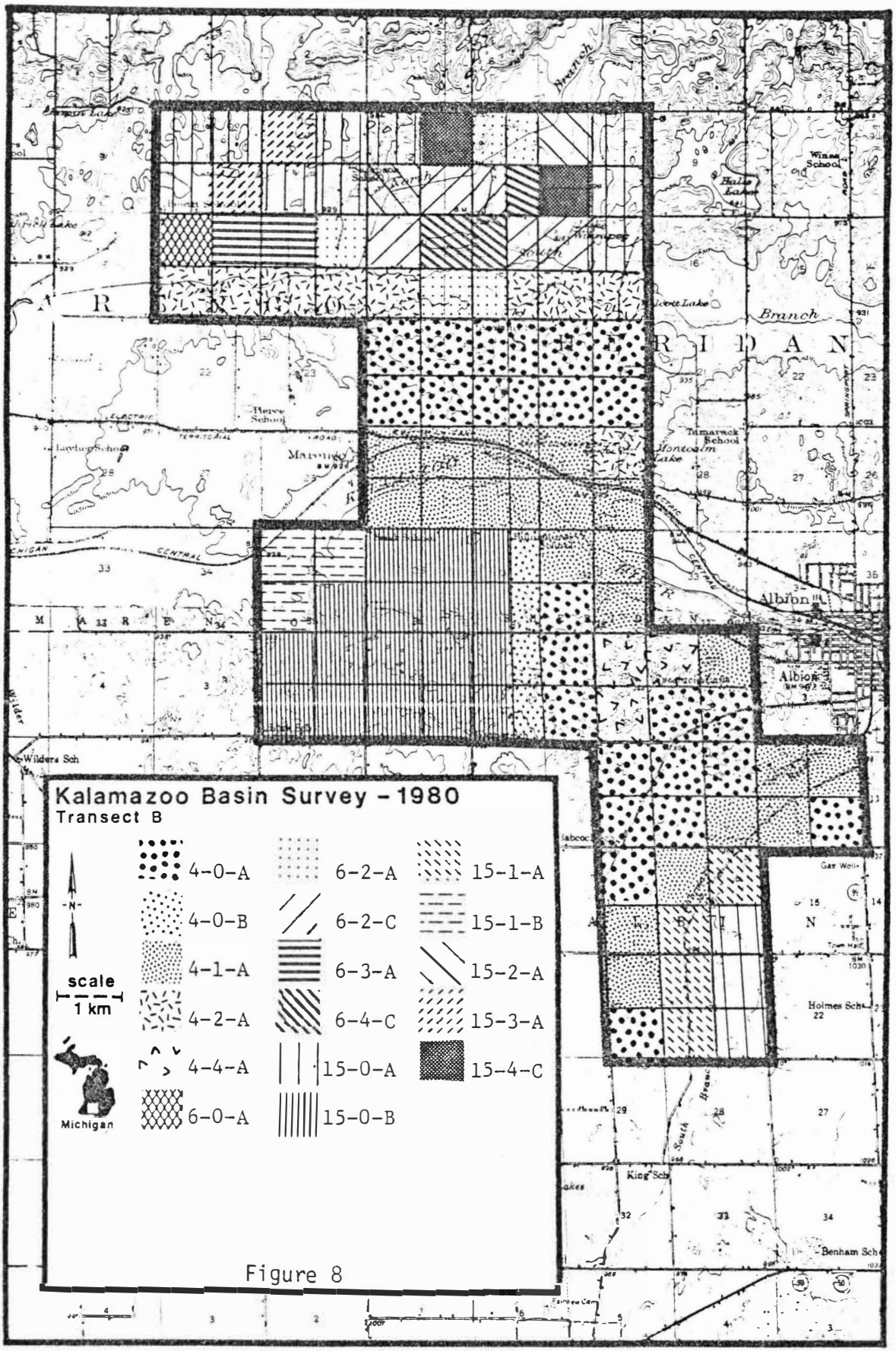

Kalamazoo Basin Survey - 1980
Transect B
4-0-A
4-0-B
4-1-A
4-2-A
4-4-A
6-0-A
6-2-A
6-2-C
6-3-A
6-4-C
15-0-A
15-0-B
15-1-A
15-1-B
15-2-A
15-3-A
15-4-C
N
scale
1 km
Michigan
Albion
Wilders Sch
Holmes Sch
King Sch
Benham Sch
Tamarack School
Mayville
Branch

Figure 8

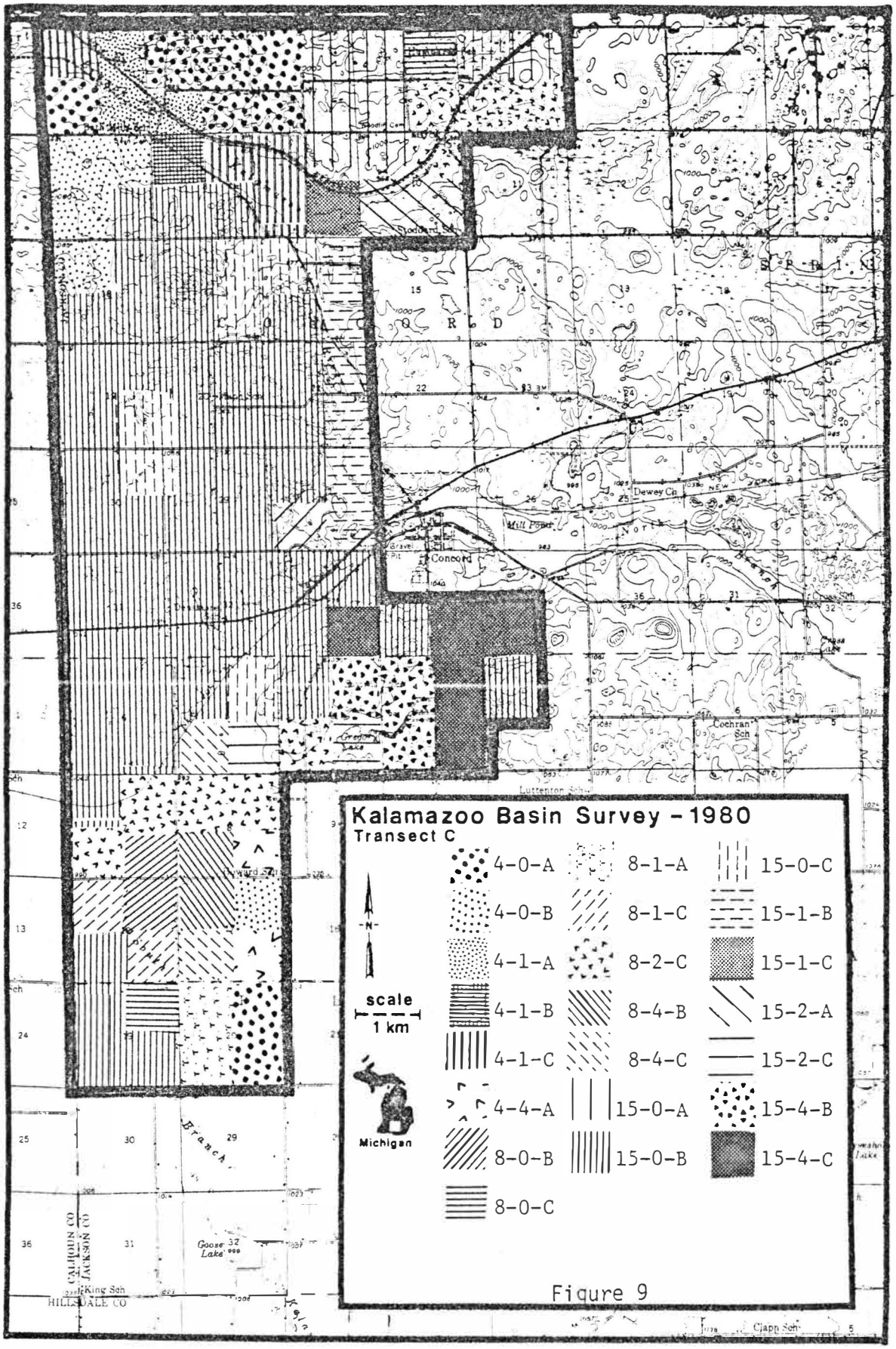

Kalamazoo Basin Survey - 1980
Transect C
4-0-A
4-0-B
4-1-A
4-1-B
4-1-C
4-4-A
8-0-B
8-0-C
8-1-A
8-1-C
8-2-C
8-4-B
8-4-C
15-0-A
15-0-B
15-0-C
15-1-B
15-1-C
15-2-A
15-2-C
15-4-B
15-4-C
N
scale
1 km
Michigan
Concord
Dewey Ch
Mill Pond
Gravel Pit
Cochran Sch
Luttenton Sch
Goose Lake
King Sch
Capp Sch
CALHOUN CO
JACKSON CO
HILLSDALE CO

Figure 9

Transect A - 7.8 km^2 (8.2%)

Transect B - 1.8 km^2 (2.4%)

Transect C - 3.2 km^2 (3.9%)

Stratum 4-1-A: Same as above, but including areas flanking the Kalamazoo River which support oak and oak-hickory forest.

Transect A - 10.4 km^2 (11%)

Transect B - 13.4 km^2 (18.1%)

Transect C - 1.9 km^2 (2.3%)

Stratum 4-1-B: Same as above, flanking the Kalamazoo River, but characterized by bur oak forest.

Transect A - 7.1 km^2 (7.5%)

Transect C - 0.6 km^2 (0.8%)

Stratum 4-1-C: Same as above, bordering the Kalamazoo River, but with wetland vegetation being dominant.

Transect C - 2.6 km^2 (3.1%)

Stratum 4-2-A: Same as above, but bordering second order streams where oak and oak-hickory forest is prevalent.

Transect A - 5.8 km^2 (6.2%)

Transect B - 6.3 km^2 (8.4%)

Stratum 4-2-B: Same as above, but flanking second order streams where bur oak forest dominates.

Transect A - 3.2 km^2 (3.4%)

Stratum 4-2-C: Same as above, but the second order stream is bordered by wetland vegetation.

Transect C - 0.6 km^2 (0.8%)

Stratum 4-3-A: Same as above, but consisting of areas bordering third order streams where oak and oak-hickory forest is common.

Transect A - 1.3 km^2 (1.4%)

Stratum 4-4-A: Same as above, but with standing bodies of water being surrounded by oak and oak-hickory forest.

Transect A - 9.7 km^2 (10.3%)

Transect B - 1.9 km^2 (2.6%)

Transect C - 1.3 km^2 (1.6%)

Stratum 4-4-C: Same as above, with standing bodies of water present, but with wetland forest dominant.

Transect A - 0.6 km^2 (0.7%)

Stratum 6-0-A: This stratum includes areas of the Brady-Gilford association which lack permanent sources of water and in which oak and oak-hickory forest is dominant.

Transect A - 1.3 km^2 (1.4%)

Transect B - 0.6 km^2 (0.9%)

Stratum 6-2-A: Same association as above, but including areas flanking second order streams which are covered by stands of oak and oak-hickory forest.

Transect A - 7.8 km^2 (8.2%)

Transect B - 2.0 km^2 (2.7%)

Stratum 6-2-C: Same as above, but including areas of wetland forest bordering second order streams.

Transect B - 2.8 km^2 (3.8%)

Stratum 6-3-A: Same as above, but containing areas of oak and oak-hickory flanked third order streams.

Transect A - 1.3 km^2 (1.4%)

Transect B - 1.3 km^2 (1.7%)

Stratum 6-4-C: Same as above, with upland lakes/swamps bordered by wetland forest.

Transect B - 1.5 km^2 (2.1%)

Stratum 8-0-B: The Adrian - Houghton association occurs only in Transect C. In this situation, no permanent water is present and bur oak forest is the dominant plant community.

Transect C - 1.3 km^2 (1.6%)

Stratum 8-0-C: Same association as above, with permanent water being absent from areas in this stratum. However, here bur oak is replaced by wetland forest.

Transect C - 1.3 km^2 (1.6%)

Stratum 8-1-A: Same as above, but areas lying within this stratum border the Kalamazoo River and support oak and oak-hickory forest.

Transect C - 1.3 km^2 (1.6%)

Stratum 8-1-C: Same as above, but with areas flanking the Kalamazoo River supporting wetland vegetation.

Transect C - 1.3 km^2 (1.6%)

Stratum 8-2-C: Same as above, but including areas flanking second order streams which support wetland forest.

Transect C - 5.8 km^2 (7.0%)

Stratum 8-4-B: Same as above, but consisting of parcels of land surrounding upland lakes/swamps and supporting bur oak forest.

Transect C - 1.3 km^2 (1.6%)

Stratum 8-4-C: Same as above, including areas of land bordering upland lakes/swamps, but with wetland forest comprising the dominant plant cover.

Transect C - 1.3 km^2 (1.6%)

Stratum 15-O-A: This stratum is characterized by Hillsdale - Elmdale soils and lacks permanent streams and standing bodies of water. The plant cover is dominated by oak and oak-hickory forest.

Transect A - 3.2 km^2 (3.4%)

Transect B - 8.4 km^2 (11.4%)

Transect C - 4.5 km^2 (5.5%)

Stratum 15-O-B: Same association as above, lacking permanent sources of water, but characterized by bur oak forest.

Transect B - 10.2 km^2 (13.8%)

Transect C - 32.4 km^2 (39.1%)

Stratum 15-O-C: Same as above, lacking permanent streams, lakes and swamps, but with wetland forest as the dominant cover.

Transect C - 4.5 km^2 (5.5%)

Stratum 15-1-A: Same as above, but with areas flanking the Kalamazoo River supporting oak and oak-hickory forest.

Transect B - 2.6 km^2 (3.5%)

Stratum 15-1-B: Same as above, but with areas bordering the Kalamazoo River supporting a cover of bur oak forest.

