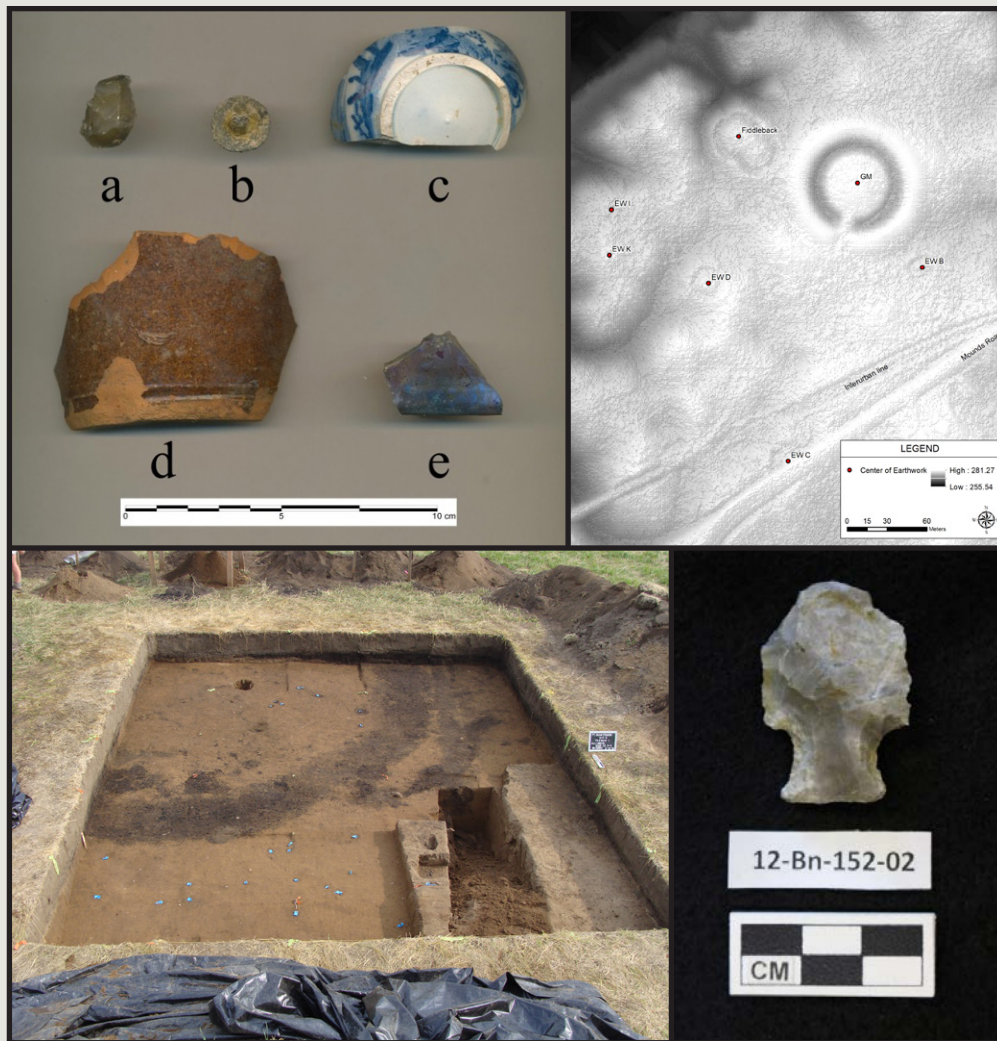


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DIVISION OF HISTORIC PRESERVATION AND ARCHAEOLOGY (DHPA)



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This is a refereed, open access journal. All articles and reports/features are reviewed by the Editor, Guest Editor, the DHPA Director, and two professional archaeologists not with the DHPA. The HPF submissions were also reviewed by one of the other DHPA archaeologists in their capacity as the HPF archaeology grant liaison.

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INTRODUCTION

The DHPA is proud to present this volume of the journal. Per state statute (Indiana Code 14-21-1-12), one of the duties of the DHPA is to develop a program of archaeological research and development, including the publication of information regarding archaeological resources in the state. This journal is one of the ways that our office continues to address that mandate. Also, Indiana Code 14-21-1-13 states that the Division may conduct a program of education in archaeology. Indiana's cultural resources management plans have also listed educating the public about Indiana's Native American cultures and identifying, and studying Native American, African-American, and other ethnic and cultural heritage resources, as ways to accomplish several preservation goals. The variety of archaeological sites in Indiana, and what has been learned about them, is wide-ranging and impressive.

Dr. Jones and I stated the following a decade ago in a previous *Indiana Archaeology* (4(1):6), and these statements still apply:

An overarching goal is to provide access for everyone to information about archaeology and past cultures in Indiana. Everyone has an interest—indeed a stake—in the past, and is continually influenced by history, whether familial, local, regional, state, national, or global. In one way, archaeology can be viewed as a local discipline, recording local artifacts, features, sites, cultures, and history that many cultures, groups, residents, former residents, and/or relatives feel closest to. Thus, archaeology and the information it recovers (and interprets) must be widely and locally available. Everyone has a connection to the past, whether based on the individual, family, culture, tribe, occupation, avocation, scientific, or other interests ... and it is our responsibility as stewards to record, archive, maintain and make available our history.

2019 marks the 30th anniversary of when Indiana's law protecting archaeological sites was expanded to include private property. Originally, sites dating before Indiana's statehood date (Dec. 11, 1816) were protected. Now, the statute is known as Indiana Code 14-21-1 and protects sites dating before Dec. 31, 1870. Through these years, many sites have been investigated, and protected, and we hope that this journal gives the reader insights into many different types of archaeological sites.

For those who may not be familiar with some archaeological terms, a helpful glossary of some of these general terms is included in the back of this journal. To also aid the non-archaeologist reader, a general overview of precontact time periods may be found at the end of this volume. For those readers who may not be familiar with the authors and editors of the volume, biographical information is provided. Additional archaeological outreach documents, including *Early Peoples of Indiana* and previous volumes of *Indiana Archaeology*, may be accessed at <http://www.in.gov/dnr/historic/3676.htm>. You are also urged to participate in the annual Indiana Archaeology Month in September.

Sometimes, submissions are considered special features in the journal. This volume contains a longer submission on Fort Ouiatenon and archaeological investigations there, and we hope the readers enjoy that special-length feature.

- We thank our colleagues who contributed peer reviews for the journal.
- The authors are thanked for contributing to this volume.

—ALJ

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UPDATING THE ARCHAEOLOGY OF ANDERSON MOUNDS

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ABSTRACT

Ongoing research at the Anderson Mounds earthwork complex since 2001 resulted in geophysical surveys and contour maps for all the verified earthworks except Dalman Mound. Additional evidence for the location of Earthwork F was documented and a partial contour map and gradiometer survey completed. A feature identified by the geophysical survey of Earthwork D was documented as a fire-cracked rock cluster. Contour maps and magnetometer data also showed that Earthworks B and D are actually subrectangular rather than circular as historically reported. An investigation to find earthworks C, I, and K by correlating historical documents with field survey resulted in defining potential locations for these earthworks. Continued research reinforced the importance of the Anderson Mounds earthwork complex in regional investigations of the New Castle phase.

INTRODUCTION

Anderson Mounds is a 2,000 year-old Native American earthwork complex within Mounds State Park near Anderson, Indiana with a long history of public and professional interest. The complex consists of 12 reported earthworks including 11 enclosures and one mound. The enclosures are divided between a southern group of seven and a northern group of three (Figure 1). The southern group is traditionally described as circular in shape and the northern group as rectangular in shape. In the southern group, four enclosures have been verified, mapped and tested; one reported enclosure location has been tested but not found; and the three remaining reported enclosures have been variously described as destroyed or missing. In the northern group, two enclosures have been found and mapped but one is considered badly damaged or destroyed by construction of the campground. The latter enclosure was clearly recorded on a 1930 aerial photograph (Lilly 1937). The one isolated mound in the complex was severely looted and is positioned about half way between the two groups. Radiocarbon dates show that the earthwork complex was built and used over 400 years beginning about 250 B.C. and continuing until at least A.D. 100. The people who constructed and used the site were a local group participating in the Ohio Valley ceremonial patterns known as Adena and

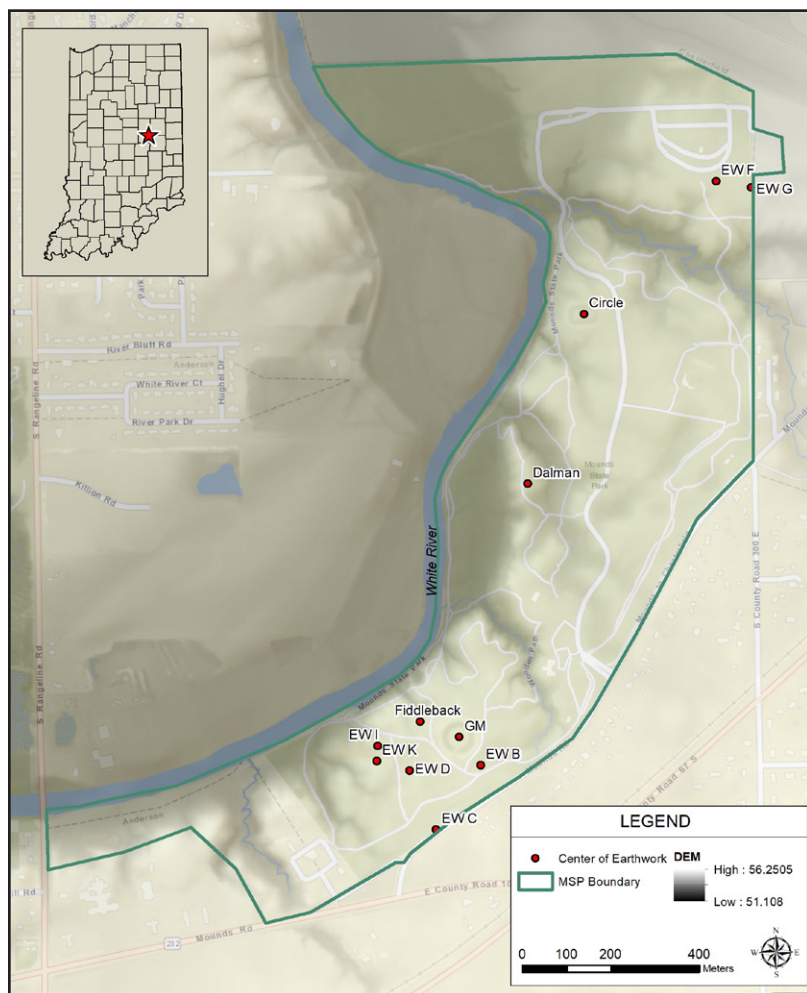


Figure 1. Overview of Anderson Mounds within Mound State Park.

Hopewell but interpreted at a regional level. Anderson Mounds is one of five earthwork complex sites that define the local group termed the New Castle phase in east central Indiana (Cochran and McCord 2001; Cox 1879; Lilly 1937; McCord and Cochran 2014; Smith 1932).

In 2001, a synthesis of the archaeology of the site was completed (Cochran and McCord 2001). Since then, archaeological research with the Anderson Mounds earthwork complex and related sites in east central Indiana has continued with the acquisition of new information and refined interpretations. This document summarizes field and laboratory work completed since the 2001 publication and provides interpretations of the site within the regional Middle Woodland culture defined as the New Castle phase (McCord and Cochran 2014).

Research with the Anderson Mounds earthwork complex and related regional sites is guided by a specific research perspective and a consistent set of goals. Field research is guided by the principle to conduct the least amount of excavation to meet the goals developed for the regional sites. Goals for regional sites include:

1. Create accurate maps of individual earthworks, sites and the regional earthwork landscape.
2. Define horizontal and vertical stratigraphy within and between earthworks.
3. Acquire radiocarbon dates from specific contexts to establish an earthwork chronology and define the sequence of earthwork construction and use.
4. Reclassify and reanalyze previous collections from earthwork sites for a comparative database.
5. Incorporate new technologies when relevant and available.
6. Integrate regional earthwork research into an interrelated system as suggested by Fitting (in Swartz 1971:132–133).

Research conducted since 2001 followed the same goals and objectives as with other regional earthwork sites.

DATA ACQUIRED SINCE 2001

Following the 2001 synthesis, new field information was obtained through Ball State University archaeology field schools in 2005 and 2006 and Indiana Archaeology Month activities in 2007. The 2005 investigation focused on Earthwork B (McCord 2006), while the 2006 investigation involved Earthworks D and G with ancillary work at F and K (McCord 2007). During Indiana Archaeology Month in 2007, a public archaeology project at Circle Mound conducted a geophysical survey of the earthwork and limited shovel testing east of the enclosure gateway (McCord 2008). A reconnaissance and documents research to locate unverified earthworks was conducted by the authors in 2015. In addition to the field investigations at Anderson, a redefinition of the New Castle phase was undertaken to incorporate regional data and propose interpretations relevant to the Middle Woodland society responsible for the earthwork landscape in east central Indiana (McCord and Cochran 2014). Also, a statewide survey of earthworks in Indiana provided a perspective for the state of preservation of the site compared to other Middle Woodland earthworks (McCord and Cochran 2015). The 2011–2013 Indiana Statewide LiDAR (IndianaMap 2012) available from Open Topography was incorporated into previous mapping data. In the following section each earthwork with new data is presented and discussed. The results are a culmination of multiple sources of data that we have found to be more reliable than any one single data source. Although historic resources located in Mounds State Park, including the location of the amusement park pavilion and the Bronnenberg house, were also investigated (McCord 2007), this document is limited to investigations of the precontact resources.

BACKGROUND

THE ANDERSON MOUNDS EARTHWORK COMPLEX

The Anderson Mounds earthwork complex is one of the most widely recognized archaeological sites in Indiana. The site figured prominently in the state's early archaeological literature (e.g. Cox 1879; Lilly 1937; Shetrone 1930; Thomas 1891) and in 1930 was donated to the state of Indiana for a state park by the citizens of Madison County (Smith 1932). Investigations of the earthworks at the site have established a basis for dating their construction and use, determining functions, and provided a platform for expanded interpretations of the Middle Woodland culture that produced them. A summary of the recorded earthworks at the site follows.

Southern Group

The southern earthwork group is dominated by the Great Mound, a circular enclosure defined by a ditch about 9ft deep and a corresponding embankment outside of the ditch (Figure 2). The top of the embankment served as an artificial horizon that controlled views from both the interior and exterior of the enclosure, used at least partially for tracking the position of the setting sun between the summer and winter solstice, or throughout the solar year. A small mound about four feet high and 30 feet across was on the central platform of the enclosure. The construction of the mound was preceded by a parallel-sided

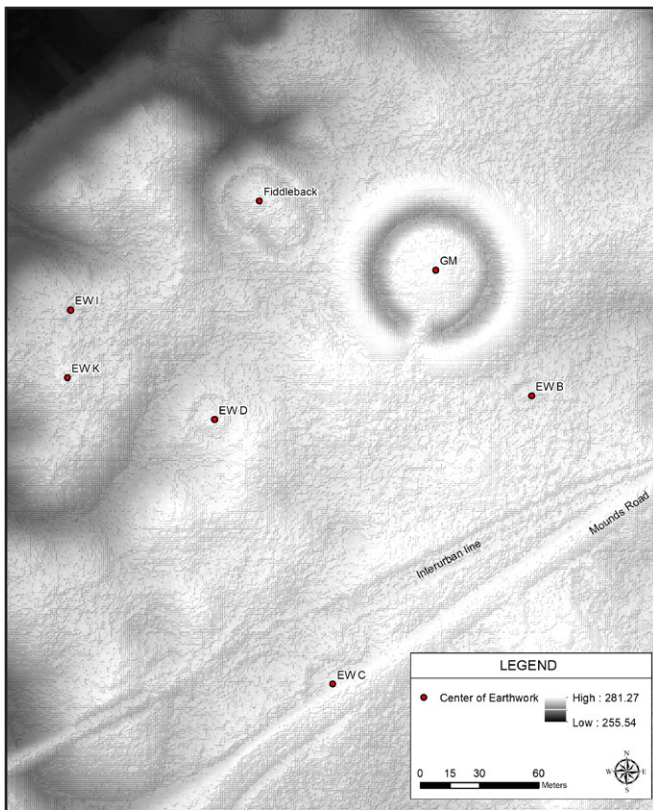


Figure 2. LiDAR hillshade of the southern group of earthworks (data from IndianaMap 2012).

arrangement of posts—not as a roofed structure, but more similar to a type of woodhenge. The posts were burned as the mound was constructed. An imitation bear canine made from bone was found in one of the post holes. The mound was built of three superimposed clay floors each burned brick red and separated by a layer of white calcite powder. The stacked clay floors were covered with earth before a log tomb was constructed abutting the south side of the mound. The log tomb contained a bundle burial and a cremation burial along with a Middle Woodland Hopewell type platform pipe. A Middle Woodland Hopewell copper breastplate was found in the mound fill. Following use of the log tomb, it was incorporated with the rest of the mound by a final capping of earth. The final capping contained a few artifacts, notably a Middle Woodland Snyders point and sherds decorated with an incised nested diamond pattern. Based on radiocarbon dating, the post structure was constructed about 250 B.C. followed by the ditch and embankment about 160 B.C. (Table 1). The log tomb and earth capping were the apparent last constructions in the Great Mound, dating to about A.D. 90 based on the style of the platform pipe. Dating indicates that the Great Mound was in use for about 300 years. Following the end of the Middle Woodland construction and use of the Great Mound, people returned to the site and buried some of their dead in holes excavated into the mound, probably about A.D. 700 to 800. Such intrusive burials into existing mounds were practices of what is known as the Intrusive Mound culture (Cochran and McCord 2001).

Table 1. Radiocarbon dates from Anderson Mounds (CALIB 7.1, - Stuiver et. al 2018).

Site Number	County	Provenience	Feature Type	Sample Number	¹⁴ C Date	2σ Calibrated BP	2σ BC/AD	Reference
12M2	Madison	Great Mound	Post 3	M-2429	2110 ± 140	1716 - 2379 (99.7%)	239 BC - AD 429	Vickery 1970
12M2	Madison	Great Mound	Post 2	M-2428	1720 ± 130	1351 - 1900 (99.5%)	599 - 50 BC	Vickery 1970
12M2	Madison	Great Mound	Embankment	Beta 22129	2170 ± 90	1967 - 2347 (98.9%)	AD 17 - 397	Cochran 1988
12M2	Madison	Great Mound	Post 2	Beta 45955	2200 ± 70	2040 - 2346 (98.5%)	AD 90 - 396	McCord and Cochran 1996
12M2	Madison	Great Mound	Log tomb	Beta 52612	1910 ± 80	1690 - 2041 (96.6%)	260 BC - AD 91	McCord and Cochran 1996
12M2	Madison	Fiddleback	Embankment	Beta 22130	2090 ± 90	1881 - 2311 (100.0%)	69 BC - AD 361	Cochran 1988
12M2	Madison	Fiddleback	Ditch	Beta 27169	2070 ± 150	1692 - 2358 (99.1%)	258 BC - AD 408	Kolbe 1992
12M2	Madison	Fiddleback	West Mound	Beta 27170	2070 ± 70	1877 - 2164 (92.2%)	73 BC - AD 214	Kolbe 1992
12M2	Madison	Fiddleback	Embankment	Beta 133452	2030 ± 40	1893 - 2069 (92.5%)	57 BC - AD 119	Cochran and McCord 2001
12M2	Madison	Circle Mound	Embankment	I-11, 848	1955 ± 75	1718 - 2066 (97.6%)	232 BC - AD 116	Buehrig and Hicks 1982
12M2	Madison	Circle Mound	South Mound	Beta 2416	1880 ± 60	1693 - 1950 (97.5%)	257 BC - AD 1	Buehrig and Hicks 1982
12M2	Madison	Circle Mound	South Mound	Beta 2417	1870 ± 60	1692 - 1935 (95.5%)	258 - 15 BC	Buehrig and Hicks 1982
12M2	Madison	Circle Mound embankment	Embankment	Beta 2415	1560 ± 80	1305 - 1610 (100.0%)	645 - 340 BC	Buehrig and Hicks 1982

In addition to the Great Mound, the southern group consists of two small enclosures and the Fiddleback enclosure. The small enclosures, Earthworks B and D, have both been characterized as small ditched circles with a surrounding embankment. No diagnostic artifacts or radiocarbon dates have been obtained from either earthwork. Earthwork B is distinctive with two gateways while all the other enclosures have only one gateway. Earthwork D is aligned with the Great Mound along an alignment to the Winter Solstice sunset. The Fiddleback enclosure has traditionally been described as two conjoined circles in a figure 8 shape. More recent mapping shows that the enclosure combines a circular enclosure on the west half attached to a subrectangular enclosure in the east half. This earthwork form is rare among Ohio sites but is repeated in three sites in the New Castle phase. Two small mounds are present on the central platform: one on the west end and a smaller one on the eastern part of the platform. Test excavations on the highest elevation on the west end of the Fiddleback enclosure revealed a mounded midden deposit containing animal and human bone fragments, chipped stone manufacturing byproducts, fire-cracked rock, calcite deposits, and pottery sherds. The decorated pottery sherds have a nested diamond design like those from the Great Mound and similar to those found at the New Castle site but distinguished by an incised line at the bottom of the decorated zone. Radiocarbon dates from the enclosure center around 120 B.C. while the ceramics indicate dates between 150 B.C. and A.D. 1 (Cochran and McCord 2001).

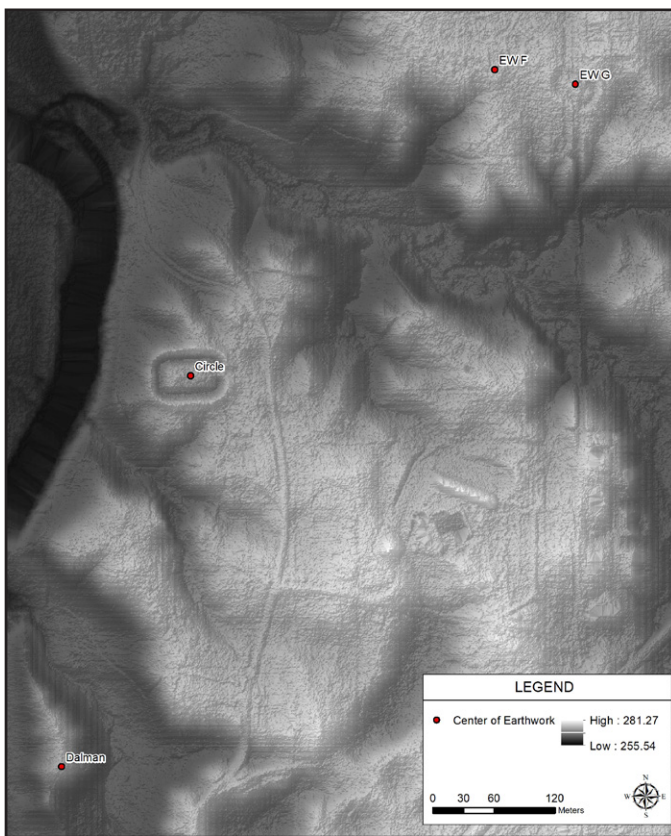


Figure 3. LiDAR hillshade of the northern group of earthworks (data from IndianaMap 2012).

road, no aboriginal features or radiocarbon dates were obtained although a few chipped stone flakes were found but without a clear relationship to earthwork-related activities.

Isolated Mound

Dalman Mound is a small isolated earthen mound situated on the bluff edge overlooking the White River. The mound is about 30 ft in diameter and 3 ft high. A large pothole in the center of the mound measures 6 to 10 ft across and about 2 ft deep. Documentation of the pothole found that did not reach the bottom of the mound. No indication of a stone structure was documented, but several large rocks were found while cleaning out the pothole and several more were observed on the mound surface around the pothole. There is also one mound associated with the enclosures at the New Castle site.

Northern Group

In the northern group, only Circle Mound and Earthwork G have been verified, mapped, and tested (Figure 3). Circle Mound is the largest enclosure in the group. This subrectangular enclosure is oriented east-west which would allow the rising sun at the Equinox to fall through the gateway and across the length of the central platform. Two small elevations are visible on the central platform but have not been verified as artificial mounds. On both sides of the gateway are small half mounds constructed against the embankment. Test excavations in the southern mound found no features or artifacts, but radiocarbon samples were obtained from charcoal at the bottom of the mound and below the earthwork embankment. The dates showed that the embankment was built about 5 B.C. while the conjoined mound was constructed about A.D. 70. While these dates show that Circle Mound was contemporary with activities in the southern group, it was constructed after both the Great Mound and Fiddleback enclosures (Cochran and McCord 2001). Earthwork G is north and east of Circle Mound. This enclosure is subrectangular but similar in dimensions to Earthwork D in the southern group. A gravel road bisects the enclosure. The western side was cultivated with significant leveling of the embankment and filling of the ditch. The east side was better preserved, and the embankment and ditch were apparent. While historic burning was found during test excavations in the gravel

Setting

The Anderson Mounds earthwork complex was constructed, at least in part, to align with astronomical events, principally sunset at the solstices. The people who built and used the site were participating in ceremonial ideas widespread across the Midwestern United States, including the Adena and Hopewell complexes. While the circular enclosures were considered representative of Adena, the only artifacts associated with the Adena Complex were the ceramics with the nested diamond design, reminiscent of Montgomery Incised (Swartz 1976). Hopewell artifacts included the imitation bear canines, a Snyder's point, the platform pipe, and the copper breastplate. In the 2001 synthesis it seemed that the transition between the two complexes was present in the site given that the earthworks were constructed sequentially through time and that artifacts representative of both ceremonial complexes were present.

Although no definitive natural features were identified that could explain the choice of the site location, it seemed apparent that the site was constructed in spatial relation to other contemporary earthworks in east central Indiana. The site was also culturally related to four other earthwork complex sites in the region as well as isolated mounds and enclosures. The Anderson Mounds earthwork complex was the only site in the region that contained both circular and rectangular enclosures but was otherwise very similar to the four earthwork complexes in east central Indiana. The sites were interpreted as representing an interconnected sacred landscape with each site representing a node in the ceremonial system (Cochran and McCord 2001).

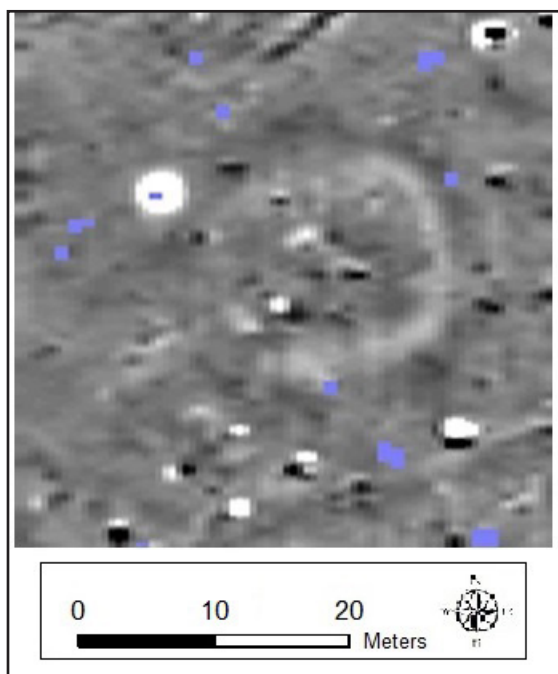


Figure 4. Gradiometer survey of Earthwork B.

RESULTS OF FIELD INVESTIGATIONS

Investigations since 2001 resulted in new information on Earthworks B, C, D, F, G, I, and K. Information from Earthworks B, D, F, and G was acquired during archaeological field schools while information for Earthworks C, I, and K was gained through a reconnaissance survey conducted by the authors. While no new information was acquired for the Great Mound, Fiddleback Mound, or Dalman Mound, it is important to note that the statewide inventory of earthworks (McCord and Cochran 2015) reinforced the fact that the earthworks in the Anderson Mounds complex represent the overall best, and in some cases the only, preserved examples of their kind within the state.

FIELD SCHOOL INVESTIGATIONS

Earthwork B

During the summer of 2005, Ball State students produced a new contour map of Earthwork B using a total station and conducted a magnetometer survey of the earthwork. However, the data was not published. As shown in Figure 4, the magnetometer survey detected several magnetic anomalies. While some of the anomalies appear to be surface metal or historic (modern) hearths, other anomalies were identified as potentially precontact in age. No ground truthing

(excavation) of these anomalies has been conducted.

While Earthwork B has traditionally been classified as circular, LiDAR imaging clearly shows that the enclosure is subrectangular (Figure 3). A review of the contour map in the 2001 synthesis also shows that the enclosure is subrectangular and not circular as reported (Cochran and McCord 2001). The significance of the shape of the enclosure is currently unclear.

Earthwork D

In 2006 Earthwork D was investigated by magnetometer survey (McCord 2007). Several magnetic anomalies were identified as good candidates for precontact features and four were selected for testing. Only one was an aboriginal feature. Near the center of the central platform, testing revealed a linear pile of fire-cracked rock and a very small number of burned clay pieces that extended in both directions outside of the excavation unit. Only flecks of charcoal were observed along with one small piece of precontact pottery. The rocks were not found in a pit feature but occurred piled one or two deep at the top of the B horizon and were covered by a thin A horizon. This suggested the topsoil was removed from the central platform, the rock feature was created and later covered by either human or natural processes. Stone piles have been noted within mound

constructions such as Mound 4 at the New Castle site, Indiana (Swartz 1976) and the Cresap Mound, West Virginia (Dragoo 1963). Based on the excavation and magnetometry, the feature shape does not suggest a rock “altar,” and no evidence of *in situ* burning was identified. Stone piles may have been overlooked or unreported in many of the early excavations of Adena and Hopewell sites in favor of the more ostentatious mound contents such as copper and mica cutouts, pipes, and ceremonial blades. While a few references report the existence of stone piles in mound contexts, a review of enclosures without mound features did not produce any instances of stone piles on the central platform.

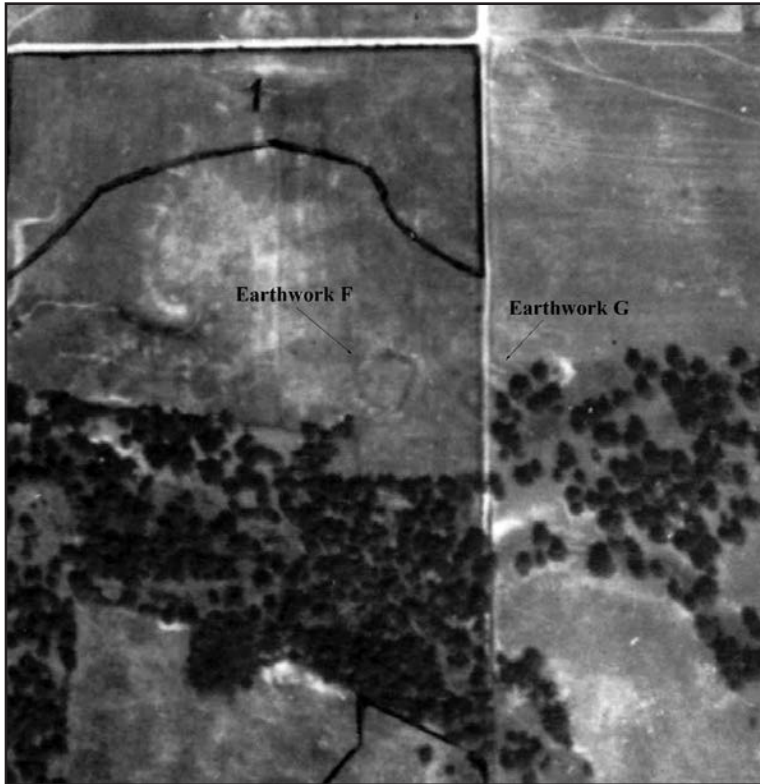


Figure 5. 1930 Aerial image of Earthworks F and G (after Lilly 1931).

blocks of the southeastern corner were surveyed with a magnetometer. The rediscovery of Earthwork F was unplanned, and investigations were minimal. Efforts to map a portion of the enclosure did not produce a viable contour representation nor a detectable magnetic signature (McCord 2007). The southeastern corner of the enclosure is, however, discernable in LiDAR data (Figure 3).

Earthwork G

Earthwork G is a rectangular enclosure situated just east of Earthwork F. The western part of Earthwork G was formerly in a cultivated field and a gravel road and dirt trail bisect it diagonally through the center. The east side beyond the road is the best preserved and is most visible when the vegetation is down in the winter. Previous test units were excavated in the road over the north embankment, in the middle of the enclosure on the platform and over the ditch at the south embankment. Also, a profile of the south embankment wall was obtained where it was cut and exposed by the road (Hicks 1981; Kolbe 1992). In general, none of the excavations produced information that was helpful for understanding the aboriginal construction or period of use of the enclosure. Due to historic disturbances and centuries of loam accumulation on the forest floor, the modern configuration of the enclosure is very unlike its original condition. The goal of the investigations in 2006 was to gather data for a contour map of the enclosure and obtain carbon for dating from the excavation of two units (1 x 1 m) on the western side. A magnetic survey was not conducted due to the historic disturbances and wire fence lines that cross the site. The first objective was met; a contour map of the enclosure confirmed the sub-rectangular shape and documented a suggested gateway to the southeast. A raised elevation on the central platform suggested that a mound was once present. No samples were obtained for radiometric dating (McCord 2007).

Earthwork F

Earthwork F is a large rectangular enclosure in the northern group. It was first reported as circular (Cox 1879) but a 1930 aerial photograph clearly shows the rectangular shape of the enclosure (Lilly 1937). The park campground is partially built on the location of the enclosure and surface evidence was apparently destroyed by campground construction although subsurface evidence for a portion of the earthwork ditch was documented (Hicks 1981). The earthwork has been considered essentially destroyed (Cochran and McCord 2001).

While doing a contour map at Earthwork G during the 2006 field school, the area west of Earthwork G and south of the campground was walked over and a portion of the ditch and embankment of Earthwork F was identified (McCord 2007). The enclosure is in the position shown on a 1930 aerial photograph (Figure 5). It has been plowed and is currently hard to define in some areas. The eastern and northern ditch and bank were more difficult to discern than the southern and western ditch and bank. Part of the eastern wall was mapped during the contour map survey of Earthwork G and three 10 x 20 m

Earthwork J—Circle Mound

The 2007 investigations focused on Circle Mound, the third and best preserved northern rectangular enclosure. A magnetometer survey of a 20 m x 40 m area of the central platform and a 30 m x 40 m area on the east side of the enclosure was conducted. Numerous discrete magnetic anomalies were revealed in both survey blocks. In addition, subtler magnetic changes were identified at the boundaries of the two flanking mounds in the eastern block. A potential mound structure identified on contour surveys in the southwest area of the central platform was also apparent in the magnetic survey. Larger complex dipoles were likely the result of previous excavation and soil erosion. Several positive monopoles were good candidates for precontact features. The magnetometer survey suggested both historic and precontact remains existed to the east of the enclosure and shovel testing confirmed this. No features were identified but historic and precontact artifacts were recovered. Fire-cracked rocks were the most common artifact recovered but chipped stone debris and historic artifacts were also found. Unfortunately, no diagnostic precontact artifacts were recovered and the relationship of the artifacts to the enclosure is not known (McCord 2008).

SUMMARY OF FIELD AND LABORATORY INVESTIGATIONS

Field and laboratory investigations since 2001 resulted in a contour map for Earthwork G and a portion of Earthwork F; magnetometer surveys of Earthworks B, G, D, Circle Mound, and a small portion of F; test excavation conducted in Earthwork D and shovel testing outside the gateway of Earthwork C.

The magnetometer surveys documented magnetic anomalies, some of which may be precontact features, within the earthworks. One was tested in Earthwork D and found to be a fire-cracked rock feature. No new radiocarbon dates were obtained and dating for the earthworks included in these investigations are still lacking.

In addition, topo maps, magnetometer surveys and LiDAR imaging revealed that Earthworks B and D are subrectangular rather than circular. The documentation of the subrectangular rather than circular shape for these earthworks raises interesting questions about their age, function, and symbolic representation. Further review of this revelation is contained in the discussion section.

One goal of the research at Anderson Mounds earthwork complex and other regional sites is to identify all of the previously reported earthworks. At Anderson five earthworks have eluded attempts to identify them in the field. The reported location of Earthwork E was tested twice but without recovering any evidence of an earthwork at that location (Cochran 1988; McCord 2008). A portion of the enclosure covered by the park campground, Earthwork F, was identified during the 2006 field school (McCord 2007). The remaining three earthworks, C, I, and K were the focus of documents research and a field reconnaissance that is reported in the following section.

THE LOST EARTHWORKS

Although 12 earthworks have been reported in the Anderson Mounds earthwork complex, Earthworks C, I, and K have not been verified in over 100 years. Cox (1879) published the first detailed description of the earthworks and included a map of the site drawn by Levette. The Levette map was embellished and published in Lilly (1937) using Cox’s (1879) bearings and measurements for earthwork locations and orientations. Following Cox, Walker (1892) published descriptions of the earthworks and included bearings and distances between them, but no map was included in the published report. The Cox and Walker bearings and distances were divergent (Table 2). Smith’s (1932) map diverges from the Cox locations in earthwork placement but without recording the source of the information. Figures 6 to 10 display comparisons of these early researchers’ maps and bearing information compared to processed LiDAR data (IndianaMAP 2012).

Earthwork C was reported as virtually destroyed by a public road (Cox 1879:131), usually interpreted as SR 232

Table 2. Bearing Comparisons.