Transect B - 1.9 km^2 (2.6%)

Transect C - 3.9 km^2 (4.7%)

Stratum 15-1-C: Same as above, but in this single example the Kalamazoo River is flanked by wetland forest.

Transect C - 0.6 km^2 (0.8%)

Stratum 15-2-A: Same as above, but with areas along second order streams supporting a cover of oak and oak-hickory forest.

Transect B - 1.3 km^2 (1.7%)

Transect C - 1.3 km^2 (1.6%)

Stratum 15-2-C: Same as above, but areas along second order streams are characterized by wetland forest cover.

Transect C - 1.3 km^2 (1.6%)

Stratum 15-3-A: Same as above, but in this case the areas are proximal to third order streams and have oak and oak-hickory forest cover.

Transect B - 1.3 km^2 (1.7%)

Stratum 15-4-B: Same as above, consisting of areas with permanent lakes/swamps and a forest cover dominated by bur oaks.

Transect C - 2.6 km^2 (3.1%)

Stratum 15-4-C: Same as above, but with areas flanking permanent standing bodies of water supporting wetland forest.

Transect B - 1.3 km^2 (1.7%)

Transect C - 3.2 km^2 (3.9%)

As in previous years, the quarter section (64.75 ha) was established as the unit of area by which the survey transects would be sampled. A 40% stratified random sample of all quarter sections occurring within each transect was generated. Inasmuch as survey teams seldom had access to 100% of the land in a targeted unit, and in order to increase our coverage in each stratum, we unhesitatingly examined quarter sections in addition to those originally selected for investigation. Since these additional (i.e. alternative) units were also randomly drawn, the integrity of the research design has not been compromised.

In Transect A, 60 of 146 quarter sections were targeted for investigation. During the course of fieldwork, however, the survey team actually surveyed portions of 64 units, or 43.8% of the total (Fig. 10). Of 38.9 km^2 included in the sample, 15.8 km^2 (40.6%) were intensively surveyed, with coverage by stratum ranging from 0.0% to 67.9%, or 30.1% on the average for 18 sampling strata. In actuality, 15.8 km^2 represent 16.7% of the total area of 94.5 km^2

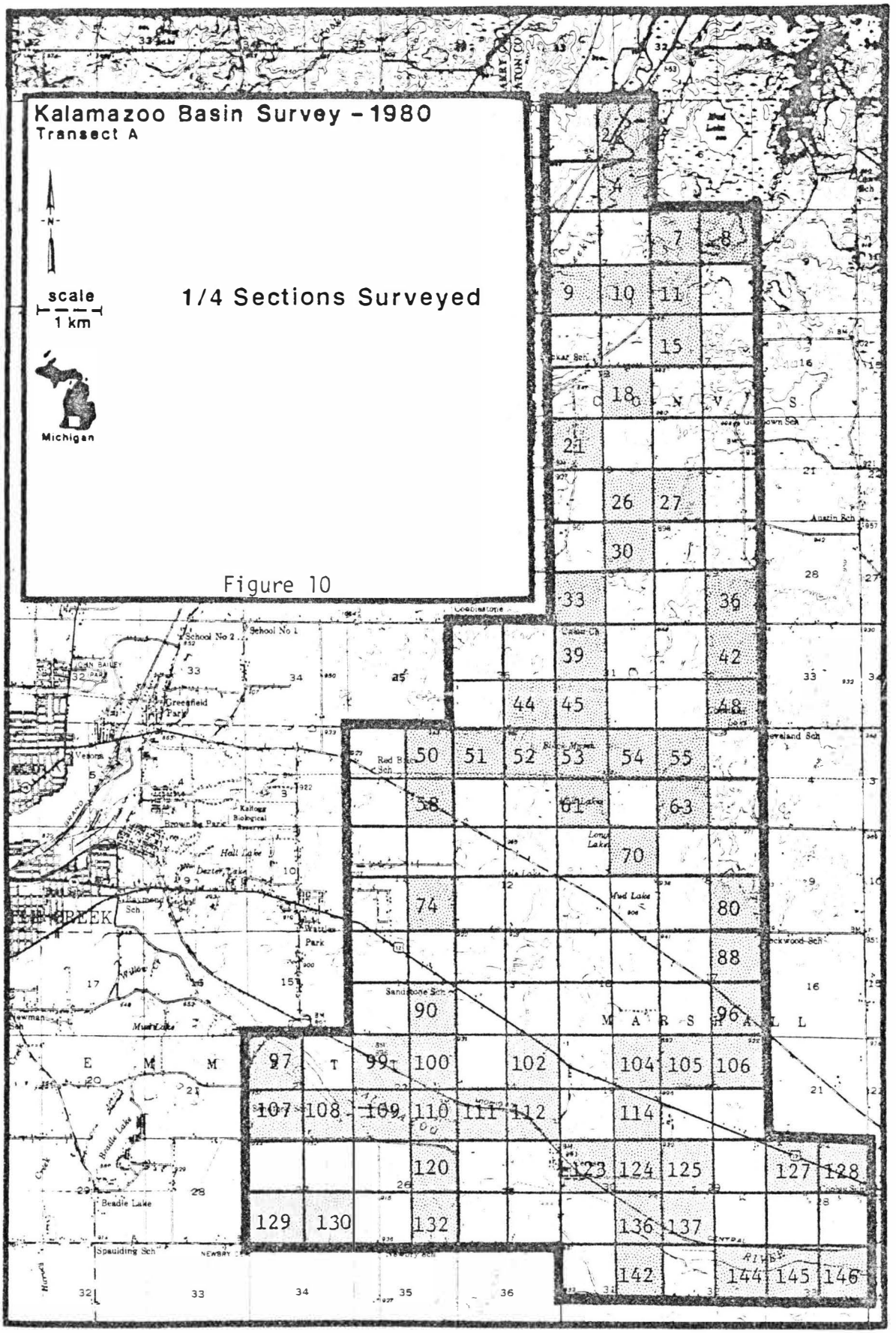

Kalamazoo Basin Survey - 1980
Transect A
N
scale
1 km
1/4 Sections Surveyed
Michigan
MARSHALL

Figure 10

Table 1: Survey Coverage of Transect A by Stratum and Random Sampling Unit (¼ Section or 64.75 ha)

Stratum 3-O-A: N = 10 (4 targeted) Objective - 259.0 ha

RS#	Coverage
21	23.9
26	18.2
33	58.7
58	26.3
4	127.1

Achieved - 49.1%

Stratum 3-O-B: N = 3 (1 targeted) Objective - 64.8 ha

RS#	Coverage
74	25.1
1	25.1

Achieved - 38.8%

Stratum 3-4-A: N = 1 (1 targeted) Objective - 64.8 ha

RS#	Coverage
30	6.1
1	6.1

Achieved - 9.4%

Stratum 3-4-C: N = 3 (1 targeted) Objective - 64.8 ha

RS#	Coverage
52	16.2
1	16.2

Achieved - 25.0%

Stratum 4-O-A: N = 36 (14 targeted) Objective - 906.5 ha

RS#	Coverage
18	8.1
39	14.2
44	23.5
45	43.7
50	36.4
51	16.2
53	32.4
54	28.3
55	24.3
88	58.7
96	54.6
100	32.4

129	33.2
130	22.3
132	16.2
15	444.5

Achieved - 49.0%

Stratum 4-0-B: N = 12 (5 targeted) Objective - 323.8 ha

RS#	Coverage
114	43.7
124	49.8
125	4.9
127	6.1
128	30.4
5	134.9

Achieved - 41.7%

Stratum 4-1-A: N = 16 (6 targeted) Objective - 388.5 ha

RS#	Coverage
97	17.4
99	2.0
109	8.1
110	54.6
111	50.6
112	10.1
120	40.5
142	36.4
145	36.0
146	8.1
10	263.8

Achieved - 67.9%

Stratum 4-1-B: N = 11 (4 targeted) Objective - 259.0 ha

RS#	Coverage
107	8.1
108	18.2
123	56.7
136	14.2
137	58.7
144	16.2
6	172.1

Achieved - 66.4%

Stratum 4-2-A: N = 9 (4 targeted) Objective - 259.0 ha

RS#	Coverage
102	26.3
104	6.1
105	13.0
106	56.7
4	102.1

Achieved - 39.4%

Stratum 4-2-B: N = 5 (2 targeted) Objective - 129.5 ha

RS#	Coverage
90	48.6
1	48.6

Achieved - 37.5%

Stratum 4-2-C: N = 1 (1 targeted) Objective - 64.8 ha

RS#	Coverage
0	0

Achieved - 0.0%

Stratum 4-3-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
0	0

Achieved - 0.0%

Stratum 4-4-A: N = 15 (6 targeted) Objective - 388.5 ha

RS#	Coverage
27	10.1
61	16.2
63	14.2
70	28.3
80	12.1
5	80.9

Achieved - 20.8%

Stratum 4-4-C: N = 1 (1 targeted) Objective - 64.8 ha

RS#	Coverage
0	0

Achieved - 0.0%

Stratum 6-0-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
8	22.3
1	22.3

Achieved - 34.4%

Stratum 6-2-A: N = 12 (5 targeted) Objective - 323.8 ha

RS#	Coverage
2	8.1
4	10.1
7	24.3
9	6.1
10	30.4
5	79.0

Achieved - 24.4%

Stratum 6-3-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
11	16.2
15	8.5
2	24.7

Achieved - 38.1%

Stratum 15-0-A: N = 5 (2 targeted) Objective - 129.5 ha

RS#	Coverage
36	2.4
42	4.9
48	24.3
3	31.6

Achieved - 24.4%

Totals:

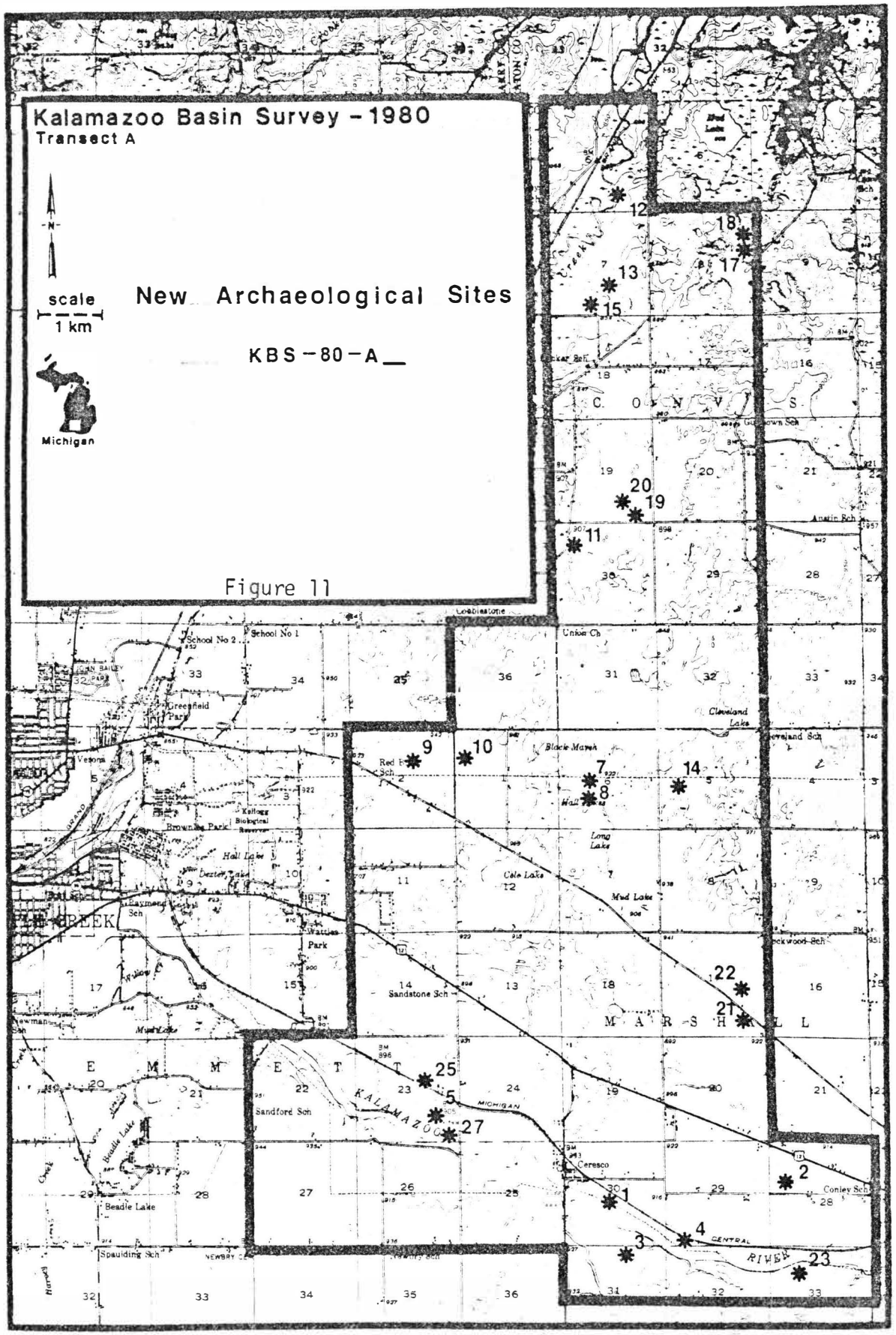
Sampling Universe	146 quarter sections (9,454 ha)
Targeted Units	60 quarter sections (3,885 ha)
Surveyed Units	64 quarter sections, with coverage of 1,579 ha (40.6%)

Summary by Stratum

Stratum 3-0-A:	4 quarter sections/127.1 ha (49.1%)
Stratum 3-0-B:	1 quarter section/25.1 ha (38.8%)
Stratum 3-4-A:	1 quarter section/6.1 ha (9.4%)
Stratum 3-4-C:	1 quarter section/16.2 ha (25.0%)
Stratum 4-0-A:	15 quarter sections/444.5 ha (49.0%)

Stratum 4-0-B:	5 quarter sections/134.9 ha (41.7%)
Stratum 4-1-A:	10 quarter sections/263.8 ha (67.9%)
Stratum 4-1-B:	6 quarter sections/172.1 ha (66.4%)
Stratum 4-2-A:	4 quarter sections/102.1 ha (39.4%)
Stratum 4-2-B:	1 quarter section/48.6 ha (37.5%)
Stratum 4-2-C:	0 quarter section/0.0 ha (0.0%)
Stratum 4-3-A:	0 quarter section/0.0 ha (0.0%)
Stratum 4-4-A:	5 quarter sections/80.9 ha (20.8%)
Stratum 4-4-C:	0 quarter section/0.0 ha (0.0%)
Stratum 6-0-A:	1 quarter section/22.3 ha (34.4%)
Stratum 6-2-A:	5 quarter sections/79.0 ha (24.4%)
Stratum 6-3-A:	2 quarter sections/24.7 ha (38.1%)
Stratum 15-0-A:	3 quarter sections/31.6 ha (24.4%)

Average coverage for 18 sampling strata = 30.1% of the land in the sample from each stratum.


Kalamazoo Basin Survey - 1980
Transect A
N
scale
1 km
New Archaeological Sites
KBS-80-A__
Michigan
12
18
17
13
15
16
20
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3
23
Figure 11

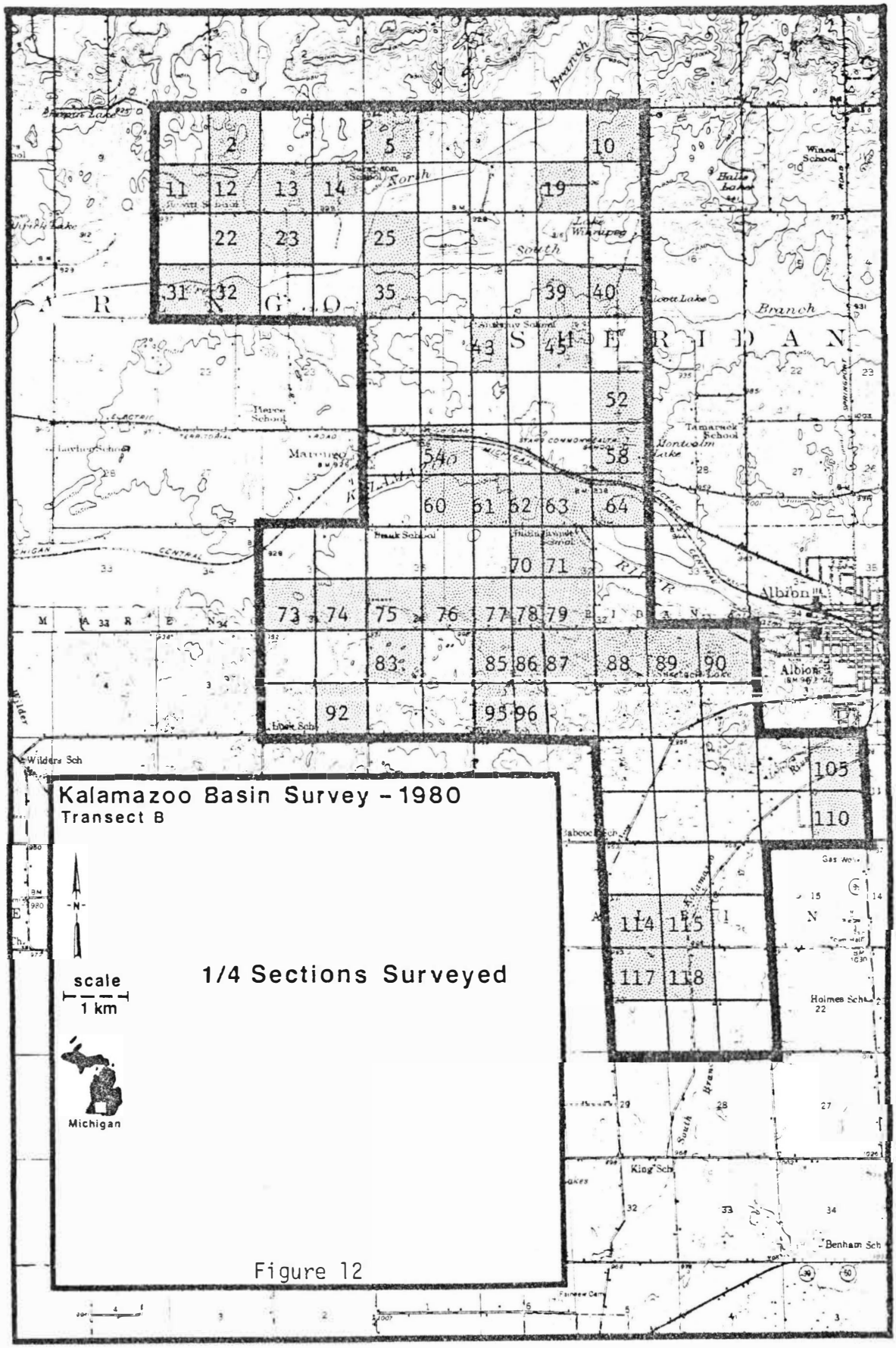

Kalamazoo Basin Survey - 1980
Transect B
1/4 Sections Surveyed
scale
1 km
Michigan

Figure 12

Table 2: Survey Coverage of Transect B by Stratum and Random Sampling Unit (¼ Section or 64.75 ha)[1]

Stratum 4-0-A: N = 25 (10 targeted) Objective - 627.3 ha

	RS#	Coverage
*	43	4.0
	45	48.6
	52	44.5
	79	46.2
	87	24.3
	110	14.2
	6	181.8

Achieved - 29.0%

Stratum 4-0-B: N = 4 (2 targeted) Objective - 89.0 ha

	RS#	Coverage
*	70	44.5
*	78	32.0
*	86	10.1
*	96	36.0
	4	122.6

Achieved - 137.7%

Stratum 4-1-A: N = 22 (9 targeted) Objective - 542.3 ha

	RS#	Coverage
	54	20.2
	60	24.3
*	61	40.4
*	62	40.5
	63	24.3
	64	34.4
	71	48.0
	90	56.6
	105	12.1
	114	32.4
	117	10.1
	11	343.3

Achieved - 63.3%

Stratum 4-2-A: N = 10 (4 targeted) Objective - 259.0 ha

RS#	Coverage
31	32.4
32	16.1
35	14.0
39	8.1

[1] Some ¼ sections in this transect contain 44.5 ha rather than 64.75 ha. These are indicated by an (*) in the table, and for strata in which "short" ¼ sections occur the target area has been adjusted.

40	48.0	
58	11.0	
6	129.6	Achieved - 50.0%

Stratum 4-4-A: N = 3 (1 targeted) Objective - 64.8 ha

RS#	Coverage	
88	26.3	
89	24.3	
2	50.6	Achieved - 78.1%

Stratum 6-0-A: N = 1 (1 targeted) Objective - 64.8 ha

RS#	Coverage	
0	0	Achieved - 0.0%

Stratum 6-2-A: N = 4 (2 targeted) Objective - 89.0 ha

RS#	Coverage	
0	0	Achieved - 0.0%

Stratum 6-2-C: N = 5 (2 targeted) Objective - 129.5 ha

RS#	Coverage	
25	18.2	
1	18.2	Achieved - 14.1%

Stratum 6-3-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage	
22	24.0	
23	24.3	
2	48.3	Achieved - 74.6%

Stratum 6-4-C: N = 3 (1 targeted) Objective - 44.5 ha

RS#	Coverage	
0	0	Achieved - 0.0%

Stratum 15-0-A: N = 13 (5 targeted) Objective - 323.8 ha

RS#	Coverage
2	44.6
5	36.4
10	15.0
11	26.3
13	63.0
14	52.2
6	237.5

Achieved - 73.4%

Stratum 15-0-B: N = 17 (7 targeted) Objective - 392.6 ha

	RS#	Coverage
	74	36.0
	75	36.4
	76	24.3
*	77	40.5
	83	1.4
*	85	44.5
	92	16.2
*	95	40.5
	8	239.8

Achieved - 61.1%

Stratum 15-1-A: N = 4 (2 targeted) Objective - 129.5 ha

RS#	Coverage
115	48.6
118	32.4
2	81.0

Achieved - 62.5%

Stratum 15-1-B: N = 3 (1 targeted) Objective - 64.8 ha

RS#	Coverage
73	12.1
1	12.1

Achieved - 18.7%

Stratum 15-2-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
0	0

Achieved - 0.0%

Stratum 15-3-A: N = 2 (1 targeted) Objective 64.8 ha

RS#	Coverage
12	12.8
1	12.8

Achieved - 19.8%

Stratum 15-4-C: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
19	6.1
1	6.1

Achieved - 9.4%

Totals:

Sampling Universe	122 quarter sections (7,414 ha)
Targeted Units	51 quarter sections (3,080 ha)
Surveyed Units	51 quarter sections, with coverage of 1,484 ha (48.2%)

Summary by Stratum

Stratum 4-0-A:	6 quarter sections/181.8 ha (29.0%)
Stratum 4-0-B:	4 quarter sections/122.6 ha (137.7%)
Stratum 4-1-A:	11 quarter sections/343.3 ha (63.3%)
Stratum 4-2-A:	6 quarter sections/129.6 ha (50.0%)
Stratum 4-4-A:	2 quarter sections/50.6 ha (78.1%)
Stratum 6-0-A:	0 quarter sections/0.0 ha (0.0%)
Stratum 6-2-A:	0 quarter sections/0.0 ha (0.0%)
Stratum 6-2-C:	1 quarter section/18.2 ha (14.1%)
Stratum 6-3-A:	2 quarter sections/48.3 ha (74.6%)
Stratum 6-4-C:	0 quarter sections/0.0 ha (0.0%)
Stratum 15-0-A:	6 quarter sections/237.5 ha (73.4%)
Stratum 15-0-B:	8 quarter sections/239.8 ha (61.1%)
Stratum 15-1-A:	2 quarter sections/81.0 ha (62.5%)
Stratum 15-1-B:	1 quarter section/12.1 ha (18.7%)
Stratum 15-2-A:	0 quarter sections/0.0 ha (0.0%)
Stratum 15-3-A:	1 quarter section/12.8 ha (19.8%)
Stratum 15-4-C:	1 quarter section/6.1 ha (9.4%)

Average coverage for 17 sampling strata = 40.7% of the land in the sample from each stratum.

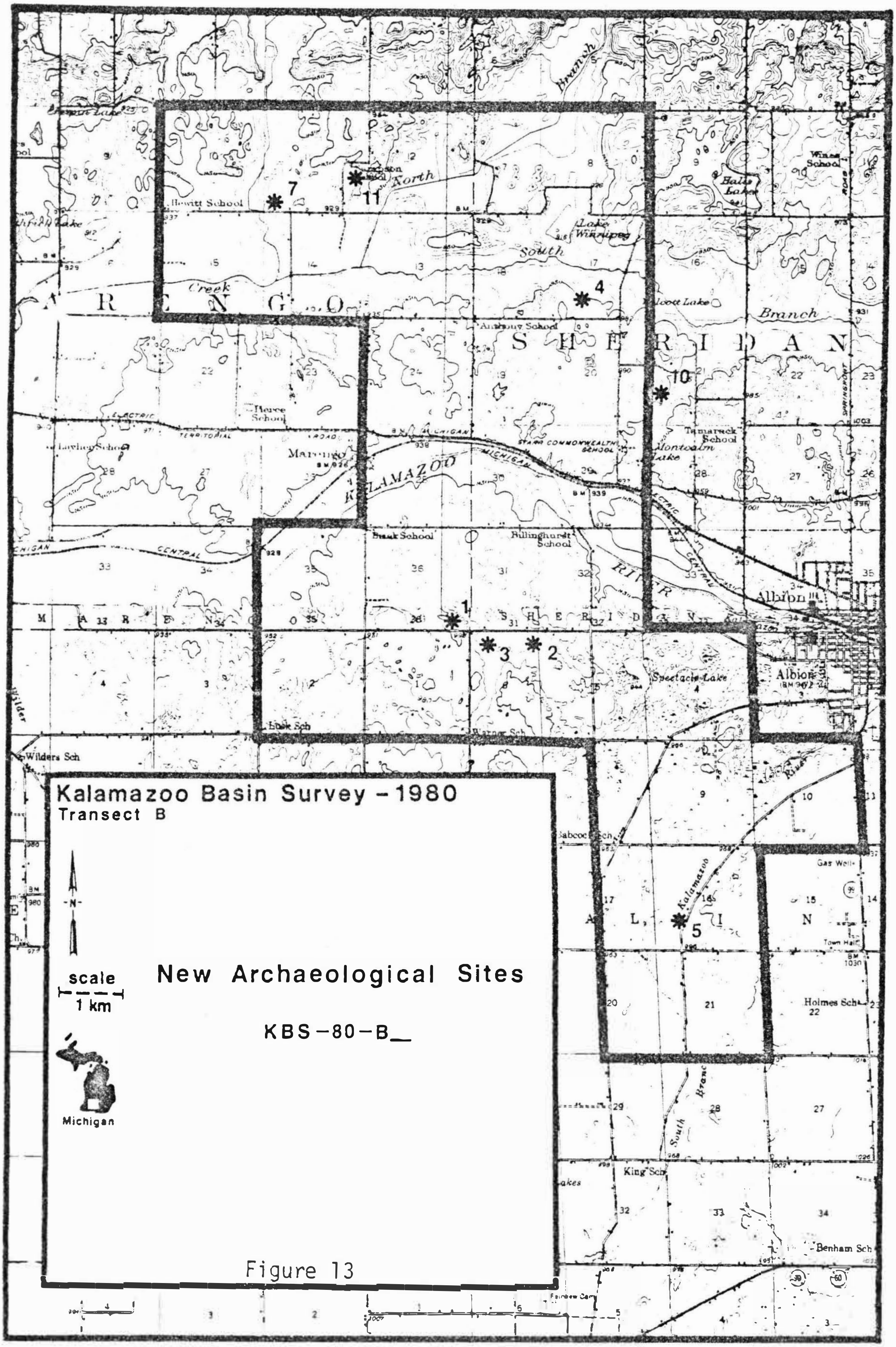

Kalamazoo Basin Survey - 1980
Transect B
-N-
scale
1 km
Michigan
New Archaeological Sites
KBS-80-B_
Kalamazoo River
Albion
Marengo
Sheridan
Spectacle Lake
Lake Winnipeg
Hewitt School
Tamarack School
Billinghurst School
Michigan Central