Earthwork to Center of Great Mound	Cox’s Quadrant Bearing	Cox’s Azimuth Conversion	Cox’s Distance	Walker’s Quadrant Bearing	Walker’s Azimuth Conversion	Walker’s Distance	Proposed* Bearing Correction	Proposed* Azimuth Conversion	Proposed* Distance
Earthwork B	S 30° E	150°	238 feet	S 36° E	144°	225 feet	S 36° E	144°	260 feet
Earthwork C	S 20° E	200°	710 feet	S 14° 30’ W	195°	710 feet	S 15° W	195°	690 feet
Earthwork D	S 39° W	219°	475 feet	S 54° 45’ W	235°	446 feet	S 55° W	235°	425 feet
Earthwork E	S 84° W	264°	245 feet	? 64° 30’ W	245°	contiguous	-	-	
Fiddleback	N 70° W	290°	325 feet	N 70° W	290°	195 feet	N 70° W	290°	275 feet
Earthwork I	N 70° W	290°	552 feet	N 75° 50’ W	286°	552 feet	S 84° W	264°	605 feet
Earthwork K	N 71° W	289°	662 feet	-	-		S 74° W	254°	630 feet

*Proposed=most reliable based on written descriptions and confirmed physical locations

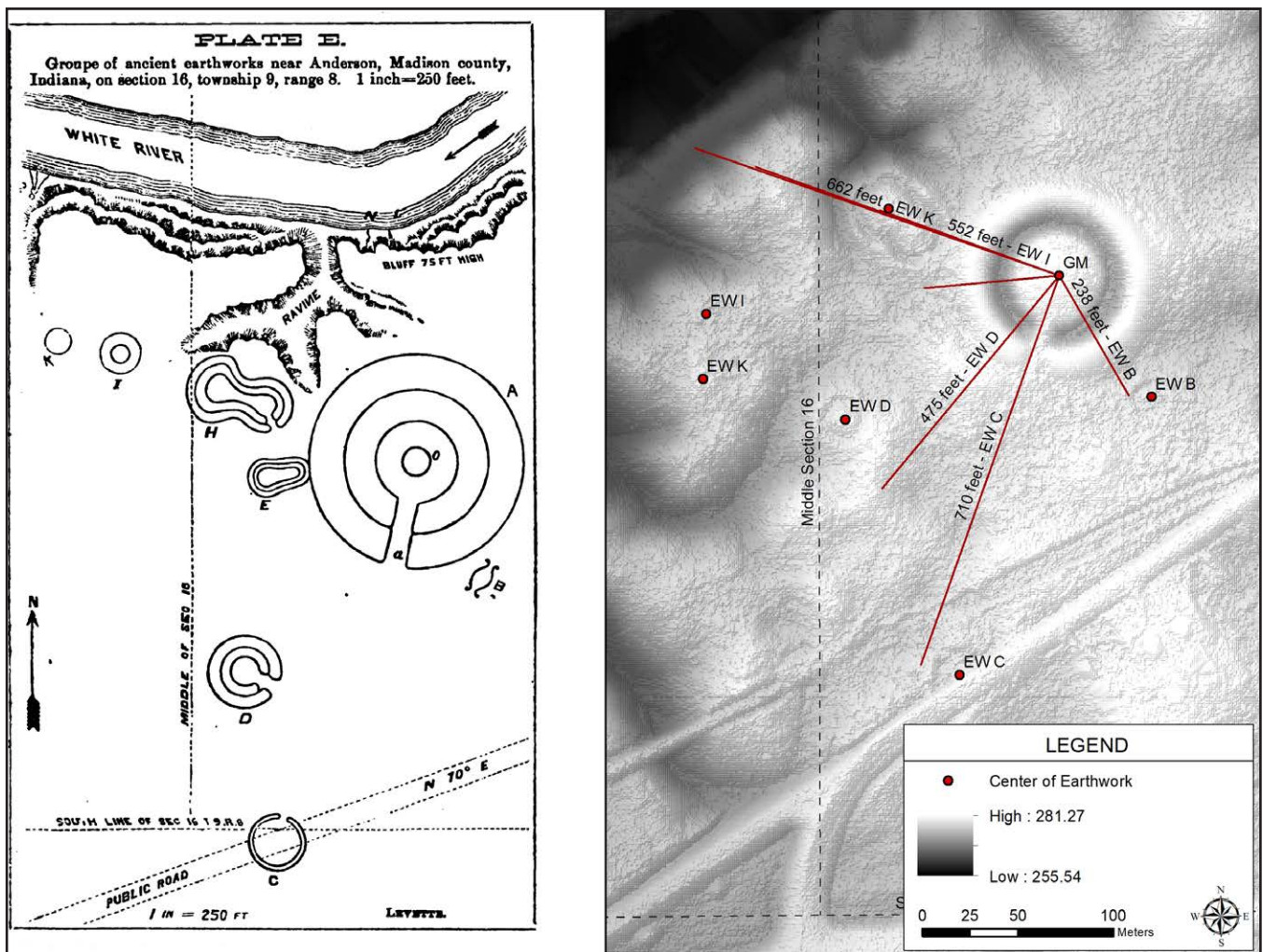


Figure 6. Cox (1879) map and bearings of the southern group compared to LiDAR hillshade (data from IndianaMap 2012).

(White 1969:3). Earthworks I and K are reported as destroyed or no longer visible (Buehrig and Hicks 1982; White 1969). The location of Earthwork E was examined twice through shovel testing and an excavation unit (Cochran 1988; McCord 2008:28–29) but no evidence of an aboriginal construction was found.

One impediment to locating these three earthworks is the Cox (1879) description and Levetta map. Although this map has been the basis of most site maps for Anderson Mounds (e.g. Buehrig and Hicks 1982; Lilly 1937; Vickery 1970, 1979; White 1969), it is replete with inaccuracies that include earthwork orientation, placement and shape (Cochran and McCord 2001; Startzman 1990). Walker (1892) did not include a map but a review of known earthwork locations with his descriptions indicate that they are more accurate than those in Cox (1879) (Table 2). The earthwork orientations are more accurate on the Smith (1932) map but without supporting documentation for the mapped locations. In general, the mapped locations of the three unverified earthworks have depended on the Cox/Levetta (1879) locations.

During the 1999 Ball State University archaeology field school, a possible location for Earthwork K was identified, but because of the density of understory and summer foliage, the identification was considered tenuous (McCord 2008). Further, during the 1988 field school (Kolbe 1992), a circular feature located to the southwest of the Great Mound was identified in the vicinity of reported Earthwork I although at the time the feature was thought to represent the remains of a merry-go-round from the amusement park era (circa 1897 to 1929).

The authors initiated an attempt to find Earthworks C, I, and K on April 14, 2015. Existing data and prior experience were used to investigate possible locations for the earthworks through a surface reconnaissance. The approach was simple. Some evidence had been acquired through previous field projects that suggested possible locations for Earthworks I and K. Those areas were walked and compared to features of the landscape and reported earthworks with what could be seen

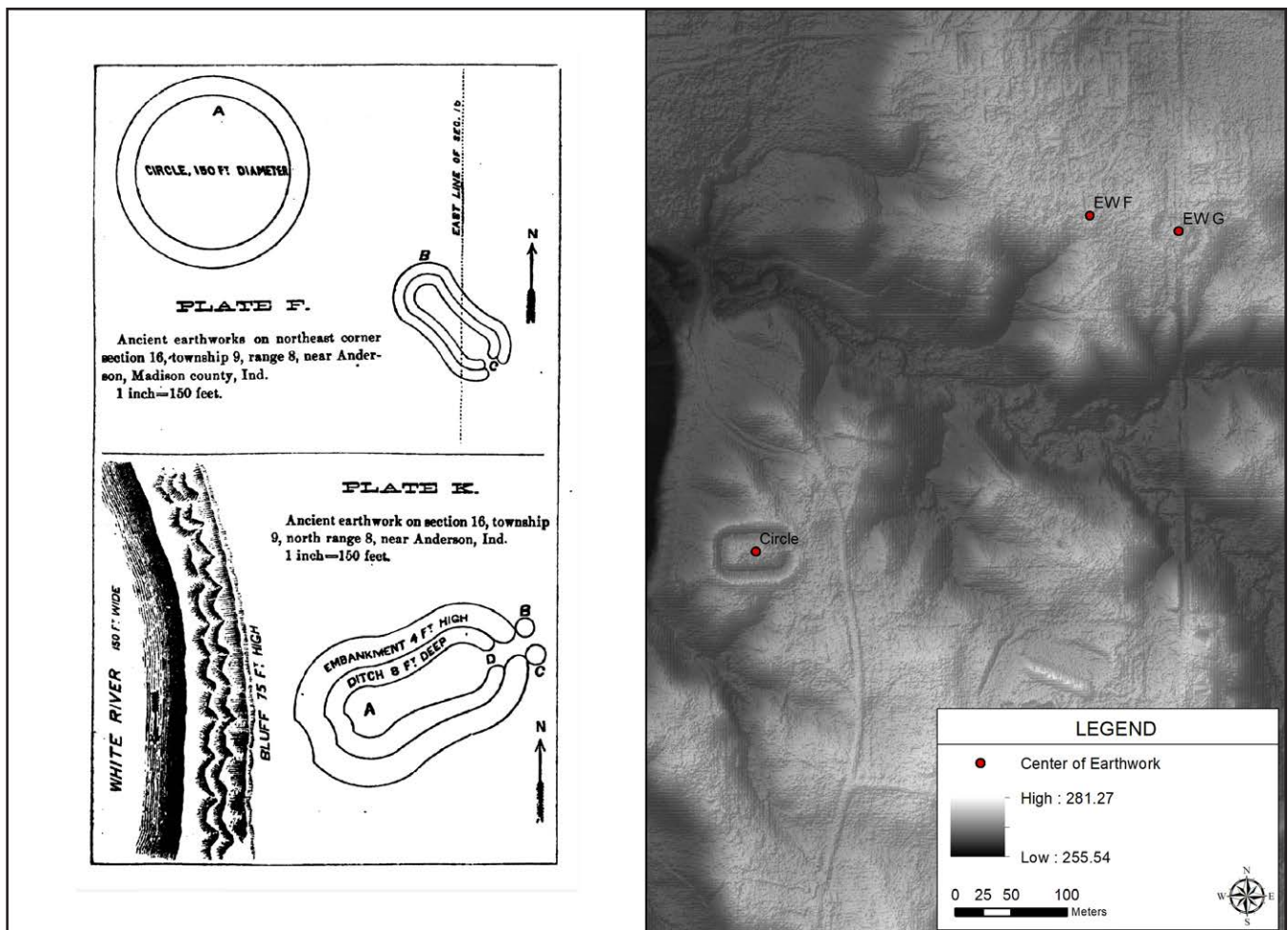


Figure 7. Cox (1879) maps of the northern group compared to LiDAR hillshade (data from IndianaMap 2012).

on the ground. A tape measure was used to record visible features and the GPS locations were recorded. By comparing the ground observations with a critical review of the Cox (1879), Walker (1992) data, and LiDAR data, the likely locations of the earthworks were defined. The results of the investigation are reported in the following section.

Earthwork C

While a location for earthwork C is usually shown on published site maps, no location on the ground had been recently identified. The earliest description of Earthwork C is by Cox (1879:131):

Fig. C is 710 feet S. 20° W. from the center of A, is 100 feet in diameter, has a bank which shows in the woods two feet high, and a gate ten feet wide. The public road runs through this circle, and has obliterated the greater part.

Most subsequent mentions of Earthwork C is based on the Cox description and the assumption that the earthwork was destroyed by the construction of the road that parallels the eastern boundary of Mounds State Park and/or the interurban railway line (e.g., Buehrig and Hicks 1982:48–49). Walker (1892) states that only the northern part of the embankment remained and the Startzman (1990:16–17) document noted that “part of the wall was discernable,” suggesting the statement was based on observation. In addition to the reports of its destruction, the location of the enclosure is inconsistently recorded on maps. The Levette map (Cox 1879:131) shows the enclosure at the junction of the south line of Section 16 with the public road. However, the south line of Section 16 intersects with the road over 1,000 ft (300 m) to the southwest of the mapped location (Figure 6). Further, the Smith (1932) map shows the earthwork just to the right of a line from the center of the gateway of the Great Mound (Figure 8) while the Levette map shows it just to the left of that line. The Buehrig and Hicks map

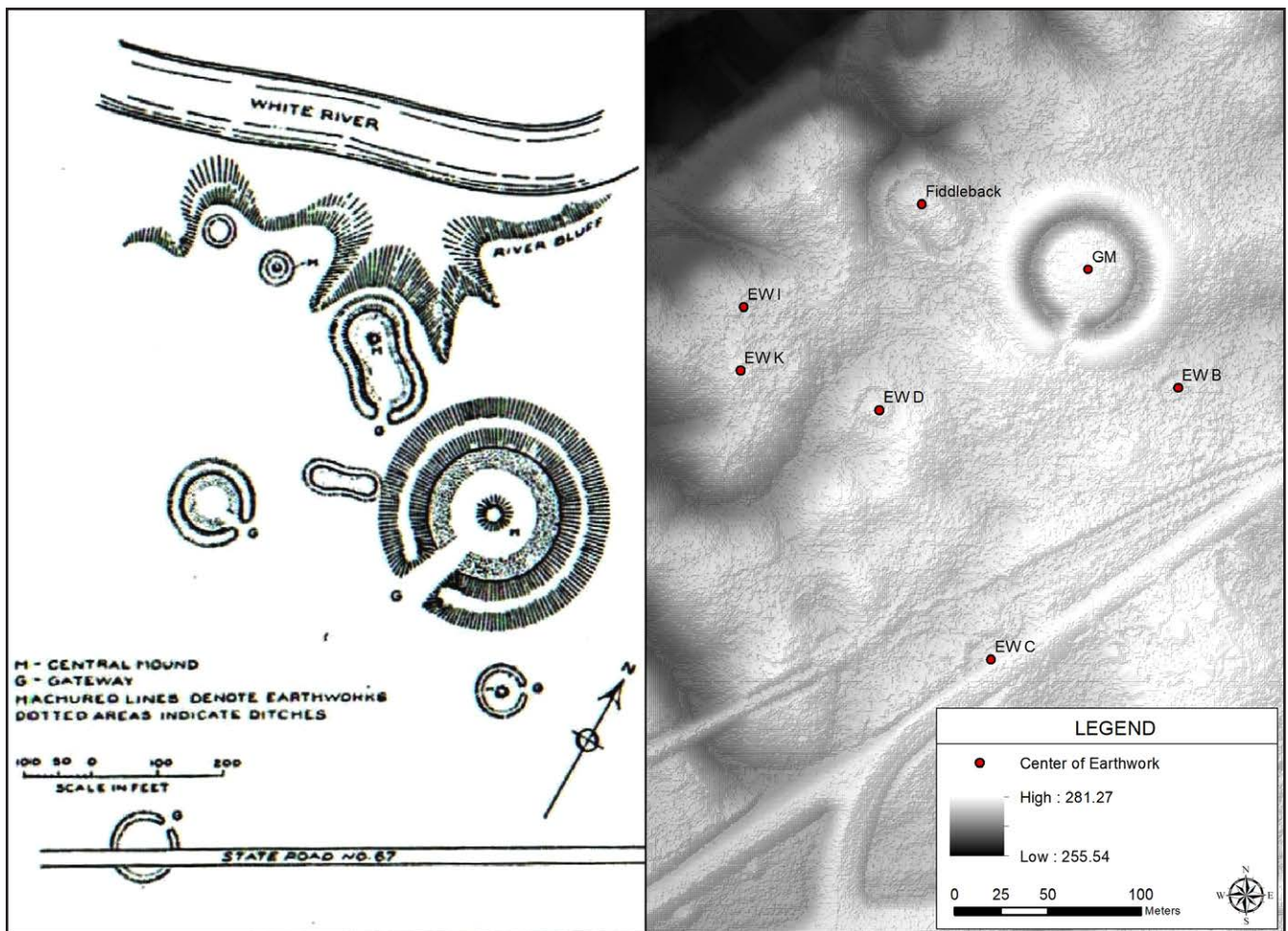


Figure 8. Smith (1932) map of southern group compared to LiDAR hillshade (data from IndianaMap 2012).

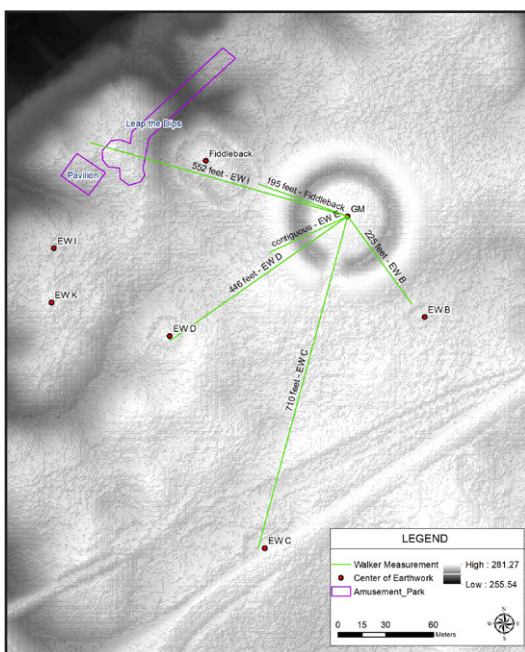


Figure 9. Walker (1892) bearing information compared to LiDAR hillshade (data from IndianaMap 2012).

(1982:62) places the earthwork directly on that line (Figure 11). The latter map shows the enclosure bisected by the interurban line. The only certainty we could derive from these sources of information was that an earthwork was originally located in the vicinity of the various mapped locations. It would appear that the Startzman (1990) document is the only one that suggests the enclosure was seen on the ground since 1892. Unfortunately, the Startzman document uses a map scale that does not allow relocation of what is marked as Earthwork C.

With all this confusion in the documents as to the location of Earthwork C, and assuming it was probably destroyed, the authors visited that area of the park in 2015 before vegetation emerged to see if we could find any indication of the earthwork. After walking back-and-forth between the east park boundary and the Interurban roadbed, we found what appeared to be a part of the enclosure. Considerable surface disturbance was evident, but we were able to trace a portion of what appeared as a low embankment about 20 cm high. No ditch was evident. State Road 232 had cut off the eastern half of the earthwork, though the orientation of the location with the gateway of the Great Mound seemed verified. A LiDAR image of the location shows half of a circular feature in this location and at the location recorded by Walker (1892)(Figure 10). Given the amount of surface litter and disturbance, mapping,

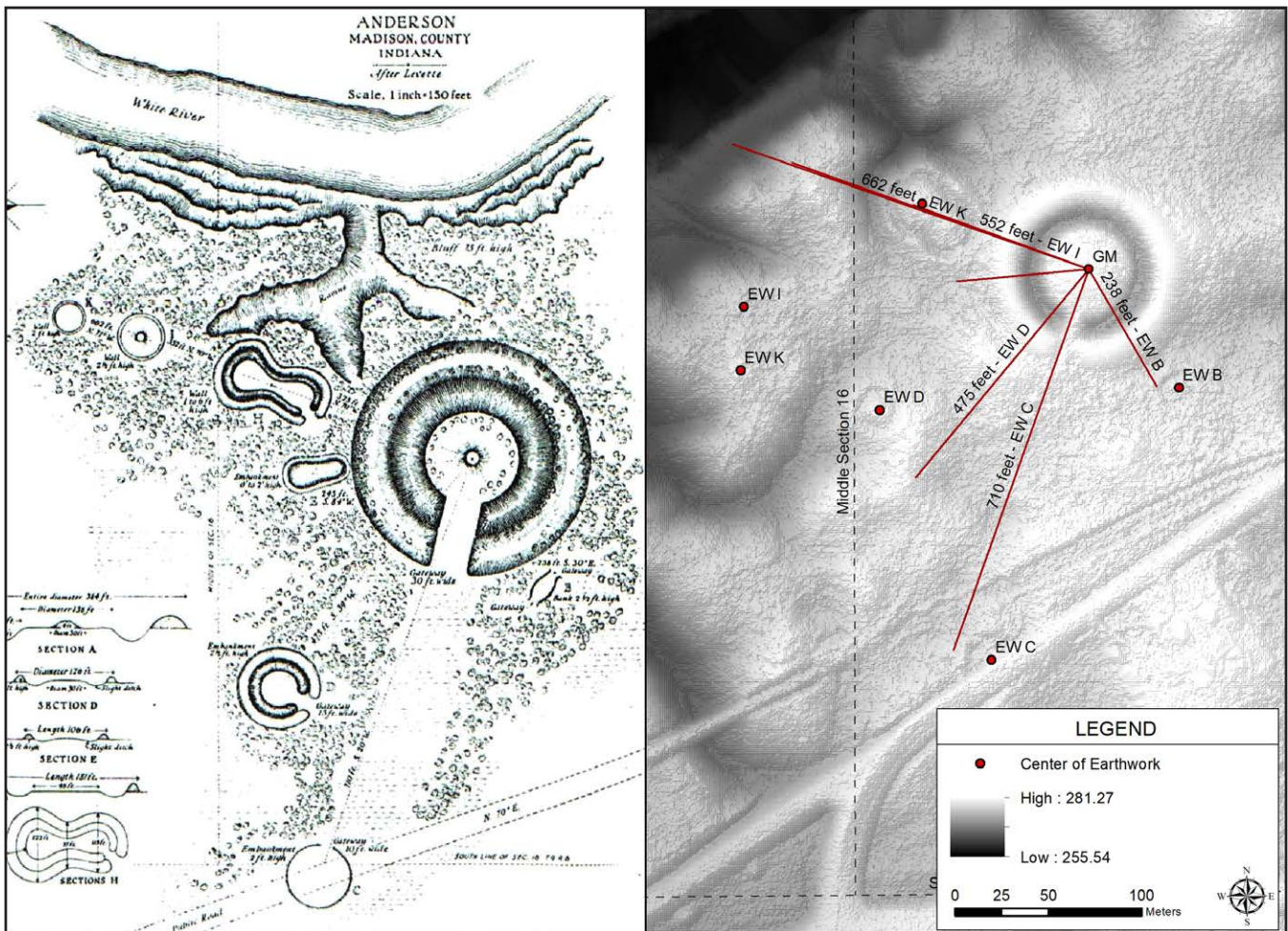


Figure 10. Lilly (1937) map and bearings of the southern group compared to LiDAR hillshade (data from IndianaMap 2012).

geophysical prospecting, and test excavations would be required to verify the remains as Earthwork C. No photographs were attempted because of the vegetation.

Earthwork I

The location of Earthwork I, like Earthwork C, is a problem. Apparently it has not been relocated since Cox (1879:131) and Walker (1892) described it. The Cox (1879:131) description states:

Fig. I is 552 feet N. 70° W. from the center of the large circle A; it is a plain Circular embankment thirty-six feet in diameter with a wall two and a half feet high; with no visible ditch or entrance-gate; near the center is a slight mound, thirteen feet in diameter.

Walker's (1892:52) description diverges significantly although the bearing and distance from the Great Mound are quite similar:

Northwest of this work and 552 feet north 75 degrees west of the center of the large work is a circular mound, without ditch or embankment, 60 feet in diameter and about 18 inches high.

Clearly the Walker description is for a mound rather than an enclosure. And while the distances from the Great Mound are consistent, the bearing deviations are important.

Investigators of the southern complex have generally thought that Earthworks I and K were destroyed or no longer visible (e.g. Buehrig and Hicks 1982; White 1969). The mapped locations of the two earthworks are definitely different between the Cox (1879:131) and Smith (1932:19) maps (Figures 6 and 8). It appears that if the Fiddleback enclosure were

rotated into the correct alignment as shown on the Smith map, and if Earthworks I and K as plotted on the Cox map were rotated as well, there would be better agreement between the two maps. However, given that it appears that no one has seen the two earthworks since 1892, it is not possible to know exactly where they were located based on existing maps. Earthwork I was not recorded on the Buehrig and Hicks (1982:62) map of earthworks encountered during their survey although a symbol for a “mound” is recorded in a location for Earthwork I consistent with the Cox (1879) map. A “circular ditch” was also recorded to the west of the Great Mound, but not described in the text of the report. This circular ditch was previously noted and thought to be the location of the merry-go-round in the Union Traction Company Amusement Park (see McCord 2007:33, Figure 26). The mapped locations for this circular feature agree in both the 1982 Buehrig and Hicks and the 2007 McCord reports.

A rise in elevation in the vicinity of the location of a “mound” as recorded on the Buehrig and Hicks (1982:62) map was investigated during the 1999 and 2006 archaeological field schools (McCord 2007:26–33, 2008:50–52). The location was initially assumed to be Earthwork K although it seems more likely, based on comparison with the Cox and Smith maps, to correspond with Earthwork I. Test excavation revealed that the rise was disturbed and most likely of historic origin. The Union Traction Amusement Park pavilion and roller-coaster, Leap the Dips, were located on this ridge (Buehrig and Hicks 1982:33–34) (Figures 10 and 11).

During our April 2015 attempt to relocate Earthwork I, we returned to the circular ditch as a possible location of the earthwork. We found the visible features to consist of a low bank 10–20 cm (4–6 in) high with an interior ditch about 2 m (6.5 ft) wide that varied from very shallow to a maximum depth of between 40 and 50 cm (15–20 in). The “earthwork” was about 16 m (52 ft) across from bank to bank. In the interior, three holes ranging between 1.5 and 2 m (5 and 6 ft) across were noted. A gateway about 3 m (10 ft) wide seemed visible. The center of the feature lay at a 264° angle from the Great Mound center. The location does not agree with the bearings given for Earthwork I in either Cox (1879) or Walker (1892) (Figures 6 and 10).

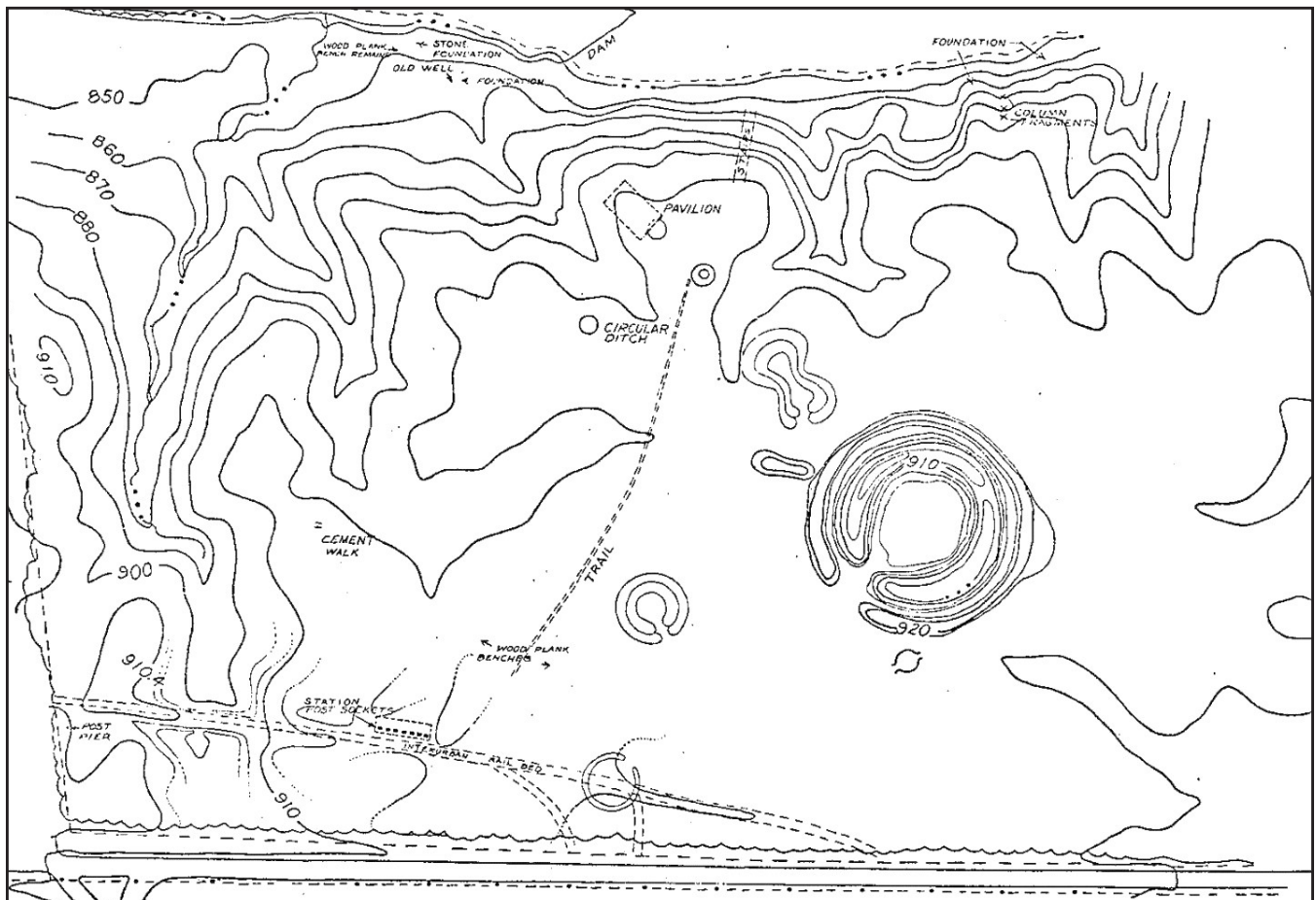


Figure 11. Buehrig and Hicks (1982) map of southern group.

The features we recorded do not compare well with the Cox (1879:131) description for Earthwork I. He did not record a ditch and one is clearly visible at this location. Also, the size is incompatible with his, which was recorded at 36 ft across. The one documented here measured about 50 ft from bank to bank. The size is closer to the Walker (1892) description, but Walker described a mound rather than an enclosure. No artifacts were recorded from the vicinity of this enclosure by Buehrig and Hicks (1982:Appendix A). The feature is visible in LiDAR data. At this time, this seems the most likely candidate for Earthwork I based on the available evidence. Mapping, geophysical prospecting, and subsurface investigations are required to determine the origin of this “earthwork” feature.

Earthwork K

Earthwork K, like C and I, does not appear to have been seen since Cox (1879:131–132) originally recorded it. He described it as:

Fig. K is 662 feet N. 71° W. of the center of A; it is a plain circle, with wall two feet high; no ditch or central mound.

The location of Earthwork K is as ambiguous as those of Earthworks C and I. As already noted, the Cox (1879) and Smith (1932) maps do not agree on the placement of the earthwork (Figures 6 and 8). Cox’s location would place it on the steep slope of the White River Valley. Buehrig and Hicks (1982:53) state that the earthwork was apparently destroyed during construction of the amusement park pavilion. A rise assumed to represent Earthwork K was investigated during the 1999 archaeological field school (McCord 2008:51–52) based on the location of a “mound” recorded on a Buehrig and Hicks (1982:62) map. The rise, however, was determined to represent historic disturbance associated with either the Union Traction Amusement Park pavilion or roller-coaster known as Leap The Dips rather than an aboriginal construction. Another potential location for Earthwork K was found to the west-north-west of Earthwork D during the 2006 archaeological field school while searching for historic resources. A circular enclosure approximately 20–30 m in diameter with a low embankment was found and recorded but was not investigated further (McCord 2007:29, 46). The location for this potential earthwork does not correspond to the locations recorded by Cox (1979) or Smith (1932).

During the April 2015 visit, we relocated this feature, although with difficulty since dead trees had fallen across the interior since 2006. We measured a low, somewhat bowl-shaped circular enclosure that measured between 20 and 22 m (65–72 ft) across. The east side was most evident as the curve of the enclosure cut into a low knoll. No gateway or other features were evident. The center of the feature was oriented at approximately 254° from the Great Mound and is visible in the LiDAR data. No artifacts were reported in the vicinity of this enclosure (Buehrig and Hicks 1982:Appendix A). As with Earthworks C and I, mapping, test excavations, and geophysical prospecting are required to verify the aboriginal origin of the enclosure.

DISCUSSION

In the experience of the authors, every casual visit or formal investigation at Anderson Mounds provides new insights into this ceremonial and ritual landscape. While this new information does not change our 2001 perspective of when the earthworks were built and used or who built and used them, it does confirm that additional earthworks were part of this built environment. New technology, such as geophysical prospecting and LiDAR, allow for noninvasive study and provides more refined mapping than was available and used in the 19th and 20th centuries, to provide a more accurate layout of the earthwork landscape. Beyond having more accurate maps, the information gathered since 2001 has also provided information on internal features and activity loci within individual earthworks.

The rediscovery of the lost earthworks also has implications for understanding more about the culture that created and used them. We reassert that all of the earthworks are intentionally placed within the landscape. Some of the enclosures are connected to tracking solar movements. Each of the earthwork sites are elements of the cognitive map of the culture that produced them. If subsequent investigations confirm that the features discussed here represent the lost enclosures, they will need to be integrated into the overall model of the Anderson Mounds earthwork landscape.

SUMMARY OF FIELD INVESTIGATIONS

Field investigations resulted in geophysical investigations of Earthworks B, D, G, and Circle Mound, and contour maps of Earthwork G and part of F. Test excavations were conducted in Earthwork D and shovel testing was carried out outside the gateway of Circle Mound. In addition, reconnaissance survey and an intense documents investigation identified the potential locations of Earthworks C, I, and K.

Fieldwork has added details and insights into the site structure and further supported the assertion that the Anderson Mounds earthwork complex is the best-preserved Middle Woodland complex site in east central Indiana and possibly within the state. Additional study is needed to confirm the aboriginal origin of the three lost enclosures, and if verified, to integrate them into the overall site structure. Further, the discovery that enclosures formerly recorded at Anderson as circular are actually subrectangular requires some rethinking of their meaning, distribution, and the ramifications for regional research. A review of LiDAR imaging of the New Castle and Bertsch earthwork complexes shows that small subrectangular enclosures are present there, particularly at Bertsch (Davis and Burks 2019). LiDAR imaging of small circular east central Indiana enclosures outside of earthwork complex sites verifies their circular shape.

REGIONAL SETTING

Anderson Mounds does not exist in isolation and can only be understood in relation to other earthwork sites in east central Indiana. In a 2001 synthesis, Anderson was viewed in relation to other earthwork complexes, mounds, and enclosures in east central Indiana through radiocarbon dates, artifacts, site features, astronomical alignments, and proximity to other earthworks. Regional earthwork complex sites like Anderson consist of both circular and rectangular enclosures. The three sites with large circular enclosures are in the southwestern part of the region while those with large rectangular enclosures are in the northeastern part. Conical mounds and small enclosures are situated halfway between the sites with large rectangular enclosures but are absent between the circular complexes. Ceremonial and ritual activities, including mortuary activities, are obviously associated with the sites. Differences in site structure and arrangement were viewed as possibly indicating that different activities occurred at each site. We concluded: "Anderson Mounds . . . represents one site within a network of sites that were carefully placed within east central Indiana to satisfy complex layers of ideas about the organization and relationships between the people who built the site" (Cochran and McCord 2001:48).

As ongoing research evolved, we were able to model some Middle Woodland behavior associated with earthwork sites. Based on the arrangement of earthworks in the regional context, particularly the clustering of large earth circles in the southwestern part of the earthwork distribution and large rectangular earthworks in the northeastern part of the region, we have proposed that the organization represents a dual division within the local culture that built and used the sites. Dual divisions within Native American groups are common. Further, following DeBoer (1997) and based on the differences between Midwestern Native American summer and winter house shapes, we proposed that the circular enclosure complexes represented the winter season while the rectangular enclosures represented the summer season. We therefore proposed that the dual division represented in the local earthwork landscape was at least in part related to season. We envisioned a model of an integrated ceremonial system that rotated between different ceremonies and rituals at different sites, possibly a seasonal round. While mortuary ritual was a component of the activities conducted at earthworks, it was not viewed as the only or necessarily the primary reason for their construction. We viewed earthworks and earthwork sites as evolving through ongoing cycles of use and modification and the incorporation of new constructions (McCord and Cochran 2014).

The Anderson earthwork complex is a microcosm of the regional landscape, and it is the only earthwork complex containing both a large circle and a large rectangular enclosure. The circular Great Mound is located south of the rectangular Circle Mound with a small mound, Dalman, situated between them. This arrangement reflects the dual division identified in the regional arrangement of earthwork shapes, and potentially supports the seasonal relationship related to house shape. Further, it is apparent that mortuary ritual, while an important ceremonial component at the complex sites, is not demonstrated as the only or most important component, but an interconnected part of a larger ceremonial system. While burials were incorporated in the mound in the center of the Great Mound enclosure, the primary mound was not associated with burials or with the post arrangement that preceded it. Burials are not confirmed from any of the other earthworks in the complex, although fragmentary human remains were present in the midden deposit in the small mound on the west end of Fiddleback Mound (Cochran and McCord 2001). Whether burials were looted from Dalman Mound is unknown. Startzman (1990) reports burials and earthworks within and near the complex, but these are not confirmed. The pattern of few burials at Anderson is repeated at other earthwork complex sites in the region with the exception of Mound 4 at the New Castle site, the only earthwork complex in the region known to contain many interments (Swartz 1976).

Previously, only small circular enclosures are reported near the Great Mound at Anderson, and at the New Castle and Bertsch sites (Cochran 1992). Topographic maps, magnetometry, and LIDAR imaging show that Earthworks B and D at Anderson are subrectangular rather than circular, and, as published by Davis and Burks (2019), the small enclosures at the Bertsch site are also subrectangular rather than circular. A review of LiDAR imaging for the New Castle site shows that while most of the small enclosures are circular, some are subrectangular. This discovery of small rectangular rather than circular enclosures raises interesting questions of their purpose and meaning. Excavation data is very limited, and no radiocarbon dates have been

recorded. Test excavations at Earthworks B and D at Anderson did not produce diagnostic artifacts or enough carbon for dating. A fire-cracked rock feature was partially uncovered in the center of Earthwork D but without associated artifacts.

SUMMARY AND CONCLUSIONS

Ongoing research at the Anderson Mounds earthwork complex since 2001 has resulted in geophysical surveys and contour maps for all the verified earthworks except for a geophysical survey of the remnant of Dalman Mound. Also, further evidence of the location of Earthwork F was documented and a partial contour map and gradiometer survey completed. One feature identified during the geophysical survey of Earthwork D was documented as a fire-cracked rock cluster. Contour maps and magnetometer data also show that Earthworks B and D are actually subrectangular rather than circular as historically reported.

Field and document research investigated the locations of three reported but essentially lost earthworks, C, I, and K, and found map and surface features consistent with locations for those earthworks. Further investigations will be required to verify the locations. Although no new artifacts or radiocarbon dates were acquired since the 2001 synthesis, the data that was acquired is vital for the continuing refinement, verification, and documentation of the archaeological resources at Anderson Mounds.

Continuing research with the Anderson Mounds earthwork complex and related sites in east central Indiana has provided a body of Middle Woodland data unmatched in other regions of Indiana. This data includes a series of radiocarbon dates that documents sequential, contemporary, and interrelated earthwork construction in the region. Research has also documented a Middle Woodland earthwork landscape organized to reflect ideas of Middle Woodland social organization defined as the New Castle phase. The distribution of earthwork shapes in the earthwork complex sites suggests a dual division within the local culture, possibly organized seasonally. The distribution of earthworks at Anderson Mounds is a microcosm of the regional earthwork landscape.

Anderson Mounds is traditionally recognized as a unique and exceptionally preserved earthwork site in Indiana. Completion of the survey of earthwork sites across the state (McCord and Cochran 2015) reinforces that traditional characterization and demonstrates how vital the continuing preservation of the site is. Continuing research with Anderson Mounds and other earthwork sites in the New Castle phase is expected to contribute to a more refined understanding of these important sites.

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THE OLD PRISON SOUTH: EXPLORING ANTEBELLUM INSTITUTIONAL CONFINEMENT IN SOUTHERN INDIANA

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Editors' note: Site numbers in this article are written with a space between the 12 and the county abbreviation and a space between the county abbreviation and the site number, such as 12 Cl 762. This is done so that the reader understands that the site is from Clark County (Cl), and the number of the site is 762, rather than 1762.

INTRODUCTION

In response to changing public attitudes towards crime and punishment, Indiana established a state penitentiary in Jeffersonville. The penitentiary was Indiana's first, and operated from 1822 until 1846. During investigations conducted on behalf of the Indiana Department of Transportation (INDOT), Cultural Resource Analysts, Inc. (CRA) identified intact early to mid-19th century deposits associated with the prison. Excavations uncovered structural remnants and other features at the Colston Park Site (12 Cl 762). A large sample of faunal material and a variety of other artifacts were recovered. The features and material have provided data on the architectural landscape of the prison and about the daily lives of those confined there.

In the summer and fall of 2012, and the spring of 2013, CRA personnel completed a Phase Ia archaeological field reconnaissance, Phase Ic subsurface reconnaissance, Phase II National Register of Historic Places evaluations, and Phase III data recovery excavations for the Louisville–Southern Indiana Ohio River Bridges project in downtown Jeffersonville, Clark County, Indiana. These investigations were completed at the request of INDOT ahead of proposed road improvements to I-65 (Cupka Head 2015). The archaeological work was conducted around the existing I-65 and U.S. 31 intersection and bridges, as well as along adjacent city streets. Several archaeological sites were recorded during the survey, primarily consisting of late 19th and early 20th century residences and businesses. Four sites (12 Cl 762, 12 Cl 975, 12 Cl 976, and 12 Cl 978) were recommended for further work, and data recovery was subsequently completed. This article focuses on the excavations at the Colston Park Site, which—in addition to a late 19th through early 20th century dump and several late 19th through mid-20th century residential and commercial lots—included remnants of Indiana's first state penitentiary.

A BRIEF HISTORY OF THE 'OLD PRISON SOUTH'

The establishment of Indiana's first state prison was the result of a shift in public attitudes towards punishment that would define the American penal system. Many of America's early penitentiaries were based on two models of carceral punishment: the Auburn System and the Pennsylvania System. While both systems were authoritarian in design, the Auburn System favored productive activity in the form of congregate labor while the Pennsylvania System stressed isolation and Biblical instruction. In contrast to progressive models of carceral punishment emerging in the northeast and mid-Atlantic, much of the remaining United States persisted with traditional penal systems popularized during the colonial period. Punishment in colonial America was modeled after English common law, and was heavily reliant on "mechanisms of shame" (e.g., stocks, pillory, public caging) and "afflictive penalties" (e.g., whipping, flogging, branding, hanging) (Casella 2007:16). Prior to 1822, most criminals in Indiana were punished at the whipping post, pillory, or gallows (Bodenhamer 1986).

As attitudes toward traditional methods of punishment progressed, the Indiana legislature began revising the criminal code in 1820. Crimes that would previously have been punished by whipping or other corporal means would now be punished by incarceration. Lawmakers took note of the significant revenue generated by the lessee system at the Kentucky state prison and used that prison as a model to design a similar institution in Indiana. Indiana's first state prison was established during the fall of 1821. Approximately one acre of land in Jeffersonville was obtained to serve as the prison grounds, and the first prisoner was accepted on November 1, 1822 (Hafner 1985; Williams 1882).

The construction of the prison complex was funded, in part, by local investors in the Jeffersonville Ohio Canal Company, with the expectation that prisoner labor would be available to help complete the canal. However, the canal venture collapsed before the completion of the prison. In all, the initial prison construction cost \$3,000. Reuben H. Murray and Robert Gray were

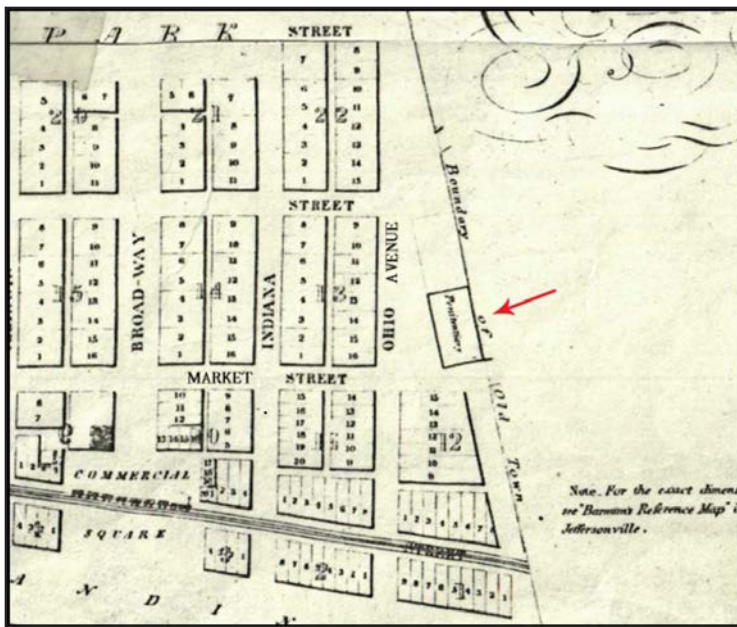


Figure 1. Map of Jeffersonville enlargement showing the original prison lot (Barnum 1837).

unsuccessful in making the prison profitable. He resigned his position in 1823 and was replaced by Abel Spencer. Under Spencer, the prisoners were employed in the manufacture of shoes, clothing, and other items. Spencer, too, was unsuccessful, and he and the board of managers were removed in 1824 (Kramer 2007). At that time, the governor was granted the authority to lease out the prison grounds, buildings, and the inmates themselves to private superintendents who clothed, fed, and maintained them. These lessees also were paid a gross annual sum in addition to the profits from the prisoners' labor (Timulty 1931). The first lessees were Colonel Ira Westover, David Starkweather, and George Spencer, who received a bonus of \$300 from the state for their care of seven prisoners. Starkweather and Spencer retired after one year of service and were replaced by brothers David and John Morgan. When their lease expired in 1828, Westover and the Morgans were replaced by banker and brick manufacturer James Keigwin, who paid all of the prison's expenses plus an additional \$500 in rent to the state. Despite allegations of mismanagement and a petition for relief submitted to the General Assembly in 1830, Keigwin continued as the lessee for eight years (Morrison 1831). In 1836, he was replaced as superintendent by Samuel H. Patterson and Benjamin Hensley. The prison held 56 prisoners at that time. When the Patterson and Hensley contract expired in 1841, the prison held 165 prisoners. Patterson leased solely the entire prison at this time for a sum of \$10,000 per year. Patterson oversaw considerable improvements to the prison, including the construction of the brick cell house and the expansion of the prison complex to the north (Baird 1909; Douglas and Noel 1838; Dowling and Cole 1835–1847; Rule 1920).

The construction of the prison and buildings was reportedly ill-conceived from the start, with extremely poor ventilation and no hospital or infirmary. Sickness was common among the prisoners, and with nowhere else to put them, sick prisoners were confined to a section of the prison's kitchen. This only served to hasten the spread of disease throughout the institution. As the prison physician reported, the cholera epidemics of 1833 and 1835 affected the prison particularly hard. In 1838, the General Assembly approved a measure to expand and improve the prison grounds. Proposed improvements consisted of expanding the boundary of the prison to the north and constructing an addition to the brick cell house (Douglas and Noel 1838).

Poor ventilation continued to be a complaint even with newer prison structures. One such example of bad design was the hospital, which was finally completed in the early 1840s, and was located on the second floor of a new brick cell house immediately above the blacksmith shop. Its location and lack of ventilation resulted in the hospital being constantly exposed to smoke, soot, and loud noises from the blacksmith shop below (Baird 1909; Dowling and Cole 1835–1847; Rule 1920). Overcrowding affected the prison from the beginning. As early as 1826, the legislature recognized the problem. By that time, the nocturnal confinement of prisoners—a staple of the Auburn System—had been abandoned out of a lack of adequate accommodations for the inmates. This issue of overcrowding would push the legislature to once again revise the criminal code in order to reduce the penalties for certain offences, such as petty larceny (Bodenhamer 1986).

Furthermore, there was too little space in the shops to occupy all the prisoners. Consequently, the superintendents of the prison contracted convict labor out to businesses and residents in the surrounding communities of Jeffersonville and

selected to oversee the construction of the prison complex (Carpenter and Douglas 1823). Initially, the prison consisted of a two-story log cell house with 15 cells, all joined together, built of 38 cm (15 in) square hewn beech logs with massive wooden doors with only a small opening in them for air and light. The cell house was surrounded by a log stockade, which was later replaced by a large brick wall, and the office and guard room were located in a two-story structure outside of the stockade (Morrison 1831; Timulty 1931).

The prison was situated at the intersection of Market Street and Ohio Avenue (J. Burke, personal communication 2012; Timulty 1931) (Figure 1). The log cell house was later replaced by one constructed of brick (Nokes 2003). A number of workshops, including a row of shops along the east wall of the prison, also were constructed within the prison walls. Initially, an agent established by a government appointed board of managers operated the prison. The first agent, George White, was

Louisville. Although allowing the prisoners to work outside the walls violated the law and led to many escapes and numerous complaints from the citizens of Jeffersonville, this practice continued until the establishment of a new State Penitentiary in Clarksville in 1847 (Dowling and Cole 1835–1847).

In 1841, a proposal had been made to relocate the prison to a more adequate setting on a larger property outside the city limits of Jeffersonville. The prisoners themselves provided much of the labor used in constructing the new facility. After the move to Clarksville, a second state prison was established in 1860 in the far north of the state in Michigan City, and the two state prisons were referred to as State Prison (or Penitentiary) North and State Prison South. Hence, later references to the original state prison in Jeffersonville named it the “Old Prison South” (Timulty 1931).

THE EXCAVATIONS

Data recovery excavations at the Colston Park Site resulted in the documentation of 63 features and 27 postholes, as well as the systematic sampling of late 19th through mid-20th century dump deposits and stratified cultural horizons spanning the entire range of site occupation from precontact through the present day (Figure 2). Much of the excavation work was focused on the prison component. Identified prison features were predominantly structural remnants such as limestone and brick foundations, footers, infilled wall trenches, a brick drain, and cellars. A substantial amount of material was recovered from feature fill and cultural deposits associated with the prison era occupation of the site. Very little of this material, however, was recovered from a primary context, and the majority of the deposits were mixed fill dating to the demolition of the prison during the mid-19th century. The excavations at the Colston Park Site were extensive, with approximately 1,319 sq m (14,197 sq ft) of mechanical and hand excavation completed. Figure 3 provides an example of the scale of excavations. A few key prison component features are highlighted below. For a detailed report of the data recovery fieldwork and results, see Cupka Head (2015).

Feature 36 was a substantial limestone foundation, likely associated with a two-story brick cell house at the prison (Figure 4). The wall, which was oriented north-south, was truncated at its northeast corner by an intrusive privy or well associated with the late 19th century residential occupation of the prison lot. To the south, the wall extended beneath an existing apartment building, making it impossible to uncover the southern limits of the feature (see Figure 2). The exposed

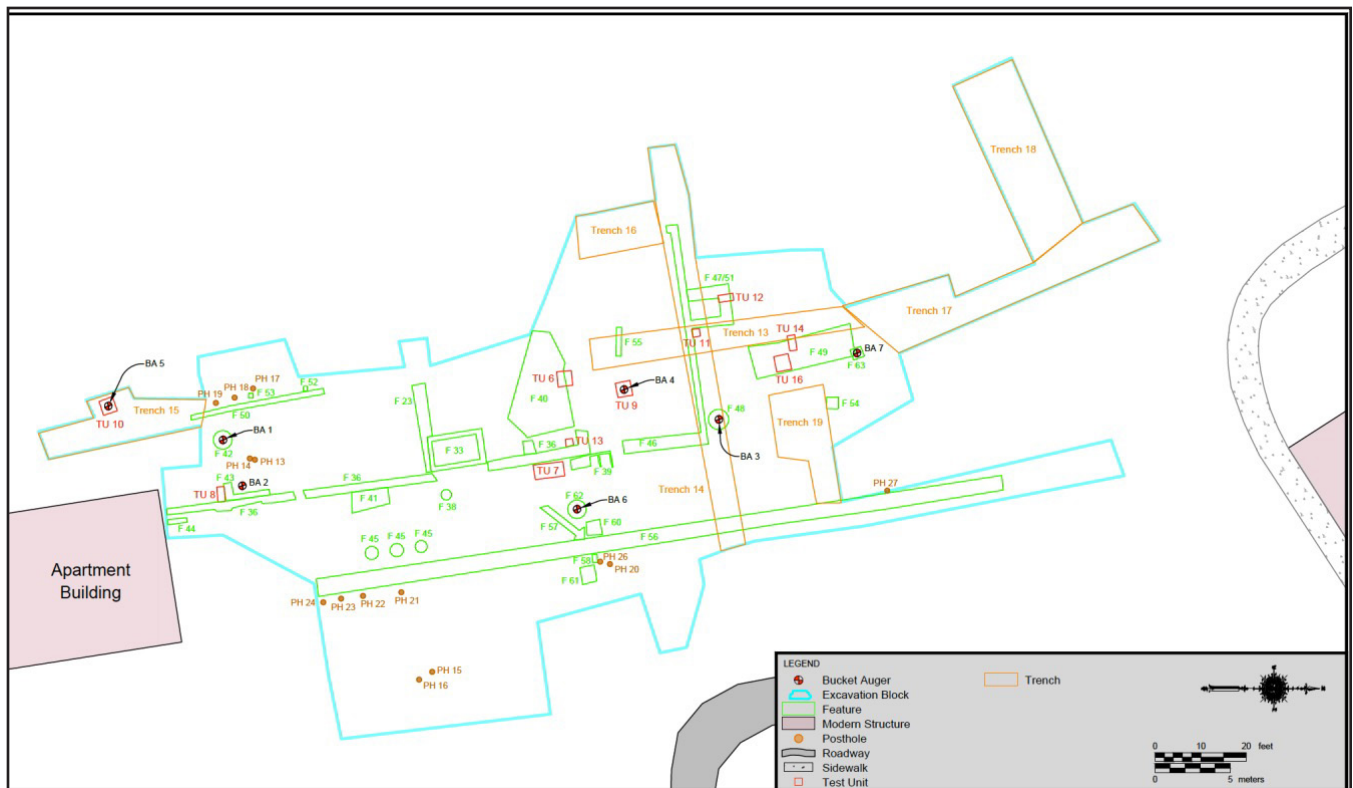


Figure 2. Schematic map of data recovery excavation limits and features (Cupka Head 2015:19).



Figure 3. Overview of data recovery excavations in progress, facing southeast (Cupka Head 2015:23).



Figure 4. Cell house foundation (Feature 36) and cellar (Feature 33), facing north. An intrusive late 19th/20th century brick privy/well is also shown at the top of the frame (Cupka Head 2015:123).



Figure 5. Crew uncovering brick foundation remnants (Features 46, 47, and 51) associated with the 1838 cell house expansion, facing northwest. (Photo credit: Kevin Cupka Head, CRA).



Figure 6. In-filled eastern perimeter wall trench (Feature 56), facing south. (Photo credit: Kevin Cupka Head, CRA).

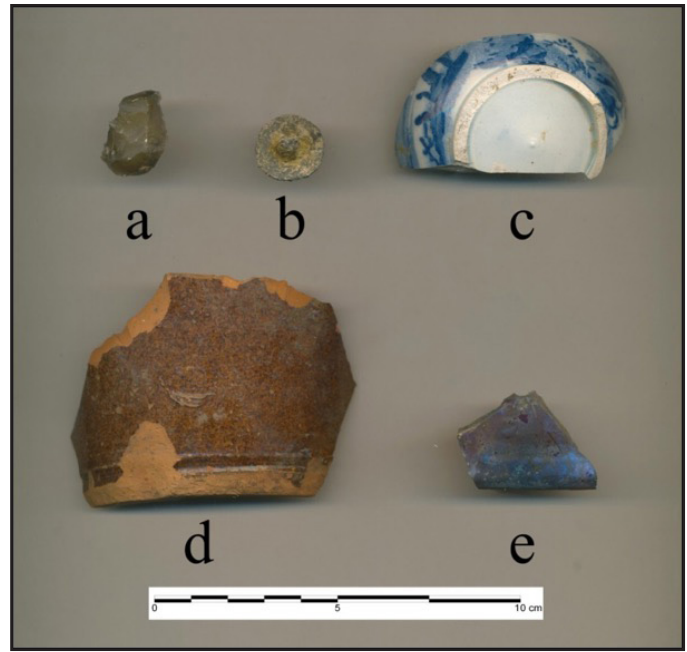


Figure 7. Representative artifacts recovered from prison component features: (a) gun flint; (b) added-shank pewter button; (c) blue transfer-printed pearlware; (d) lead-glazed redware; (e) olive mold-blown container glass. (Photo credit: Kevin Cupka Head, CRA).

portion of the foundation measured approximately 28.4 m (83.2 ft). Figure 5 shows crew members uncovering a segment of brick foundations (Features 46, 47, and 51) associated with the 1838 expansion of the cell house. These foundation remnants were located immediately north of and in line with the limestone foundation and other features associated with the earlier cell house structure. Again, foundations were substantially truncated, presumably during disturbances associated with the demolition of the prison structures and later improvements to the property (e.g., utility trenches). In the late stages of fieldwork, a substantial in-filled trench (Feature 56) was identified and determined to represent a segment of the eastern perimeter wall of the prison lot (Figure 6).

Over 5,000 historic artifacts were recovered during data recovery excavations at the Colston Park Site, about half of which dated to the prison component. The majority of these artifacts were architectural materials (brick, window glass, wrought and cut nails) and faunal remains. However, a small assemblage of other items, including ceramics, container glass, clothing items, and a gun flint also were recovered. A sample of these is shown in Figure 7.

INTERPRETATION AND DISCUSSION

No building plans of the prison complex were identified when conducting the archival research for this project. And when descriptions were present in the documentary accounts, they were generally vague. Unfortunately, the architectural features encountered during this excavation were often truncated, fragmentary, and lacked associated primary deposits that would provide information concerning function of individual structures or rooms. Nevertheless, a patchy network of cellars, wall foundations, piers, postholes, builder's trenches, and other landscape features were uncovered. These features clearly demonstrate that the architectural landscape of the prison was substantial and dynamic.

The repressive power of the prison is often reflected in its architecture (Casella 2007). This phenomenon is certainly manifested in the architectural features encountered at the Colston Park Site. The imposing walls of brick and stone (e.g., Feature 56), the cell house (e.g., Feature 36 and associations), and other structures were constructed by prisoners using bricks made by prisoners. In perhaps the most obvious display of institutional power, the prisoners were made complicit in reinforcing their captivity.

The architecture of the 19th century prison was designed to serve the practical needs of shelter and confinement, but also to reinforce the power relationship between the institution and its charges. Although we have no images of the structures associated with the old Prison South, it is likely that the brick cell house and perimeter walls were of a similar construction to the earliest buildings at the Kentucky State Penitentiary and the new Prison South/Indiana Reformatory in Clarksville (Figure 8). The brick cell house associated with several features documented during our excavations may have somewhat resembled the cell house depicted here. The structure was two stories with brick walls and a limestone foundation. Window glass concentrations were observed at regular intervals along the exterior edge of the limestone foundation. This suggests windows, likely secured with iron bars, were located along the eastern elevation of the cell house. Considering this, as well as archival accounts of poor light and ventilation in the prisoner's cells, it seems unlikely that cells were constructed along the east wall of the cell house. This is further supported by few interior wall foundations along this portion of the structure.

A cellar (Feature 33) located in this part of the building suggests that the east side of the cell house was utilized for other purposes and may have housed support facilities such as the kitchen, dining hall, guards' quarters, and/or workshops (see Figure 4). It also seems plausible that a hallway extended north-south along the eastern edge of the structure, and it appears that a brick walkway may have existed along the exterior of this east wall.

Additional architectural features encountered at the site demonstrate the evolving prison landscape, which was subject to at least one period of expansion, as well as continuous modifications over time. Features 46, 47, 49, and 51 appear to be associated with the 1838 expansion of the cell house and the prison grounds to the north. A consideration of the placement of Features 33, 45, 56, 57, and Postholes (PHs) 20–24 provides further evidence of changes to the built environment (see Figure 2). When the prison opened, it was enclosed by a log palisade. This structure was temporary, and prisoners were immediately set to work constructing a more substantial perimeter wall of brick and stone. The first phase of this wall was completed by 1823 (Spencer 1823). Based on size, location, orientation, and materials recovered from the fill, Feature 56 was determined to represent the in-filled trench for the 1823 perimeter wall. A line of postholes were identified just to the exterior, parallel to this wall. It seems likely that these posts are associated with the original log palisade that would have remained in place while prisoners constructed the new wall.

We know from the visitors' reports, as well as the report of Superintendent James Kegwin, that several crude workshops had originally been constructed abutting the east wall of the prison (Feature 56). These outbuildings seem to have been removed and replaced in favor of better quality accommodations located to the interior of the prison lot (Morrison 1831).

A line of three limestone piers (Feature 45) is probably associated with one of these workshops, which appears to have been demolished after 1830. Features 60 and 62 also may be associated with workshops along the eastern wall. Although no evidence of the original log cell house was encountered, several features associated with the more recent two story brick cell house were identified, including a cellar (Feature 33). This cellar would have been dug after the construction of the outer wall (Feature 56). It appears that a brick drain/gutter (Feature 57) was constructed to drain the cellar and was connected to the prison exterior through a hole punched in the outer wall. Evidence of Feature 57 thus superimposed on remnants of the limestone foundation of the Feature 56 wall was observed at the intersection of the two features.

Evidence of the demolition of the prison structures during the mid-19th

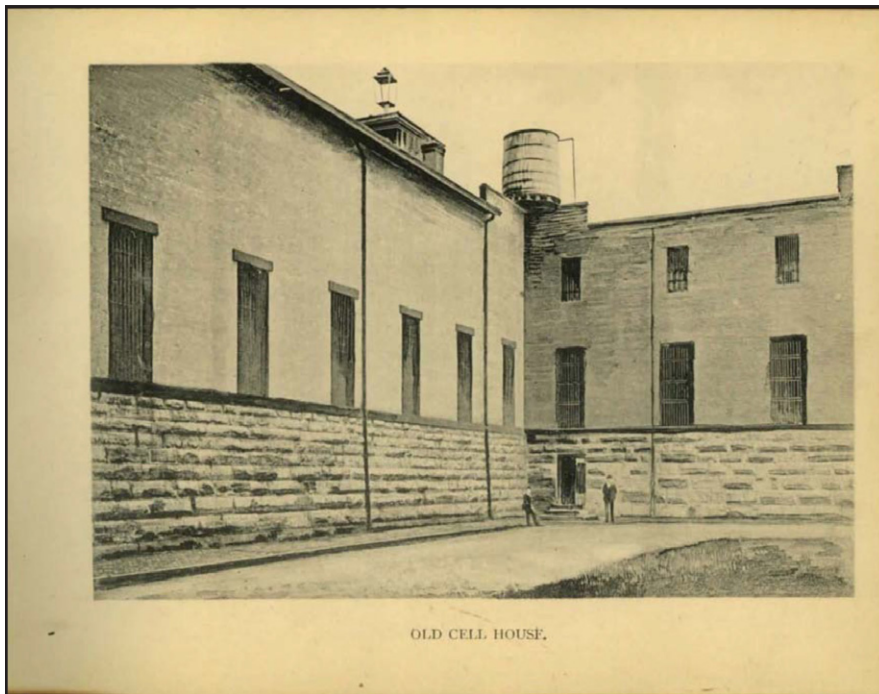


Figure 8. 1890 photograph of original cell house at the Indiana State Prison South in Clarksville. This structure was built in 1846 by occupants of the Old Prison South (C. Heinberger and Son 1890).



Figure 9. Block 2, east wall photograph - note the layer of brick rubble overlying the natural A-horizon (Cupka Head 2015:89).

century was also prevalent. Based on a lack of fittings and hardware recovered from the prison, it seems likely that, when possible, such materials were removed and repurposed. Perhaps some of the prison hardware was repurposed in the construction of the new prison in Clarksville. While some accounts claim that the bricks from the prison were taken and sold to local residents after the facility was abandoned (Baird 1909), a substantial amount of brick, mortar, and other demolition debris capped the prison component across much of the site (Figure 9). The exact amount of brick present in this layer was not quantified, but did provide a general idea of the scale of the masonry structures that once stood at this location.

Changes in the built environment reflected progressing theories on the implementation of new approaches towards reformative justice, furthering the development of the institution as America continued to establish itself as a “carceral society” (Casella 2007:1–7). However, some of these changes to the landscape may also be construed as echoes of resistance—reactionary projects designed to reassert power. Though it is likely that many prisoners resisted the power of the prison and its keepers through a variety of small daily acts, such ephemeral, personal behavior would not be expected to leave a lasting material signature. We cannot know when a prisoner refused to eat, scorned their work, or otherwise attempted to affect control in the face of their captors.

The principal means of resistance available to the prisoners was escape. Improvements to the prison, including the more substantial outer perimeter wall, removing workshops from abutting the wall, and building new structures in the interior of the prison grounds, all were completed in part to prevent escapes. In the fragmented architectural footprint uncovered during the current investigations, evidence of these improvements was identified. It is worth noting that improvements to the landscape, as well as changes in procedure, succeeded in drastically reducing the number of escapes. Prior to 1835, approximately 14% of prisoners escaped. Between 1835 and 1846, this number was reduced to approximately 8% (Indiana

State Library 2014). Despite these improvements, however, escape remained a relatively common occurrence throughout the life of the prison.

In order to understand the daily living conditions of the inmates, it is first necessary to understand the prisoners themselves. Fortunately, prisoner rolls exist for the Indiana State prison system dating from its inception in 1822 through the early 20th century (Indiana State Library 2014). These rolls present a valuable aggregate of personal data, including names, ages, crime convicted of, nativity, physical description, as well as documenting deaths, reprieves, pardons, and escapes.

A majority of the prisoners appear to be from working class backgrounds with little to no formal training or education. However, some middle class professionals and skilled tradesmen were present. Only four women were recorded on the prison rolls. The youngest reported age of an inmate was 15. Out of 234 prisoners for whom data exists, 31 were people of color. This constitutes about 13% of the prison population. At a time when African-Americans and other nonwhites comprised only 1% of the total population of Indiana, this discrepancy is significant. On at least one occasion, an African-American prisoner was identified as a fugitive slave by slave catchers from Kentucky. In this case, the prisoner was pardoned and released only to be apprehended by the slave catchers and taken south (Cupka Head 2015).

The number of immigrants among the inmates was also noteworthy. Of 287 individuals for whom birthplace data exists, 33 (11.5%) were born outside the United States. No aggregate census data for foreign born persons exists prior to 1860 (United States Bureau of the Census 1864). That year, foreign born whites accounted for only 8.8% of the population of Indiana. Considering that immigration was accelerated in the years leading up to the Civil War, it is likely that foreign born persons accounted for a much lower percentage of the state population when the prison was operating. Therefore, people of color and immigrants constituted a disproportionately large segment of the prison population.

Based on archival information, especially state visitors' reports, the daily living conditions of the inmates varied over time and were largely beholden to the administration of the superintendent. Generally, the conditions of the prisoners were poor, especially during the earliest days, as well as toward the end of its operation, when overcrowding had, in the words of warden William Lee, left the Institution "in a wretched condition" (Jeffersonville Evening News 1901). Without sufficient primary deposits, it is impossible to assign specific materials to the tenure of a specific superintendent. Therefore, the material culture only allows for broad inference, and even then only when combined with documentary evidence.

While only a small quantity of domestic, personal, clothing, and other related items were recovered that would have provided a more direct connection to the individuals who occupied the prison, the absence of data here is perhaps even more telling. It is doubtful that prisoners would have been allowed personal effects. In fact, visitors' reports indicate that prisoners were typically furnished only with basic clothing, blankets, simple bedding, and a Bible. The tableware provided for the prisoners appears to have been made of tin, and no evidence of these wares was recovered from the site (Cooper 1842; Haymond 1839). Although prisoners were often contracted to labor outside the prison, it seems that the strict regulation and management documented by visitors to the prison may have been effective in restricting contraband (Cooper 1842). No tobacco pipe fragments were recovered, for example.

A substantial amount of faunal material associated with the prison component also was recovered. Visitors' accounts typically documented a diet of boiled beef, pork, or mutton, with bread, potatoes, and turnips when available. At times, prisoners only received bread and water. Foodstuffs were often prepared as soups and stews. The faunal remains recovered from the site, especially those from the cellars (Features 33 and 49), appear to corroborate the visitors' accounts. Analysis of the remains suggests that beef was typically procured as sides from off site, but that pigs likely were raised, slaughtered, and butchered onsite. The prison keepers utilized low cost, high yield cuts of meat ideal for feeding large groups and may not have placed great emphasis on the health or general quality of the meat.

CONCLUSION

At the Colston Park Site, features and deposits associated with Indiana's first state prison provided a glimpse into one of the nation's earliest experiments in institutional confinement. Again, an overall lack of primary deposits limited the scope of interpretations with regard to the prison component. Nevertheless, the data that were obtained allowed for some insights and general observations concerning the physical nature of the prison and the daily lives of its inhabitants. By considering the archaeological data alongside the archival information, we cultivate a more comprehensive historic context of an institution that has gone largely disremembered and hopefully achieve a greater understanding of a significant and dynamic period in the history of Indiana and Jeffersonville.

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ARCHAEOLOGICAL INVESTIGATIONS OF NORTHERN BENTON COUNTY, INDIANA

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ABSTRACT

The Applied Anthropology Laboratories at Ball State University conducted a data enhancement project for archaeological resources in Benton County, Indiana for a FY2015 Historic Preservation Fund Grant (Grant #18-15FFY-03). This Historic Preservation Fund grant project investigated the archaeological resources of Benton County, Indiana with a focus on the northern half of the county. Approximately 841.29 acres (ac) (340.46 hectares [ha]) of agricultural land were surveyed, and 85 new archaeological sites were recorded. The survey recovered 81 precontact artifacts and 442 historic artifacts from 12 parcels of land within Benton County. Cultural periods that are represented in the artifact assemblage include precontact components dating to the Late Archaic, Terminal Middle Woodland/Late Woodland, and possibly the Early Archaic, in addition to 54 Historic components. The average site density recorded in the project area for precontact sites was one site per 20.03 ac. The average site density recorded in the project area for Historic sites was one site per 15.58 ac. Through these surveys we have been able to document special use of unique microenvironments that are characterized by dry upland rises surrounded by a combination of diverse ecozones within a small area providing rich and diverse resource for precontact inhabitants of northwest Indiana.

INTRODUCTION

The Applied Anthropology Laboratories (hereafter AAL) at Ball State University was awarded a FY2015 Historic Preservation Fund Grant (# 18-15FFY-03) to survey portions of Benton County, Indiana. The project involved a pedestrian survey of approximately 841.29 ac (340.46 ha) of agricultural land. The main goals of the project were to increase the site

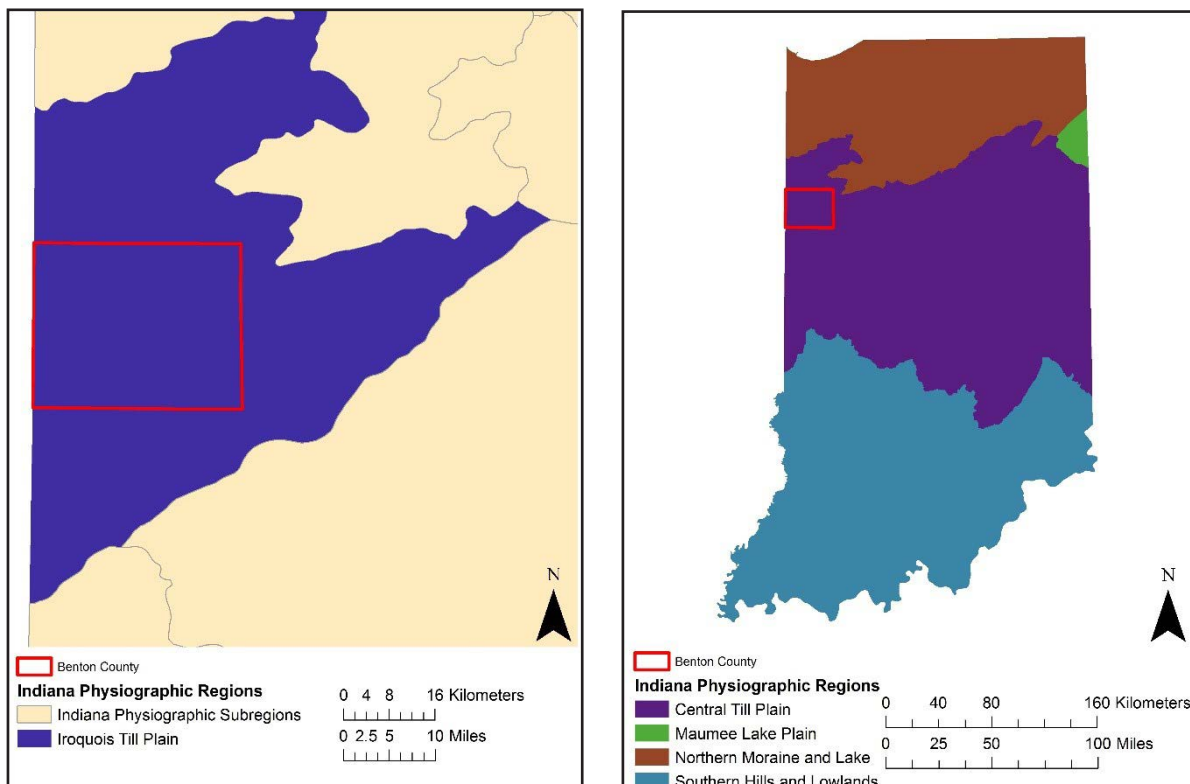


Figure 1. Benton County and Indiana physiographic regions and subregion (after Gray and Sowder 2002).

database, refine the cultural chronology for the county, examine evidence for the early Euroamerican settlement, resolve any inconsistencies found in the Indiana State Historic Architecture and Archaeological Research Database (SHAARD), and provide updated information for collector reported sites in SHAARD. Specifically, we hoped to add to the understanding of the various precontact cultural periods of the county based on the low number of previously documented sites compared to the surrounding counties. We also hoped to add to the understanding of the Euroamerican presence and Native American interaction in Benton County. Benton County had 96 archaeological sites recorded in the SHAARD database prior to this survey (Division of Historic Preservation and Archaeology 2007). This investigation focused on the northern portion of Benton County.

BACKGROUND

The project area is located in Benton County, which has an area of 260,237 ac (Barnes 1989:1). For the proposed research, we targeted areas in the northern half of the county which falls within the broader till plains that dominate the geology of northern Indiana (Figure 1).

PHYSIOGRAPHY AND GEOLOGY

Benton County is within the general physiographic unit known as the Tipton Till Plain, and more specifically the Iroquois Till Plains (Figure 1; Gray and Sowder 2002; Schneider 1966). The Iroquois Till Plain is a subregion within the Central Till Plain region of very low relief with minor areas of end moraine, covering all of Benton County (Schneider 1966:41). There are no known chert outcrops in Benton County. However, Attica chert, Liston Creek chert, and Kenneth chert, as well as several chert outcrops in Illinois are documented in the region around Benton County (Figure 2; see Cantin 2008; DeRegnaucourt and Georgiady 1998; Stelle and Duggan 2003).

SOILS

The majority of soils found in Benton County are made up of mainly nearly level and gently sloping ground moraines. Areas of more strongly sloping end moraines are scattered throughout the county. There are nine soil associations mapped within Benton County (Figure 3). The largest percentage of soil associations in Benton County form on moraine landforms (Table 1). Soil associations that form glacial till account for the second largest percentage in Benton County. Soil associations with landforms of floodplains and till plains, and outwash plains represent a small percentage of the county (Table 1; Barnes 1989:9–16; United States Department of Agriculture, Natural Resources Conservation Service 2002).

Benton County is entirely within Level IV Ecoregion 54a (Figure 4), the Illinois/Indiana Prairies (IIP) which is part of the Central Corn Belt Plains (CCBP) Level III Ecoregion 54 (Woods et al. 2003). Mollisols dominate the CCBP, and the IIP is mostly prairies with aquolls more abundant (Woods et al. 2003). At a finer scale there are 38 soil series present in Benton County (Barnes 1989; Soil Survey Staff 2013). The vast majority of these series map units are characterized by poor or somewhat poor drainage. Overall, the textures tend towards finer grain sizes with poor drainage. The soils are classified into seven soil great groups: Argiudolls, Endoaquolls, Haplosaprists, Endoaqualfs, Hapludalfs, Humaquepts, and Udipsammments (Figure 5). These can generally be associated with primary soil forming environments consistent with prairies (i.e., mollisols), wet prairies (aquic mollisols), high organic content (histosols), wet and dry forest soils (alfisols), wet accumulating/young landforms (aquic inceptisols), and young/accumulating dune formations (entisols), respectively. The county has a few areas of organic soils (histosols), but these areas are generally small (Barnes 1989:1; see Figure 5). The vast majority of the county is characterized by mollisols (prairie soils) with wet prairie constituting a slightly larger proportion. The juxtaposition over short distances between soil forming factors associated with dry versus wet prairies creates very fine scale mixes of different ecological resources. This mix is supplemented by the forest soils (alfisols) sprinkled in clusters and linear concentration across the northern and eastern portions of the county (Barnes 1989; Soil Survey Staff 2013).

DRAINAGE

The Wabash River is the major water source running closest to Benton County (Bechert and Heckard 1966:92–93). The Wabash River drains two-thirds of the state running southwest until it reaches the Ohio River (Bechert and Heckard 1966:92). Benton County is drained by five streams: Big Pine Creek, Mud Pine Creek, Sugar Creek, Mud Creek, and Carpenter Creek. The lack of major streams and the low relief are factors that may affect settlement choices and therefore site size and density.