Figure 13

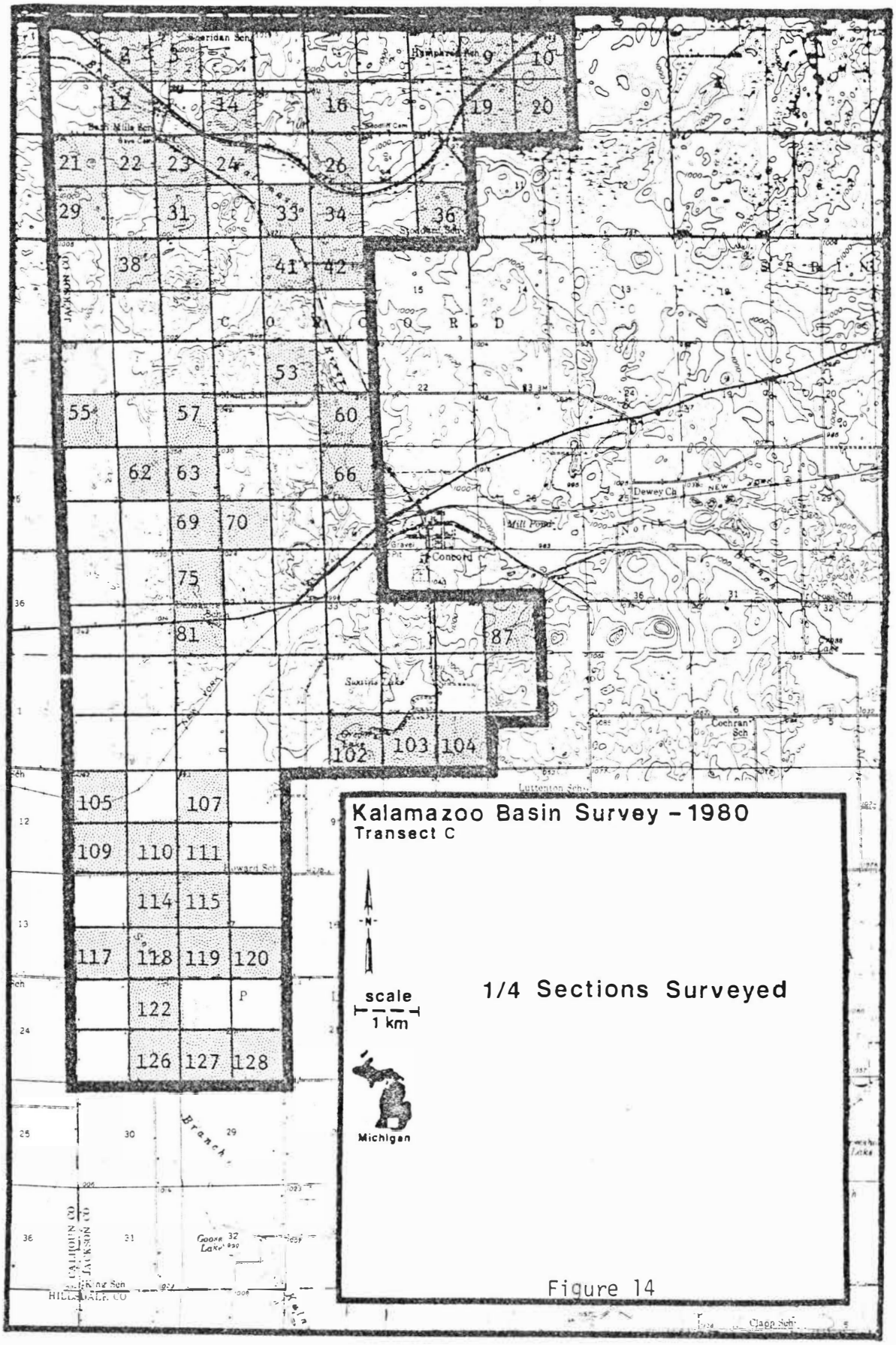

Kalamazoo Basin Survey - 1980
Transect C
N
scale
1 km
1/4 Sections Surveyed
Michigan

Figure 14

Table 3: Survey Coverage of Transect C by Stratum and Random Sampling Unit (¼ Section or 64.75 ha)

Stratum 4-0-A: N = 8 (3 targeted) Objective - 194.3 ha

RS#	Coverage
3	24.3
14	24.3
128	12.2
3	60.8

Achieved - 31.3%

Stratum 4-0-B: N = 5 (2 targeted) Objective - 129.5 ha

RS#	Coverage
21	35.6
22	12.1
29	20.2
3	67.9

Achieved - 52.4%

Stratum 4-1-A: N = 3 (1 targeted) Objective - 64.8 ha

RS#	Coverage
2	16.2
12	10.1
2	26.3

Achieved - 40.6%

Stratum 4-1-B: N = 1 (1 targeted) Objective - 64.8 ha

RS#	Coverage
23	34.4
1	34.4

Achieved - 53.1%

Stratum 4-1-C: N = 4 (2 targeted) Objective - 129.5 ha

RS#	Coverage
24	16.2
33	11.3
2	27.5

Achieved - 21.2%

Stratum 4-4-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
120	20.2
1	20.2

Achieved - 31.2%

Stratum 8-0-B: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
110	16.2
114	22.3
2	38.5

Achieved - 59.5%

Stratum 8-0-C: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
122	34.4
1	34.4

Achieved - 53.1%

Stratum 8-1-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
127	20.2
1	20.2

Achieved - 31.2%

Stratum 8-1-C: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
118	29.3
1	29.3

Achieved - 45.3%

Stratum 8-2-C: N = 9 (4 targeted) Objective - 259.0 ha

RS#	Coverage
19	8.1
20	15.8
107	28.3
109	14.2
4	66.4

Achieved - 25.6%

Stratum 8-4-B: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
111	11.3
115	24.3
2	35.6

Achieved - 55.0%

Stratum 8-4-C: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
119	20.2
1	20.2

Achieved - 31.2%

Stratum 15-O-A: N = 7 (3 targeted) Objective - 194.3 ha

RS#	Coverage
10	32.4
16	24.3
26	20.2
3	76.9

Achieved - 39.6%

Stratum 15-O-B: N = 50 (20 targeted) Objective - 1295.0 ha

RS#	Coverage
31	18.2
38	12.1
53	32.4
55	6.1
57	32.4
63	32.4
69	22.7
70	36.4
75	16.2
81	39.7
105	40.5
117	22.3
126	27.3
13	338.7

Achieved - 26.2%

Stratum 15-O-C: N = 7 (3 targeted) Objective - 194.3 ha

RS#	Coverage
9	20.2
41	10.1
62	2.4
3	32.7

Achieved - 16.8%

Stratum 15-1-B: N = 6 (2 targeted) Objective - 129.5 ha

RS#	Coverage
42	28.3
60	30.4
66	12.1
3	70.8

Achieved - 54.7%

Stratum 15-1-C: N = 1 (1 targeted) Objective - 64.8 ha

RS#	Coverage
34	24.3
1	24.3

Achieved - 37.5%

Stratum 15-2-A: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
36	30.4
1	30.4

Achieved - 46.9%

Stratum 15-2-C: N = 2 (1 targeted) Objective - 64.8 ha

RS#	Coverage
102	12.1
1	12.1

Achieved - 18.7%

Stratum 15-4-B: N = 4 (2 targeted) Objective - 129.5 ha

RS#	Coverage
103	28.3
1	28.3

Achieved - 21.9%

Stratum 15-4-C: N = 5 (2 targeted) Objective - 129.5 ha

RS#	Coverage
87	7.4
104	4.0
2	11.4

Achieved - 8.8%

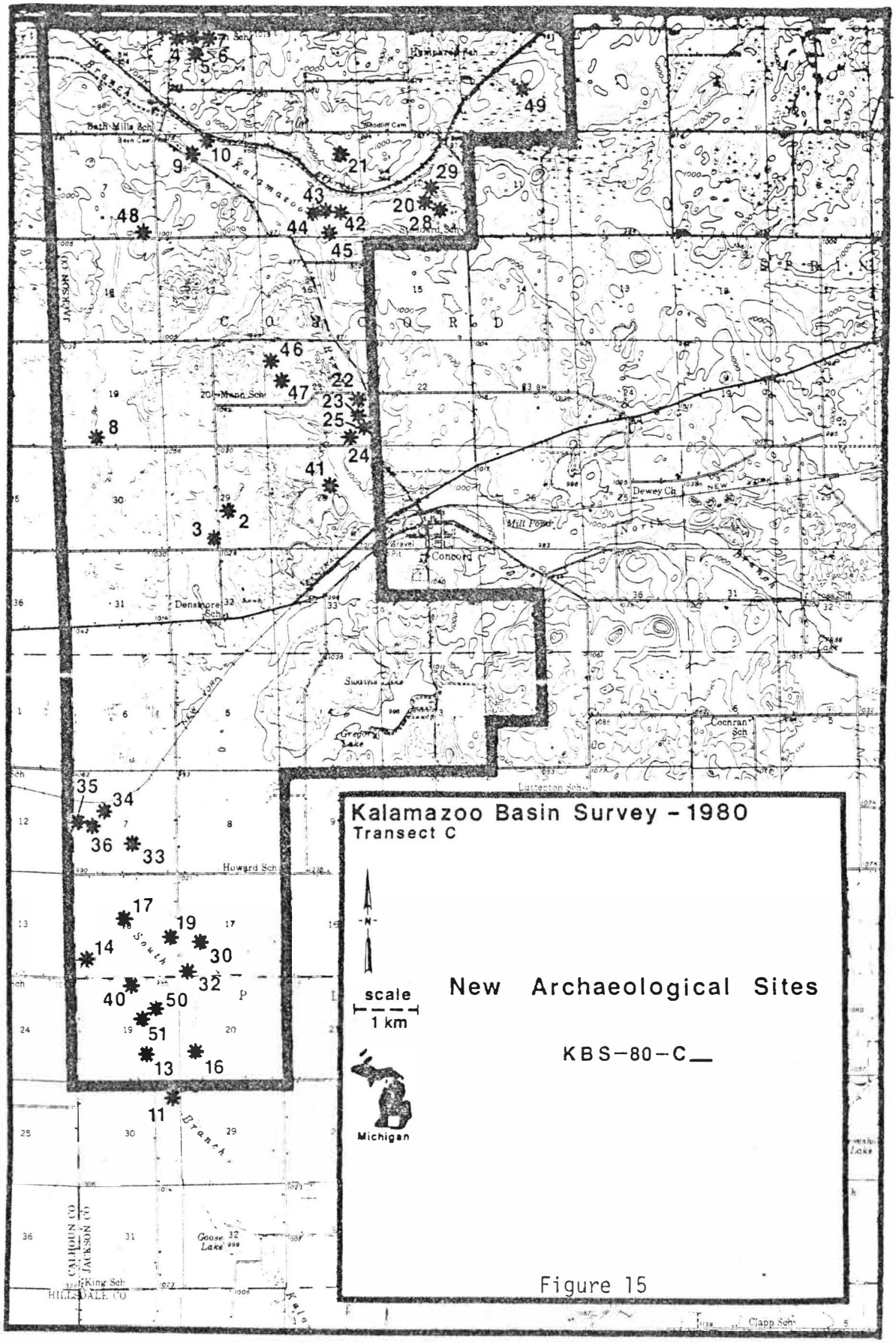
Totals:

Sampling Universe	128 quarter sections (8,288 ha)	
Targeted Units	55 quarter sections (3,561 ha)	
Surveyed Units	52 quarter sections, with coverage of	1,107 ha (31.1%)

Summary by Stratum

Stratum 4-0-A:	3 quarter sections/60.8 ha (31.3%)
Stratum 4-0-B:	3 quarter sections/67.9 ha (52.4%)
Stratum 4-1-A:	2 quarter sections/26.3 ha (40.6%)
Stratum 4-1-B:	1 quarter section/34.4 ha (53.1%)
Stratum 4-1-C:	2 quarter sections/27.5 ha (21.2%)
Stratum 4-4-A:	1 quarter section/20.2 ha (31.2%)
Stratum 8-0-B:	2 quarter sections/38.5 ha (59.5%)
Stratum 8-0-C:	1 quarter section/34.4 ha (53.1%)
Stratum 8-1-A:	1 quarter section/20.2 ha (31.2%)
Stratum 8-1-C:	1 quarter section/29.3 ha (45.3%)
Stratum 8-2-C:	4 quarter sections/66.4 ha (25.6%)
Stratum 8-4-B:	2 quarter sections/35.6 ha (55.0%)
Stratum 8-4-C:	1 quarter section/20.2 ha (31.2%)
Stratum 15-0-A:	3 quarter sections/76.9 ha (39.6%)
Stratum 15-0-B:	13 quarter sections/338.7 ha (26.2%)
Stratum 15-0-C:	3 quarter sections/32.7 ha (16.8%)
Stratum 15-1-B:	3 quarter sections/70.8 ha (54.7%)
Stratum 15-1-C:	1 quarter section/24.3 ha (37.5%)
Stratum 15-2-A:	1 quarter section/30.4 ha (46.9%)
Stratum 15-2-C:	1 quarter section/12.1 ha (18.7%)
Stratum 15-4-B:	1 quarter section/28.3 ha (21.9%)
Stratum 15-4-C:	2 quarter sections/11.4 ha (8.8%)

Average coverage for 22 sampling strata = 36.4% of the land in the sample from each stratum.


Kalamazoo Basin Survey - 1980
Transect C
N
scale
1 km
New Archaeological Sites
KBS-80-C__
Michigan
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Concord
Dewey Ch
Still Pond
Denslow Sch
Swains Lake
Gregory Lake
Cochran Sch
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33
Howard Sch
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19
14
30
32
40
50
51
13
16
11
Goose Lake
King Sch
CALHOUN CO
JACKSON CO
HILLSDALE CO
Clapp Sch

Figure 15

included in Transect A. Surveyor coverage in this transect by stratum and random sampling unit is summarized in Table 1. For our efforts we realized an addition of 23 prehistoric sites (Fig. 11) to the one which had previously been recorded.

In Transect B, 51 of 122 quarter sections were selected for investigation. Here, only the required number of units, representing 41.8%, were evaluated (Fig. 12). Of 30.8 km^2 included in the sample from this transect, 14.8 km^2 (48.2%) were evaluated, with coverage by stratum ranging between 0.0% and 137.7%, or 40.7% on the average for 18 sampling strata. In this instance, 14.8 km^2 represent 20% of the 74.1 km^2 delineated by transect boundaries. Surveyor coverage of Transect B is provided in Table 2, and Figure 13 shows the locations of 8 sites found by the survey team working in this area.

In Transect C, 55 of 128 quarter sections were selected for intensive pedestrian survey. However, surveyors were able to evaluate only 52 units prior to the termination of fieldwork, or 40.6% of the total (Fig. 14). Of 35.6 km^2 included in the sample, 11.1 km^2 (31.1%) were investigated, with coverage by stratum ranging from 8.8% to 59.5%, or 36.4% on the average for 22 sampling strata. Coverage of 11.1 km^2 represents 13.4% of the total area of 82.9 km^2 included in this transect. Surveyor coverage of Transect C is summarized in Table 3. Figure 15 shows locations of 41 prehistoric sites which were added to the one which had been recorded in this area prior to 1980.

B. Field Procedures

Survey methods for the 1980 field season were basically consistent with those of previous years. Two survey crews were organized, each consisting of a field supervisor, two field assistants and two student volunteers who rotated in weekly from the WMU archaeological field school. In addition, the senior author and project director, Dr. Cremin, spent several days in the field each week, alternating between the two teams. Transects A and B were surveyed separately, but Transect C was divided between the teams and investigated concurrently by them.

Guided by the list of randomly selected quarter sections generated for each transect, the survey teams sought access to parcels which were under cultivation or otherwise afforded good surface visibility. Pedestrian survey of cultivated fields was accomplished by a line of surveyors spaced at 25 m intervals; the team then moved in a zigzag fashion in the direction of the furrows for the length of the field. More specifically, each person first walked 10 paces to the left at a 45° angle, then turned 90° to the right and walked 20 paces, then to the left for 20 paces, and so on across the field. The team maintained this pattern of movement until every surveyor reached the far end of the field, at which point the line shifted 25 m beyond the person at the end of the line and commenced movement in the opposite direction. This procedure was repeated until the entire parcel had been covered in search of cultural material.

Parcels of land not under cultivation but which displayed some surface visibility (e.g. erosional features, areas of sparse vegetative cover) were also examined as the opportunity arose. Furthermore, a tubular soil probe was used occasionally to examine subsurface strata in areas of high site potential but low surface visibility. However, most quarter sections lacking

sufficient cultivated acreage were replaced by a randomly selected alternate sampling unit from the same survey stratum.

Surveyors were instructed to look for any evidence which would suggest a former occupation or activity area. If a scatter of cultural material was encountered by one person, the entire team assembled in this area in order to better delineate the site and to locate any diagnostic artifacts. Archaeological sites were defined by the appearance of lithic debris, stone tools or tool fragments, prehistoric ceramics, or exposed features. A scatter of fire cracked rock, alone, was not considered sufficient for definition of a site unless accompanied by more supportive cultural material.

In addition to pedestrian survey, the KBS teams visited local libraries and courthouses and interviewed collectors and other informants in order to learn more about site locations occurring within each transect. Whenever possible, informant sites with an established provenience were visited and confirmed by surveyors. Private artifact collections were also photographed for the KBS records.

Daily survey events were recorded in a transect log book by the field supervisor. Throughout the day, parcels surveyed were discussed by team members and any observations or significant findings were entered into the log. Other log entries included comments about site locations, topography, drainage, surface visibility, informant data and artifact collections, daily surveyor coverage, and vehicle mileage. New archaeological sites recorded by surveyors were also documented on a KBS site form which included a detailed sketch map of the quarter section in which a site was found. Any cultural material collected from archaeological sites was placed in labeled paper bags and submitted each day to the KBS laboratory at WMU.

C. Curation of Cultural Materials

All cultural material recovered during the survey was cleaned, labeled with a KBS site number (KBS-80-___), examined, and accessioned into the collections housed in the Department of Anthropology. In addition, the entire contents of each surface collection bag were inventoried and recorded on a 5-year KBS archaeological site roster. Finally, each KBS site was registered with the Michigan History Division and the State number assigned to the site was placed on the KBS site form and added to the artifact label.

Following completion of the cataloging process, all diagnostic artifacts were assembled with all previously collected KBS artifacts in order to facilitate comprehensive analysis during the coming year. The remaining cultural material was stored in the WMU collections for future reference and study.

5. Description of Sites Recorded and Catalog of Surface Collections

With respect to the following brief site descriptions, the cultural affiliation/temporal placement of sites is based upon an assessment of diagnostic artifacts and/or ceramic pieces in the collections. Relative significance reflects our evaluation of each site's potential interpretive value with respect to Western Michigan University's current research objectives, which include the establishment of a cultural chronology and the delineation of prehistoric land use patterns in the Kalamazoo River Valley. In accordance with the goals, a "low, moderate, or high priority" has been assigned to each site described.

Unless otherwise indicated, the data collected through surface survey and inventoried below are at this time regarded as being insufficient for making an assessment of the eligibility of sites for listing in the National Register of Historic Places.

A. New Sites in Transect A

KBS-80-A1
20 CA 17

Sackrider #1 is a light lithic and FCR scatter in the NE¼, NE¼, SW¼ of Section 30, Marshall Township, T2S R6W, Calhoun County, Michigan. The site covers an area of about 200 m^2 and is located on the floodplain north of and approximately 15 m from the Kalamazoo River. The discovery of this site may confirm the location of a village site which Hinsdale (1931) has located in this same area. Cultural affiliation is undetermined. Low priority.

7 flakes

KBS-80-A2
20 CA 18

The G. & G. site consists of an isolated find in the NE¼, SW¼, NW¼ of Section 28, Marshall Township, T2S R6W, Calhoun County, Michigan. Situated on level terrain, this site is approximately 1.2 km north of the Kalamazoo River. Cultural affiliation is undetermined. Low priority.

1 projectile point base

KBS-80-A3
20 CA 19

The Furu site consists of an isolated projectile point found in the N½, NW¼, NE¼ of Section 31, Marshall Township, T2S R6W, Calhoun County, Michigan. Probably Middle or Late Woodland in age, this site is located on rolling terrain approximately 64 m south of the Kalamazoo River. Low priority.

1 expanding stem projectile point (Gibson)

KBS-80-A4
20 CA 20

The Glotfelty site is a light lithic and FCR scatter in the SE¼, SW¼, SW¼ of Section 29, Marshall Township, T2S R6W, Calhoun County, Michigan. This site covers an area of about 24 m^2 and is located on a level bench approximately 35 m north of the Kalamazoo River. Cultural affiliation is undetermined. Low priority.

1 projectile point tip
3 flakes

KBS-80-A5
20 CA 21

Sackrider #2 is a lithic and FCR scatter in the center of the SE¼ of Section 23, Emmett Township, T2S R7W, Calhoun County, Michigan. This site covers an area of about 5000 m^2 along a 900 ft. ridge and is located some 100 m north of the Kalamazoo River. Hinsdale's (1931) location of an aboriginal village in the SE¼ of Section 23 appears confirmed by this discovery. Cultural affiliation is undetermined. Moderate priority.

1 projectile point tip
4 flakes
2 utilized flakes

KBS-80-A7
20 CA 22

Capman #1 is a "hearth" feature and FCR concentration in the NW¼, NE¼, SW¼ of Section 6, Marshall Township, T2S R6W, Calhoun County, Michigan. The site covers an area of about 100 m^2 and is located on a small ridge above marshy lowlands approximately 200 m northeast of glacially formed Hall Lakes. The associated lithic scatter is very light and the cultural affiliation is undetermined. Low priority.

1 quartzite biface
1 quartzite core fragment
5 flakes
1 historic glass fragment

KBS-80-A8
20 CA 23

Capman #2 consists of two hearths associated with FCR concentrations and situated 4 m apart in SW¼, NE¼, SW¼ of Section 6, Marshall Township, T2S R6W, Calhoun County, Michigan. This site covers an area of about 900 m^2 and is located on the same ridge as Capman #1, overlooking marshy lowlands approximately 200 m northeast of glacially formed Hall Lakes. The lithic scatter is very light and the cultural affiliation is unknown. Low priority.

3 flakes

KBS-80-A9
20 CA 24

Hiscock #1 is an isolated find in the middle of the N½, SW¼, NE¼ of Section 2, Emmett Township, T2S R7W, Calhoun County, Michigan. This site is located on a gently rolling till plain and has no observable water source within 2 km. Cultural affiliation is unknown. Low priority.

1 projectile point tip

KBS-80-A10
20 CA 25

Hiscock #2 is an informant site representing an isolated find in the NW¼, SW¼, NW¼ of Section 1, Emmett Township, T2S R7W, Calhoun County, Michigan. This site is situated in the Hiscock graden and has no observable water source within 2 km. Cultural affiliation is undetermined. Low priority.

1 stemmed projectile point - Hiscock collection

KBS-80-A11
20 CA 26

Christophel #1 is an informant site located in the SE¼, NW¼, NW¼ of Section 30, Convis Township, T1S R6W, Calhoun County, Michigan. The site is represented by a projectile point found in the mudflats just west of a drainage ditch about 200 m east of 12 Mile Road. Cultural affiliation is undetermined. Low priority.

1 projectile point fragment - Christophel collection

KBS-80-A12
20 CA 27

Pearson #1 is a moderately extensive scatter of lithic and ceramic debris together with FCR in the NE¼, SW¼, SE¼ of Section 6, Convis Township, T1S R6W, Calhoun County, Michigan. The debris covers an area of about 5625 m^2 and is located along the stream bank approximately 15 m east of Battle Creek. Cultural affiliation is undetermined. Moderate to high priority.

1 uniface
25 flakes
1 utilized flake
1 prehistoric sherd

KBS-80-A13
20 CA 28

The Kent site is a light lithic scatter with FCR in the SW¼, NW¼, SE¼ of Section 7, Convis Township, T1S R6W, Calhoun County, Michigan. This site covers an area of about 600 m^2 in the lowlands approximately 50 m south of Goose Creek and 800 m southeast of Battle Creek. Cultural affiliation is probably Late Archaic. Low priority.

1 projectile point base (Durst)
5 flakes

KBS-80-A14
20 CA 29

The Hoffman site is a light lithic scatter in the NE¼, NW¼, SW¼ of Section 5, Marshall Township, T2S R6W, Calhoun County, Michigan. The scatter covers an area of about 150 m^2 and is located on a glacial knoll surrounded by marshy lowlands. Cultural affiliation is undetermined. Low priority.

3 flakes

KBS-80-A15
20 CA 30

The Miller site is a lithic and FCR scatter situated in the middle of the E½, SE¼, SW¼ of Section 7, Convis Township, T1S R6W, Calhoun County, Michigan. The site covers an area of about 600 m^2 and is located in marshy lowland terrain approximately 400 m south of Goose Creek and 800 m southeast of Battle Creek. Cultural affiliation is undetermined. Low priority.

1 utilized flake
7 flakes

KBS-80-A17
20 CA 31

West #1 is an isolated find in the NE¼, SE¼, NE¼ of Section 8, Convis Township, T1S R6W, Calhoun County, Michigan. This upland site is located on steeply rolling terrain surrounded by marsh approximately 1 km south of Ackley Creek. The North Branch Kalamazoo River is about 2.4 km southwest of this site. Undetermined cultural affiliation. Low priority.

1 biface midsection

KBS-80-A18
20 CA 32

West #2 is represented by an isolated projectile point found in the SE¼, NE¼, NE¼ of Section 8, Convis Township, T1S R6W, Calhoun County, Michigan. This upland site is located on steeply rolling terrain surrounded by marshy lowlands. Ackley Creek lies about 1 km to the north, and the North Branch Kalamazoo River is some 2.4 km west of the site. Cultural affiliation is most probably Early Archaic. Low priority.

1 side-notched projectile point (Thebes Cluster)

KBS-80-A19
20 CA 33

The Hart site is a light lithic scatter in the SW¼, SE¼, SE¼ of Section 19, Convis Township, T1S R6W, Calhoun County, Michigan. This scatter covers an area of about 1250 m^2 and is located on the west edge of a low marshland approximately 2.5 km southeast of Battle Creek. Cultural affiliation is undetermined. Low priority.

1 projectile point tip
4 flakes

KBS-80-A20
20 CA 34

Christophel #2 produced an isolated projectile point and is located in the NE¼, SW¼, SE¼ of Section 19, Convis Township, T1S R6W, Calhoun County, Michigan. It is situated in the mudflats approximately 250 m east of an intermittent stream and 2.5 km southeast of Battle Creek. This site is probably late Middle Woodland or early Late Woodland in age. Low priority.