Cultural Setting

Sites have been documented in Benton County from the Paleoindian period through the Historic period. Given the above

Table 1. Benton County Soil Associations (Barnes 1989).

Association	Description	Landforms	% of County
Barce-Montemorenci-Drummer	Very deep, moderately well drained, consisting of loams and silty material, nearly level or gently sloping	Ground and end moraines	8%
Drummer-Toronto-Wingate	Silty, nearly level and gently sloping, are poorly drained, very poorly drained, and moderately well drained	Floodplains, outwash terraces, and outwash plains	13%
Gilford-Maumee-Sparta	Deep, nearly level to strongly sloping, well-drained and excessively drained, moderately coarse textured	Till plains, moraines, outwash plains, and terraces	2%
Miami-Miamian-Xenia	Deep, gently sloping to steep, well drained and moderately well drained	Glacial till	2%
Morley-Markham-Ashkum	Deep, gently sloping to steep, well drained to moderately well drained, moderately slow permeability	Outwash plains	5%
Sawmill-Lawson-Genesee	Deep, well drained to very poorly drained, nearly	Loamy alluvium	0.50%
Saybrook-Drummer-Parr	Very deep, nearly level or gently sloping, poorly drained to moderately well drained, moderately fine or medium textured	Glacial till plains	46%
Swygert-Bryce-Chatsworth	Somewhat poorly drained, nearly level to gently sloping, moderate sloping	Ground and end moraines	1.50%
Warsaw-Lorenzo-Dakota	Well- or moderately well-drained, nearly level or gently sloping medium textured soil	Outwash plains and river terraces	11%
Wolcott-Odell-Corwin	Deep, nearly level, very poorly drained and somewhat poorly drained, medium textured soils	Outwash plains, lake plains, and terraces	11%

described environmental background we can expect highly variable densities of artifacts over space due to the interrupted distribution of habitable areas interspersed with wetlands (see also Surface-Evans 2015; Leeuwrik et al. 2016, 2018), and a variable distribution through time as moisture levels fluctuated during the Holocene.

The majority of sites previously documented in Benton County are of unknown cultural affiliations (n=44). Of the known periods of occupation, the most frequently identified has been Archaic (n=25; all sub-periods), followed by Historic (n=12), and Late Archaic (n=11) (Division of Historic Preservation and Archaeology 2007). The predominance of Archaic sites is peculiar and at odds with other northwestern Indiana counties (cf. Leeuwrik et al. 2016; Macleod 2016; Surface-Evans et al. 2005). This may be a result of collector bias and small sample size. Woodland sites are generally more prevalent, though Late Archaic sites are also frequent in other counties. Whether this represents a different pattern of precontact land use through time is yet to be determined. Of particular interest are the six Paleoindian “Camps” (though at least one appears to be an isolated fluted point) documented in Benton County. This is a larger absolute number and larger relative proportion than the official records for Jasper and Newton counties to the north (Leeuwrick et al. 2015; Macleod et al. 2015).

Prior to Euroamerican settlement of the region, multiple Native American groups (e.g., Miami, Kickapoo, and Potawatomi) populated the area. The Miami occupied the area as early as 1670, and other tribes, such as the Kickapoo and Potawatomi, formed alliances with the Miami in 1770 (Taylor 2009:12). More Indian tribes were forced into the area due to white settlement, and these additional tribes disrupted the alliances. Relations between the different Indian tribes continued to disintegrate with various tribes taking sides during the French and Indian and Revolutionary War (Taylor 2009:12–13). Following defeat at the Battle of Tippecanoe, Native Americans were forced out of the state. Many old county maps from this period still show the “Old Indian Boundary” line, which cuts through Benton diagonally, along with the Potawatomi Trail to Chicago (Guernsey 1932).

European settlers have been in Benton County since ca. 1795, arriving during the same time period as the migration of the Delaware Indians into Benton County. The European settler population stayed very low until 1840, when Benton County was officially established. Increased population in the county followed. Benton County is part of the Grand Prairie, with rich fertile soils making it ideal for farming. Initially, cattle farming dominated the landscape, with farmers making use of the abundant prairie grass. By the mid-1800s, farmers began to drain low-lying areas to expose the rich black soil for expansion of agriculture throughout the county (Taylor 2009:12–13). However, soil drainage, ecology, and topography still continued to influence the nature, distribution, and tempo of different land uses in various places throughout the county before near universal “improvements” were implemented. Population increased in 1871 with the establishment of the railroad along the old Indian trails, and in 1882, the Indiana and Chicago Railroad laid tracks through Oxford, creating a way for farmers to have easy shipping (Taylor 2009:12–13). Over the years, the Benton County population has continued to grow, but not substantially. The county still remains rural and sparsely populated.

ARCHAEOLOGICAL SURVEY METHODS AND RESULTS

METHODS

Field Survey

For this project, 800 ac of pedestrian survey were initially proposed. It was anticipated that by surveying 800 ac, approximately 100 to 150 new sites would be discovered to increase the existing site database. Our planning projected

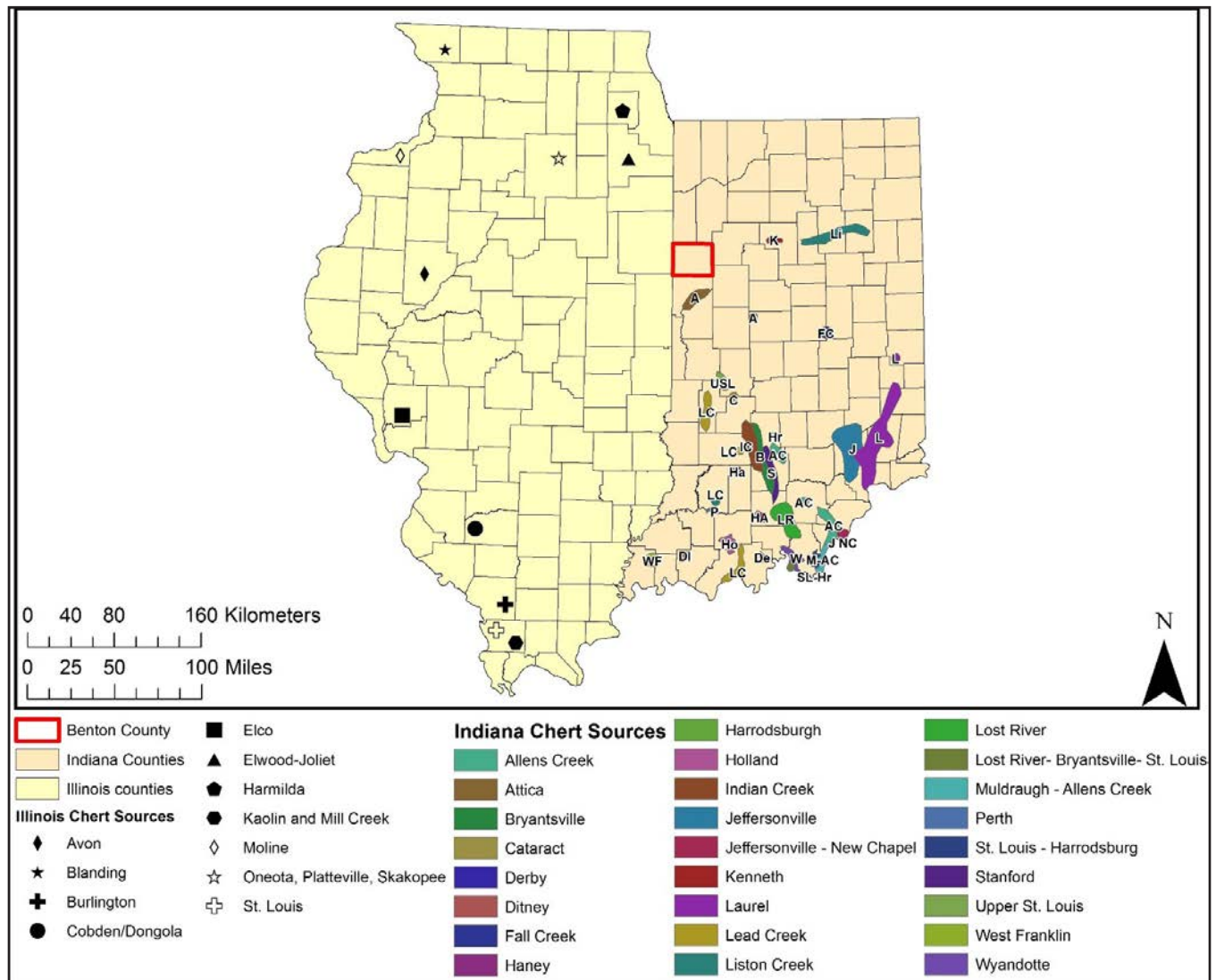


Figure 2. Location of chert sources in Illinois and Indiana (after Cantin 2008; DeRegnaucourt and Georgiady 1998; Stelle and Duggan 2003).

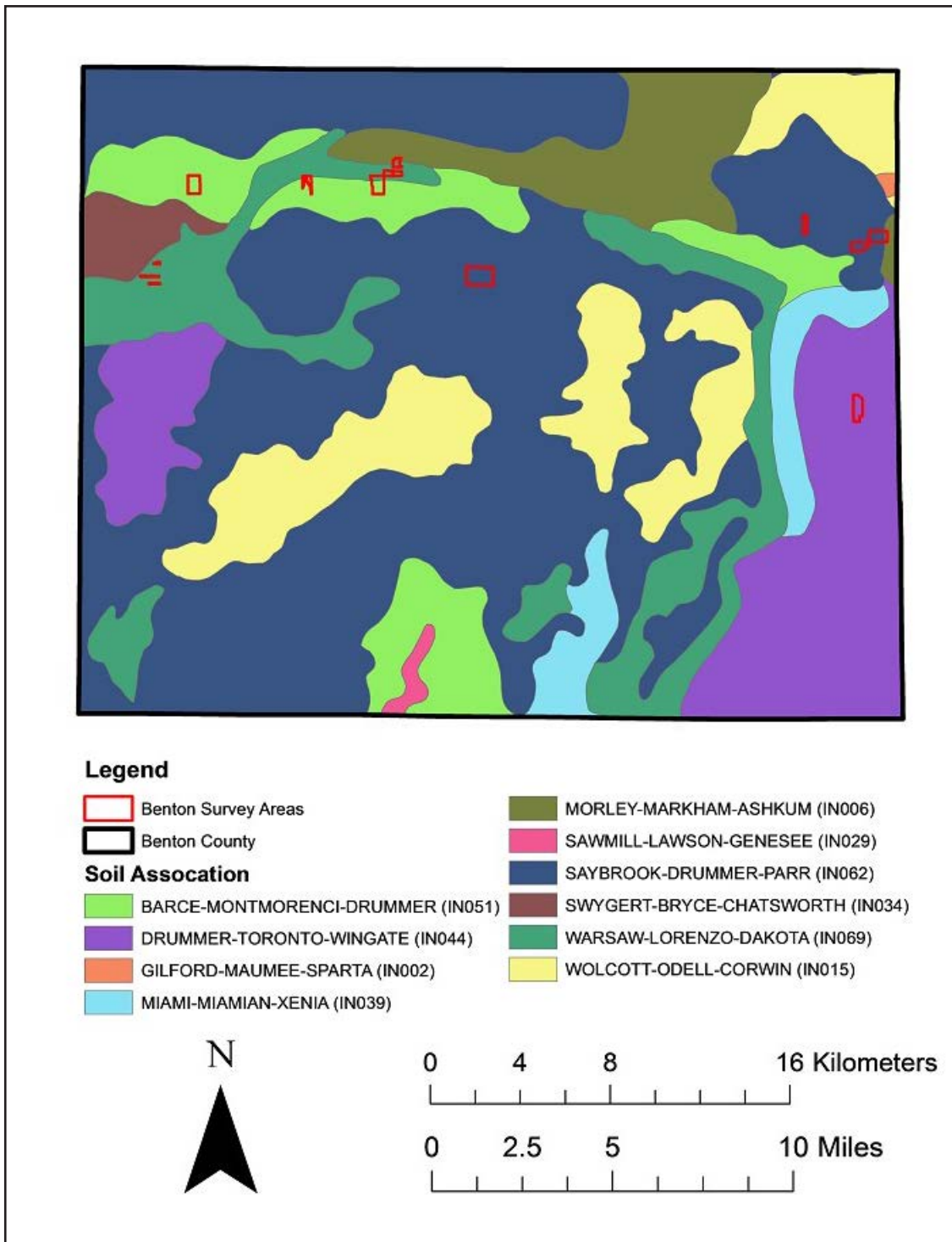


Figure 3. Soil associations in Benton County (STATSGO, USDA/NRCS 2002).

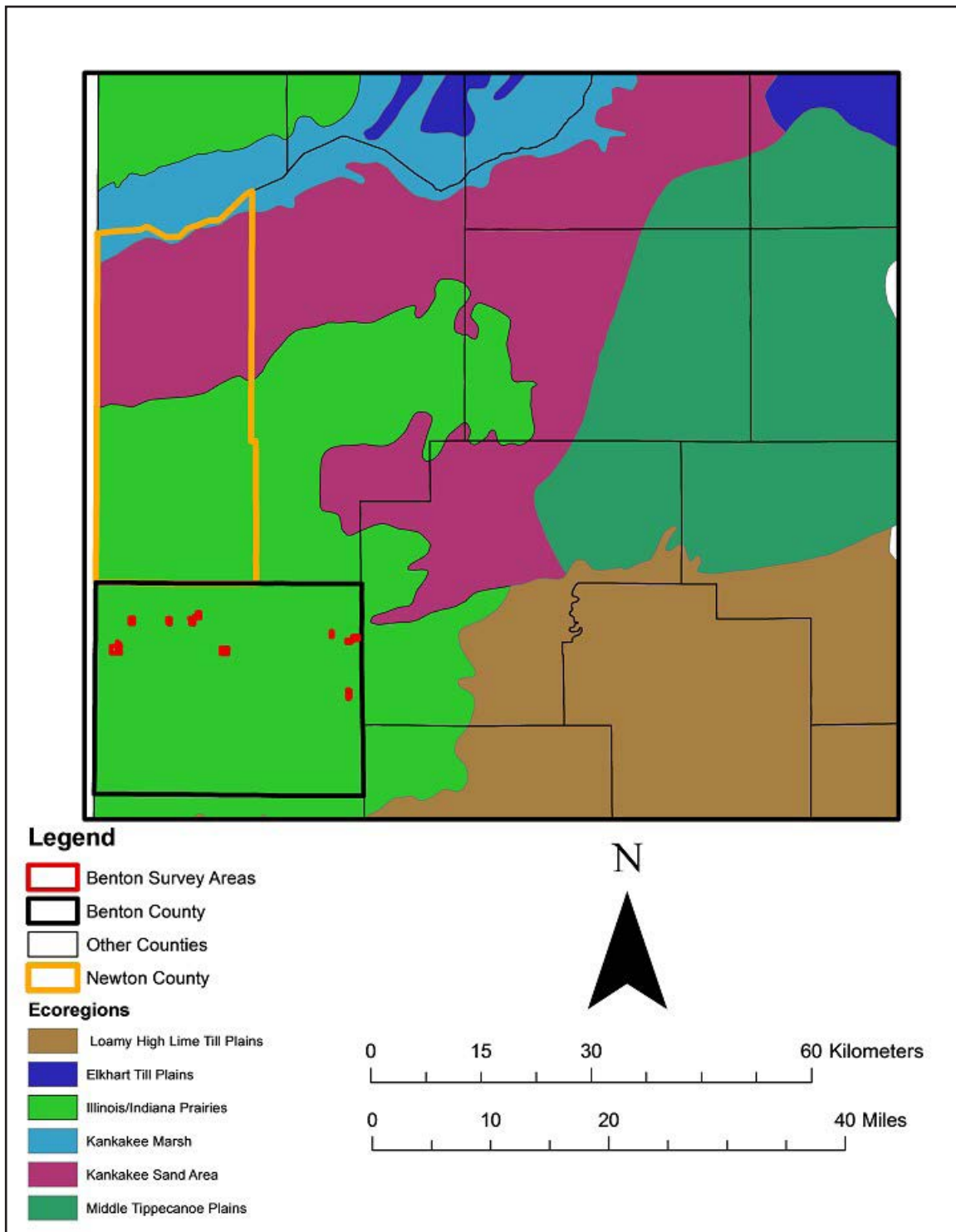


Figure 4. Level IV Ecoregions (Woods et al. 2003) for northwest Indiana.

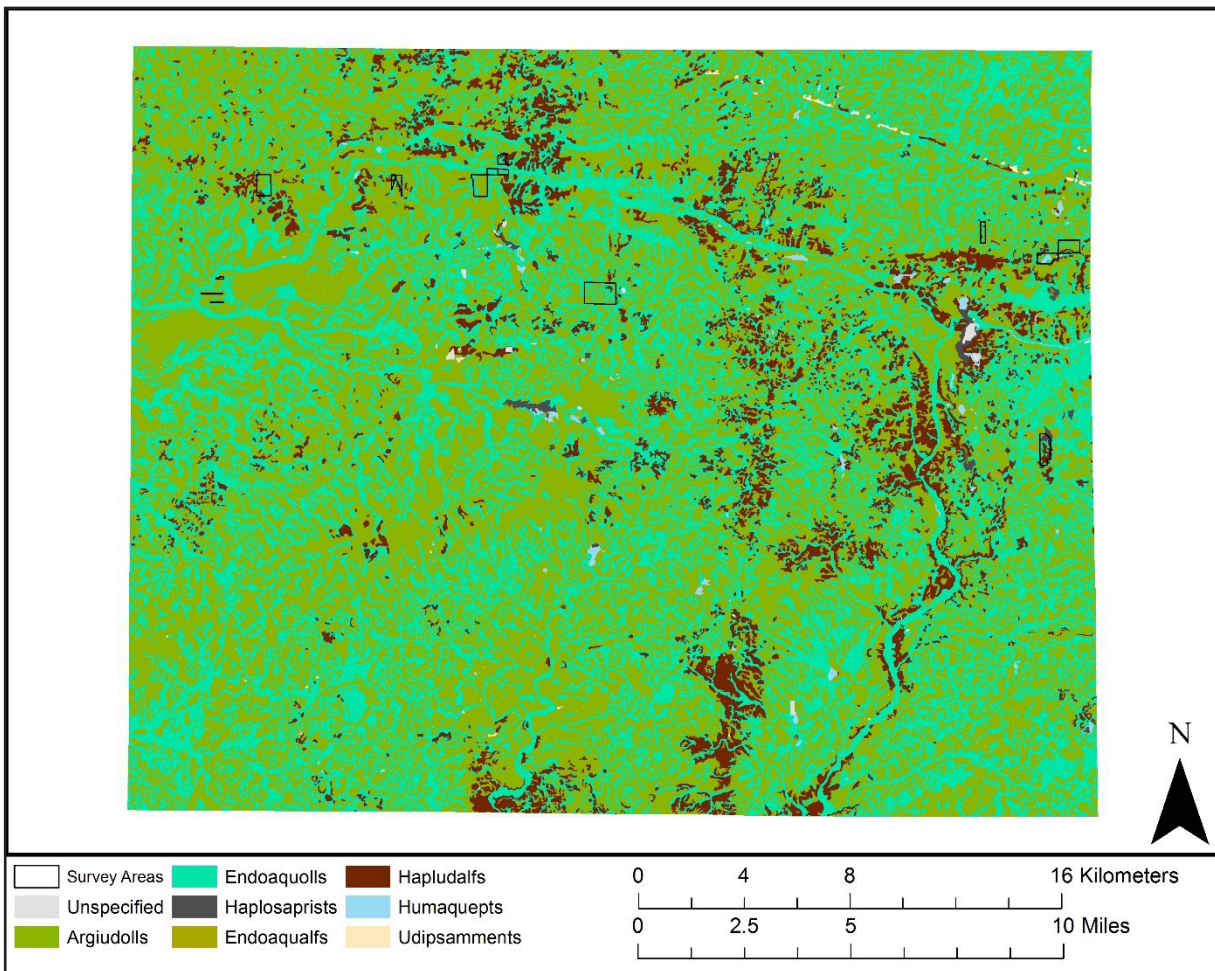


Figure 5. Soil great groups and Survey Areas within Benton County, Indiana (Soil Survey Staff 2013).

that different landforms and environmental zones consisting of floodplain, moraines, and till plain would be systematically surveyed. Areas were selected for survey using topographic maps, aerial maps, soil information, historic sources, and reconnaissance information. The survey was constructed to sample different physiographic and environmental zones within the project area, with an emphasis on the northern portion of the county. Cultivated fields with optimal visibility were sought for survey. Ultimately, landowner permission and field visibility dictated the areas sampled by this survey which covered approximately 841.29 ac (340.46 ha) of ground and end moraines, floodplains, and outwash terraces/plains.

This project was conducted by AAL archaeologists and AAL student employees. Principal Investigators were Christine Thompson and Kevin C. Nolan. The field survey was conducted between July 23 and October 3, 2015. The field survey was executed using pedestrian transects spaced at 10 meter intervals. The survey interval was reduced to 5 meters when artifacts were encountered. The areas surveyed by pedestrian transects had between 60 and 90% ground surface visibility. All artifacts that were within two meters of the first artifact encountered, except fire-cracked rock and brick, were collected, bagged and given temporary transect and find numbers. Objects found farther than that within the same transect were given the same transect number and the next sequence number. Where sites were encountered, the survey interval was halved to refined site boundary definition. Fire-cracked rocks and bricks were counted in the field, but were not collected. Find points were mapped with a Trimble GeoXT Series GPS with a minimum of 20 readings logged for each find spot. GPS data was post-processed to sub-meter accuracy using Trimble GPS Pathfinder Office series 5.3 software and exported to ESRI shapefile formats (UTM NAD83 Zone 16N) for inclusion in the project GIS. Field notes were maintained by field supervisors.

Laboratory

All collected artifacts were taken to the AAL for processing, identification, analysis, and temporary curation. Artifacts were cleaned, classified, and catalogued. Chippable stone raw materials (chert) were identified in comparison with the AAL

chert collections. All artifacts are compared macroscopically and microscopically (40x) with samples of known provenience from the AAL comparative chert collection. We microscopically compare matrix, color, texture, inclusions, luster, and other physical and visual characteristics of the unknown artifact to the known comparative collection samples from the probable match categories and Cantin's (2008, 2011) resources. Location cannot be a primary criterion when attempting to identify the raw material of an artifact. Identifications are based on the best overall match of observed macroscopic and microscopic characteristics between known and unknown samples. Identifications made by these and similar procedures are provisional, and cannot definitively match an unknown to a known geological provenience. For more definitive results, geochemical methods such as Instrumental Neutron Activation Analysis, X-ray Fluorescence, or other methods are required (Andrefsky 2005; Kooyman 2000). However, using the criteria and procedures detailed above, our identifications (and all visual identifications) should be taken as an assessment of the geological age and context of the raw material. Rocks of the same age and context have known distributions outside of Indiana and may well find their way into Indiana from another deposit of the same geological formation through natural or cultural processes. Thus identifications are most reliable at the level of geological period (for more detail on method and justification see Nolan, Hill, and Macleod in Macleod et al. 2015:42–44).

Diagnostic lithic tools were identified using published typologies (e.g., Justice 1987; Ritchie 1971). Historic artifacts were identified and dated using published references (Adams 1980; Coleman et al. 1968; Godden 1964; Horn 2005; IMACS 1984, 1992, 2009; Lofstrom et al. 1982; Majewski and O'Brien 1987; Miller 2000; Nelson 1964; ODOT 1991; Raycraft and Raycraft 1990; Smith 1983; Stelle 2001; Trussel 2010). Notes, maps and photographs were reviewed and prepared for illustration and curation. State site numbers were obtained, and a DHPA Sites and Structures Inventory form was entered in SHAARD for each site identified during the project.

RESULTS

Twelve parcels in northern Benton County were surveyed. Within the 841.29 ac surveyed 85 new archaeological sites were recorded. No human remains were discovered as a result of this grant project. The survey documented the human occupation of Benton County with identified occupations during the Early Archaic (possible), Late Archaic period, and Terminal Middle Woodland periods. The Historic period was the most strongly represented in the assemblages recovered during our survey with 54 components, a strong contrast with the previously reported sites. Considering the limitations of Phase I surveys, it is presumptuous to assign functionality to sites identified during this survey. Site types were therefore not defined beyond isolates and scatters. However, it appears likely based upon the variation in artifact classes discovered on the sites that multiple site types were represented.

Artifacts

The field survey recovered 81 precontact artifacts (1 every 10.39 ac) and 442 historic artifacts (1 every 1.90 ac; Table 2). The majority of precontact artifacts (n=62) consist of lithic debitage. The edge modification (retouch or use) of 19 flakes indicates the debitage could have functioned as expedient tools. Three formal lithic tools were projectile points or retouched scrapers dating to the Early Archaic period (Figure 6), the Late Archaic period (Figure 7), and the Terminal Middle Woodland period (Figure 8) (Justice 1987). Historic artifacts included various types of ceramics, various colors and types of glass, metal objects, and brick fragments.

Chert

No natural chert outcrops exist within Benton County. The lithic artifacts for this survey were dominated by Silurian cherts (44%). Mississippian cherts were the second most abundant (36%), with Pennsylvanian and Devonian cherts tied for least utilized (10%) (for distribution by "type" see Balough et al 2016:Table 29).

Of the Silurian assemblage an overwhelming majority was consistent with Laurel chert samples in the AAL comparative collection (22%). Outcrops of Laurel exist in Decatur, Fayette, Franklin, Jefferson, Jennings, Ripley, and Wayne counties, the closest of which is found in Wayne County and approximately 183 km (114 miles) to the southeast of Benton County (Cantin 2008). Other Silurian age cherts (Elwood-Joliet, Harmilda, Kenneth, Liston Creek) are located nearer to the research region (see Figure 2), some (Elwood-Joliet and Liston Creek) with macroscopic and microscopic features that overlap those of Laurel.

Artifacts consistent with Liston Creek chert constitute 14% of the assemblage. The closest outcrop of this chert is approximately 85 km (53 miles) to the east in Miami County (see Figure 2). None of the recovered diagnostics were made from Silurian chert. Thus Silurian chert was used primarily for non-point tool manufacture, or even expedient tool manufacture.



Figure 6. A possible Early Archaic Thebes Notched scraper from site 12Bn164 (Photo by Kiya Mullins, Ball State University).



Figure 7. A Late Archaic Brewerton Corner Notched heat-treated biface from site 12Bn165 (Photo by Kiya Mullins, Ball State University).



Figure 8. A Terminal Middle Woodland to early Late Woodland Lowe Cluster hafted biface from site 12Bn152 (Photo by Kiya Mullins, Ball State University).

Of the Mississippian cherts, those consistent with Attica constituted the largest proportion (14%). Attica outcrops in Boone, Fountain, and Warren counties, approximately 15 km (9 miles) south of Benton County (see Figure 2). All three of the hafted bifaces recovered were made from Mississippian cherts. The Late Archaic period Brewerton point (12Bn165) was made of chert consistent with heat-treated Muldraugh (Figure 7). The Lowe Cluster point from 12Bn152 was consistent with Attica (Figure 8). The notched scraper, consistent with Thebes notching (12Bn164) is made of Wyandotte chert (Figure 6). Burlington chert (8%), from central and western Illinois, and Wyandotte (3%), from southern Indiana, are generally higher quality materials that were widely traded in a variety of precontact periods, and would have been highly prized. The distance to these materials indicates that interaction likely occurred at least at some point between the areas that are now northwest Indiana and central/southwest Illinois and far southeastern Indiana.

All the Pennsylvanian chert was consistent with Holland. The low amount of Pennsylvanian chert is to be expected as the sources are located about 300 km (186 miles) to the south in Dubois County (see Figure 2). No diagnostics were made of Holland chert.

All of the Devonian chert was consistent with Jeffersonville. Outcrops of Jeffersonville exist in Bartholomew, Decatur, Jefferson, Jennings, and Scott counties, approximately 185 km (115 miles) to the southeast of Benton County (see Figure 2). No diagnostics of Jeffersonville chert were recovered.

In general, the pattern of chert exploitation reveals an emphasis on sources other than the closest bedrock chert. This pattern could indicate either long distance movement or extensive trade networks. A combination or a mix of both through time is probable. More research is required to tease out which of these patterns best fits the local record during which periods.

Sites

Of the 85 archaeological sites, 40 had unidentified precontact components (Table 3). The identified precontact components consisted of one Late Archaic and one Late Woodland site. A possible Thebes Notched biface reworked into a scraper was also recovered from site 12Bn164, but the identification is not confident, and therefore it is regarded as a possible Early Archaic component. Fifty-four sites had Historic components, dating from the early 18th century to present. Sites previously recorded in SHAARD (Division of Historic Preservation and Archaeology 2007) and through several large survey efforts supported by the Historic Preservation Fund for numerous counties (Benton, Blackford, Delaware, Huntington, Madison, Miami, Montgomery, Newton, Wabash) in the till plain of central Indiana support the trend of encountering low frequencies of Paleoindian, Middle Archaic, Early Woodland, and Middle Woodland component sites (Balough et al.

2016:171, Table 30, 2017:221, Table 36; Clark et al. 2017:183, Table 23; Leeuwrik et al. 2015:130, Table 21; Macleod et al. 2014:168, Table 22, 2015:124, Table 20; Miller 2013:178, Table 23; Miller et al. 2012:155, Table 25; Murray et al. 2011:135, Table 24; Nolan et al. 2014:38, Table 5; Smith and Klabacka 2009:Table 22).

Fifty-four sites with Historic components were discovered. These sites ranged from small to extensive historic scatters and were occasionally multicomponent with unidentified precontact isolates or scatters. The historic component sites yielded the vast majority of artifacts recovered during the project.

Survey Areas 1, 4, 5, 7, 9, and 10 contained sites with relatively substantial historic assemblages that had early historic dates between the mid-1700s and 1850, but also artifacts dating into the mid- to late 19th century and early 20th century (12Bn107, 12Bn123, 12Bn125, 12Bn133, 12Bn152, and 12Bn178). Based on historic research and the low potential for intact deposits, four of these sites (12Bn107, 12Bn125, 12Bn133, and 12Bn178) appear to be secondary deposits from relatively recent to modern activity, rather than primary deposits and locations of structures or activity areas possibly associated with early occupation of the county. This could indicate social attitudes in the area towards refuse dumps and the inclination of the people to dump their items elsewhere rather than on house lots. Sites 12Bn107, 12Bn123, 12Bn125, and 12Bn152 were recommended for further study; however, sites 12Bn133 and 12Bn178 were not recommended potentially eligible for the

NRHP because there was no indication that they have the potential to yield additional significant information beyond the Phase I level. Prior to this survey, there were 12 historic scatters reported for Benton County. Clearly the historic occupations of Benton County are not represented in proportion to their occurrence within the county. Further research and analysis of our data could greatly increase understanding of early historic occupation in Benton County. Additional research focusing on the Historic occupations of Benton County are warranted to adequately develop historic contexts within which to evaluate significance.

Density

The project documented an average of one site per 9.9 ac and an average artifact density of one artifact per 1.61 ac surveyed. The project documented an average density of one historic artifact per 1.93 ac surveyed and an average density of one precontact artifact per 10.39 ac surveyed.

Table 4 shows summary site and artifact densities by survey areas grouped by similar overall landforms with the number of ac surveyed on average for every encounter (i.e., ac divided by sites or artifacts). With this simplistic and coarse scale analysis floodplains have the lowest density of sites and artifacts (most ac required for encounter). This is compounded by Survey Area (SA) 12, which straddles Floodplains and

Table 2. Artifacts Recovered During the Current Survey.

Precontact	No.	Historic	No.
Biface, Hafted	2	Ceramic, Porcelain	1
Biface, Unhafted	5	Ceramic, Semi-Porcelain	2
Biface, Scraper	2	Ceramic, Ironstone	23
Core	8	Ceramic, Whiteware	52
Core, Fragment	1	Ceramic, Yellowware	2
Flake, Proximal	16	Ceramic, Stoneware	127
Flake, Distal	7	Glass, Amber	15
Flake, Medial	14	Glass, Amethyst	18
Flake, Edge Modified	6	Glass, Turquoise	1
Flake, Utilized	14	Glass, Green	9
Flake, Shatter	6	Glass, Green/Turquoise	8
		Glass, Aqua	54
		Glass, Cobalt	4
		Glass, Clear	85
		Glass, Milk	11
		Aluminum	1
		Iron	14
		Iron, Shotshell	1
		Iron, Handle	1
		Iron, Screw and Washer	1
		Iron, Hitch	1
		Iron, Hoe	2
		Iron, Horse Shoe	1
		Iron and Semi-Porcelain, Spark Plug	1
		Brass Button	1
		Bone	3
		Brick (not collected)	154+
		Charcoal	3
Total	81		442

Table 3. Identified Components and Previously Identified Components in Benton County.

Cultural Period	Added	Previous	Total
Unidentified Precontact	40	44	84
Paleoindian (ca. 10,000 – 7500 B.C.)	0	6	6
Archaic	1	25	26
Early Archaic (ca. 8000 – 6000 B.C.)	0*	7	7
Middle Archaic (ca. 6000 – 3500 B.C.)	0	4	4
Late Archaic (ca. 4000 – 700 B.C.)	1	11	12
Unidentified Archaic	0	3	0
Woodland	1	5	6
Early Woodland (ca. 1000 – 200 B.C.)	0	1	1
Middle Woodland (ca. 200 B.C. – A.D. 600)	1	1	2
Late Woodland/Late Precontact (ca. A.D. 500 – 1650)	0	3	3
Unidentified Woodland	0	0	0
Mississippian	0	2	0
Protohistoric/Contact	0	0	0
Historic (post A.D. 1650)	54	12	66
Unknown	0	6	0
Total	96	100	196

Woodland components (1 Early Woodland, 1 Middle Woodland, and 2 Late Woodland), no Mississippian or Protohistoric/Contact components, and 12 Historic components (Table 3). The current investigation added 96 new components including 40 unidentified precontact components, 1 Late Archaic component, 1 Terminal Middle Woodland/Late Woodland component, and 54 historic components (Table 3). A possible Thebes Notched biface retouched into a scraper also indicates a possible Early Archaic component. A few sites had more than one cultural component, which resulted in the addition of 96 components added to Benton County from 85 sites.

PRECONTACT SETTLEMENT PATTERNS

Precontact settlement within Benton County is dominated by Archaic, especially the Late Archaic. Very little information has been recovered for time periods after the Archaic up to European settlement. The previous cultural representations have been skewed due to development limits in the county. Benton County is primarily farm land, and as such remains largely within the private sector resulting in less archaeology conducted as a result of federal requirements or state regulations. The current investigation has more fully filled in the cultural chronology by targeting areas that would not have otherwise been investigated. While sampling a diverse set of landforms, this small survey is not sufficiently representative. As a result it is

Table 4. Summary of Site and Artifact Density by Landform.

SA	Landform	Acres	Sites	Acres/site	Artifacts	Acres/Artifact
2	Ground moraines, end moraines, floodplains, and outwash terraces/plains	30.16	7	4.31	8	3.77
4	Outwash terraces/plains	16.79	2	8.40	10	1.68
1, 5, 7-9	Ground moraines and end moraines	497.79	51	9.76	377	1.32
3, 10, 11	End moraines	249.16	23	10.83	124	2.01
6	Floodplains	27.00	2	13.50	4	6.75
12	Floodplains and outwash terraces/plains	20.39	0	--	0	--
Total		841.29	85	9.90	523	1.61

Outwash landforms, and yielded no artifacts. Floodplains are a low intensity use landform, and the true density is probably lower than the intensity indicated by the table. It is possible that there are buried sites on these landforms; however, that is beyond the scope of this investigation. Moraine features are the next most intensively utilized landforms, while Outwash features have the highest encounter rates (fewest ac required for encounter). With the exception of floodplains, landforms show very little variability in artifact encounter rates. SA2 contains the most landform diversity and has the highest site density, though as all components are isolates, SA2 has the second lowest artifact density in Table 4.

DISCUSSION

CULTURAL CHRONOLOGY

Prior to the current survey, Benton County had 44 unidentified precontact components, 6 Paleoindian components, 25 Archaic components (7 Early Archaic, 4 Middle Archaic, and 11 Late Archaic), 4

likely that the surveys conducted in Benton County have not been extensive enough or have not sampled enough landforms within the county to locate underrepresented cultural time periods. This is especially true in an area with extensive former or current wetlands. The distribution of sites is not regularly predictable, and sites are ephemeral, though still a significant part of past cultural systems. This investigation has revealed several aspects of land use timing that bear further investigation, particularly the nature and timing of long-distance interaction (e.g., chert source distribution). Both broad and intensive surveys are required to more fully populate the archaeological record and fill in a fuller picture of precontact utilization of areas like Benton County. With these surveys, especially in those areas not typically surveyed, we will begin to reconstruct the history of use, and the differential spatial patterns of exploitation associated with fluctuations of the marsh regions.

LANDFORM DISTRIBUTION

Although very limited, the results from the 841.29 ac (340.46 ha) of the FY2015 HPF Grant survey show Early Archaic, Late Archaic, and Middle/Late Woodland activity in the northern portion of the county. Aside from the periods mentioned previously, the settlement patterns for different precontact cultural contexts are impossible to analyze due to the lack of recovered diagnostic materials during our surveys. The diversity of landforms surveyed allows for an initial understanding of land use and settlement patterns among precontact peoples better than in previous surveys. Our results show an avoidance of floodplains/lowlands and a focus on moraines and especially outwash features. All temporal diagnostics were found on moraine features.

Of particular interest is the use of fine-scale diversity of environments (mixtures of rare alfisols with proximity to both wet and dry prairies; see Figure 5) in SA9, the southeastern-most parcel surveyed (Figure 9). The vast majority of precontact artifacts and sites were found in this unique micro-environment, and all of the diagnostics were recovered in this survey area. In line with patterns for the use of predominately wetland environments elsewhere, subtle rises of well-drained upland soils (especially when they provide unusual resources) are attractive areas for Late Archaic and Middle Woodland extractive activities and settlements (especially later in the sequence; Surface-Evans 2015).