1 corner-notched projectile point (Jack's Reef)

KBS-80-A21
20 CA 35

The Avery site consists of an isolated projectile point found in the middle of the W½, SE¼, SE¼ of Section 17, Marshall Township, T2S R6W, Calhoun County, Michigan. It is situated on a level till plain and has no observable natural water source within 600 m. As was the case with the previous site, Avery is probably late Middle Woodland or early Late Woodland in age. Low priority.

1 corner-notched projectile point (Jack's Reef)

KBS-80-A22
20 CA 36

The Pickle site consists of an isolated projectile point found in the NW¼, NE¼, SE¼ of Section 17, Marshall Township, T2S R6W, Calhoun County, Michigan. This upland or "dry" site occupies rolling terrain with no observable natural water source within 600 m. Cultural affiliation is probably Middle Woodland. Low priority.

1 projectile point (Manker/Snyders)

KBS-80-A23
20 CA 37

The Irish site is a very light lithic and FCR scatter located in the SW¼, NE¼, NW¼ of Section 33, Marshall Township, T2S R6W, Calhoun County, Michigan. This upland site covers an area of about 100 m^2 in gravelly soil and lies some 50 m south of the Kalamazoo River. Undetermined cultural affiliation. Low priority.

1 utilized flake

KBS-80-A25
20 CA 38

The Lord site consists of an isolated projectile point found in the SE¼, SW¼, NE¼ of Section 23, Emmett Township, T2S R7W, Calhoun County, Michigan. This upland site lies on rolling terrain about 800 m northeast of the Kalamazoo River. The cultural affiliation is probably Middle Woodland. It may be significant that Sackrider #2 and #3 are located about 750 m due south of the Lord site. Low priority.

1 projectile point (Snyders)

KBS-80-A27
20 CA 39

Sackrider #3 is a light lithic and FCR scatter in the middle of the S½, SE¼, SE¼ of Section 23, Emmett Township, T2S R7W, Calhoun County, Michigan. Covering an area of about 1000 m^2, this site lies at the 900 ft. contour approximately 50 m north of the Kalamazoo River. Related sites may be Sackrider #2, situated some 250 m to the northwest, and the Lord site, which is located about 750 m to the north. The single diagnostic item suggests that this site dates to the Middle or Late Woodland period. Low to moderate priority.

1 projectile point (Gibson)
6 flakes

B. New Sites in Transect B

KBS-80-B1
20 CA 40

The Atlasta site is represented by an isolated projectile point found in the SW¼, SE¼, SE¼ of Section 36, Marengo Township, T2S R5W, Calhoun County, Michigan. This upland site is situated on steeply rolling terrain approximately 2.4 km southwest of the Kalamazoo River. Cultural affiliation is probably Middle or Late Archaic. Low priority.

1 expanding stem projectile point (Dustin-Lamoka)

KBS-80-B2
20 CA 41

Blight #1 is a projectile point findspot in the NE¼, NE¼, NE¼ of Section 6, Albion Township, T3S R4W, Calhoun County, Michigan. Located on gently rolling upland terrain, this site lies about 2 km northwest of Spectacle Lake and nearly 3.2 km south of the Kalamazoo River. Cultural affiliation is undetermined. Low priority.

1 projectile point

KBS-80-B3
20 CA 42

Blight #2 is represented by an isolated projectile point found in the center of the N½, NW¼ of Section 6, Albion Township, T3S R4W, Calhoun County, Michigan. This upland site lies on level terrain in close proximity to Blight #1, approximately 2.4 km northwest of Spectacle Lake and 3.2 km south of the Kalamazoo River. It is probably late Middle Woodland or early Late Woodland in age. Low priority.

1 projectile point (Jack's Reef)

KBS-80-B4
20 CA 43

The Short site is represented by lithic artifacts in a private collection from the E½, SW¼ of Section 17, Sheridan Township, T2S R4W, Calhoun County, Michigan. This upland site is situated on steeply rolling terrain south of Rice Creek, but no additional cultural material was observed during surveyor evaluation of this location. The artifacts, including a heavily patinated, long, sub-ovate biface, remain in the August Short collection. Cultural affiliation is undetermined. Low priority.

No WMU surface collection

KBS-80-B5
20 CA 44

Sweet Inspiration is a light lithic scatter occurring in the SE¼, NW¼, SW¼ of Section 16, Albion Township, T3S R4W, Calhoun County, Michigan. The site covers an area of about 200 m^2 and occupies a narrow ridge which terminates at a bend in the river approximately 15 m east of the South Branch Kalamazoo River. Cultural affiliation is probably Late Archaic. Low priority.

1 projectile point (Feeheley)
1 utilized flake

KBS-80-B7
20 CA 45

Maywood #1 is a light lithic scatter located in the SW¼, SW¼, SW¼ of Section 11, Marengo Township, T2S R5W, Calhoun County, Michigan. This sandy upland site covers an area of about 1200 m^2 and is situated along a ridge approximately 150 m east of an unnamed tributary which joins Rice Creek about 1.2 km to the south. Cultural affiliation is undetermined. Low priority.

1 biface midsection
1 flake
1 utilized flake

KBS-80-B10
20 CA 46

The Two Point site produced two projectile points without any other cultural material in association, and is located in the SW¼, NW¼, SW¼ of Section 21, Sheridan Township, T2S R4W, Calhoun County, Michigan. This site lies along a 970 ft. ridge overlooking a low swampy area to the east. Montcalm Lake lies approximately 800 m to the south. Cultural affiliation is possibly Archaic. Low priority.

2 projectile points

KBS-80-B11
20 CA 47

Galensagaina is a light lithic scatter in the center of the NE¼, SE¼ of Section 11, Marengo Township, T2S R5W, Calhoun County, Michigan. This small site covers an area of about 10 m^2 and is situated on a sandy ridge approximately 600 m northwest of the North Branch of Rice Creek. Cultural affiliation is undetermined. Low priority.

1 projectile point
1 flake

C. New Sites in Transect C

KBS-80-C2
20 JA 152

Day #2 is an isolated find in the NW¼, NW¼, SE¼ of Section 29, Concord Township, T3S R3W, Jackson County, Michigan. This site is located on gently rolling terrain approximately 2.4 km west of the North Branch Kalamazoo River and 400 m east of an upland swamp. Cultural affiliation is undetermined. Low priority.

1 uniface

KBS-80-C3
20 JA 153

Day #3 is also an isolated find, but it occurs in the SE¼, SE¼, SW¼ of Section 29, Concord Township, T3S R3W, Jackson County, Michigan. As was the case with Day #2, this site is also located on gently rolling terrain near a small upland swamp. It is 2 km southwest of the North Branch Kalamazoo River. Cultural affiliation undetermined. Low priority.

1 projectile point tip

KBS-80-C4
20 JA 154

Cuatt #1 is a light lithic and FCR scatter in the middle of the N½, NE¼, NW¼ of Section 5, Concord Township, T3S R3W, Jackson County, Michigan. This upland site covers an area of about 600 m^2 and is located within 200-300 m of KBS-80-C5, C6 and C7 on rolling terrain approximately 1.2 km northeast of the North Branch Kalamazoo River. Cultural affiliation is undetermined. Low priority.

10 flakes

KBS-80-C5
20 JA 155

Cuatt #2 consists of a moderately dense lithic and FCR scatter in the E½, NE¼, NW¼ of Section 5, Concord Township, T3S R3W, Jackson County, Michigan. This extensive scatter covers an area of about 7500 m^2 and is located within 200-300 m of KBS-80-C4, C6 and C7. Cultural affiliation is possibly Late Archaic. Moderate priority.

1 projectile point tip
34 flakes
1 biface

Note: Resurvey of Cuatt #1-4 (KBS-80-C4, C5, C6 and C7) and test excavation of Cuatt #2 were undertaken by the WMU archaeological field school in May 1981. This testing resulted in the recovery of little data which would shed additional light on the occupation of this site and those sites located nearby.

KBS-80-C6
20 JA 156

Cuatt #3 is also a light lithic and FCR scatter in the NE¼, NE¼, NW¼ of Section 5, Concord Township, T3S R3W, Jackson County, Michigan. This site covers an area of about 300 m^2 and is located within a short distance of the aforementioned sites. Cultural affiliation is undetermined. Low priority.

3 flakes

KBS-80-C7
20 JA 157

Cuatt #4 is a very light lithic scatter in the NE¼, NE¼, NW¼ of Section 5, Concord Township, T3S R3W, Jackson County, Michigan. Covering an area of about 150 m^2, this scatter is within close proximity to Cuatt #1-3 and may be related to them. Unfortunately, this site also lacked good diagnostic material and cultural affiliation is not known. Low priority.

4 flakes

KBS-80-C8
20 JA 158

The Grunderman site is represented by an isolated projectile point found in the SW¼, SE¼, SW¼ of Section 19, Concord Township, T3S R3W, Jackson County, Michigan. This site is situated along a 1000 ft. sandy ridge approximately 400 m southwest of a pond and upland swamp. Cultural affiliation is probably Late Woodland. Low priority.

1 triangular projectile point (Madison)

KBS-80-C9
20 JA 159

The Kulinich site is a moderately dense lithic and FCR scatter in the S½, NE¼, NW¼ of Section 8, Concord Township, T3S R3W, Jackson County, Michigan. This scatter covers an area of about 1500 m^2 along a sand and gravel slope descending to the North Branch Kalamazoo River about 18 m to the south. The landowner, Mr. Kulinich, reports that collectors have recovered arrowheads from this site. Cultural affiliation is undetermined. Low to moderate priority.

11 flakes

KBS-80-C10
20 JA 160

The Dane site is a lithic and ceramic scatter with moderately dense concentrations of FCR. It is located in the NW¼, NW¼, NE¼ of Section 8, Concord Township, T3S R3W, Jackson County, Michigan. This site covers an area of about 1000 m^2 in the floodplain on the north bank of the North Branch Kalamazoo River. Although not frequently plowed, surface visibility in this field was excellent for observing features and cultural material. Cultural affiliation, based on ceramic and lithic typology, is probably late Middle Woodland or early Late Woodland. High priority.

1 projectile point (Jack's Reef pentagonal)
109 flakes
1 projectile point tip
18 sherds

KBS-80-C11
20 JA 161

The Iles #1 site is an informant site confirmed by surveyors to be located in the E½, NE¼, NE¼ of Section 30, Pulaski Township, T4S R3W, Jackson County, Michigan. This lithic scatter covers an area of about 4000 m^2 on a slight rise near the edge of a marsh adjacent to the South Branch Kalamazoo River. Cultural affiliation is undetermined. Low to moderate priority.

1 projectile point base
12 flakes
2 bifaces

KBS-80-C13
20 JA 162

The Cremin site is represented by an isolated projectile point in the SE¼, NW¼, SE¼ of Section 19, Pulaski Township, T4S R3W, Jackson County, Michigan. Located on an upland sand and gravel ridge, this site lies about 1 km west of the South Branch Kalamazoo River. Cultural affiliation is undetermined. Low priority.

1 projectile point

KBS-80-C14
20 JA 163

Powers #1 consists of a very light lithic scatter in the NW¼, SW¼, SW¼ of Section 18, Pulaski Township, T4S R3W, Jackson County, Michigan. The scatter covers an area of about 1000 m^2 and occupies a ridge overlooking a series of marshes approximately 800 m west of the South Branch Kalamazoo River. Cultural affiliation is undetermined. Low priority.

5 flakes

KBS-80-C16
20 JA 164

The Blair site is a lithic scatter with moderately extensive FCR located in the center of the NW¼, SW¼, Section 20, Pulaski Township, T4S R3W, Jackson County, Michigan. This site covers an area of about 1920 m^2 along the east bank of the South Branch Kalamazoo River. The landowner reports that local collectors have frequently visited this site. Cultural affiliation is undetermined. Moderate priority.

2 projectile points
16 flakes

KBS-80-C17
20 JA 165

Sand Ridge is a lithic and ceramic scatter with moderately heavy FCR located in the center of Section 18, Pulaski Township, T4S R3W, Jackson County, Michigan. This site covers an area of about 15,000 m^2 near the southern end of a narrow sandy ridge which extends for a distance of almost 1 km along the east bank of the South Branch Kalamazoo River and crosses the properties of three landowners. One local collector has reported that this site has been successfully picked for over 100 years. In addition, the landowner, Merle Travis, has a number of artifacts from this site. Sand Ridge is clearly multicomponent, yielding Early Archaic through historic materials. High priority.

1 projectile point base
2 bifaces
1 utilized flake
29 flakes
1 pitted cobble
1 cordmarked ceramic sherd

Note: The WMU archaeological field school focused survey and test excavation efforts on both the Sand Ridge site and the entire ridge in Spring, 1981, confirming the multicomponent nature of the site. However, the mid 19th century occupation by a farming family has resulted in considerable disturbance to the underlying prehistoric components and our testing failed to delineate clearly undisturbed feature context for any of the prehistoric artifactual material recovered.

KBS-80-C19
20 JA 166

The Justa site is a lithic scatter occurring in the NW¼, NE¼, SE¼ of Section 18, Pulaski Township, T4S R3W, Jackson County, Michigan. This upland site covers an area of about 200 m^2 and is located on gently rolling terrain approximately 200 m east of the South Branch Kalamazoo River and 200 m east of the Sand Ridge site. Cultural affiliation is undetermined. Low priority.

5 flakes

KBS-80-C20
20 JA 167

The Dob site is a light lithic and FCR scatter in the SW¼, NW¼, SE¼ of Section 10, Concord Township, T3S R3W, Jackson County, Michigan. Covering an area of about 200 m^2, this site is located on gently rolling terrain approximately 60 m southeast of an unnamed stream which flows into the North Branch Kalamazoo River. This site lies within 150-200 m of the Lost Spring and Pink Chunky sites, and all three are about 1.6 km upstream from the confluence of this small stream with the North Branch Kalamazoo River. Cultural affiliation is undetermined. Low priority.