HISTORIC SETTLEMENT PATTERNS

The historic cultural context was present in Survey Areas 1–11 and was representative of the initial mid-19th century settlement of the county through modern times. Mean dates were calculated for each survey area by using artifacts that displayed a date range. This excluded non-diagnostics and anything with unanchored parameters (i.e., pre-1940). The results indicate that the majority of survey areas were most likely active during the late 19th and early 20th centuries. The mean historic date of the whole survey was 1905. Both of these pieces of information are in keeping with the extant narrative concerning the very low European population until 1840 with the official establishment of Benton County, and only then did the population begin to increase. Population increased further in 1870s and 1880s with the establishment of the railroads (Taylor 2009:12–13).

CONCLUSIONS AND RECOMMENDATIONS

This project targeted agricultural parcels in the northern half of Benton County, Indiana. The project area was selected due to the lack of known archaeological sites in the SHAARD database and the identification of Benton County as a data deficient county. The goals of the project were to increase the site database, construct a more complete cultural chronology for the county, understand and refine both the settlement patterns, as well as the patterns of interaction between and among early Euroamerican settlers and Native Americans. Some of these goals were not able to be addressed given the results of our archaeological investigation. Particularly, we are unable to address interaction among early Euroamerican settlers and Native Americans simply due to the fact that the sites identified do not represent this crucial period.

As with other surveys conducted in northwestern Indiana (Balough et al. 2016, 2017; Clark et al. 2017; Leeuwrik et al. 2015, 2016, 2017, 2018; Macleod 2015, 2017; Surface-Evans et al. 2005), the results reported here display a general lack of artifacts as compared to other county surveys in Indiana (Angst 1994; Cree 1991; Cree et al. 1994; James and Cochran 1985; McCord 2007; Miller et al. 2012; Miller 2013; Murray et al. 2011). It is very likely that the presence of extensive wetlands into the mid-1800s heavily influenced the settlement of the area within and surrounding Benton County. The wetlands were great resources for the precontact people of the area. Occupation tended to focus on upland landforms and somewhat towards fine-scale ecotones. This latter is best illustrated by our results in Survey Area 9 (Balough et al. 2016:122–137). In this 105.85 acre (42.84 ha) parcel 28 sites and 91 artifacts were discovered (Figure 9). All of the precontact diagnostics were recovered from this parcel that is a mix of aquic mollisols (aquolls; wet prairie), typic alfisols (udalfs; dry forest), aquic alfisols (aqualfs; wet forest), and histosols (wet organic rich) (Balough et al. 2016:Figure 88). The precontact artifacts are concentrated on small rises of dry forest soils (hapludalfs), representing dry places from which the inhabitants could exploit a diverse array of wetland, prairie, and forest resources within a short distance.

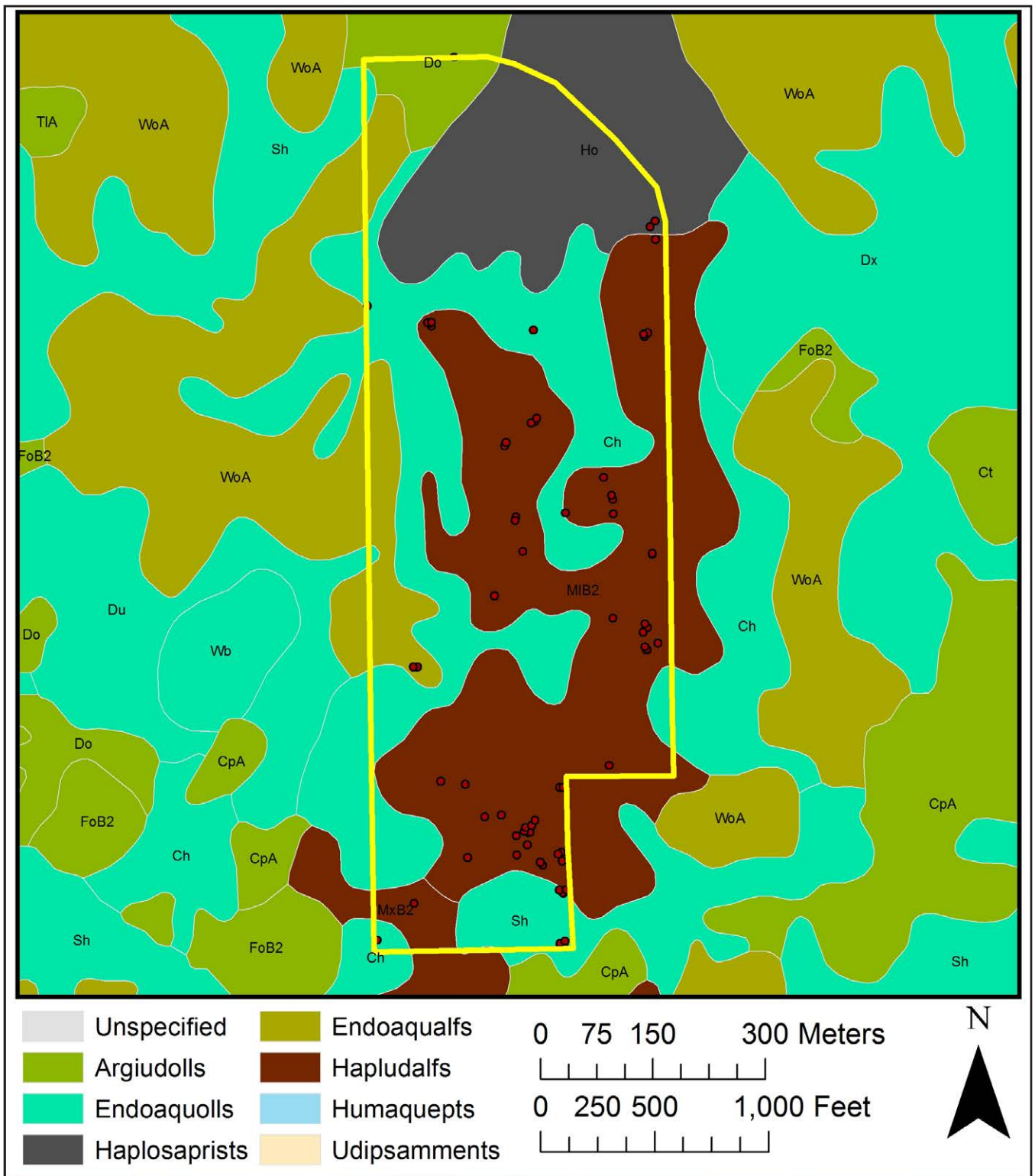


Figure 9. Soil great groups and artifact locations (red dots) within Survey Area 9 (Soil Survey Staff 2013). From Balough et al. (2016:Figure 88).

The marshes and wetlands were more highly used by precontact people and fur trappers because of their large amounts of flora and fauna available for exploitation (Meyer 1935:367–369). However, the variably extensive wetlands would have dramatically restricted both livable land and resources in the area for the incoming Euroamerican settlers during the historic period. This constraint would have concentrated those individuals who were there to select upland and well drained features in order to avoid the marshlands that were so prevalent throughout the county. The large scale changes to the environment brought about by the historic draining efforts precipitated a relatively late Euroamerican settlement pushing the majority of the historic settlement dates to much later in the 19th century. This draining also allowed for investigation into areas that may have been exposed prehistorically and therefore offer insights into the habitation preferences of precontact peoples as well as the dynamic nature of the extent and location of the wetlands through time.

The three diagnostic precontact artifacts recovered from the survey date to the Early Archaic (possibly), Late Archaic, and Middle/Late Woodland periods. Though the amount of recovered precontact diagnostics from the survey is not enough to make generalizations regarding occupation habits, we may be able to use this information in order to begin to identify the use of the land during these periods. The points were found in an upland area of alfisols on ground moraine, consisting of a series of relatively well-drained subtle rises surrounded by wet forest and wet prairie.

Of the 85 archaeological sites discovered by this project, 79 are not considered eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places (Table 5). Most of these ineligible sites were precontact isolated finds or small lithic scatters. Sites 12Bn107 and 12Bn125 were medium sized historic scatters, comparatively larger than the other sites in Survey Area 1 and Survey Area 5, respectively. While historic maps failed to reveal any structures within or near the scatters, historic maps do show the relative proximity to Denton’s or Walnut Grove (Andreas 1968; Geo. A. Ogle & Co 1916; Taylor 2009:37). With no structural remnants or subsurface features encountered, it is possible that 12Bn107 and 12Bn125 were historic dump sites, rather than primary deposits, for Denton’s Grove. The tight clustering of the artifacts suggests that topography played a part in the formation of the site, considering that the sites are located on a slope. Both sites are situated in similar topographic and ecological settings at the intersection of forest and prairie soils at approximately the same elevation on a slope. While 12Bn107 and 12Bn125 do not appear to have been settlement or structure locations, substantial information about the lives of the Dentons or other early settlers could be contained in this slope midden. Based on the archaeological evidence and our historic research, 12Bn107 and 12Bn125 are potentially eligible under Criterion D.

Site 12Bn123 is a dense historic scatter with nine historic artifacts and over 150 bricks. While the three historic maps consulted (Andreas 1968; Geo. A. Ogle & Co 1916; Taylor 2009) do not show a historic structure located in Survey Area 4, the USGS 7.5’ Earl Park, Indiana Quadrangle shows an outline of a structure at the location of site 12Bn123. Site 12Bn123 is located on a small flat rise that overlooks Sugar Creek and is an ideal location for a structure. The Indiana Historical Aerial Photo Index (IHAPI) shows that a structure was positioned on the location of 12Bn123 at least as early as 1951 and disappearing between 1963 and 1971 (Indiana Geological Survey 2011). The variety of domestic artifacts and the historic structure indicate a potential to learn more about domestic mid-century farmhouse lifestyle, filling a gap in Benton County’s history. Based on the archaeological evidence and our historic research, it appears that 12Bn123 has the potential to yield additional information beyond the Phase I level and should be considered potentially eligible under Criterion D for the National Register of Historic Places and recommended for additional research.

Sites 12Bn152, 12Bn162, and 12Bn165 were also determined to be potentially eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places. Sites 12Bn152, 12Bn164, and 12Bn165 have the potential to yield additional information beyond the Phase I level based on the artifact assemblages, the soil context, and the possible unique micro-ecology. Viewed together, these sites exhibit a pattern of wetlands landscape usage based

Table 5. Site Recommendations.

Recommendation	Site No.
No further archaeological investigations recommended; n=79	12Bn102 to 12Bn106, 12Bn108 to 12Bn122, 12Bn124, 12Bn126 to 12Bn151, 12Bn153 to 12Bn163, 12Bn166 to 12Bn186
Further archaeological investigations recommended (high density, lithic isolates, lithic scatters, and historic scatters); n=6	12Bn107, 12Bn123, 12Bn125, 12Bn152, 12Bn164, and 12Bn165

on the location of these sites on small areas of well drained soils within a larger poorly drained area characterized by wet prairie environments or ponds (see Surface-Evans 2015; Surface-Evans et al. 2005). Individually, sites 12Bn152, 12Bn164, and 12Bn165 do not seem to be eligible under Criterion D; however, as a group they illustrate a pattern of behavior (a type of environmental exploitation strategy) that represents an important trend in precontact interaction with and exploitation of the wetlands of northwest Indiana. The variety of chert and diagnostic points found in Survey Area 9 suggest trade and lithic production persisting for millennia. For these reasons sites 12Bn152, 12Bn164, and 12Bn165 may be eligible for listing on the National Register of Historic Places under Criterion C (i.e., the site(s) represent a significant and distinguishable entity whose components may lack individual distinction [National Park Service 2002]). Sites and adjacent contextual areas should be an item of further investigation.

Though there were a limited number of recommended sites in this survey, four of the sites that we recommend (12Bn107, 12Bn123, 12Bn125, and 12Bn152) could be significant in their contribution to the understanding of Benton County historic settlement. The remaining recommended sites/components could yield significant information (as a group) about a type of environmental exploitation pattern found in wetland environments.

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FORT OUIATENON, 1717–2019: 300+ YEARS OF INDIANA HISTORY

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Editors' note: Sometimes, submissions are considered special features in the journal. This submission on Fort Ouiatenon and archaeological investigations there is longer than most journal articles, and we hope readers will enjoy this special-length feature.

ABSTRACT

Fort Ouiatenon was constructed in 1717 and represents the first formal French presence in the present state of Indiana. The fort, situated amongst various Wea, Kickapoo, and Mascouten villages, stood until about 1785. Curiosity regarding the possible fort site began in the early 20th century, though it was not until 1968 that the archaeological site of Fort Ouiatenon was confirmed. Archaeological work proceeded through 1979, focusing mostly on identifying features within the fort proper. Beginning in 2009, the authors began a program of research at the fort site, with the main goal of identifying Native American villages surrounding the fort and determining the presence and nature of any subsurface features that might be present. Magnetometry and resistivity survey have identified numerous areas where intact features appear to be present. Most notable is a cluster of circular anomalies northwest of the fort, likely representing the remains of a small Native American village. A portion of one of these circular anomalies was opened in 2013, confirming its identity as a structure. The structure was constructed by digging a shallow trench, into which pliable branches were placed. These were likely bent over, creating a wigwam-like dwelling, which was subsequently covered with bark.

INTRODUCTION

Constructed in 1717, Fort Ouiatenon has the distinction of being the first permanent Euroamerican presence within the state of Indiana. For the next seventy years, the fort served as a hub for the regional fur trade and a center of Native American occupation for members of the Wea, Kickapoo, and Mascouten peoples, who resided in its immediate vicinity. While the property containing the fort site has been owned by the Tippecanoe County Historical Association (TCHA) since the early 1970s, until recently, most of the Native American village sites in the immediate area remained in private hands and under agricultural production.

In recent years, the TCHA and The Archaeological Conservancy (TAC) worked to acquire ca. 200 ac in the area surrounding the site of Fort Ouiatenon—properties which include a number of these fur trade-era sites. Through various fundraising efforts, the TCHA raised over one million dollars to establish the Ouiatenon Preserve, thereby taking these important sites out of active agricultural production and eliminating the possibility of their further destruction due to farming and associated flood-related erosion.

Habitat reconstruction is now beginning on these newly acquired parcels, with the ultimate goal of restoring the area to tallgrass prairie. While this will aid in preserving the subsurface remains from further destruction, the presence of prairie grasses will result in a field situation that is no longer conducive to archaeological work, particularly geophysical investigations such as magnetometry and resistivity. In light of these issues, in 2016, the co-authors initiated a project of extensive geophysical survey covering many of the most important archaeological sites within the Ouiatenon Preserve, so that data could be collected before the sites were planted. The following article provides a summary of the most recent work at Ouiatenon. Also included is a detailed history of the fort and its environs and a summary of earlier archaeological investigations in the immediate area.

The results of this long-term project have provided vital information on the location and presence of subsurface remains related to the numerous sites on the Ouiatenon Preserve property—information that will prove valuable in the continued efforts to preserve them in perpetuity and, at the same time, allow for the construction of facilities for the recreational use of the Ouiatenon Preserve by the public.

HISTORY OF FORT OUIATENON AND VICINITY, 1717–1790

At the beginning of sustained European contact in the western Great Lakes (ca. 1665), various Native American groups, including the Miami, Wea, Kickapoo, and Mascouten, were residing in southeastern Wisconsin and northeastern Illinois. This was not their original homeland, however, as many of these Algonkian-speaking groups had likely fled west, ca. 1650–1655 in order to avoid the threat of Iroquois raids (Wheeler-Voegelin et al. 1974:40). Although villages moved often and early historic information is scanty, records indicate that prior to the 1670s, the Wea and Mascouten occupied the Fox-Wisconsin River portage area, west of Lake Michigan, while another Wea village was present along the Mississippi River (Jablow 1974:71). Shortly thereafter, these two groups were noted along the St. Joseph River in Michigan and later, around 1682, a large number of Wea moved to the upper Illinois River, at Starved Rock (Jablow 1974:55–57; Wheeler-Voegelin et al. 1974:42).

By the late 17th century, with the threat from the Iroquois waning, it became official French policy to persuade Native American peoples to move farther east in order to establish firmer control over the western Great Lakes and to counter the spread of British political and economic influence over the region (Wheeler-Voegelin et al. 1974:46). By 1691, one group of Miami had moved to the southeast, along the Wabash River valley, though some were still residing along the Chicago River and at the Kankakee-Des Plaines confluence as late as 1699 (Illinois State Historical Library 1934:392–393; Jablow 1974:128, 135; Krauskopf 1953:24). By the turn of the eighteenth century, a number of Wea were living on the Wabash and this area was considered Miami hunting ground by the French (Krauskopf 1953:24; Michigan Pioneer and Historical Society 1904:441; Wheeler-Voegelin et al. 1974:50).

In 1715, rumors were circulating that British traders were present on the Mississippi River, attempting to create alliances with the Illinois and Miami Indians. In order to counter this threat to French interests, Governor Antoine de la Motte Cadillac of New France put forth an order to establish posts on the Wabash and lower Mississippi rivers (Krauskopf 1953:62–64). That same year, the Wea, who were living on the south bank of the Wabash, southwest of present-day Lafayette, Indiana, requested the presence of a French official, blacksmith, and a missionary (State Historical Society of Wisconsin 1902:326). This request was granted, with a garrison that was to consist of a captain, one subordinate officer, a sergeant, and ten enlisted men, with instructions to prevent Indian trade with the English and keep peace between the Wea and Illinois (Jablow 1974:145; Krauskopf 1953:70).

In spring 1717, Governor Vaudreuil of New France sent Ensign François Picoté de Bellestre, four soldiers, and three other Frenchmen (including a blacksmith) and to establish a post at the site of the Wea town. The fort was initially not intended to be permanent, but was to last only until the French could persuade the Wea to return to closer to Chicago or the upper Kankakee River, which was closer to the French sphere of influence and supply chain (Barnhart and Riker 1971:71; Krauskopf 1953:70). Because the Wea refused to leave the Wabash valley, the fort eventually became a permanent installation.

During the French period, trade at Ouiatenon (and other posts) was strictly regulated by the crown, so as to control the flow of furs to France and the prices paid for them. Though Fort Ouiatenon was profitable for those engaged in the fur trade, the primary reason for its continued operation was diplomatic rather than economic. The French were concerned that if the Native peoples felt abandoned, the British would fill the economic gap (Krauskopf 1953:143, 148).

Eventually, colonial French presence within the present state of Indiana was concentrated within three core areas. In 1721, shortly after the establishment of Fort Ouiatenon, Fort Miamis was erected at the current location of Fort Wayne, Indiana. Both forts were small military posts designed to facilitate the exchange of furs and trade goods between Native Americans and traders, and no large-scale French settlement was to be found at either location. In 1732, a little more than a decade after the forts were established, Post Vincennes was founded on the lower Wabash. Though a fort was built at Vincennes, this post eventually became a permanent town-like settlement, with a resident population of *habitants*, or farmers.

Although the Wea likely made up the majority of Native American peoples at Ouiatenon, other groups also lived in the vicinity of the fort. The presence of Mascouten peoples on the Wabash is mentioned as early as 1711, though most documents of the period place the Kickapoo and Mascouten west of Lake Michigan or on the St. Joseph River at this time (Jablow 1974:141, 149–150, 177). By 1733–1734, however, a group of Kickapoo were reportedly residents in the Ouiatenon vicinity and they, along with the Mascouten were said to be recent arrivals to the area. The Kickapoo were living six leagues (about 15 miles) from Ouiatenon in winter 1734–35, possibly at their winter residence (Jablow 1974:186–187; Krauskopf 1953:175, 1955:147). One year later, an estimated 80 Kickapoo warriors were residing at Ouiatenon, along with 300 Wea and 60 Mascouten men (Jablow 1974:188; Krauskopf 1953:186). Additional Mascouten and Kickapoo arrived in the early 1740s (Krauskopf 1953:213, 1955:191; Wheeler-Voegelin et al. 1974:126). Though a sizeable number of Kickapoo eventually resided at Ouiatenon, historic documents indicate that throughout this time, they acknowledged that this area of the Wabash was considered the Wea homeland, and that the Kickapoo presence at Ouiatenon was with their consent (Smith 1882:II:156).

By 1746, nearly thirty years after its founding, twenty French fur-traders and their families were living at Fort Ouiatenon. Here also were 600 Wea warriors capable of bearing arms (Barnhart and Riker 1971:96; Krauskopf 1953:243). Though the main business of the post was the furtherance of the fur trade, Fort Ouiatenon was relatively unimportant in this regard, due to the fact that few beaver skins were collected there (Krauskopf 1953:137). In general, the French had difficulties supplying frontier posts such as Ouiatenon, due to the great distances involved and a chronic lack of manpower (Barnhart and Riker 1971:123).

Though the French most often enjoyed good relations with the Native Americans at Ouiatenon, during the late 1740s, things soured considerably. A truce between France and Britain had ended in 1744, a situation which resulted in a general lack of gifts for the Native Americans. As these were used to establish and maintain friendly relations, the British traders, who had goods available at a cheaper price, became increasingly attractive (Barnhart and Riker 1971:98). This discontent erupted into violence at nearby Fort Miamis, which was burned and looted by the Miami in 1747. Though the resident Native Americans at Ouiatenon did not attack the fort next to their village, they were increasingly attracted to the British, who could better supply their desire for good-quality trade goods at a fair price.

In 1750, it was reported that a secret Native American council was to be held at Ouiatenon, in which Miami sympathetic to the English hoped to persuade the Wea, Kickapoo, Mascouten, and Piankashaw to abandon the French (Pease and Jenison 1940:169), and by 1751, most of the Wea had left Ouiatenon to join the British at Pickawillany a trading town, near present-day Piqua, Ohio (Krauskopf 1953:302, 1955:155). Only the Kickapoo and Mascouten, who totaled about 300 warriors, remained loyal to the French. Native American hostility had grown to such a degree that many of the French traders at Fort Miamis abandoned the post, in the interest of their own safety (Jablow 1974:211, 220–221; Krauskopf 1953:311, 314, 316). In light of these developments, the French decided that force was the only means to push the British traders out of the way. In June 1752, a combined French and Native American force destroyed Pickawillany, an event which resulted in the return of the Wea to Ouiatenon in August and September 1752 (Barnhart and Riker 1971:98; Wheeler-Voegelin et al. 1974:129–130).

Renewed hostilities with Great Britain began in 1756, with the outbreak of the French and Indian War. Although Fort Ouiatenon was not directly involved with the conflict, Wea and Kickapoo men traveled to the east to aid the French (Krauskopf 1955). The war resulted in the capitulation of the French in September 1760, with the entire province of Canada (including Fort Ouiatenon) included in the surrender. By 1763, with the formal signing of a treaty, France gave up all its possessions east of the Mississippi River, with the exception of the settlement at New Orleans (Barnhart and Riker 1971:126–127).

In December 1760, Lieutenant John Butler arrived at forts Miami and Ouiatenon to take formal British possession. Fort Ouiatenon was in good condition at the time and was described in this manner:

Agreeable to my orders from major Rogers of the 7th Decr. 1760 I marchd with one officer and twenty-seven men to take possession of the forts ... The Ouyitonon fort I found well stockaded of 100 feet wide and 150 long on the side of the Wabash River sixty leagues from miamie, this fort has fourteen houses in it all of which belong to a french merchant at Montreal Except one. this fort is likewise on low land and last spring the water in the fort was four foot deep. Directly opposite the fort is an Indian village on fine high land; in this fort I found one french Serjt, Seven Regulars and Nineteen Canadians. The Regulars I marchd to maimie to joyn the officer, the Canadians I administered the oath and left them there [Butler 1762].

Other than these piecemeal descriptions, there is very little information on the appearance of the fort during the French period, and there are no contemporary maps indicating its size or the structures located within at any given point in time. Sometime around 1758, Ouiatenon was described simply as a “fort of upright poles, situated on the right [north] bank of the Wabash or St. Jerome [River] ...” (Krauskopf 1955:220).

After the British occupation, the fort was garrisoned with an officer and 15 men.¹ Lieutenant Edward Jenkins was put in command of Ouiatenon (Barnhart and Riker 1971:136, 140). The following year 200 Wea, 180 Kickapoo, 90 Mascouten, and 100 Piankashaw were reportedly living in the vicinity of Ouiatenon along with 15 French families. The residents of the fort were living off their trade and planted small house gardens. They also raised Indian corn “which they chiefly make their bread of” (Barnhart and Riker 1971:139; McCord 1970:11–12).

The British occupation of Fort Ouiatenon, however, was only to last until 1763. It was in the summer of that year that Pontiac’s Rebellion began—a direct result of British Native American policies. Due to the immense war debt resulting from the French and Indian War, a series of austerity measures had been instituted in order to reduce expenses, including a drastic reduction in gift-giving. In addition, the British method of doing business was in direct contrast to that of the French, who had

¹ *Identical-sized garrisons were assigned to forts Miamis (present-day Fort Wayne) and St. Joseph (Niles, Michigan).*

most often been generous with their gifts and treated the Native Americans on a more equal footing. Services and supplies that had been provided for the Indians under the French administration (e.g., blacksmithing, ammunition) now required payment in furs. In addition, goods were no longer furnished on credit. Compounding these indignities were the rising prices of trade goods and the declining value of furs (Barnhart and Riker 1971:136–138).

In June 1763, the Wea, Kickapoo, and Mascouten at Ouiatenon were reportedly persuaded by the Potawatomi to attack Fort Ouiatenon. After Lieutenant Jenkins and a few soldiers were seized, the rest surrendered. The garrison was taken as prisoners to Fort de Chartres, in the Illinois country. Pontiac's Rebellion eventually resulted in the capture of all the British posts west of Niagara, except Detroit. Although the British eventually persuaded the Native American peoples to seek peace, Ouiatenon was not re-garrisoned, due to the fact that it was not thought to be economically sensible to keep the smaller posts running (Johnson 1953:20).

The next account of Fort Ouiatenon is from 1765, when George Croghan, a British Indian agent, was captured by the Kickapoo and brought to their village on the Wabash. His account provides some information about the various Native American villages present at that time.

About fourteen French families are living in the fort, which stands on the north side of the river. The Kickapoos and Musquattimes [Mascouten], whose warriors had taken us, live nigh the fort, on the same side of the river, where they have two villages; and the Ouicatanons have a village on the south side of the river ... The French have a great deal of influence over these Indians ... This post has always been a very considerable trading place [Thwaites 1904:144].

As Croghan mentioned, despite British control over the former French colony, the long-standing relationships between the French traders and the Native Americans made it quite difficult for British traders to get a toehold in the business of the Indian trade. These difficulties were exacerbated by the lack of a British military presence at the fort after 1763 (Barnhart and Riker 1971:163). It would appear also that the abandonment of the fort by the British colonial government resulted in poor upkeep of the structures and palisade. One British report (possibly second hand) states that by 1766, the fort was "completely in ruins" (Dunn 1894:414). However, a 1769 census of inhabitants at Fort Ouiatenon indicates the presence of twelve resident traders, indicating that it was still habitable. Notably, all those living at the fort had French surnames, indicating continued French domination of the village-level fur trade (Dunn 1894:440).²

Although no garrison was assigned to the fort, Ouiatenon continued to be an important regional hub for the fur trade through the 1770s. In 1771, 600 able-bodied Wea and Kickapoo men were living in the vicinity of the fort, residing in two villages on opposite sides of the river (Barnhart and Riker 1971:172). A report from 1777 suggests that the fort was, at that time, in good repair, containing eighteen or nineteen houses within its limits, occupied by merchants and workers. The fort was reportedly about 70 yards from the river and "well situated [and] quite pretty" with a well-fortified entrance (Dunn 1894:436; Stevens 1987:374).

During the Revolutionary War, most of the Native Americans residing along the Wabash remained allied with the British (despite the efforts of the Americans to sway them) and were actively persuaded to fight the Americans along the frontier (Barnhart and Riker 1971:197, 218; Evans 1978). The Kickapoo at Ouiatenon initially supported the British cause during the American Revolution but switched their allegiance when their relations living on the Illinois prairie offered their services as scouts to the American forces under George Rogers Clark (Wagner 2011:23).

The British need for Native American allies was made strikingly clear after Vincennes was captured by the Americans in July 1778. In response, General Henry Hamilton (Lieutenant Governor of Quebec and Superintendent of Indian Affairs) undertook an expedition to recapture Vincennes from the Americans. En route, he stopped at Fort Ouiatenon, which was "formd of a double range of houses enclosed with a Stockade 10 feet high, and [was] very poorly defensible against small arms" (Barnhart 1951:208–209). Also mentioned was the presence of a chapel at the fort. In a letter to General Haldimand, Hamilton reported that Ouiatenon was in poor condition, calling the fort "a miserable stockade surrounding a dozen of miserable cabins, called houses" (Barnhart 1951:208–209). His opinion of the French residents was no more flattering, indicating that "the French settlers are few and as inconsiderable as debauchery and idleness can make them" (Beckwith 1903:221). Although not stated directly, Hamilton's description of the fort indicates that, while still standing, Fort Ouiatenon may have been in a sorry state of repair. This statement, however, lies in direct contrast to the report of only one year earlier, which described the fort as "quite pretty" and "well fortified" (Dunn 1894:436). It is difficult to reconcile these two contrasting

² *The individuals residing at Fort Ouiatenon were Maisonville, Maignian, Paillé, Lamorceau, J. Cardinal, Lefevre, Vernette, La Riviere, Clement, Pierre Bertin, Crepo, and Aijot.*

opinions of the fort. While at Ouiatenon, Hamilton met with a number of chiefs in order to secure their loyalty, including Wea war chiefs Crooked Legs and Petite Face. Hamilton noted that there were about 960 Native Americans residing in the area at that time (Barnhart 1951:214).

Following the 1783 Treaty of Paris, which ended the Revolutionary War, the lower Great Lakes were formally incorporated into the territory of the United States. The U.S. claim to this area, however, was on paper only, as the British continued to occupy posts within American territory. The British also maintained alliances and trading relationships with the Wea, Piankashaw, Kickapoo, and Mascouten, who, as a result, were mostly pro-British (Wheeler-Voegelin et al. 1974; White 1991:399–400, 434). They were, however, unable to provide any direct assistance to their Native American allies due to the official cessation of hostilities with the Americans (Wheeler-Voegelin et al. 1974:149). Continued British interests in the lower Great Lakes lay in the fact that the fur trade remained quite profitable. Although receipts from the lower Great Lakes were on the decline by the last decade of the eighteenth century, fur exports out of Montreal amounted to roughly £200,000 annually, with one half of this amount derived from the Upper Mississippi River valley and Great Lakes (Sleeper-Smith 2001:74; White 1991:481).

To the south, along the Ohio River, large numbers of American settlers were pouring into the region. The non-native population of Kentucky had gone from less than 1,000 in 1780 to nearly 75,000 ten years later, and by spring 1785, there were approximately 2,200 families squatting north of the Ohio River (McBride et al. 1996:191; Wilson 1997:228). On the lower Wabash, the population at Vincennes, which had been ethnically French since its founding, had risen dramatically as well, as more American settlers moved into the area (Barnhart and Riker 1971:255).

Native American peoples of the Wabash Valley felt the pressure of increasing numbers of land-hungry white settlers and, as a result, raids into Kentucky and along the Ohio River escalated in frequency (Barnhart and Riker 1971:246). Many settlers were killed in these raids, horses and merchandise were stolen, and livestock were killed. Boats traveling on the Ohio River were often attacked and ransacked (Bergmann 2005:26–27). Though Native American groups were aware of the potential destruction that might be brought down upon them as a result of these attacks, and feared American reprisals, many felt this was their only means of thwarting these threats to their homelands (Cunningham 1967:45, 47).

By 1786, both Ouiatenon and Miamitown (present-day Fort Wayne) were being evacuated by the fur traders due to increased Native American hostility (Barnhart and Riker 1971:257). In response to the continued raids, George Rogers Clark attempted an expedition against the Wabash River villages in September of that year. However, only 1,200 of the 2,000 desired men showed up, and these were conscripts rather than volunteers. Discipline was poor, and after only two days march, the majority of the men mutinied and went home, having accomplished nothing (Barnhart and Riker 1971:257–258; Helderman 1938).

The governor of the newly formed Northwest Territory, Arthur St. Clair, was also concerned about these affairs and wanted to put a stop to Native American raids into Kentucky as well as unauthorized raids by white settlers into Indian territory north of the Ohio River (Barnhart and Riker 1971:272, 281–282). In July 1787, the United States took its first steps in establishing control over the area. Congress authorized Colonel Josiah Harmar to negotiate a treaty with the Wabash Indians in Vincennes, and three companies of regulars were to be stationed there to prevent vigilante-type retaliatory raids. Harmar left Major Jean François Hamtramck in command, who oversaw the construction of Fort Knox (Barnhart and Riker 1971:265–266). Harmar indicated that he wanted to let the Wabash Indians know “that if they persisted in being hostile that a body of troops would march to their towns and sweep them off the face of the earth” (Wheeler-Voegelin et al. 1974:114–115).

At this point, a political impasse had been reached. The United States was adamant about pacifying the Wabash Indians and ultimately making the area available for white settlement, while the Native Americans were insistent that the Ohio River should be a permanent border between native and white territories (Barnhart and Riker 1971:280). At about this time, in March 1788, an American named William Biggs, who had been taken captive by the Kickapoo, described the conditions at Ouiatenon, which he called the “old Kickapoo trading town” or the “old Weaues town” (Biggs 1977 [1825]; Draper Manuscripts 1949:5NN). Upon arrival, Biggs met a number of its residents, including a Frenchman named Ebart, with whom he was already acquainted from the Illinois Country, a Spanish trader named Bazedone (a resident of Vincennes [McDonough 1883]), and a trader and freemason from the north of England named John McCauslin. Another unnamed French resident was a baker in the town. Interestingly, Biggs makes no mention of a fort, suggesting that it may have been demolished and/or salvaged for materials by this time. Nonetheless, it appears that several fur traders were still resident in the immediate area. Biggs was eventually able to buy his freedom and, after three weeks, obtained passage to Vincennes with a French trader named Pyatt and his wife (Biggs 1977 [1825]; Draper Manuscripts 1949:5NN).

In December 1790, George Sharp, a British trader at Miamitown (Quaife 1921:306) reported on the political and economic conditions from the British perspective. Trade was suffering because of the tensions, and it was quite dangerous for

any white person (without the proper reputation among the Native Americans) to be in that area (Sharp 1790). The Miami were reportedly attempting to prevent the Wea from dealing with French traders originating from American-controlled Vincennes and wanted the trade to proceed instead through Miamitown and on to British-controlled Detroit (The Gris 1791). The tension resulted in the movement of 80 Wea men and their families to a new village between Vincennes and the mouth of the Vermillion River, where the Americans promised them protection (Wheeler-Voegelin 1974:158–159).

THE SCOTT AND WILKINSON CAMPAIGNS, 1791

Between 1783 and 1790, approximately 1,500 Kentucky settlers had been killed in Native American raids, and increasing pressure was being applied to the U.S. government to find a lasting solution to the problem. In 1789, Governor St. Clair asked President Washington for instructions regarding the increasing hostilities (Smith 1882:2:123–124). Washington responded that while Congress had empowered him to call forth the militia, St. Clair should first determine “whether the Wabash and Illinois Indians are most inclined for war or peace” (Smith 1882:2:125–126). War was to be a last resort, if all other avenues had failed.

After receiving these orders, St. Clair sent a letter to Major Hamtramck, commandant at Vincennes, enclosing a speech that he wanted forwarded to the Wabash River Indians and the Miami at Miamitown (Barnhart and Riker 1971; Smith 1882:2:130). Hamtramck dispatched Antoine Gamelin in March 1790 to deliver the message and assess their inclinations. He was to tell them that they would be dealt a heavy blow if the raids into Kentucky did not cease and they did not accept peace with the Americans. In his journal, Gamelin noted that after setting out from Fort Knox at Vincennes, he arrived at a Kickapoo village, likely in the vicinity of present-day Terre Haute (Barnhart and Riker 1971:282; Jablow 1974:304; Smith 1882:2:151–152, 155). While the Kickapoo listened to his speeches, they did not provide an answer, deferring to the Wea who were said to be the owners of their lands. Gamelin was instructed by the Kickapoo to proceed to Kethtippecanunk, a trading town at the confluence of the Tippecanoe and Wabash rivers, some 15 miles upstream from Ouiatenon. They indicated that the chief and warriors of the Wea were there and would be able to give him an answer.

The Wea and Kickapoo gathered at Kethtippecanunk on April 14 and Gamelin was told that they would decide “nothing without the consent of our elder brethren, the Miamis” (Smith 1882:2:156). Gamelin continued up the river and was told when he arrived at Miamitown that he could be given no answer without consulting the Great Lakes nations and Detroit. Traveling back to Vincennes, Gamelin informed St. Clair of the equivocal responses he had received. This failure to secure a promise of peace convinced St. Clair that there was no possibility of diplomacy, and so he started formulating plans for a military campaign (Smith 1882:2:158–160).

The first U.S. military expedition was launched on September 30, 1790, and was led by Major Hamtramck, commander at Vincennes. Hamtramck was ordered to proceed up the Wabash and strike either the Vermillion (Piankashaw), Wea, or Eel River (Miami) towns. His force consisted of the garrison at Fort Knox, local French residents, and Kentucky militia, comprising a total of 330 men. Hamtramck felt his numbers were inadequate to undertake the task, as he estimated that around 750 Native American men were in the region (Jablow 1974:311). After a march of eleven days, the Americans came upon the Vermillion River village, which they found deserted. Faced with limited supplies and grumbling militia (many of whom had already deserted), Hamtramck decided to turn back to Vincennes, having accomplished little. This decision turned out to be a prudent one, as he later learned that a combined force of 600 Native Americans had prepared itself for battle farther up the Wabash River (Barnhart and Riker 1971:285–286).

Later that year, in October 1790, a second expedition was launched into Indian country, this under the command of General Josiah Harmar. Harmar, with a force of 320 regulars and 1,133 militia, proceeded from Fort Washington (present-day Cincinnati) to Miamitown, where the main villages of the hostile Miami were located. With little training and chronic discipline problems, Harmar’s force experienced a crushing defeat at the hands of the Miami (Barnhart and Riker 1971:283–284). The Native American victory against a large force spurred their confidence that they could stand up to the Americans.

Despite Harmar’s defeat, plans for additional expeditions were underway. In January 1791, President Washington authorized Governor St. Clair to lead a large force of 3,000 men to march against the Native American stronghold at Miamitown. Prior to this undertaking, however, a smaller expedition was approved to strike at the Wabash River towns. This undertaking was designed to put the Indians off-balance before St. Clair’s larger expedition set out to “impress the Indians with a strong conviction of the power of the United States, to inflict that degree of punishment which justice may require” (American State Papers, Indian Affairs 1832–1834:1:129). Accordingly, Brigadier General Charles Scott, a resident of Kentucky, raised 900 mounted militia with instructions to assault the Ouiatenon towns and capture as many women and children as possible, to be used as leverage in forcing the Native Americans to sue for peace (American State Papers, Indian Affairs 1832–1834:1:130). Revolutionary War veteran James Wilkinson, a settler in Frankfort, Kentucky and friend of Scott’s, was appointed Lieutenant Colonel-Commandant.

Scott's expedition set out from the mouth of the Kentucky River, near present-day Carrollton, on May 19th. Marching toward the Wabash towns, they arrived on the morning of June 1st at the edge of the Wea Plains, an extensive tallgrass prairie to the south of the Wea village. Scott's forces spotted a man on horseback a few miles distant. He was pursued in order to prevent him from warning the towns, but Scott's men were unable to catch up to him. After reaching the edge of the bluff, the town's residents were spotted in confusion, with many attempting to make an escape to the north side of the river. Wilkinson was sent forward with the first battalion, which reached the edge of the river just as the Indians escaped. Brisk fire was returned from the opposite side of the Wabash. Wilkinson's men fired on those attempting to cross the river, killing five canoe loads of people. Some of Scott's men made it across the river and to the Kickapoo/Mascouten villages, dispersing the residents (American State Papers, Indian Affairs 1832–1834:1:131).

The next morning (June 2nd) Scott sent Wilkinson and 360 men to the Wea town of Kethtippecanunk, at the confluence of the Wabash and Tippecanoe rivers. Kethtippecanunk had, in recent years, become a center of the Indian trade (Strezewski et al. 2006, Strezewski et al. 2007). Attacking at dawn, Wilkinson's men destroyed the town, which Scott described as "the most important settlement of the enemy in that quarter of the federal territory" (American State Papers, Indian Affairs 1832–1834:1:131). He noted also that many of the residents were French traders who "lived in a state of civilization" and were dependent upon British-controlled Detroit (American State Papers, Indian Affairs 1832–1834:1:131). The destruction of the French traders' cabins was a clear goal of the raid on Kethtippecanunk, due to the fact that they were believed to be encouraging Indian violence at the behest of the British government in Detroit (American State Papers, Indian Affairs 1832-1834:1:96; Quaipe 1921:301).

On June 4th, General Scott composed a message for the Wabash Indians, saying that if they did not accept peace, they would suffer further attacks (Michigan Pioneer and Historical Society 1895:245). Before leaving, the men burned the towns, adjacent villages, destroyed the crops, and took 41 prisoners with them as they left, mostly women and children.³ Ten days later, Scott's expedition arrived at Fort Finney (present-day Jeffersonville, Indiana), with only five men wounded by enemy fire (American State Papers, Indian Affairs 1832–1834:1:132; Nelson 1986). British correspondence regarding the attack indicates that the majority of the men from the Indian towns were not present at the time of the attack, as they had left to assist the Miami, who were believed to be the intended target. They reportedly pursued Scott's army with the intention of recovering the prisoners but were unsuccessful (Anonymous 1791).

Two months later, in August 1791, Wilkinson undertook a second expedition against the Wabash River towns, consisting of 500 Kentucky mounted militia. Wilkinson's force departed from Fort Washington and after making an initial feint toward Miamitown, headed to the northwest with the objective being the Eel River Miami towns upriver from Kethtippecanunk (American State Papers, Indian Affairs 1832–1834:1:133). On August 8th, Wilkinson's force reached Kenapacomaqua at the confluence of the Wabash and Eel Rivers. The town was attacked and burned, the crops were destroyed, and forty prisoners were taken. On August 11th, he arrived at the former site of Kethtippecanunk, which Wilkinson found abandoned after having been warned of the Americans' approach. Later Wilkinson's forces made their way back to Ouatatonon, where they destroyed the corn fields (Imlay 1916:14).

AFTERMATH OF THE SCOTT AND WILKINSON CAMPAIGNS

Soon after the Scott and Wilkinson expeditions, General Arthur St. Clair assembled a 2,700-man force for a second attack on Miamitown, located at the headwaters of the Maumee River. The expedition, however, seemed doomed from the start, and was plagued by a lack of supplies and training, coupled with low morale. Early in the morning of November 4th, St. Clair's army was camped along the upper Wabash near present-day Fort Recovery, Ohio, when it was attacked by a large Native American force representing a number of tribes. Caught by surprise and with no defensive works erected, St. Clair's army was soundly routed and retreated in confusion. Around 900 Americans were killed, wounded, or missing, resulting in the greatest defeat handed to the U.S. military by Native American forces.

Despite the Native American military victories in 1790 and 1791, it appears that the Scott and Wilkinson expeditions accomplished their desired goals with respect to the Wabash River Indians. In the fall of 1791, the Wea ceased their hostilities and did not join the Miami in their rout of St. Clair's forces. Soon after, in March 1792, seven Wea and two Eel River chiefs arrived in Vincennes, announced to Hamtramck their people's intentions to make peace with the United States, and signed a temporary agreement. Later, in September 1792, the Eel River Indians, Piankashaw, Wea, Kickapoo, Mascouten, Peoria, and Ottawa signed a treaty with the United States, agreeing to cease hostilities. Though the treaty was never ratified by Congress, the Wea never again took up arms against the United States (Wheeler-Voegelin et al. 1974:165). Throughout the remainder

³ *The prisoners taken by the Scott and Wilkinson expeditions (consisting of 56 women and children) were finally released in August 1792 and transported to Vincennes to be reunited with their brethren (Heckewelder 1888:49).*

of the Northwest Indian Wars, which largely ended in 1794 with an American victory at the Battle of Fallen Timbers, the majority of the Wea opted out of the conflict (Edmunds 1972:248–252). In 1795, as part of the Treaty of Greenville, a six-mile square area, including the sites of the old French fort and the Wea/Kickapoo/Mascouten towns was ceded to the United States as a possible fort and trading post site, though neither was ultimately constructed (Wheeler-Voegelin et al. 1974:174).

Though the residents of the central Wabash had agreed to stop fighting, the Scott and Wilkinson expeditions did not immediately drive the Native Americans peoples from their homelands, indicating that they (or at least a portion of them) intended to stay in the area. While the Kickapoo and Mascouten who had been living at Ouiatenon had fled to the Illinois River, the Wea chiefs promised Hamtramck that the refugees would be held to the peace agreement if they decided to return (Jablow 1974:317, 325–326). Some Kickapoo, at least, returned to the Wabash River area and were reportedly living on the Vermillion River, below Ouiatenon, in the first decade of the 19th century (Jablow 1974:343, 346, 353; Lasselle 1906:1–13).

In 1795, John Wade, an American officer, noted that he encountered a group of Potawatomi near the former location of Kethtippecanunk, which is the first mention of this tribe's residence in the area (Smith 1954:287–288). Another source from the same year also mentions the Potawatomi, who were living "a day's walk below the Wea towns on the Wabash" (Wheeler-Voegelin et al. 1974:174–175). While it seems that a number of Potawatomi quickly moved in to fill the void created by the Scott-Wilkinson expeditions, by their own acknowledgment, they were "dependent on their Wabash Brethren for permission," indicating that the Wea were still the tacit owners of this portion of the Wabash valley (Jablow 1974:333, 335).

Thomas Bodley, another American officer, passed by the mouth of the Tippecanoe River in June 1795. Here, he noted the presence of Wea and Potawatomi residents in or near the former site of Kethtippecanunk, with 200 ac of land under cultivation (Ohio Valley-Great Lakes Ethnohistory Archive 2017; Smith 1954). Further downstream, at Ouiatenon, he found about 300 ac of crops, indicating that the general vicinity continued to be occupied (Wheeler-Voegelin et al. 1974:172). As late as 1797, some of the Wea were said to be "settled up the Wabash 200 miles from Vincennes," near Ouiatenon, more or less (Jablow 1974:333, 335), indicating their continued presence, though perhaps not at Ouiatenon proper.

Over the next few years, many of the Wea continued to move farther south along the Wabash, possibly due to the fact that the new fort was never constructed, and the anticipated trade never materialized. In 1801, William Henry Harrison, residing in Vincennes, referred to the Piankashaw, Wea, and Eel River Indians as the "tribes in this immediate Neighbourhood" and a few years later indicated that the Wea had a village at Point Coupee, about 25 miles north of Vincennes (Jablow 1974:344; Wheeler-Voegelin et al. 1974:177–178). In 1818 and 1820, the Wea ceded all of their claims within the present state of Indiana, and by 1832 the remaining Wea had been removed to reservations west of the Mississippi (Tanner 1987:140). The Kickapoo signed treaties in 1819, exchanging their lands for reservations across the Mississippi, and remaining Kickapoo villages on the Vermilion, lower Wabash, Embarras, and Kaskaskia rivers were abandoned by 1830, due to increasing white encroachment (Tanner 1987:139). All Kickapoo groups were eventually removed by 1834 (Callender et al. 1978:662).

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS AT OUIATENON

After the 1791 destruction of the Wea, Kickapoo, and Mascouten towns in the vicinity of Fort Ouiatenon, the whereabouts of these settlements and the fort itself were quickly forgotten. By the later 19th century, however, there was renewed interest in determining the fort's location (e.g., Craig 1893; Draper Manuscripts 1949:27J). While most historic sources placed the fort on the north side of the Wabash River, southwest of present-day West Lafayette, positive identification of the site had yet to be made. In 1928, land thought to possibly have been the fort site was purchased by Dr. Richard B. Wetherill. The parcel was transformed into Fort Ouiatenon Park, and a replica blockhouse was constructed there (Kellar 1970:127).

It was not until 1968 that the site of Fort Ouiatenon (12T9) was finally rediscovered. Aerial photographs produced by Purdue University student Del Bartlett (and later president of the TCHA), indicated a dark, rectangular soil stain in an agricultural field, which had been produced by recent deep plowing. Ground survey in the immediate area coupled with a number of newly translated documents (e.g., Krauskopf 1953, 1955) helped to further pinpoint its location (Noble 1991:69). In order to confirm these suspicions, excavations were initiated in 1968 and 1969 by Indiana University, under the direction of James Kellar, with financial assistance from the Indiana Historical Society and the TCHA. These investigations uncovered numerous features (e.g., stockade wall sections, wall trenches, and hearths) confirming the spot as the former location of Fort Ouiatenon. The fort site was placed on the National Register of Historic Places in 1970 (Kellar 1970; Noble 1979:4).

Investigations continued in 1971, 1972, and 1973 under the direction of Larry Chowning, an amateur, and Claude White, an archeologist formerly with Purdue University. Work consisted of short field seasons which, for the most part, were confined to recovering only disturbed artifacts from the plowzone. As no field reports were written and the artifacts were not analyzed, our knowledge of these investigations is limited (Noble 1991:70). During that time, in 1972, the TCHA purchased

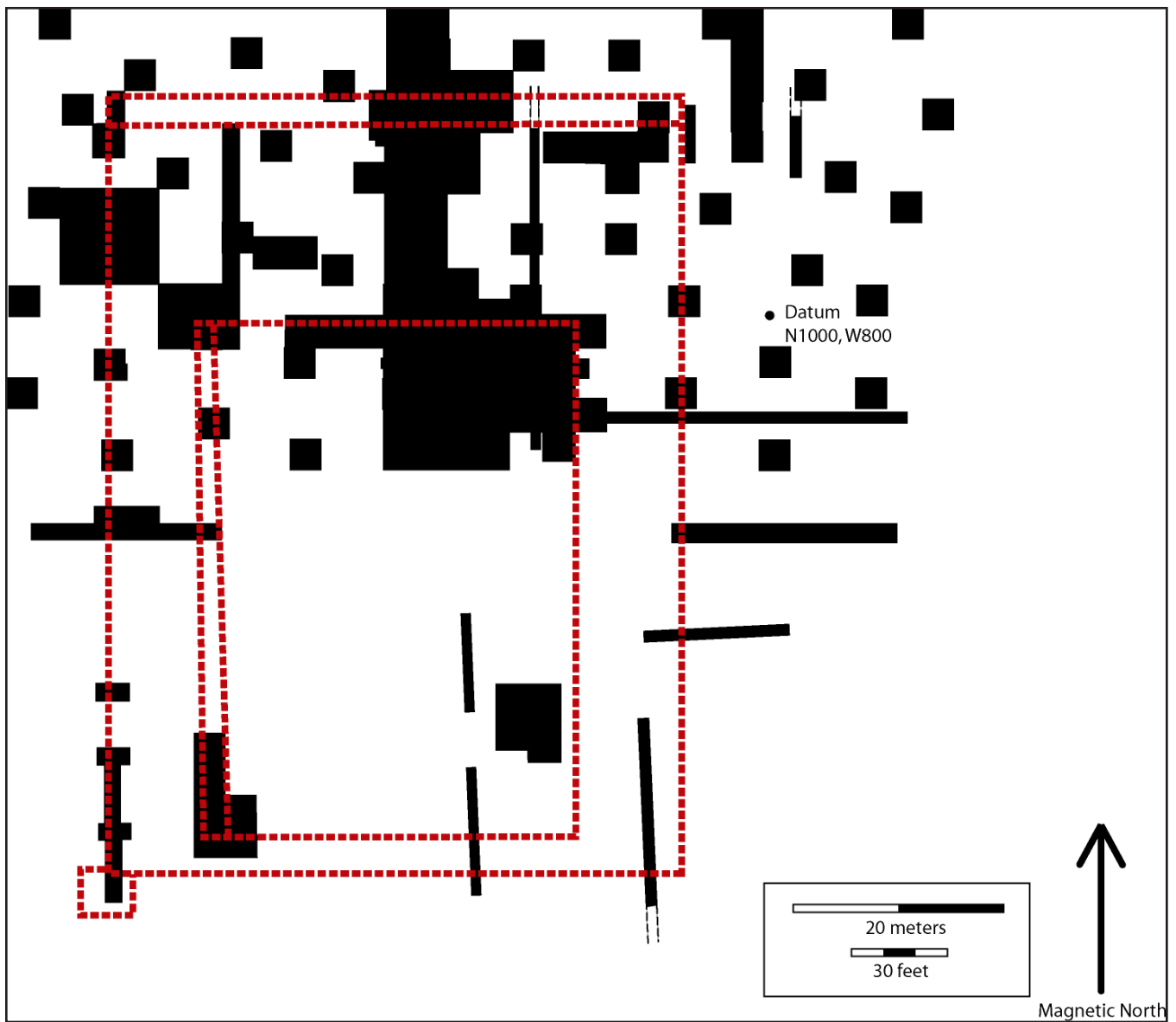


Figure 1. Location of the Indiana University and Michigan State University excavations at Fort Ouiatenon, 1968-1979 (in black). Earlier and later fort construction episodes are represented by the inner and outer dotted rectangles, respectively (based on maps by Martin 1986; Noble 1983, Tordoff 1983, and von Frese and Noble 1984).

approximately 22 ac of land in and around the former fort site and removed it from cultivation. Two years later, the TCHA approached Michigan State University about conducting further investigations at the fort site. Charles Cleland, curator of the MSU museum, outlined a plan of research which ultimately resulted in six years of work. The first three field seasons (1974–1976) were directed by a graduate student, Judith Tordoff. The objective of these investigations was to delineate the stockade wall and test a number of magnetic anomalies that had been identified during resistivity and magnetometer surveys conducted in 1974–1975 (von Frese 1978, 1984; von Frese and Noble 1984). A forging area, well, semi-subterranean storehouse, and numerous other features were identified during this time.

Three additional years of fieldwork were directed by Vergil Noble, also an MSU graduate student, who opened up a large number of randomly placed excavation units across the northern half of the fort site (Noble 1983). Noble's excavations identified additional intact features, including a second stockade line, another well, and the fort cemetery (Noble 1991). Though numerous partial wall trenches were identified during these six field seasons, only one complete structure (a storehouse) was fully exposed and excavated.

The MSU excavations identified two major construction phases at the fort, both of which were rectangular and oriented

with magnetic north. The earlier of the two was approximately 50 x 35 m (165 x 115 ft), while the later expansion of the fort was about 75 x 55 m (245 x 180 ft) in size (Figure 1). The second fort construction episode is thought to date to the 1740s, based on associated artifacts, with subsequent repairs conducted during the British period. Excavations in 1977, 1978, and 1979 also indicated extensive repairs on the north and east palisade walls were done by building a new wall 3.0 to 4.5 m (9.8 to 14.8 ft) outside the previous one (Tordoff 1983:164). Overall, less than one-tenth of the fort interior was excavated during the IU/MSU investigations (Noble 1991:76).

The results of the MSU excavations were summarized in Tordoff's (1983) and Noble's (1983) dissertations. These provide fairly detailed descriptions of the artifacts identified, though the individual features are not as well covered. Later dissertations utilized the data from the MSU excavations. Terrence Martin (1986) analyzed the faunal remains from the site, examining the utilization of wild vs. domestic species in a frontier French outpost. Martin found that domesticated species were only supplemental to the diet of the fort inhabitants. Misty Jackson's dissertation (2005) examined French folk classification of artifacts and the impact of this concept on archeological interpretation. Beyond these works, however, few scholarly articles have resulted from the work performed at Fort Ouiatenon, and overall, there is no detailed summary of the archeological investigations or the features encountered, either for a scholarly or lay audience (e.g., Johnson 2000; Noble 1991; Sauer et al. 1988).

From 1984 to 1990, following the completion of the MSU investigations, James R. Jones III and Neal Trubowitz directed a number of survey projects designed to identify previously unrecognized historic period Native American sites in the Tippecanoe County area (Jones 1984a; Jones and Trubowitz 1987; Trubowitz 1992). Trubowitz and Jones' work focused on fieldwork within three areas, two of which were within the Ouiatenon vicinity. The first was the Wea village (12T6), site of the main Ouiatenon-era Wea occupation. Surface survey, topographic mapping, and magnetometry survey were conducted at this site, followed by limited subsurface testing. Fieldwork identified historic deposits covering an area of 34.6 ha (85.5 ac), with the greatest concentrations of material adjacent to the river. Evidence of repeated scouring and riverbank erosion was noted, indicating that destruction of the site was ongoing. A number of other contact period Native American sites were identified on the south side of the Wabash. These include sites 12T499, 12T500, 12T527, 12T528, and 12T529 (Jones 1984a; Jones and Trubowitz 1987; Trubowitz 1992).

Across the river, the bottomlands surrounding Fort Ouiatenon were surveyed, covering an area of approximately 40.5 ha (100 ac). These surveys identified numerous sites thought to represent the remains of fur trade era occupations, some of which were likely Kickapoo-Mascouten villages. Those sites on the north side of the river containing the largest quantities of reported or documented historic period materials include 12T25, 12T240, 12T335, 12T336, 12T352, 12T421, 12T508, and 12T515. The results of the surface survey clearly indicated that during the ninety or so years that Native American peoples resided in the immediate area, numerous areas of the floodplain were used for settlement.

Site 12T9, containing the remains of the fort and habitation areas east and west of it, was surface collected in summer 1984 (Jones 1984a). Though 18th century materials were found in all portions of the site, Jones (1984:42, 45) identified at least five distinct occupation areas, including: 1) the fort itself, 2) a "military activity area," 3) a precontact occupation area, 4) a possible historic period Native American village, and 5) a second possible historic period Native American village. Zone 2 was described as being southwest of the fort. Some of the artifacts associated with this area included a musket ball, lead sprue, a gunflint, wrought nails, container glass, creamware sherds, and a brass sideplate fragment from a Type C trade gun (ca. 1680–1730). The location of Zone 3, a probable precontact occupation area, was not specified.

Zones 4 and 5 were thought to represent Native American villages. Occupation Zone 4 was identified east of the fort site. Materials noted on the surface included "rough oval areas of stone" as well as a musketball, two copper/brass arrowpoints, an iron chisel fragment, container glass, white clay pipe stems, gunflints, and lithic debris. Occupation Zone 5, located immediately to the west of the fort, yielded fragments of wine bottles and a pharmaceutical bottle, and sherds of tin-glazed faience and redware, among other artifacts (Jones 1984a:45). At the time of the surface collection, Jones noted a dark-stained area representing the fort, as well as "possible hearth rings" in the aboriginal area outside of the fort (Jones 1984b).

Jones' surface collection of 12T9 also resulted in a fair quantity of precontact materials. Of these, the vast majority are non-diagnostic and consist of cores and flakes, mostly of Attica or pebble cherts. Two aboriginal sherds were identified, both of which were grit-tempered. While these may indicate a Woodland period occupation, it is possible that some may have been manufactured by the early 18th century Native American occupants, prior to the widespread use of European-made brass kettles (Noble 1983:123). Diagnostic lithics consisted of eight triangular projectile points, consistent with a Late Precontact occupation, though again, it is possible that these were manufactured by the historic period occupants of the immediate area.

Precontact materials were also recovered during the MSU excavations within the fort proper. Both Noble (1983:123) and Tordoff (1983:272) report the infrequent occurrence of aboriginal ceramics. Nearly all were grit tempered, with a few examples of shell and sand tempering encountered. The grit-tempered sherds were both plain and cordmarked but are

otherwise non-diagnostic. A few sherds were decorated but their temporal placement was not noted. Diagnostic chipped stone artifacts from within the fort were mostly triangular arrow points (n=17), with small examples of other projectile points encountered, including two of probable early Late Woodland age (Noble 1983:276; Tordoff 1983:368-370).⁴

GEOPHYSICAL INVESTIGATIONS IN THE OUIATENON VICINITY

Most recently, in 2009, 2012/2013, and 2016/2017, the co-authors have undertaken a program of research designed to better understand the nature and location of the settlement areas located on the north side of the Wabash, both within and outside the fort (Strezewski 2014; Strezewski and McCullough 2010, 2017). Investigations have focused on extensive magnetometry survey over a wide swath of the bottomland, covering most or all of seven sites with previously recorded surface evidence for fur trade era components (12T9, 12T25, 12T240, 12T335, 12T336, 12T352, and 12T421) (Figure 2). A total of 14.86 ha (36.72 ac) has been surveyed with magnetometry thus far, utilizing a Bartington 601-2 gradiometer. Each of the grids was collected at a 0.5 m (1.64 ft) transect interval with a 0.125 m (0.41 ft) sample interval.

In 2016, electrical resistivity survey was conducted over some of the most promising magnetometry anomalies, so that we might be able to better understand the presence and nature of the subsurface deposits. Some of these areas lay outside the site limits as recorded by previous researchers. A total of 1.64 ha (4.05 ac) was surveyed with an RM-85 Geoscan resistivity meter system. Data were collected on sites 12T9, 12T25, 12T336, and 12T421 (Figure 3). Each resistivity grid was collected with 0.5 m transects and readings taken every 1.0 m. Finally, a small amount of electromagnetic induction survey was also conducted, comprising an area of 1,000 m² (10,764 ft²), using a Geonics EM38-MK2 instrument. The results of this test survey, however, were equivocal and are not discussed further.

SURVEY WITHIN THE FORT FOOTPRINT (12T9)

Not surprisingly, the magnetometry results from 12T9 show quite a bit of activity within the limits of Fort Ouiatenon proper (Figure 4). The fort footprint can be clearly seen, represented by numerous magnetic anomalies located within its limits and a general absence of these anomalies outside the fort. Most of these anomalies are likely due to the presence of

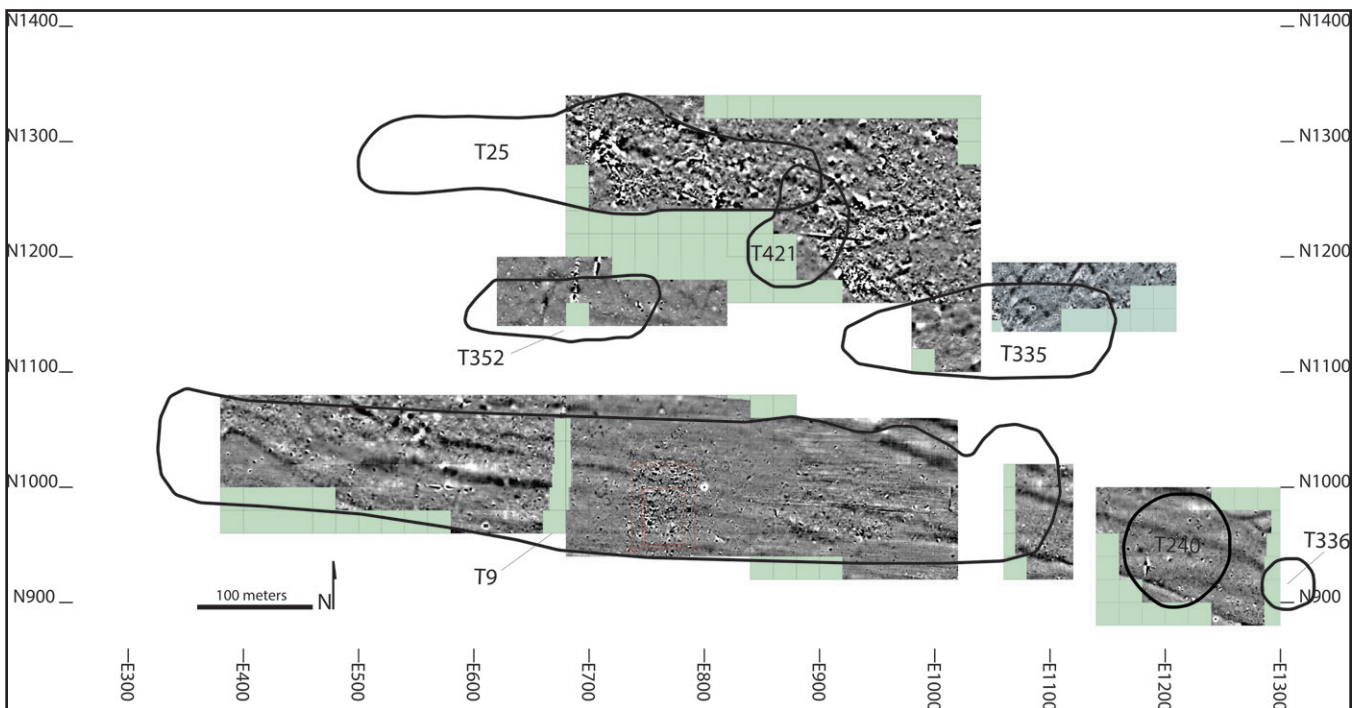


Figure 2. Extent of the magnetometry surveys conducted at the Ouiatenon Preserve, 2009-2017. Site extents are those recorded in the course of pre-GPS research of previous decades, and do not precisely correspond to the areas of highest elevation / highest apparent feature density. This discrepancy is particularly notable with regards to the location of site 12T336.

⁴ Noble notes that corner notched and side notched points were found, but does not specify their types.

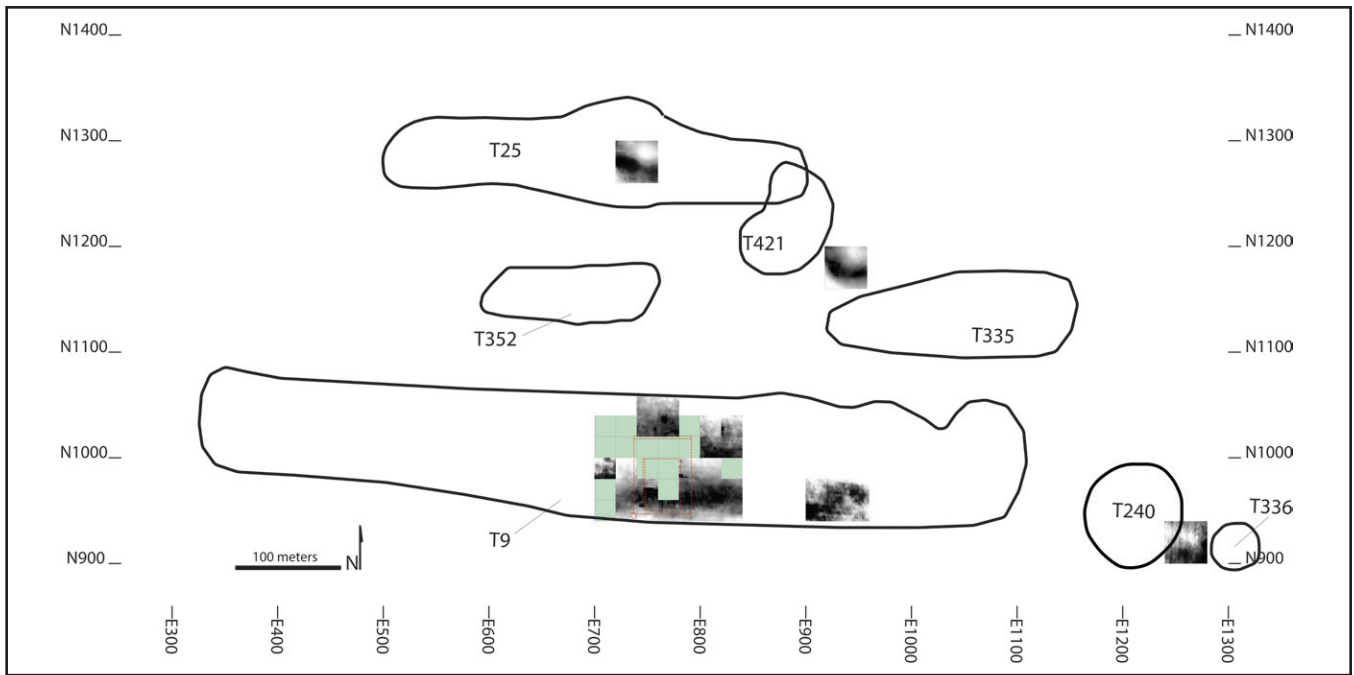


Figure 3. Extent of the resistivity surveys conducted at the Ouiatenon Preserve, 2016.

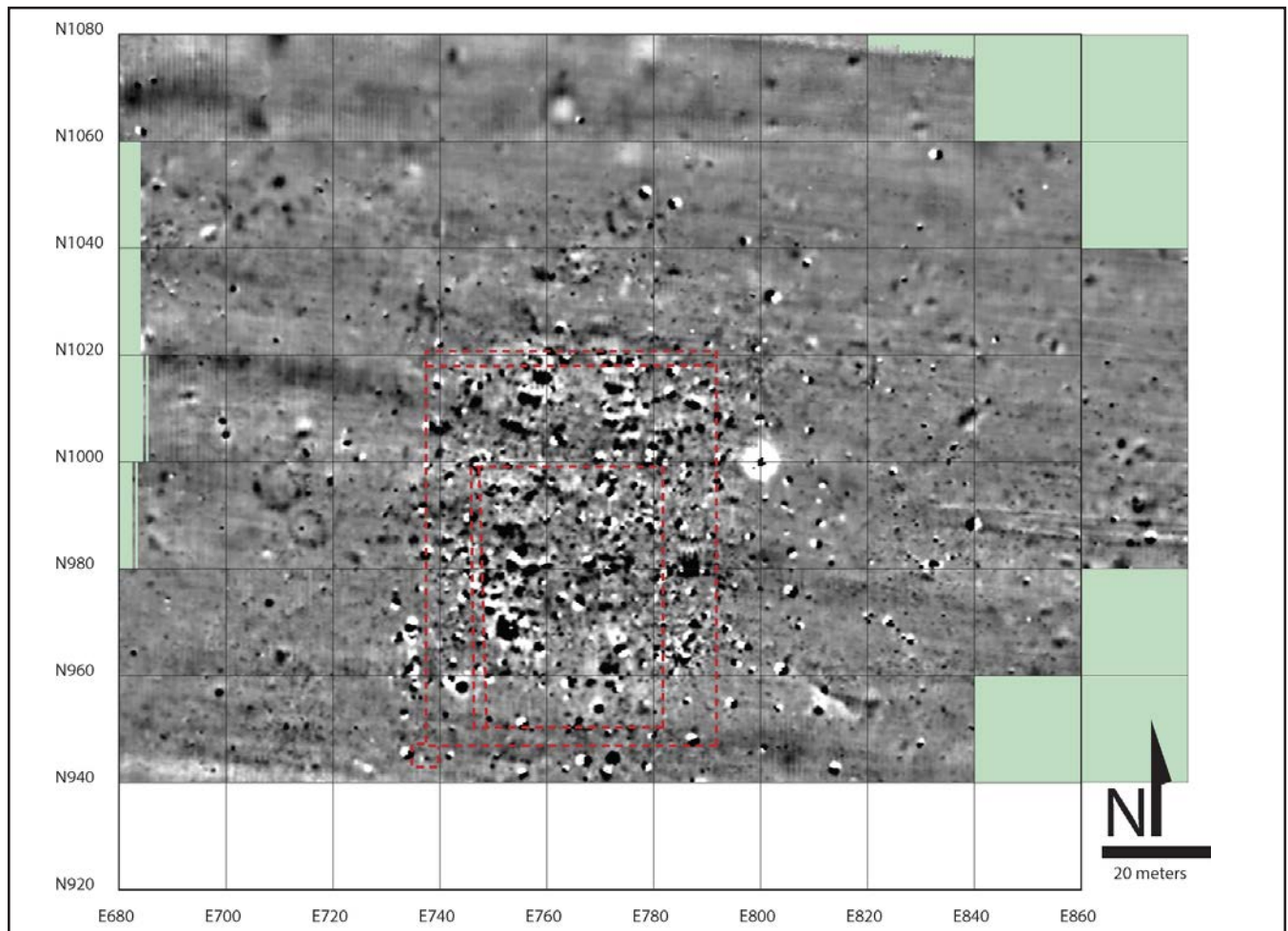


Figure 4. Magnetometry survey on and around the site of Fort Ouiatenon. Stockade lines, as defined by excavation, are shown by red, dashed lines.

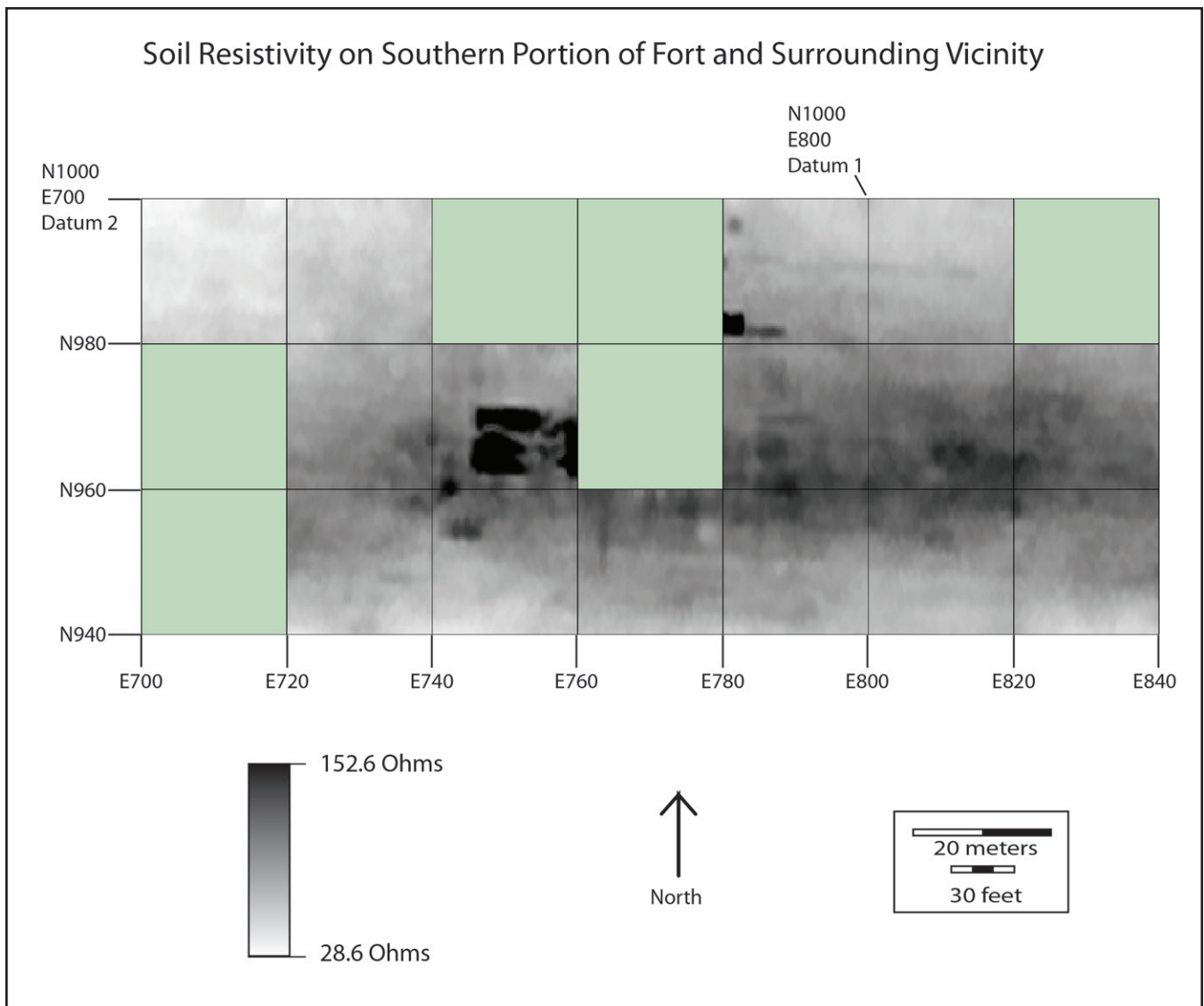


Figure 5. Results of the resistivity survey over the southern portion of Fort Ouiatenon.

ferrous metal (i.e., iron). Unfortunately, no structures could be identified within the fort limits, due to the ferrous metal, whose strong signal tends to “drown out” more subtle anomalies. The fort limits, as shown by the magnetometry data, correspond closely to the stockade lines defined by the IU/MSU excavations, providing independent confirmation of the excavated data. Unfortunately, the limits of the previous excavation units could not be readily discerned in our data.

In an attempt to recover additional information on the features associated with the fort interior, a soil resistivity survey was conducted across a large portion of its southern half, as this portion is largely unexcavated and therefore less disturbed (Figure 5). A total of fifteen 20 x 20 m (65.62 x 65.62 ft) resistivity grids were collected over the southern portion of the fort and contiguous areas to the east and west.