Collection of chippage has been misplaced

KBS-80-C21
20 JA 168

The Horosko site has been defined on the basis of an isolated projectile point found in the SW¼, NE¼, NE¼ of Section 9, Concord Township, T3S R3W, Jackson County, Michigan. This upland location is about 1.2 km northeast of the confluence of an unnamed stream with the North Branch Kalamazoo River. Cultural affiliation is Late Archaic. Low priority.

1 projectile point (Saratoga/Bare Island)

KBS-80-C22
20 JA 169

Haugen #1 is a lithic scatter with FCR located in the NW¼, NE¼, SE¼ of Section 21, Concord Township, T3S R3W, Jackson County, Michigan. This floodplain site covers an area of about 2400 m^2 and is situated on the east bank of the North Branch Kalamazoo River. The site is within 100-300 m of Haugen #2-4. All have apparently been visited by collectors for many years. Cultural affiliation is undetermined. Low to moderate priority.

1 biface
1 uniface
1 utilized flake
15 flakes

KBS-80-C23
20 JA 170

Haugen #2 is a light lithic scatter in the SW½, NE¼, SE¼ of Section 21, Concord Township, T3S R3W, Jackson County, Michigan. This floodplain site covers an area of about 100 m^2 and is located approximately 30 m east of the North Branch Kalamazoo River. It may be related to Haugen #1, #3 and #4. We have not been able to determine the cultural affiliation of this site. Low priority.

3 flakes

KBS-80-C24
20 JA 171

Haugen #3 is a lithic scatter in the SE¼, SW¼, SE¼ of Section 21, Concord Township, T3S R3W, Jackson County, Michigan. This site occupies 100 m^2 along the base of a slope and has possibly eroded out of the gravelly ridge above. Located approximately 30 m east of the North Branch Kalamazoo River, this site is possibly related to Haugen #1, #2 and #4. Cultural affiliation is probably Middle or Late Archaic. Low to moderate priority.

2 projectile point fragments (Brewerton)
7 flakes

KBS-80-C25
20 JA 172

Haugen #4 is a findspot in the NE¼, SE¼, SE¼ of Section 21, Concord Township, T3S R3W, Jackson County, Michigan. This upland site is located on a sandy ridge above the floodplain approximately 200 m east of the North Branch Kalamazoo River. This findspot may be related to the other sites located on Haugen property. Cultural affiliation is probably Middle or Late Woodland. Low priority.

1 side-notched projectile point fragment

KBS-80-C28
20 JA 173

The Lost Spring site is a lithic and ceramic scatter with FCR found in the SE¼, NW¼, SE¼ of Section 10, Concord Township, T3S R3W, Jackson County, Michigan. This site extends over an area of about 2700 m^2 on the north side of a spring which is located about 400 m southeast of an unnamed stream. This site is near the Dob and Pink Chunky sites, and all three are upstream from the confluence of this unnamed tributary with the North Branch Kalamazoo River. Cultural affiliation is Woodland. Moderate to high priority.

27 flakes
5 sherds

KBS-80-C29
20 JA 174

The Pink Chunky site is a light lithic scatter in the NW¼, NW¼, SE¼ of Section 10, Concord Township, T3S R3W, Jackson County, Michigan. This site covers an area of about 100 m^2 and lies on a marsh edge some 45 m southeast of an unnamed tributary which flows into the North Branch Kalamazoo River 1.6 km to the southwest. This scatter may be related to the Dob and Lost Spring sites. Cultural affiliation is not known. Low priority.

3 flakes

KBS-80-C30
20 JA 175

The Mud Lake site is a light lithic and FCR scatter in the NE¼, NW¼, SW¼ of Section 17, Pulaski Township, T4S R3W, Jackson County, Michigan. Covering an area of about 3000 m^2, this site is located on a ridge which overlooks a marsh and glacial Mud Lake approximately 500 m to the east. Recent footprints observed by surveyors suggest collector activity at this site. Cultural affiliation is undetermined. Low priority.

7 flakes

KBS-80-C32
20 JA 176

The Twin Pine site is a lithic scatter with some FCR and is located in the SW¼, SW¼, SW¼ of Section 17, Pulaski Township, T4S R3W, Jackson County, Michigan. Extending over an area of about 7500 m^2, this site occupies a terminal ridge spur 200 m northeast of the confluence of the unnamed stream draining Mud Lake and South Branch Kalamazoo River. Cultural affiliation is Late Archaic through late Middle Woodland or early Late Woodland. Moderate priority.

1 biface
1 uniface
1 utilized flake
14 flakes

Note: The Twin Pine site was resurveyed in May 1981 by WMU archaeological field school personnel, resulting in the recovery of several more diagnostic tools which serve to confirm the temporal placement provided above.

KBS-80-C33
20 JA 177

The Stub site produced an isolated biface and is located in the SW¼, NW¼, SE¼ of Section 7, Pulaski Township, T4S R3W, Jackson County, Michigan. This floodplain site is located about 400 m south of an unnamed stream and 1.6 km east of the confluence of this stream and South Branch Kalamazoo River. Cultural affiliation is undetermined. Low priority.

1 biface

KBS-80-C34
20 JA 178

The Kryst site also yielded an isolated projectile point and is situated in the NW¼, SE¼, NW¼ of Section 7, Pulaski Township, T4S R3W, Jackson County, Michigan. This site is situated on a ridge about 200 m north of an unnamed tributary of the South Branch Kalamazoo River and 1.2 km upstream from their confluence. Cultural affiliation is probably Late Archaic. Low priority.

1 projectile point (Newton Falls/Brewerton)

KBS-80-C35
20 JA 179

The Creek site is a lithic scatter with FCR in the SW¼, SW¼, NW¼ of Section 7, Pulaski Township, T4S R3W, Jackson County, Michigan. This site covers an area of about 1500 m^2 on a ridge adjacent to an unnamed tributary which joins the South Branch Kalamazoo River approximately 800 m to the southwest. This scatter is but 120 m west of the Snake site. Cultural affiliation is probably Late Woodland or Mississippian. Low to moderate priority.

1 corner-notched projectile point base
5 flakes

KBS-80-C36
20 JA 180

The Snake site is a lithic scatter with FCR in the SW¼, SW¼, NW¼ of Section 7, Pulaski Township, T4S R3W, Jackson County, Michigan. Covering an area of about 1800 m^2, this scatter occupies a ridge on the north bank of an unnamed stream. The South Branch Kalamazoo River lies 900 m to the southwest and the Creek site is located about 120 m to the west. Cultural affiliation may be Late Woodland or Mississippian, suggesting the possibility that the two sites may represent related occupations. Low to moderate priority.

2 projectile point fragments
4 flakes

KBS-80-C40
20 JA 181

Day #1 is an informant site which has been confirmed by WMU surveyors to be located in the NW¼, NW¼, NE¼ of Section 19, Pulaski Township, T4S R3W, Jackson County, Michigan. This floodplain site is about 700 m west of the South Branch Kalamazoo River. The landowner's collection includes one large-bladed, stemmed projectile point. Cultural affiliation is undetermined. Low priority.

1 projectile point (Day collection)
1 bipolar tool (WMU collection)

KBS-80-C41
20 JA 182

The Stalhood site is a moderately dense lithic scatter with FCR in the middle of the W½, SW¼, NE¼ of Section 28, Concord Township, T3S R3W, Jackson County, Michigan. This floodplain site overlooks a marsh to the south and east and covers an estimated area of 10,000 m^2. A heavier concentration of debris was found along an intermittent stream which drains the marsh and joins the North Branch Kalamazoo River about 200 m east of the site. Upper Mercer chert from Ohio is abundant in the debitage, suggesting a late Middle Woodland or early Late Woodland age for this site. Moderate to high priority.

1 projectile point
1 biface
61 flakes

KBS-80-C42
20 JA 183

Legg #1 is a light lithic and FCR scatter in the NE¼, SW¼, SE¼ of Section 9, Concord Township, T3S R3W, Jackson County, Michigan. This lowland site covers an area of about 600 m^2. It is situated approximately 20 m south of an unnamed tributary which flows into the North Branch Kalamazoo River about 600 m west of the site, and is also within 300 m of Legg #2-4. Local collectors are known to have frequently visited all of these sites. Cultural affiliation is not known. Low to moderate priority.

7 flakes

KBS-80-C43
20 JA 184

Legg #2 is a moderately dense lithic and ceramic scatter with FCR in the NW¼, SW¼, SE¼ of Section 9, Concord Township, T3S R3W, Jackson County, Michigan. This lowland site is situated along a gentle rise and covers an area of about 5000 m^2 approximately 20 m south of an unnamed tributary of the North Branch Kalamazoo River. This site is probably related to the other three sites on Legg property. Cultural affiliation is probably late Middle Woodland or early Late Woodland. Moderate to high priority.

2 projectile point fragments
23 flakes
2 sherds

KBS-80-C44
20 JA 185

Legg #3 is a light lithic scatter in the NW¼, SW¼, SE¼ of Section 9, Concord Township, T3S R3W, Jackson County, Michigan. This floodplain site covers an area of only 100 m^2 and is situated near a local fishing spot on the wooded east bank of the North Branch Kalamazoo River 200 m south of its

confluence with an unnamed tributary. This site may be related to Legg #1, #2 and #4. Cultural affiliation is undetermined. Low to moderate priority.
3 flakes

KBS-80-C45
20 JA 186

Legg #4 is an isolated find in the SE¼, SW¼, SE¼ of Section 9, Concord Township, T3S R3W, Jackson County, Michigan. Situated in a low marshy area surrounded by steeply rolling topography, this site lies approximately 200 m east of the North Branch Kalamazoo River. It is about 300 m south of Legg #1-3. Cultural affiliation is undetermined. Low priority.
1 biface base

KBS-80-C46
20 JA 187

Weston #1 is an isolated find in the SW¼, NW¼, NW¼ of Section 21, Concord Township, T3S R3W, Jackson County, Michigan. This upland site is situated on rolling terrain about 1 km west of the North Branch Kalamazoo River. Cultural affiliation is undetermined. Low priority.
1 biface base

KBS-80-C47
20 JA 188

Weston #2 is a projectile point findspot in the middle of the E½, SW¼, NW¼ of Section 21, Concord Township, T3S R3W, Jackson County, Michigan. This upland site is located on rolling terrain approximately 1 km west of the North Branch Kalamazoo River. Cultural affiliation is most likely Late Woodland. Low priority.
1 triangular projectile point (Madison)

KBS-80-C48
20 JA 189

Lincoln Garden is an informant site in SW¼, SE¼, SE¼ of Section 7, Concord Township, T3S R3W, Jackson County, Michigan. This upland site covers an area of about 100 m^2 and is situated in the landowner's garden, a location which has no observable water source within 2 km. All material from this site remains in the A. Lincoln collection and has been photographed by WMU surveyors. Cultural affiliation is undetermined. Low priority.
1 triangular projectile point
1 biface
1 uniface

KBS-80-C49
20 JA 190

The Potatohead site is an isolated find in the NW¼, NW¼, SE¼ of Section 2, Concord Township, T3S R3W, Jackson County, Michigan. This upland site is situated on the south slope of a ridge bordering a marsh about 200 m north of an unnamed tributary of the North Branch Kalamazoo River. Cultural affiliation is probably Woodland. Low priority.
1 hafted bifacial scraper

KBS-80-C50
20 JA 191

The Junebug site is represented by an isolated projectile point located in the NW¼, SE¼, NE¼ of Section 19, Pulaski Township, T4S R3W, Jackson County, Michigan. This floodplain site is situated about 400 m west of the South Branch Kalamazoo River. Cultural affiliation is probably Late Woodland. Low priority.

1 triangular projectile point (Madison)

KBS-80-C51
20 JA 192

The Pretty Day site is a projectile point findspot in the center of the SW¼, NE¼ of Section 19, Pulaski Township, T4S R3W, Jackson County, Michigan. This site is situated between the uplands and the floodplain about 800 m west of the South Branch Kalamazoo River. Cultural affiliation is undetermined. Low priority.

1 projectile point midsection

6. Interpretations and Conclusions

During the 1980 field season, surveyor coverage of 41.7 km^2 in three transects resulted in the recording of 72 new archaeological sites, including two sites which lie just outside the boundaries of Transects B and C. In addition, surveyors revisited the two previously recorded sites for Transects A and C. As in past years, our analysis of the collections from these sites has been somewhat hampered by the fact that only a few of them contain significant quantities of cultural material and, secondly, that diagnostic artifacts are not exactly plentiful on these sites. Be that as it may, the information derived from those portions of the KBS transects surveyed during the six week field season serves to illustrate that human populations have occupied the Upper Kalamazoo River Valley since at least Early Archaic times (ca. 10,000 BP).

Once again, our KBS data set strongly indicates generally extensive rather than intensive occupation of the project area. Of 23 new sites recorded for Transect A (Fig. 11), 11 are isolated or "spot" finds, usually of projectile points or biface fragments, and the remaining 12 are light scatters of lithic debris, usually associated with fire cracked rock and occasionally a tool(s) and/or ceramic sherd(s). Only one site tentatively identified as a debris scatter, Pearson 1 (KBS-80-A12), may in fact prove to be a component (i.e. habitation site), with additional surface collection and/or test excavation.