Overall results were quite promising. Numerous anomalies were detected in the data, the most prominent of which were three rectilinear anomalies (outlined in blue, Figure 6). The largest, located between E745 and E760, is rectangular and extremely clear, and the first impression was that it may represent an earlier excavation unit. This anomaly, however, is not located in an area where any recorded excavation took place. Our best guess is that the anomaly may represent a large structure, measuring at least 15.0 x 10.0 m (49.2 x 32.8 ft). The smaller square and rectangular resistivity anomalies (located near N980, E780) are more likely candidates for previously excavated units, but like the large one, they do not correspond with certainty to our map of the IU/MSU excavations.

Several darker linear anomalies form what appear to be walls along the southern edge of the fort and on its east side. Along the south edge of the fort, two potential walls are visible (outlined in red, Figure 6). Each appears to form a right angle

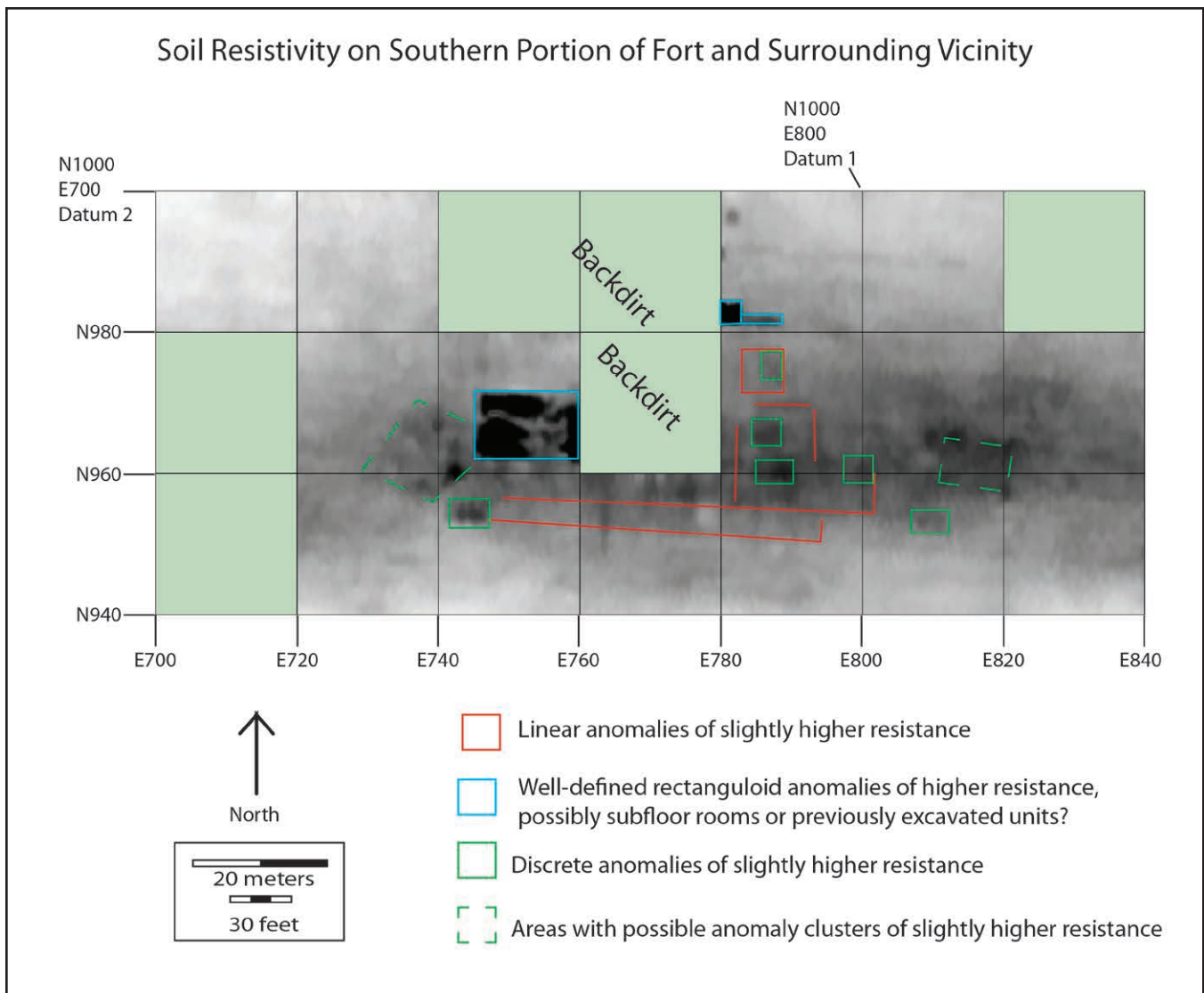


Figure 6. Interpretation of the resistivity survey results over the southern portion of Fort Ouiatenon. Areas containing low mounds of MSU backdirt (identified in the figure) were not surveyed.

at their eastern terminus. The western ends of these lines are obscured by other anomalies. Caution, however, needs to be exercised when examining east-west linear anomalies on site 12T9, because the old plow furrows also align in this direction. Plow scars do produce signals in the geophysical data, but these linear anomalies at the south edge of the fort reflect a slightly different signal than typical background plow scars. Notably, these long east-west anomalies do not correspond to the stockade lines defined by the MSU excavations. It seems that additional fort construction episodes not recognized by the excavators may be present.

Other higher-resistance (darker) lines are present immediately east of the fort. These appear to form enclosed areas, or “rooms” that have higher-resistance anomalies within their confines. Similarly shaped high-resistance anomalies also are present at the east and south edges of the fort footprint. A roughly rectangular, slightly resistant anomaly with a cluster of stronger, high-resistance pit-like anomalies is present east of the southern edge of the fort footprint. This appears to represent a structure, but the results are not detailed enough to conclude with certainty. Another amorphous cluster of anomalies is visible near the southwest corner of the fort, though a definite shape cannot be determined.

12T9 SURVEY OUTSIDE THE FORT

Our magnetometry survey identified at least fifteen magnetic anomalies that most likely represent structures once located close to but outside the fort (Figures 4 and 7). Thirteen of these were circular to oval in shape; these most likely represent Native American wigwam-type structures. The remaining two were rectangular, and their cultural affiliation is

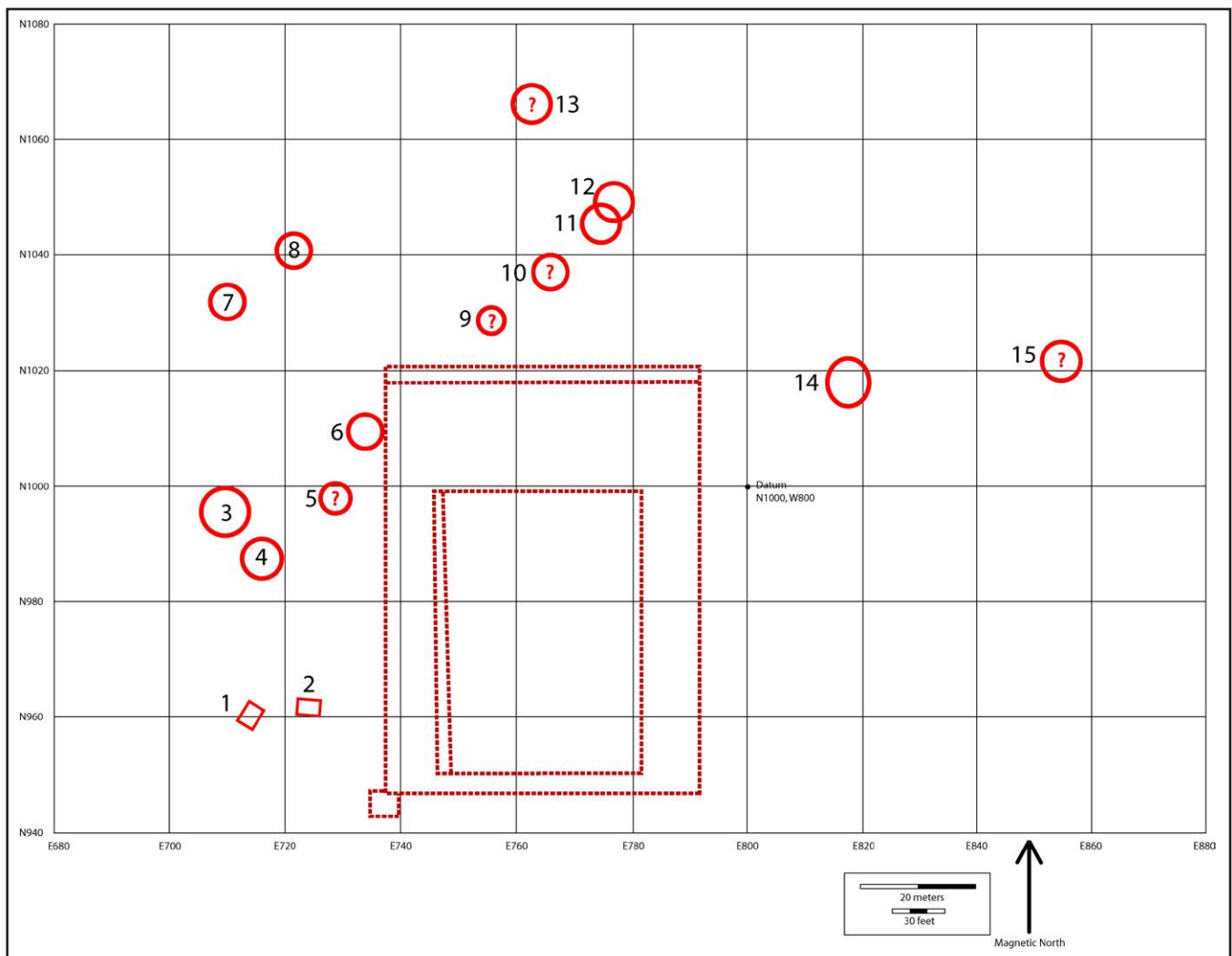


Figure 7. Location of possible structural remains identified in the magnetometry data.

uncertain. The circular and oval anomalies are quite large, averaging 7.4 m in diameter and each is defined by a ring of slightly positive nanotesla (nT) readings.⁵ Most of the structures were to the north and west of the fort, forming a rough oval, and likely representing a small village. The structures appear to surround an open area, possibly a communal work area or ritual space. As is detailed below, it seems most likely that this village was occupied at a time when Fort Ouiatenon was not present—most likely after its abandonment and demolition after ca. 1780.

A second area of interest was identified in the vicinity of coordinates N970, E950 (Figure 8). Here, we noted a discrete cluster of positive and negative magnetic readings in an area that was otherwise magnetically quiet. Anomalies in the eastern and central portions of this area were mostly less than 2.0 m (6.6 ft) in diameter. In the western edge of the anomaly cluster (i.e., west of N960, E940), anomalies were larger in size, with slightly higher magnetic readings.⁶ Immediately north of this cluster was a faint but distinct area of linear anomalies, many situated at right angles to each other, possibly representing one or more structural walls (Figure 9).

No complete structures were visible, though the clearest outline appears in the area centered on coordinates N970, E940. Here, a rectangular area measuring approximately 6.5 x 4.0 m (21.3 x 13.1 ft) in size was noted, which may represent

⁵ The nanotesla is a unit used for measurement of magnetic field strength.

⁶ A 5 m (16.4 ft) wide linear anomaly, running east-west, near the N980 line, was interpreted as a driving path used by the Michigan State vehicles during their excavations at Fort Ouiatenon in the 1970s.

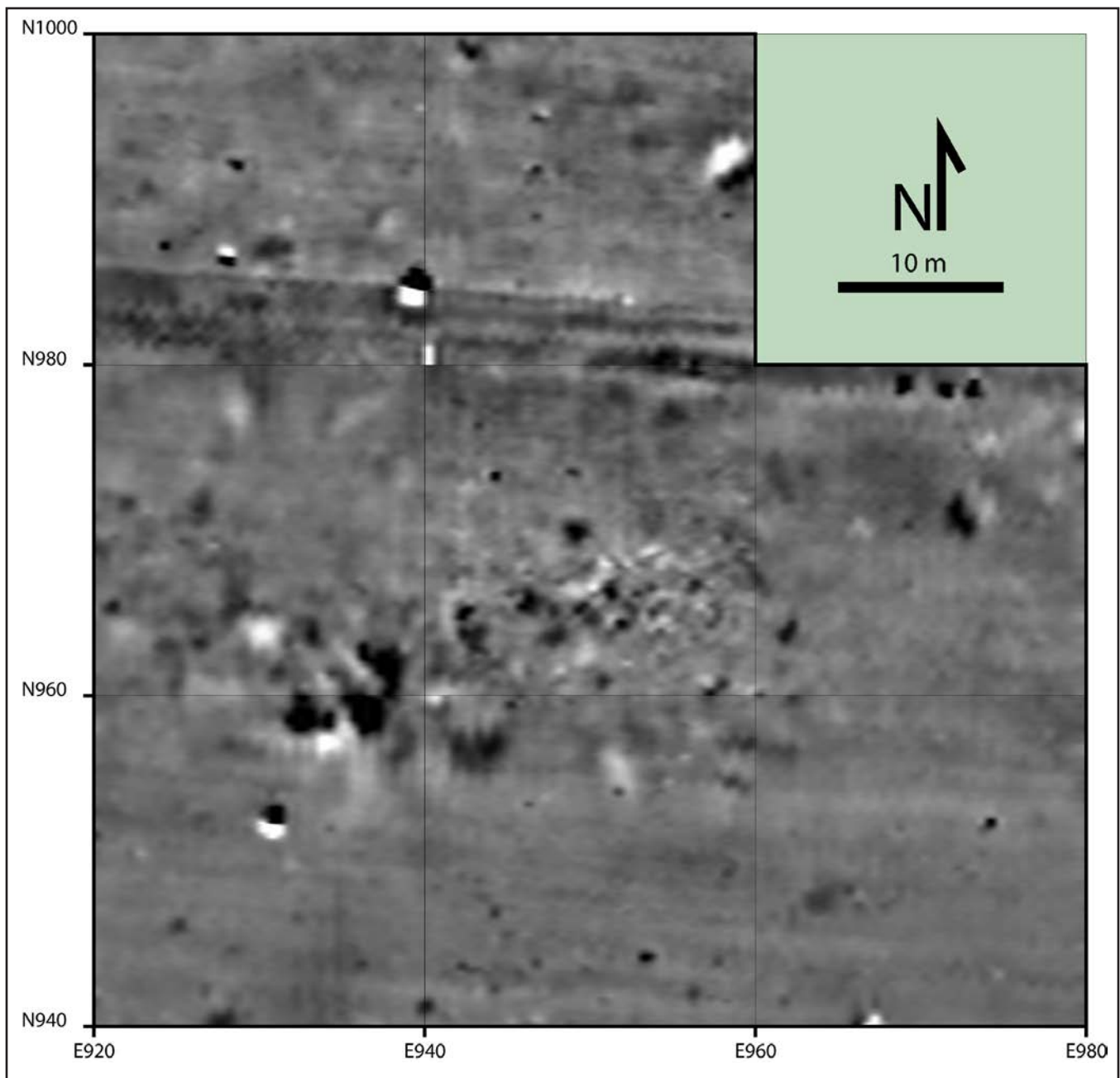


Figure 8. Magnetometry data east of the fort, showing a number of magnetic anomalies related to a possible cluster of structures.

all or a portion of a structure. The rectangular area appears to be divided into two rooms, with the northern of the two slightly smaller in size. Given the possible presence of substantial structural walls in this area, the complex dipolar anomaly immediately to the south may be the result of activities related to the structures, garbage deposition, or both.

The resistivity data collected from this area (Figure 10) indicate a very large linear anomaly forming a rectanguloid outline approximately 20 x 25 m (65.6 x 82.0 ft) in size, southwest of the probable structures, and partially overlapping the cluster of high and low readings noted in our magnetometry data. Given its size, this rectanguloid resistivity anomaly may represent an enclosed area of some sort, rather than a structure. A large circular anomaly (ca. 5.0 m [16.4 ft] in diameter) was identified within the rectanguloid anomaly. This circular resistivity anomaly is roughly coincident with a number of the large-sized positive readings in the magnetometry data, located near coordinates N960, E935. Overall, this area appears to represent the remains of one or more structures surrounded by activity areas. The rectilinear nature of the walls suggests that they may be related to the Euroamerican occupants of the Ouiatenon area.

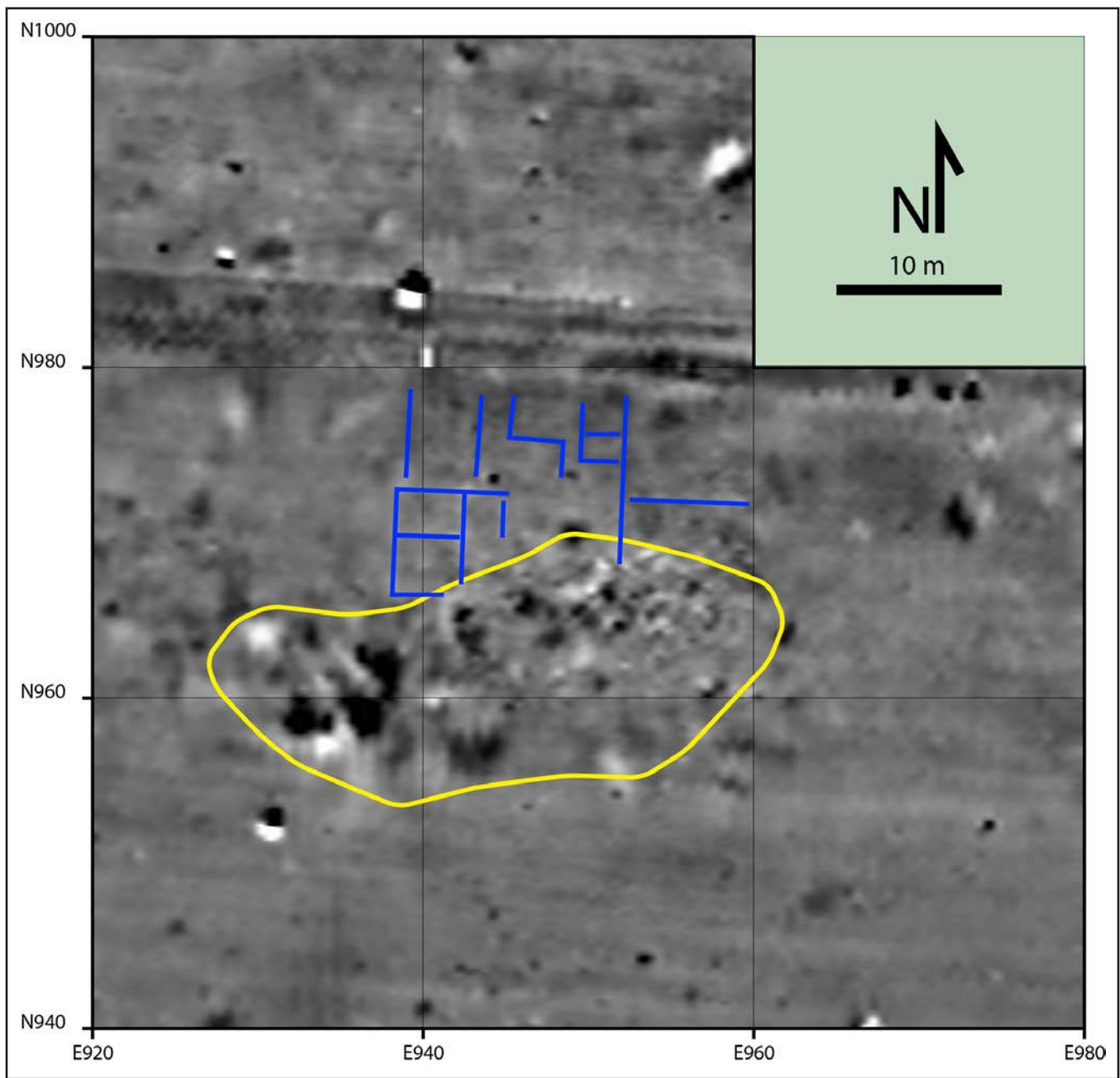


Figure 9. Interpretation of the magnetometry data east of the fort. Possible structural walls are shown in blue; dipolar complex anomaly is outlined in yellow.

12T25/421 SURVEY

The magnetic survey area covering sites 12T25 and 12T421 was the second largest of the entire project, comprising 4.2 ha (10.38 ac). Our survey covered all the highest portions of the low, broad, east-west floodplain ridge on which the two sites are situated. The area is slightly lower in elevation than the ridge on which site 12T9 is situated and is subject to seasonal flooding.

The results of the survey are shown in Figure 11. Overall, the area shows greater variability than any of those collected, with numerous large and amorphous highs and lows clustered in various spots. Because of the large number of positive and negative areas within the survey area and their seemingly random sizes and shapes, we had very little confidence that we could distinguish anomalies that may possibly be related to cultural activities from those that may be due to natural phenomena. At least some (and possibly a great portion) of the variability in the data can be attributed to the presence of magnetic rocks on

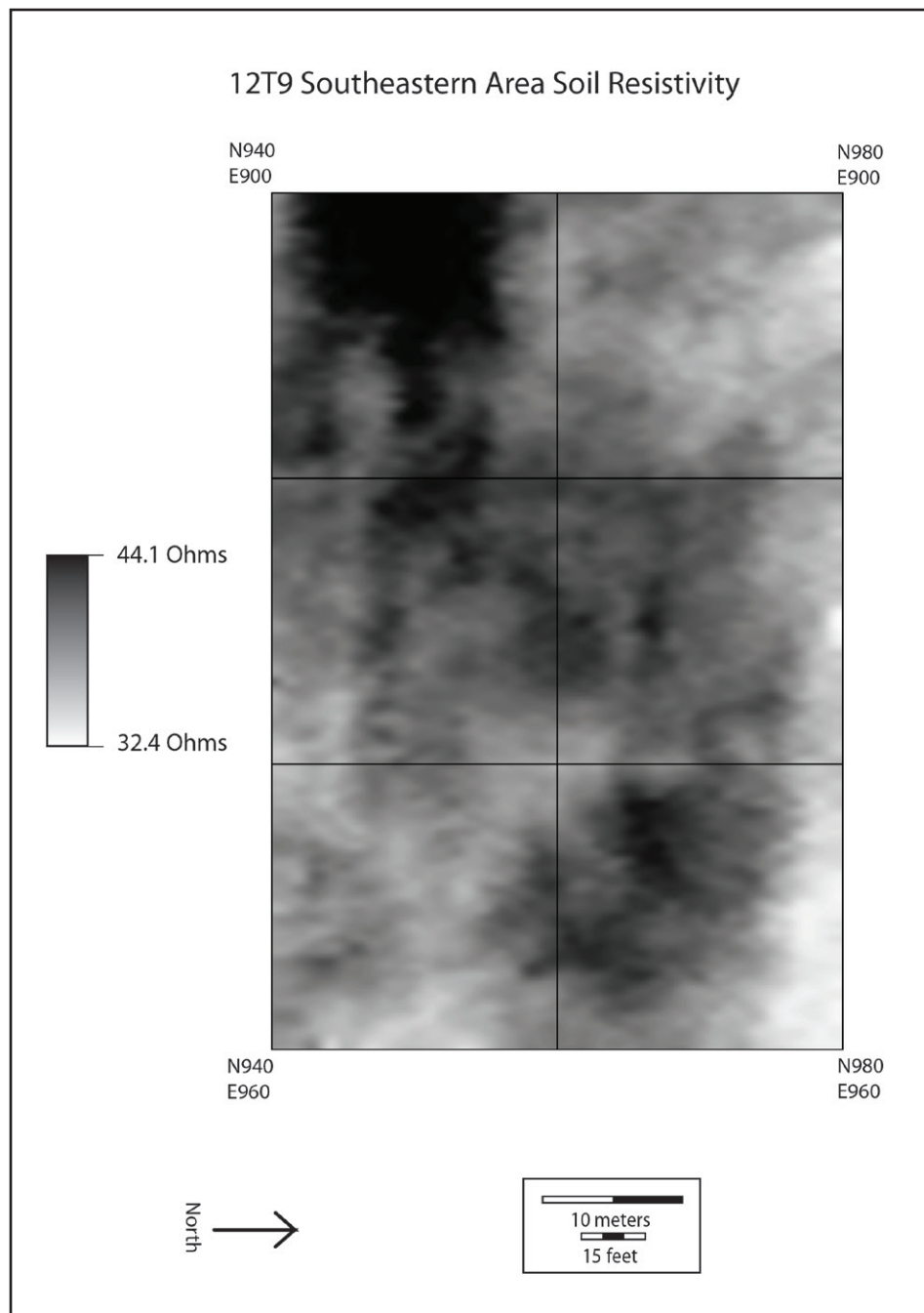


Figure 10. Resistivity data from area east of fort, showing rectangular linear anomaly in center of the survey area and large circular anomaly within it (note: north is to the right).

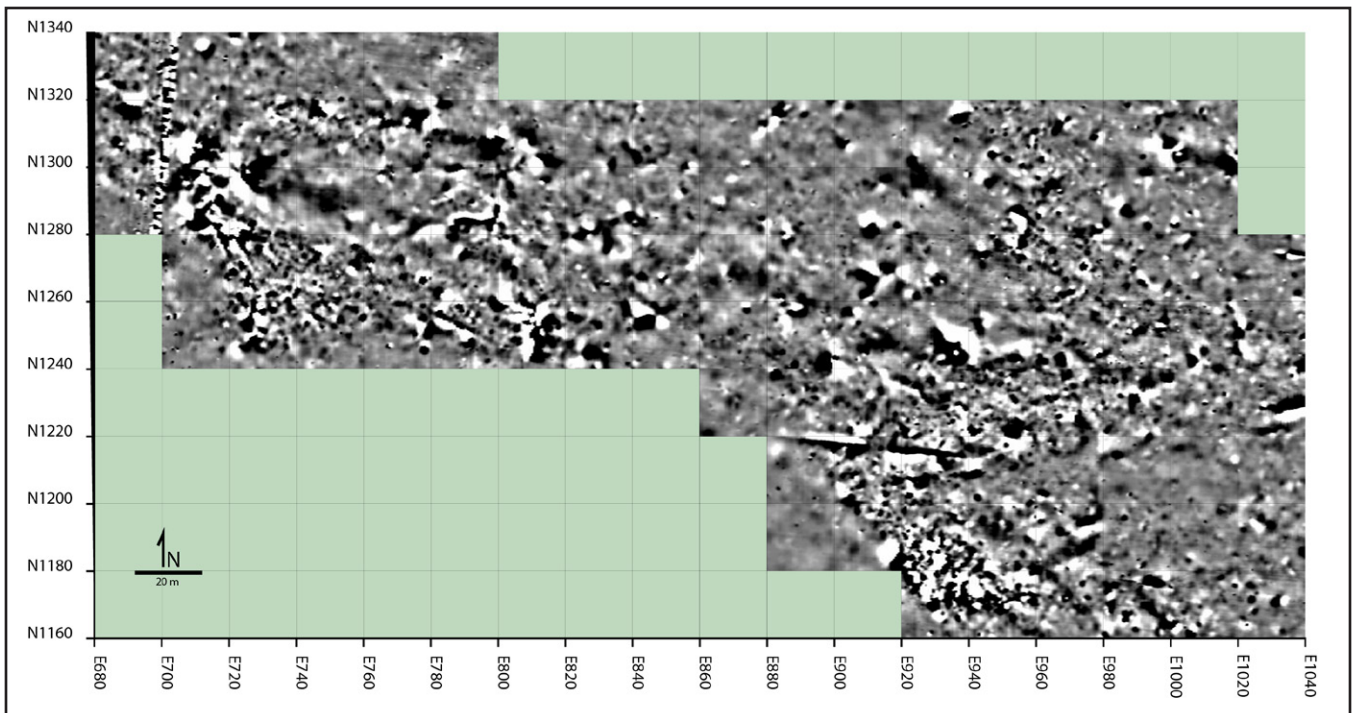


Figure 11. Magnetometry data from 12T25/421.

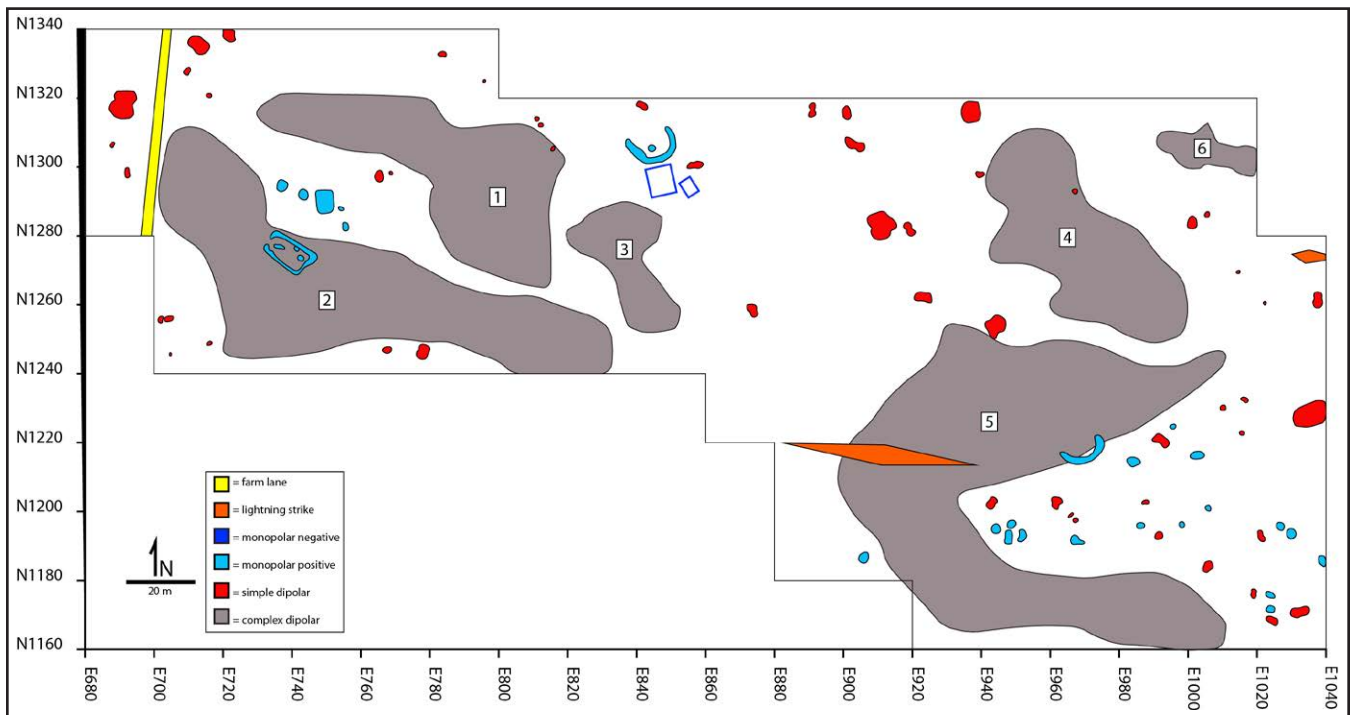


Figure 12. Interpretation of magnetometry data from 12T25/421.

the surface of the site. During the survey, we noticed quantities of waterworn stones on the surface (most less than 10 cm in diameter) which had not been noted elsewhere in the area. We attribute their presence to flood-related scouring of the site surface that seems to have exposed areas of subsurface gravel.

Relatively few clear monopolar positive anomalies (representing possible pits) could be identified in the data (Figure 12). Most that were tagged as such were within more “quiet” areas of the survey where anomalies could be better distinguished from the background data readings. While the vast majority of monopolar positive anomalies was identified in the southeastern portion of the survey area, we do not believe that this pattern is a reflection of their absence in other portions of the 12T25/421 survey; rather, it is likely that should any monopolar positive anomalies be present within the very busy areas of the survey, these would be quite difficult to pick out as potentially culturally related. In short, the main task in marking various anomalies is to point to probable areas of interest and, in the busy areas of the survey, we could not do this with any degree of confidence.

Four monopolar positive anomalies of potential interest may represent portions of structures. The first is located in grid N1300, E840 and is represented by a band of monopolar readings comprising a half circle about 14 m (45.9 ft) in diameter. Readings in this area were relatively subtle, reaching a maximum of about 10 nT. A single monopolar positive anomaly about 15 nT in strength is located within the possible structure, possibly representing an interior feature. If the half-circle anomaly in grid N1300, E840 does indeed represent a structure, it is significantly larger than any previously encountered. One possibility is that it represents some type of communal structure (e.g., a council house).

The second of the two possible structural anomalies is a C-shaped strip of monopolar readings located mostly in the northern half of grid N1200, E960. It is a bit more subtle and less well defined than the first and its identification as a possible structure is more tentative. Readings across the anomaly are generally less than 10 nT, peaking at a maximum of about 13 nT, which are entirely consistent with its possible identity as a Native American structure. While only a C-shaped piece of the possible structure could be seen in the survey data, if circular, it would measure approximately 13 m (42.7 ft) across, much larger than the structures identified at 12T9.

The third potential structure was found in grid N1280, E740 in an area of relatively quiet background readings, which allowed easier isolation of anomalies of potential interest. It is represented by a large rectanguloid anomaly measuring about 8 x 7 m (26.2 x 23.0 ft), with a maximum intensity of about 7 nT. In certain spots, particularly along the northern edge of the anomaly, narrow linear sections could be distinguished, which could potentially represent the locations of walls. Four round-to-oval monopolar positive anomalies, tagged outside of this possible structure, may be related to its use.

The final potential structure in the 12T25/421 data is located immediately to the southwest of that previously described. It is found in the northeast corner of grid N1260, E720 and the northwest corner of N1260, E740, within an area of relatively busy background readings. The possible structure is represented by a linear anomaly forming a rectanguloid outline, approximately 16 x 9 m (52.5 x 29.5 ft) in size. Readings within the linear anomaly are somewhat high, running up to 20 nT in intensity. If this anomaly does indeed represent a structure, it would be a very large one, possibly a council house or longhouse-type dwelling. Three areas of higher nanotesla readings were identified within the structure, possibly representing interior features.

A fairly large portion of the survey area was marked as “dipolar complex,” each consisting of very large numbers of tightly clustered high and low readings with seemingly random distributions and extents. Six such areas were defined, each of which is numbered in Figure 12. These areas can be roughly divided into eastern and western halves. In the western portion of the survey area, corresponding roughly to the recognized limits of 12T25 (i.e., west of the E860 line), a cluster of three dipolar complex anomalies was recognized (Anomalies 1–3), forming a rough circle with a relatively quiet area in the center (defined roughly by grids N1280, E740 and N1280, E760). While it is tempting to attribute this pattern to activities related to a settlement of some type with a central open plaza, we cannot be certain that this is the case. The eastern cluster of dipolar complex anomalies was also divided into three subareas (Anomalies 4–6). Most areas here, however, were very difficult to read and it is our impression that many of the anomalies within these areas are non-cultural in origin.

Finally, two spots in the survey data represent what we are calling “monopolar negative” anomalies. Both are located in the north half of grid N1280, E840. These anomalies consist of somewhat well-defined and slightly negative (i.e., ca. -2 nT) outlines forming rough rectangles. Similar negative linear anomalies have been noted at 12T9, east of the fort (see above), and at Fort de Chartres III and the Ghost Horse sites in Illinois (McCullough et al. 2015:34). In both instances, the monopolar negative outlines almost certainly represent structural walls, possibly buried limestone foundations. The two monopolar negative anomalies from the 12T25/421 data outline areas measuring 10.0 x 8.5 m (32.8 x 27.9 ft) and 8.0 x 6.0 m (26.2 x 19.7 ft). They lie immediately south of another possible structure, represented by a C-shaped monopolar positive anomaly (discussed above). The identification of these anomalies as cultural, however, is somewhat tentative without further investigation.

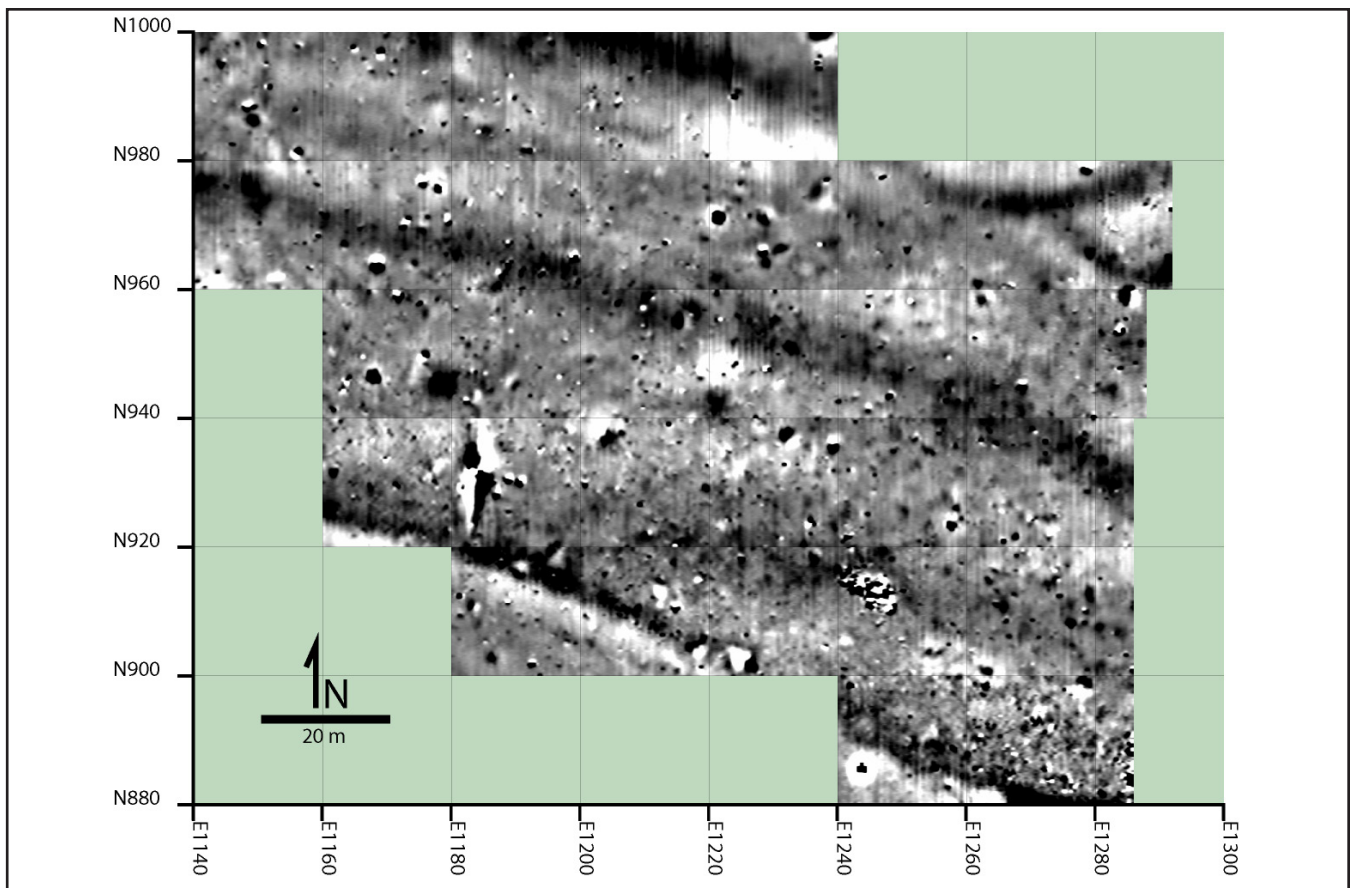


Figure 13. Magnetometry data from 12T240/336.