In Transect B (Fig. 13), surveyors recorded a total of eight new sites, of which seven are findspots and only one is regarded as a lithic scatter. Here, it is doubtful that additional survey or test excavation will shed new light on the perspectives gained during the 1980 field season. Even more apparent than is the case with Transect A, it would appear that this portion of the Kalamazoo Valley was characterized by activities which resulted only

in the formation of sites barely attaining the level of archaeological visibility. With very rare exception, the prehistoric occupations of Transects A and B are felt to indicate a range of activity including isolated episodes of hunting upland game, during which projectiles were occasionally lost or discarded, and the establishment of brief encampments where specific maintenance and/or extractive tasks were performed--activities undertaken by small, highly mobile groups of people over a very short span of time. And, parenthetically, the rare occurrence of significant quantities of lithic debitage on these sites is interpreted to indicate that even tool preparation and repair were activities seldom undertaken on these sites.

The dispersed pattern of settlement and very limited nature of activity suggested by the sites in these two transects appear quite consistent with observations made by KBS surveyors for transects located downstream in the Middle Kalamazoo Valley (Cremin, Hoxie and Marek 1979; Cremin and Marek 1978), and also stand in marked contrast to the body of data derived from prior work in the lower valley, specifically the 1976 transect (Cremin 1980). As KBS surveyors progressed upstream from the mouth of the Kalamazoo River, we have witnessed a decline in the traditional indicators of prehistoric human activity, e.g. sites have become increasingly smaller, fewer in number and more widely dispersed over the landscape. Thus, as we completed our work in the area of Calhoun County, it appeared to us that our 1980 survey observations would be quite consistent with the body of information accumulated during preceding years of the project.

Our final area of work in 1980 was Transect C, located immediately upstream and across the Calhoun-Jackson County line from Transect B (Fig. 1). Here, surveyors were to evaluate both branches of the Kalamazoo River within a short distance of the river's source near the Jackson-Hillsdale County line. Contrary

to our expectations, and especially surprising inasmuch as our coverage of Transect C was 30% less than in Transect A and 25% below that attained in Transect B, we recorded 41 new prehistoric sites (Fig. 15), or 10 more sites than had been found in both of the Calhoun County transects! Moreover, a number of these sites were larger and more impressive in terms of the quantities of debris recovered than had been the case in the downstream transects. Fifteen of these sites are isolated finds, 24 are lithic scatters and two sites are interpreted to represent habitation areas.

Referring to only those 70 new sites and two previously recorded sites which occur in surveyed portions of the 1980 project area, KBS surveyors have recorded one site for every 66 ha evaluated in Transect A, a site per 212 ha in Transect B, and one site for every 27 ha surveyed in Transect C. The combined average for the three transects is one site per 58 ha. When we compare the figure for the upper valley with the combined average for the transects in valley segments evaluated in previous years (lower valley - one site per 29 ha; middle valley - one site per 40 ha), we observe that surveyors had to walk twice as much land in the upper valley to record a site as was the case in surveyed portions of the lower valley and almost one and one-half times as much ground as was walked in the middle valley. This appears to be quite consistent with our observation of the continued decline in site density as one proceeds upstream from the mouth of the Kalamazoo River. However, it is most noteworthy that the site/ha surveyed ratio for Transect C (i.e. one site recorded for every 27 ha evaluated) is significantly more impressive than the ratios generated for any transect since KBS left the lower valley, where the 1976 transect yielded a site for every 11 ha evaluated and the ratio for the 1977 transect was site/ha surveyed = 23 (Cremin 1980:116).

Table 4 summarizes site density data for the 1980 transects by individual sampling strata. Excluded from this table are those strata which did not yield sites. The figures at the bottom reflect the site density for the entire surveyed portion of each transect. In calculating site density, all new sites and previously recorded sites occurring in surveyed portions of the three transects are considered. Combining site density (SD) data for all transects results in a value of 72/41.7 = 1.73 for the upper valley. By way of comparison, the SDs for the lower and middle portions of the valley are 186/30 = 6.20 and 204/66.6 = 3.06, respectively. Thus, when valley segments are considered, the empirical data clearly support the aforementioned observation that the frequency which with sites occur in the Kalamazoo Valley diminishes as one moves further upstream from the river's mouth.

Interestingly, different results are obtained when individual transects are examined. As is indicated in Table 4, the SD for Transect A is more than three times greater than that recorded for Transect B. If we look no further, but merely compare these results with those obtained from downstream transects, the matter of declining SD appears also to be well supported. However, we cannot ignore the empirical data from Transect C, where the SD of 3.70 is clearly at odds with the values from other transects. Hypothetically, the SD here should be lower than those calculated for the other 1980 transects; yet it is nearly eight times greater than the SD for Transect B and more than twice as great as the SD for Transect A. In fact, the SD for Transect C is greater than any calculated since we evaluated the 1977 transect (SD = 5.28) in the lower valley. This anomaly will be discussed more fully below.

With respect to the matter of site location preferences in the 1980 project area, and noting at the onset that only 22 of 34 sampling strata investigated yielded sites, we have this year continued to observe the strong "pull"

Table 4. Site Density per Km^2 (Calculated by Dividing the Number of Sites by the Actual Km^2 Surveyed) for Transects A, B and C by Sampling Stratum

Stratum	Transect A	Transect B	Transect C
3-0-A	2.36		
4-0-A	1.12		6.58
4-0-B	0.74	0.82	
4-1-A	1.90		
4-1-B	1.16		5.81
4-2-A		0.77	
4-4-A	3.71		
6-0-A	8.97		
6-2-A	3.80		
8-0-B			2.60
8-0-C			8.72
8-1-A			4.95
8-1-C			6.82
8-2-C			1.51
8-4-C			9.90
15-0-A		0.84	1.30
15-0-B		0.83	3.24
15-1-A		1.23	
15-1-B			7.06
15-1-C			16.46
15-2-A			9.87
15-4-B			3.53
22 Strata			
Sites/km^2	24/15.8 =	7/14.8 =	41/11.1 =
$\bar{X}$	1.52	0.47	3.70

of the Kalamazoo River in settlement decisions. Consistent with our observations in previous years, we have noted that in six of eight instances the SD calculated for stream rank order-1 strata greatly exceeds the mean for all strata in a given transect. But exceptions do occur as, for example, is the case in Transect A, where the SDs observed for both stream shoreline and oak and oak-hickory forested uplands drained by Battle Creek are appreciably greater than those obtained for areas flanking the Kalamazoo River.

Additionally, a variety of environmental settings in Transect C yield SDs greatly exceeding the mean for the entire transect. Here, some of the highest values are for stream rank order-1 strata, but equally high and frequently higher SDs have been noted for dry upland areas and along second order streams supporting oak and oak-hickory forest and also in areas proximal to standing bodies of water where wetland forest is well developed.

As a means of checking the validity of our observations derived from site density data, we have also calculated an index of occupational intensity (OI) utilizing suggestions provided by Christopher Pebbles (personal communication). In this instance:

O1: findspot = 1 point

O2: debris scatter = 5 points

O3: component = 10 points

Table 5 provides values assigned to various strata in the project area. Combining data from the three transects results in a mean intensity score of 3.38. This OI is significantly lower than those calculated for the lower and middle portions of the valley and, in fact, is lower than the OIs for all individual transects with the exception of 1979A. Clearly, this index suggests less intensive occupation of the upper valley than those areas located downstream.

Table 5. Occupational Intensity Values Calculated for Sampling Strata in Transects A, B and C

Stratum	Transect A	Transect B	Transect C
3-0-A	2.33		
4-0-A	1.00		5.00
4-0-B	1.00	1.00	
4-1-A	3.40		
4-1-B	5.00		7.50
4-2-A		1.00	
4-4-A	5.00		
6-0-A	1.00		
6-2-A	5.00		
8-0-B			1.00
8-0-C			1.00
8-1-A			5.00
8-1-C			7.50
8-2-C			1.00
8-4-C			5.00
15-0-A		1.00	1.00
15-0-B		1.00	2.45
15-1-A		5.00	
15-1-B			4.20
15-1-C			4.00
15-2-A			5.00
15-4-B			10.00
22 Strata			
Score/sites	72/24 =	11/7 =	160/41 =
$\overline{X}$	3.00	1.57	3.90

Comparision of the OI values provided shows some shifting from the SDs listed in Table 4. For example, the OI index, which more accurately gauges the nature of activity associated with sites and, hence, the intensity of occupation of a given area, clearly downplays the role of dry upland areas in Transect A in favor of areas which are characterized by climax oak-hickory forest and are also proximal to permanent sources of water. Again, the Battle Creek shoreline is heavily utilized, but the OI index suggests that upland bodies of water situated amidst oak and oak-hickory forest and areas of bur oak forest flanking the Kalamazoo River were equally attractive to prehistoric residents. And, generally, this appears also to be the case in Transects B and C, where values are high for stream rank order-1 strata and, in the case of the latter, those strata proximal to certain tributaries and upland bodies of water as well. These observations are felt to be reasonably consistent with exploitive strategies previously delineated for much of the middle valley (Cremin, Hoxie and Marek 1979; Cremin and Marek 1978).

With respect to the matter of the greater intensity of occupation characterizing Transect C, our examination of the data available to us does not suggest a richer environment for the headwaters of the Kalamazoo. To the contrary, we would not anticipate that any critical life support resources were formerly more concentrated in the upper valley than in downstream areas. However, we are hypothesizing that drainage patterns played a major role with respect to the occupation of Transect C. An examination of relevant maps shows this transect to be admirably well situated in terms of movement between several major rivers which have their source near this area. For purposes of communication and transportation between the Kalamazoo, St. Joseph, Grand and Raisin Rivers and those areas through which they flow, Transect C may well have been critical for the prehistoric inhabitants of the Kalamazoo Valley.

Before concluding this section, a few comments are warranted regarding the temporal placement of sites recorded for the upper valley transects. Although the temporal data accumulated by KBS over the years are currently still being analyzed, a quick glance at Table 6 can be informative. Of the 72 new sites recorded, 30 produced diagnostic materials, resulting in the tentative identification of 46 cultural components. While many of the sites are typically "soup to nuts" with respect to their temporal attributes, the following observations are potentially significant:

1. Paleo-Indian through Middle Archaic materials are poorly represented in this segment of the Kalamazoo Valley.
2. The increase in activity noted for the Late Archaic is probably part of a valley-wide phenomenon, with the upper valley still being poorly represented by sites when compared with areas downstream.
3. Although Early Woodland material is absent, with the advent of the Middle Woodland period the upper valley is quite intensively occupied. Fully 70% of the Middle Woodland material recovered during the KBS project has been found in the upper valley transects. Hypothetically, this observation may be related to the growth of regional interaction and the role of inter-riverine communication in that process.
4. Finally, the trend toward increasing utilization of the entire Kalamazoo Valley becomes even more evident in Late Woodland times, with 24 of 42 components occurring in the upper valley. Regardless of where in the valley Late Woodland and Upper Mississippian components are situated, they show a consistently strong riverine orientation. But in the upper valley it is doubtful that the resource base was the same as has been shown for late prehistoric sites in the lower

Table 6. Temporal Placement and Cultural Affiliation of 46 Components Represented at Sites in the 1980 Transects

Transect	PI	A	EA	MA	LA	W	EW	MW	LW	UM	N =
1980A	0	0	1	0	1	1	0	6	4	0	/13
1980B	0	0	0	0	2	0	0	1	1	0	/ 4
1980C	0	1	0	1	3	1	0	4	12	7	/29
Totals	0	1	1	1	6	2	0	11	17	7	/46

Abbreviations:

PI - Paleoindian
A - Archaic
EA - Early Archaic
MA - Middle Archaic
LA - Late Archaic
W - Woodland
EW - Early Woodland
MW - Middle Woodland
LW - Late Woodland
UM - Upper Mississippian

valley. Lacking the rich concentrated aquatic and riparian resources which are the "hallmark" of the lower valley in Late Woodland times, it is probably most feasible to regard the late prehistoric occupation of the upper valley as a product of interaction, i.e. the "portage effect" referred to above. In this context it is probably most noteworthy that 19 of 24 late prehistoric components identified in the upper valley are found in Transect C.

7. Comments on Management of Cultural Resources

The sites recorded in 1980 were found exclusively on land under cultivation, reflecting the consistent emphasis on surface reconnaissance in the Kalamazoo Basin Survey program. Therefore, that protion of the landscape which is the focus of our attention, together with the archaeological context, is constantly being altered through the use of farm machinery and some valuable information is being irretrievably lost. In Transects A and B, large-scale farming enterprises are quite common and we frequently observed deep plowing which extended into the soil underlying the extant plowzone. As one farmer noted, it is good practice to add a half-inch of subsoil to that zone which is being turned each year. Of course, the result of this practice is that the disturbed zone gradually extends deeper into any archaeological site which may be present in the field; and eventually only plowzone sites remain for the archaeologist to study. Based on the data gathered by us from the Calhoun County transects, it would appear that little contextual information will be forthcoming for even the most ambitious excavator of sites occurring on cultivated land.

With respect to Transect C in Jackson County, we have already noted that parcels of land under cultivation are generally much smaller than those in Calhoun County. Here, commercial farming has not yet replaced the family farm to the extent that it has in the downstream transects. Moreover, in their desire to cope with the higher costs of producing a profitable crop, farmers in this area are not as inclined to use the same techniques as are employed on commercial farms. We observed a number of instances of "no till" planting in Transect C, and were often told that this practice is on the increase among farmers in the area. While this approach to cultivating the

land does not benefit our survey procedures when compared with more traditional practices of turning the soil, we must acknowledge that adoption of the "no till" approach will not only combat soil erosion and conserve energy, but will also be much less harmful to the underlying archaeological context.

In the final analysis, and with the aforementioned problem of deep plowing of agricultural land in mind, we observed not a single instance in which a site recorded by our surveyors was in eminent danger of total destruction. However, agricultural practices in those areas where potentially important (i.e. "high priority") sites were found will continue to erode our cultural resource base unless Michigan archaeologists, with the cooperation of landowners, at least initiate appropriate programs of limited test excavation in those areas which are sensitive to the gradual destruction brought on by the plow, as well as focus their attention on those sites in the State which are threatened with destruction from other kinds of land altering activities.

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