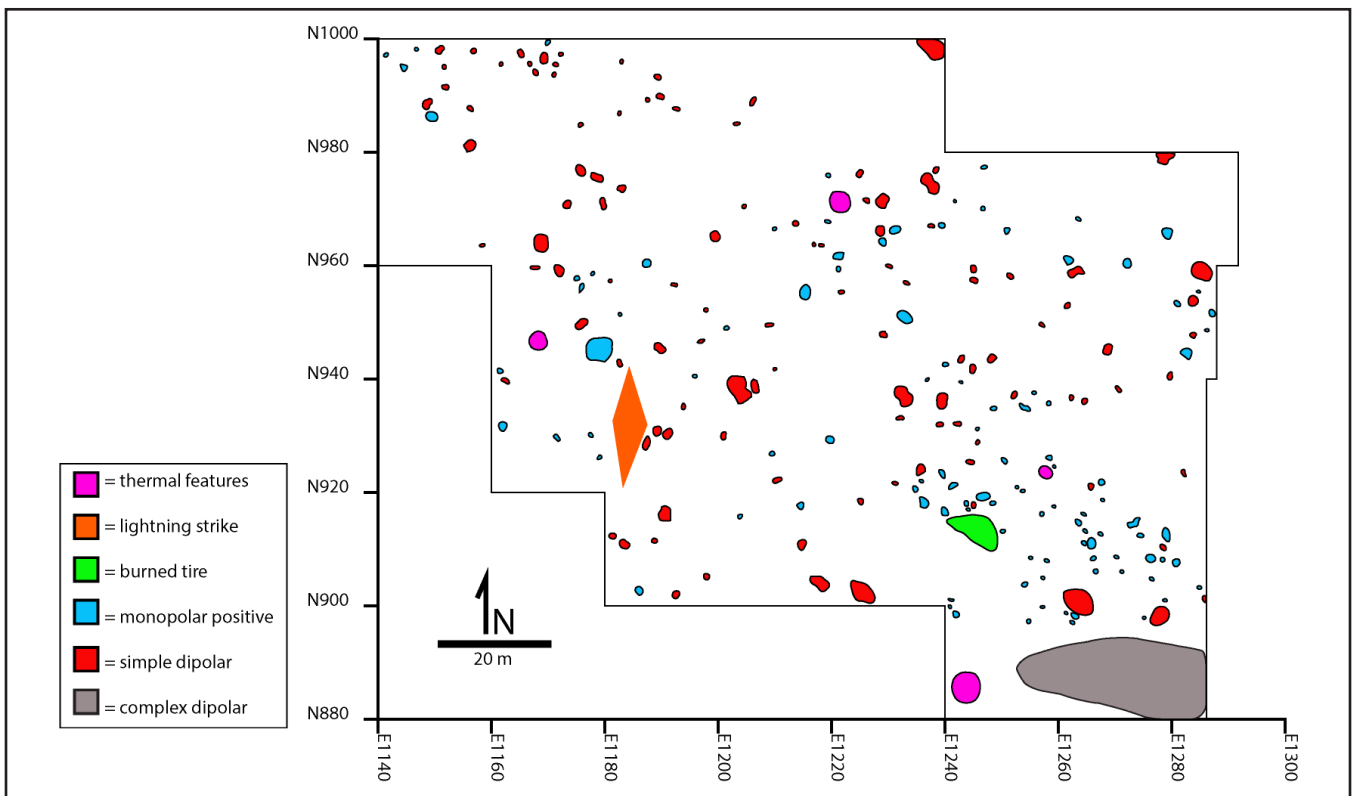


Figure 14. Interpretation of magnetometry data from 12T240/336.

Overall, much of the variability in the readings can likely be attributed to naturally occurring variation, possibly due to the presence of magnetic stones on or near the surface, which may have been exposed during repeated flooding episodes. Coincidentally, many of the areas with higher densities of positive and negative readings also happen to be those areas at the edge of a slight slope, further suggesting that many of the data anomalies are geological in origin.

This observation brings up the possibility that intact subsurface deposits in this area may have been severely damaged by flood-related scouring. While there is certainly a chance that this is the case, a number of relatively good anomalies were defined in the data, suggesting the presence of features. Subsurface testing of the site is therefore necessary to examine the soil strata in the immediate area, so that the question can be better resolved.

12T240/336 SURVEY

Magnetometry along the southeastern corner of the Ouiatenon Preserve property consisted of an area of 1.32 ha (3.26 ac). This survey area was designed to cover the entirety of site 12T240 and the western portion of 12T336, the edge of which abuts the easternmost limits of the TCHA/TAC property line.⁷ Overall, the data obtained from this portion of the property were much easier to read than those from 12T25/421, and show evidence for a large number of subsurface anomalies, likely representing an intensively occupied spot on the landscape (Figure 13). The data also show naturally occurring banding, represented by strips of generally positive readings running in a northwest-southeast direction. These bands likely represent natural variation in the magnetic properties of sediments deposited during floodplain formation. In most cases, the bands consisted of slightly higher positive nanotesla readings. One exception is the southernmost band, which displays positive readings on its north side and negative readings on the south. In the absence of subsurface investigations, the exact nature and depth of the deposits remain uncertain.

A map of the interpreted results is shown in Figure 14. During analysis, large numbers of potential monopolar positive anomalies (i.e., possible pits) were noted in the data, mostly south of the N960 line, which seems, in general, to be “busier” than areas to the north. However, we were somewhat conservative in tagging them in order to avoid creating too many “false positives” caused by marking anomalies that were non-archaeological in nature. Of the monopolar positive anomalies that were more confidently identified, two general patterns can be discerned. The first is a distinct cluster of anomalies in the southeastern portion of the survey, running from the E1235 line to the E1280 line and from the N895 line to the N925 line. This area (coupled with the complex dipolar anomaly to the south, discussed below) seems to be a promising candidate for a habitation area with intact subsurface deposits. A second, less dense cluster of monopolar positive anomalies runs east-west along an arc-shaped area from N940, E1160 to N945, E1285. There seems to be a general lack of monopolar positive anomalies in the northernmost grids of the survey area, with the exception of the far northwestern corner (grid N980, E1140).

Dipolar simple anomalies, most of which likely represent fragments of ferrous metal or burned areas, were widely and somewhat evenly distributed across the survey area, with no readily apparent patterning in the data. Many or most may be related to the fur-trade era occupation of sites 12T240 and 12T336, though some are undoubtedly related to more recent deposition of ferrous metal on the surface. The distribution of dipolar simple anomalies does not seem to correlate with that of the monopolar positive anomalies.

A single spot in the survey was identified as a dipolar complex anomaly. This was noted in the southeast corner of the survey area, centered on grids N880, E1260 and N880, E1280, and measuring approximately 45 m x 10 m (147.6 x 32.8 ft). This area corresponds to the southeast corner of site 12T336. A notable cluster of small dipolar simple anomalies was found in this area, possibly representing a more intensively occupied spot on the landscape. A number of monopolar positive anomalies may also be present here, possibly representing pits of some type. Overall, this spot seems to hold a good amount of potential for intact subsurface deposits, should testing of site 12T336 be undertaken.

Four anomalies were interpreted as possible “thermal features,” based on the presence of a large monopolar positive anomaly surrounded by a halo of lower readings. Such features are typical of intensely burned areas, such as hearths or earth ovens. Intensely burned earth ovens containing large quantities of fire-cracked rock and charcoal have been identified at the fur trade site of Kethtippecanunk (12T59), located on the Wabash river, upstream from Ouiatenon, and so the presence of similar features at Ouiatenon is not unreasonable (Strezewski et al. 2006:95–99, Strezewski et al. 2007).

⁷ As noted above, the limits of 12T336 as recorded in the original site survey appear to be slightly off. The actual extents of the site (as reflected in the magnetometry data and local areas of higher elevation) are about 40 m (131.2 ft) to the west of the limits shown in Figure 2. Previous research indicates that the sites extends to the east, past the edge of the TCHA/TAC property line, though this area was not examined as part of the current project.

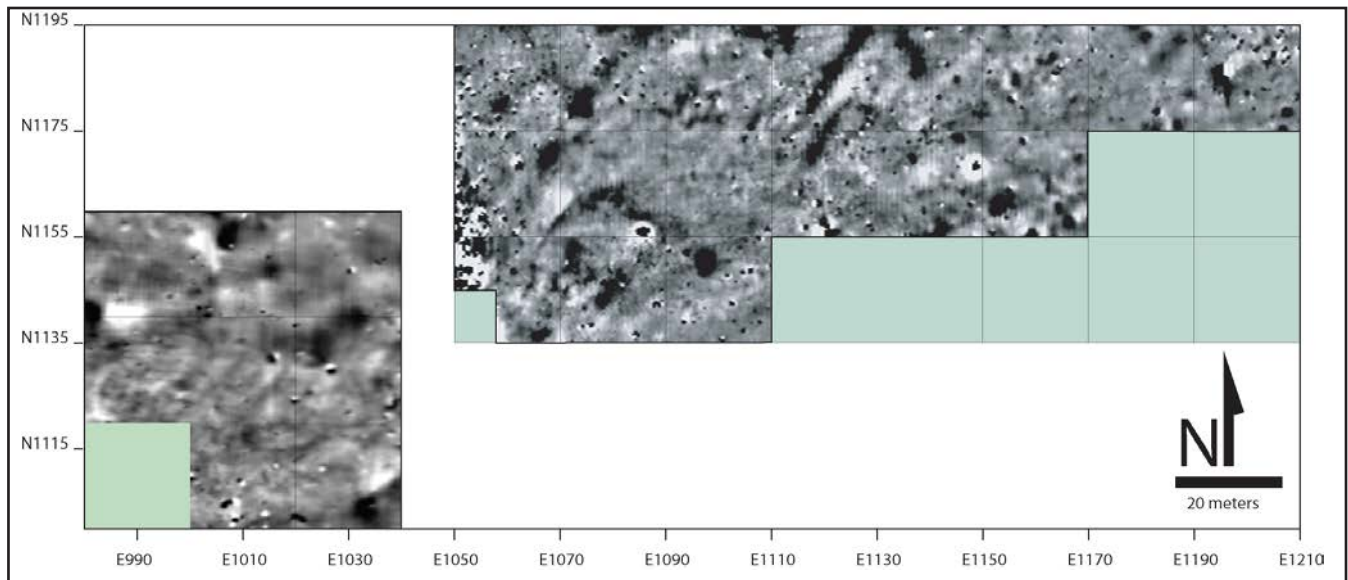


Figure 15. Magnetometry data from 12T335.

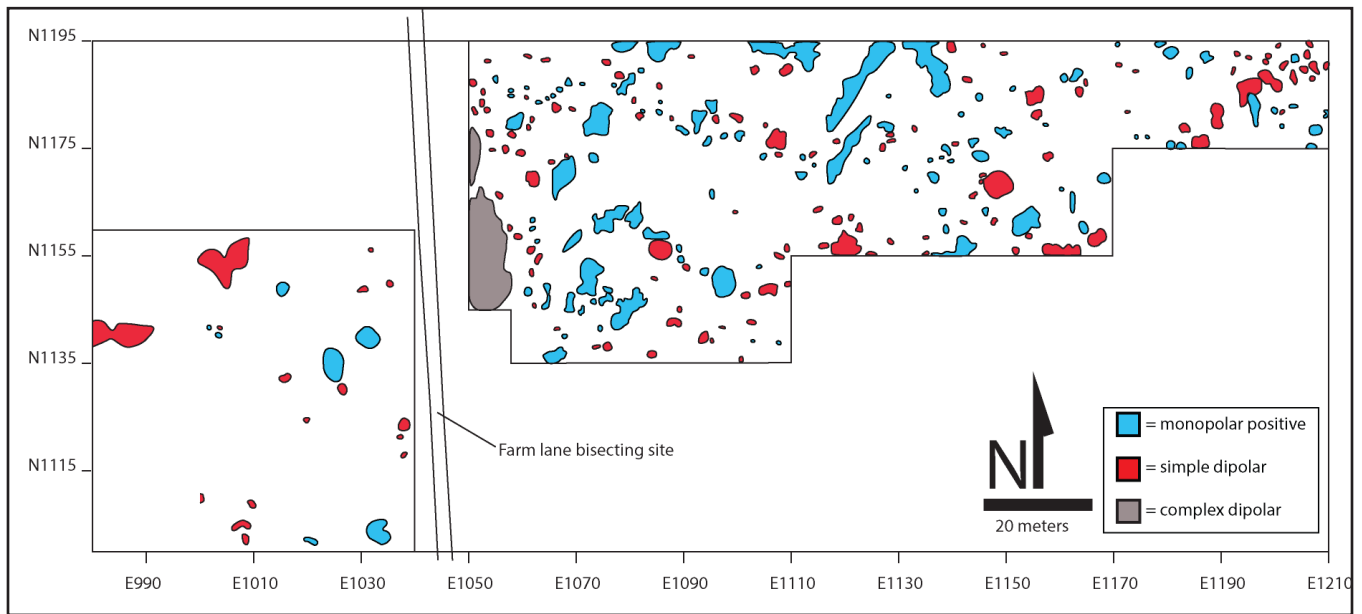


Figure 16. Interpretation of magnetometry data from 12T335.

Overall, there appear to be definite signs of cultural activity and probable intact subsurface features within the 12T240/336 survey area. In general, we can say that most of the area looks “busy” and signs of activity are numerous. Despite the survey area being spread across two previously reported sites, there is, however, no apparent separation between the two in the magnetometry data.

12T335 SURVEY RESULTS

A total of 0.99 ha (2.45 ac) was collected at site 12T335 (Strezewski 2014) (Figure 15). The eastern portion of the site is of higher elevation and is currently in mown grass. This area is not farmed as the soils are extremely sandy (and therefore droughty) and are unsuitable for crops. The area to the west of the farm lane is approximately 1.0 m (3.3 ft) lower in elevation and is in agricultural use. The difference in elevation between the two halves of the site is likely due to erosion caused by repeated flooding and agricultural activity.

One unusual pattern noted in the 12T335 data was the presence of a number of very large, linear, monopolar anomalies (Figure 16). Most ran in a general northeast-southwest direction and a few exhibited right angles (i.e., with an “arm” headed toward the southeast). One example of this type is the large anomaly in squares N1175, E1110 and N1175, E1130, while a second is found in the southern half of square N1155, E1070. A superficial reading of the data might suggest that these represent the remains of large structures of some sort. However, they are irregular in outline and wider (ca. 3 to 4 m [9.8 to 13.1 ft]) than would be expected with a human-made trench. In addition, if these were wall trenches, the structure in question would be extremely large (up to 20 m [65.6 ft] in length). Given these points, it is most likely that these linear anomalies are geological in nature, possibly representing the deposition of materials related to alluvial activity.

A number of very large, circular-to-oval monopolar anomalies were also identified in the survey (e.g., in the north half of square N1135, E1090 and in the southwest corner of N1175, E1070). Like the linear anomalies, discussed above, these monopoles were also of relatively weak strength (<10 nT). However, their origin is not immediately apparent. Most are on the order of 3 to 5 m (9.8 to 16.4 ft) in diameter, which would be very large for most human-made features. On the other hand, the boundaries of the features are relatively discrete, which would be less likely if they were natural. One possibility is that these may be the remains of small semi-subterranean structures that were filled in with organic trash or topsoil, though this interpretation is far from certain.

Numerous smaller, circular monopolar anomalies were scattered throughout the 12T335 data, with relatively few noted in the western portion of the survey. These may be cultural in origin—whether precontact or historic, however, we do not know. Unfortunately, there is no means to confirm this possibility without some type of subsurface testing. The absence of such anomalies west of the farm lane may be a result of the severe erosion noted in the field. Dipolar anomalies, interpreted as pieces of ferrous metal, were identified across the survey area. Some of these (e.g., two complex dipolar anomalies just east of a modern farm lane) are likely to be the result of recent trash dumping; others may be related to fur trade-era activities.

Two possible thermal anomalies were also noted, each with a magnetically positive center surrounded by negative readings. The eastern of the two (located near N1170, E1148), given its high magnetic signature, may be the remnants of a ferrous object stuck vertically into the ground (e.g., a broken-off iron fence post). The western bull’s-eye anomaly (located near N1156, E1084), which is about 100 nT in intensity, is a more likely candidate for a cultural feature such as an earth oven or large hearth. A number of smaller-sized bull’s-eye anomalies were noted in square N1135, E1090. These may also be hearths or roasting pits.

Overall, while definite signs of intact subsurface remains were not abundant at 12T335 (particularly on the western side of the site), we cannot rule out their presence. Of the numerous low-intensity and well-defined monopolar positive anomalies at the site, many are likely candidates for intact archeological features. The fact that the eastern portion of this site has not been plowed in recent memory has undoubtedly aided in the preservation of any subsurface remains that may be present.

12T352 SURVEY

A total of 24 magnetometry grids were collected at site 12T352, which lies on an east-west oriented low ridge, north of 12T9. The total area surveyed comprises 0.96 ha (2.37 ac) (Figure 17). A number of monopolar positive anomalies were

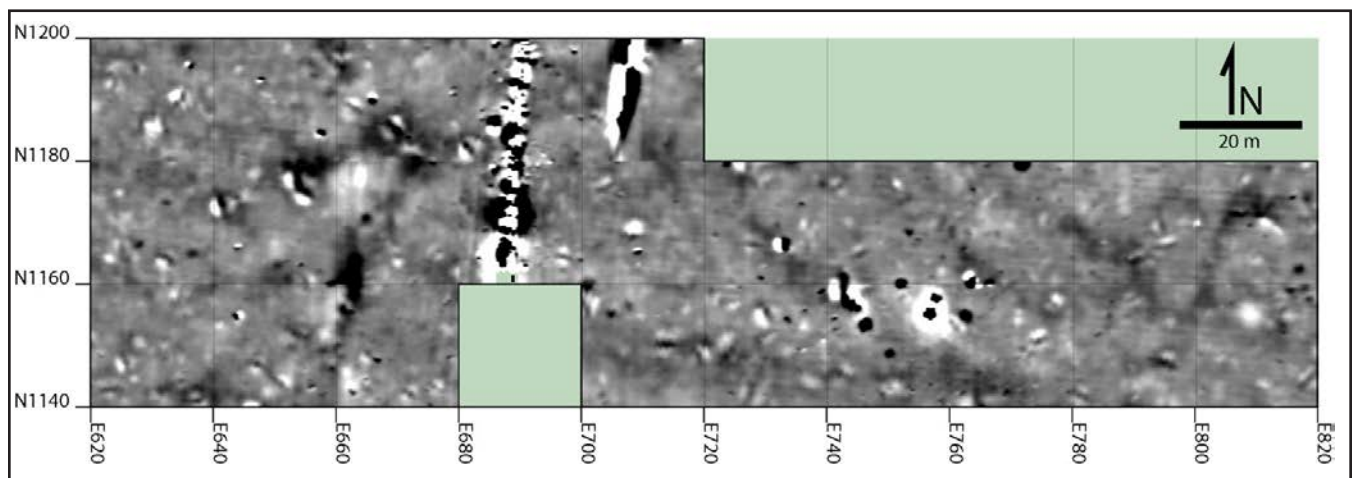


Figure 17. Magnetometry data from 12T352.

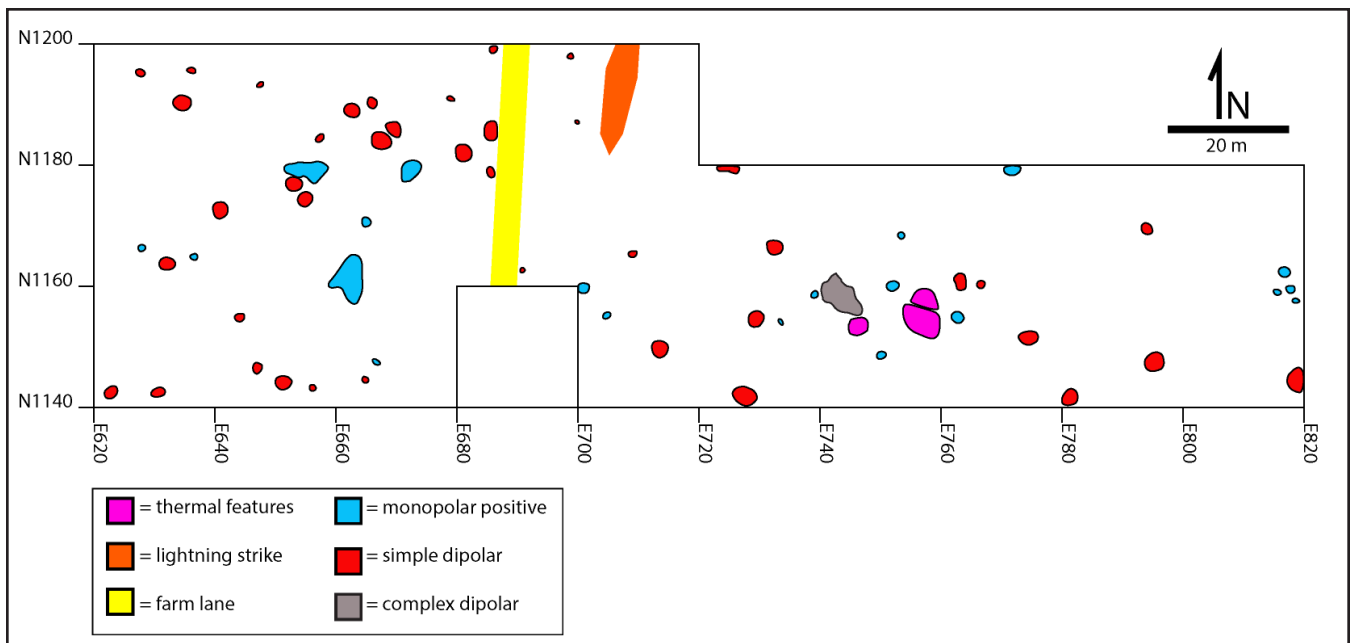


Figure 18. Interpretation of magnetometry data from 12T352.

found throughout the survey area, with minor clusters noted in the vicinity of N1160, E660, N1160, E750, and N1160, E820 (Figure 18). Most are relatively small, circular-to-oval in shape, and 10 nT or less in intensity, suggesting that they may represent pits of some type. Two monopolar positive anomalies were somewhat larger in size. The first runs roughly north-south along the E660 line between N1557 and N1165. It has a maximum value of about 10 nT. The anomaly is reasonably well defined but amorphous and may or may not be cultural in nature. The second relatively large monopolar positive anomaly runs east-west along the N1180 line, just west of the E660 line. It too, is irregular in outline. The maximum intensity of the anomaly is rather low (i.e., approximately 4 nT). Overall, the density and location of the monopolar positive anomalies suggest the presence of minor clusters of intact subsurface features.

Quite a few dipolar simple anomalies were found in the data, some of which likely represent fragments of ferrous metal (either archaeological or recent). A minority of these were sharply defined, with clear positive and negative poles, strongly suggesting that they represent pieces of ferrous metal located relatively close to the surface. The majority of the dipolar simple anomalies are somewhat unusual though, consisting of two areas of low intensity with a band of positive readings “sandwiched” in between them. This is not what would be expected if they were due to ferrous metal, and the authors have not previously encountered anomalies of this type. Virtually all of these odd dipolar anomalies are of low intensity, lying in between -10 and 10nT, with a relatively fuzzy outline. The latter suggests that they are likely buried somewhat deeply beneath the surface. They seem to be distributed throughout the survey area, with particular concentrations noted west of the farm lane and along the southern half of the area east of the farm lane. The positives and negatives of these dipolar simple anomalies are oriented in a variety of directions, suggesting that they do not represent *in situ* burning. After discussion, the authors and a number of other individuals familiar with the interpretation of magnetometry data could not arrive at a ready explanation for these anomalies (Jarrod Burks, Mike Hargrave pers. comm. 2017). Perhaps the best explanation for their presence is that they may be naturally occurring magnetic rocks of some type, although the particular morphology of their magnetic signature is very unusual.

One anomaly from the 12T352 data was categorized as dipolar complex. It is located near N1160, E740, about 50 m (164.0 ft) east of the farm lane. The anomaly is amorphous and discrete in outline and measures approximately 4.0 x 2.0 m (13.1 x 6.6 ft). The anomaly ranges in intensity between approximately -10 and 10 nT. It may be cultural in origin. Finally, three possible thermal features were identified in the 12T352 data, all clustered within grid N1140, E740, approximately 60 m east of the farm lane. Two are adjacent to one another, located just west of the E760 line. The southern of the two is of high intensity (over 100 nT), while the northern example is somewhat lower (ca. 20 nT). A third is approximately 4.0 m (13.1 ft) to the west and just south of the dipolar complex anomaly discussed above. This example is approximately 30 nT in intensity.

Overall, while the data from 12T352 do not indicate an intense amount of activity within the area surveyed, there are tantalizing signs of subsurface remains. Perhaps the most promising cluster is found in the northern half of grid N1140, E740,



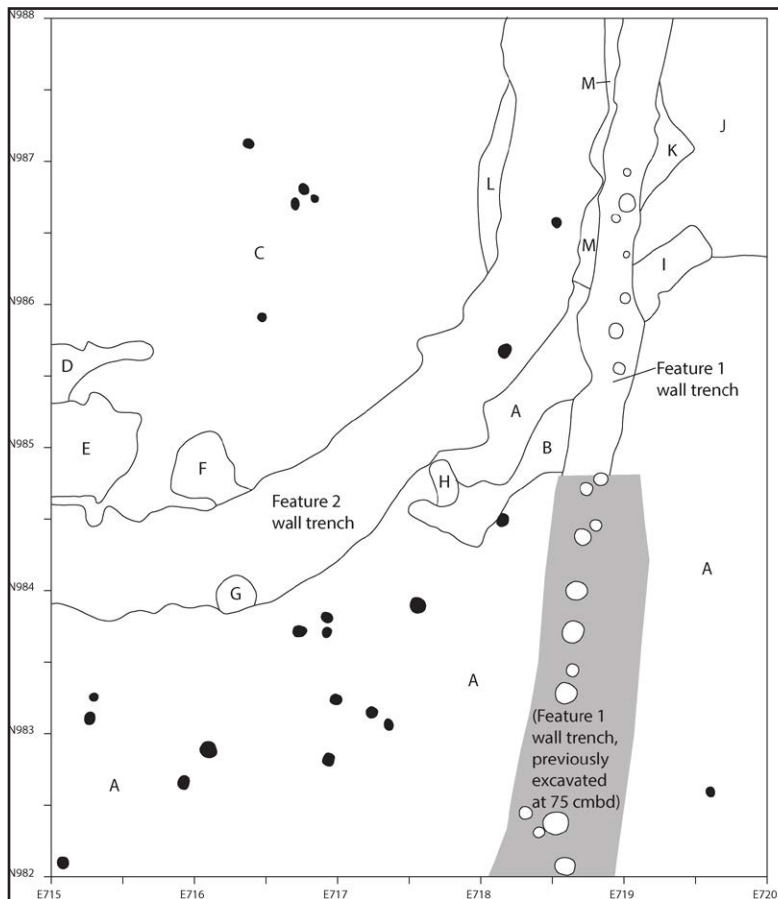
Figure 19. 2013 Excavation block over the southeast corner of Structural Anomaly 4, showing the shallow, wide wall trench. Note the linear wall trench (partially excavated) immediately to the east of the structure wall (photo by Michael Strezewski).

where thermal, monopolar positive, and dipolar complex anomalies were all identified. A number of larger but somewhat amorphous monopolar positive anomalies were also found within a relatively confined area just west of the farm lane. Finally, a small cluster of monopolar positive anomalies was found at the eastern edge of the survey area, near coordinates N1160, E820. These anomalies were relatively small but well defined and may very well be cultural in origin.

EXCAVATIONS AT 12T9

In 2013, a large 30 m² block excavation was opened over one of the structural anomalies (Anomaly 4) that had been previously identified in the magnetometry data west of Fort Ouiatenon (see Figure 7). At definition, a dense concentration of jumbled wood and bark fragments was encountered, indicating that the structure had been destroyed by fire. The fragments were of sapling size, or no more than about 5-6 cm in diameter. About ninety percent of the identified fragments were hickory and virtually all of the remainder was maple, indicating a clear preference for certain types of wood in the construction of dwellings (Darrin Rubino, pers. comm. 2016).

Excavation beyond the point of definition revealed a wide, shallow wall trench (Feature 2) that probably encompassed an interior area of approximately 30 m² (Figures 19 and 20). Only two posts were identified within the wall trench, indicating that they were small in size and/or not driven beyond the depth of the trench. Besides a cluster of three small diameter posts in the structure's interior, likely representing roof supports, no other interior features were identified. One additional feature in the large excavation block consisted of a deeply excavated linear wall trench (Feature 1), running north-south and located immediately east of the structure. This linear trench extended beyond the limits of our excavation block and its function is unclear. Notably, it superimposed the burned material from the structure, indicating that the trench postdates the structure's destruction.



- A = Sterile subsoil. 10 YR 4/4 sandy loam with numerous land snail shells
- B = Rodent disturbance. 10 YR 2/2 loam with charcoal pieces 1-2 cm in size. Western edge of zone is mottled with 10 YR 4/4 and has less charcoal.
- C = Structure interior (below the floor level). 10 YR 4/4 loam. Similar to sterile subsoil with occasional charcoal flecking. Common small mottles of 10 YR 3/3, probably due to bioturbation.
- D = Rodent disturbance. 10 YR 3/2 loam with common charcoal flecking.
- E = Heavily mottled area / shallow depression. 10 YR 2/2 loam with frequent charcoal 1/2 cm in size, common large mottles of 10 YR 4/4. Extended only 2 cm beyond 85 cmbd floor.
- F = Heavily mottled area / shallow depression. Same as zone E. Also extended only 2 cm beyond the 85 cmbd floor.
- G = Probable rodent burrow. 10 YR 4/2 loam. Homogenous in color with few charcoal flecks. Clear contrast with Feature 2 wall trench.
- H = Feature 6. 10 YR 2/2 loam with frequent small-to-large charcoal pieces 1-4 cm in size. Few small pieces of burnt soil.
- I = Feature 7. 10 YR 3/2 loam with small-to-large charcoal pieces 1-3 cm in size. Common small mottles of 10 YR 3/3.
- J = Essentially sterile subsoil but with frequent large mottles of 10 YR 3/3 loam. Frequent small charcoal flecks.
- K = Mottled/mixed zone outside of wall trench. 50/50 mottles of sterile subsoil and 10 YR 4/3 loam with few small charcoal flecks.
- L = Mottled/mixed zone inside wall trench. Similar soil description as zone K.
- M = Mottled zone between the two wall trenches. 50 % sterile subsoil and 50 % 10 YR 3/2 loam.
- Feature 1 wall trench = 10 YR 3/2 loam with common charcoal pieces 1-2 cm in size. Approximately 20 % small mottles of sterile subsoil.
- Feature 2 wall trench = 10 YR 2/2 loam with frequent charcoal 1-3 cm in size, 25 % small mottles of sterile subsoil.

Figure 20. Map of the 2013 excavation block at 85 cm below datum. North is up.

Unfortunately, the interior of the structure was nearly devoid of cultural material, suggesting that it had been cleaned out prior to its destruction. Apart from charcoal, faunal remains, and fire-cracked rock, materials from the structure interior consisted of such items as a few pieces of container glass, a brass kettle patch, a single hand-wrought nail, and a few worked pipestone fragments. Overall, our excavations suggest that the structure was built by digging a wide and shallow trench, into which small, pliable saplings were placed. These saplings were likely bent over and secured, creating a dome-shaped, wigwam-like structure, which was then covered in bark. After a period of use, the structure was burned, possibly having been cleaned out beforehand.

DATING THE STRUCTURE AND VILLAGE

Though we have no documentary evidence for the structure's occupation date, available information suggests that it (and the village) may have been constructed after the fort ceased to be a military outpost (i.e., after 1763). Though not definitive, reasons for this supposition include:

- The presence of silver items, seed beads, and glass imitation wampum beads in and around the structure (though not within it *per se*), all of which are indicative of a post-1760 date (Quimby 1966:91).
- The close proximity of the village to the fort's palisade wall. It seems unlikely that the French or British would have looked favorably upon the construction of a village directly adjacent to the fort, especially during the time it was being used as a military outpost. Such a village would have impeded the field of fire, should defense of the post be necessary.
- The near absence of cultural material in the structure. This suggests that it may have been cleaned out and intentionally burned by the Native Americans themselves. It therefore seems unlikely that the structure was destroyed as part of the Scott/Wilkinson expeditions in summer 1791.

The fact that many of the other village's structures showed up in the magnetometry survey would suggest that most or all of these were burned as well. Some confirmation of this suspicion was found while going through records from the Michigan State excavations. Though the MSU excavators did not recognize it as such at the time, a portion of another circular structure was uncovered and partially excavated during the 1975 and 1979 field seasons. What was described as a "strange feature" was found near the northwest corner of the fort, just outside its limits. This feature consisted of a circular deposit of charcoal about 5.2 m in diameter, slightly smaller than the structure we found in 2013. Further excavation identified wide and shallow wall trenches and very few artifacts in association, both similar to what we had found during our work. Importantly, the superpositioning of the various features in the area suggested that the structure likely post-dated the 1740s-era enlargement of the stockade wall (Tordoff 1983:162). Overall, data from the MSU-excavated structure has only served to confirm what we had found, and suggests that the other structures in the village are similar to the one we encountered in terms of their size, method of construction, and the circumstances surrounding their destruction.

Unfortunately, there are few detailed descriptions of traditional Kickapoo structures or villages that pre-date 1820, and so our knowledge base consists largely of piecemeal information from untrained observers (Wagner 2011). Various groups of Kickapoo, however, retained the use of traditional structures for some time, with some subgroups and individuals using them well into the 20th century. Overall, these ethnohistoric and ethnographic accounts indicate that Kickapoo structures were built in a similar fashion to those identified at Ouiatenon (Dillingham 1963; Latorre and Latorre 1976).

Kickapoo summer villages reportedly contained from five to thirty or so dwellings. These are often described as being wigwam type structures, built from a sapling framework covered by bark, mats, or skins (Custer 1907:5; Hendrix 1889; Mead 1904). Other ethnohistoric accounts mention that the Kickapoo also used longhouse type structures (Carter 1948:334), though no clear evidence of this house type was noted during our investigations. The number of individuals living in each structure is not well documented, but British General Henry Hamilton estimated that ten persons were housed within each "cabin" when he stopped at Ouiatenon in 1778 (Barnhart 1951:208–209). Kickapoo summer villages also reportedly included such features as cemeteries, council houses, dance grounds, sweat lodges, menstrual huts, and food drying scaffolds. None of these has yet been identified in our investigations, and unfortunately it is unlikely that most of the latter would be detectable via magnetometry, given their somewhat ephemeral nature.

Notably, recent investigations in Jeffersonville, Indiana, have identified a structure similar to those at Ouiatenon (Bennett et al. 2015:241–246). These investigations were just north of the location of Fort Finney where the hostages from Scott's raid on the Wabash River villages were initially taken upon the expedition's return to the Ohio River. This feature was stratigraphically below a very early 19th century structure, and as with the Ouiatenon structures, exhibited a wide, shallow wall trench in a general circular configuration with no associated postholes. While the entire structure could not be documented, it was about 6 m (19.7 ft) in diameter (maximum dimension), which fits well within the range of the circular structures identified at Ouiatenon.

Excavations at other Kickapoo sites have not identified structures of the type noted at Ouiatenon (Berkson 1992; Smith 1978; Wagner 2011). At the Rhoads site (ca. 1790–1830), for example, located in Logan County, Illinois, three ill-defined Kickapoo structures were identified; one was a possible longhouse-type structure, while two others may have been single-post, oval wigwam-type structures, built, however, without the use of wall trenches (Wagner 2011:104–108).

CONCLUSIONS

At the present time, all or nearly all of the highest-priority areas for magnetometry survey within the Ouiatenon Preserve have been covered as part of the 2009–2017 field work, and many of these areas have shown significant potential for the presence of intact subsurface remains. While much of the earlier work at Ouiatenon focused on the fort itself, it is clear that the fort was only one small part of the larger cultural landscape, one which merits attention in its entirety. The work done here will do much to assist the THCA/TAC in the future preservation of these important sites, so that the legacy of the Native American and fur trade era occupants will be preserved for the foreseeable future.

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GLOSSARY OF ARCHAEOLOGICAL TERMS

A-HORIZON SOIL

The upper layer of soil, nearest the surface.

ANTHROPOLOGY

The study of humankind, with particular emphasis on its cultural and biological adaptations.

ARCHAEOLOGY

The anthropological study of past lifeways, cultures, and cultural processes through the investigation of material remains left behind by humans.

ARTIFACT

Any portable object made, used, and/or modified by humans. Or, more generally, any evidence of human behavior. Common precontact artifacts found archaeologically include spear points, arrowheads, knives, chipped or broken stone debris, ground stone axes, grinding stones, mortars and pestles, awls, adzes, gouges, pottery, clothing and ornamental pins, decorative items and ornaments, scraping tools, hammerstones, bone fishhooks, stone perforators, and beads. Common historical artifacts found archaeologically include glass (window and container), nails, clothing items such as buttons and buckles, and household items such as thimbles, broken plates and cups, furniture hardware, beads and ornaments, etc.

ASSOCIATIONS

The relationships of artifacts and features at a site, based on provenience and context.

ATLATL

A spearthrower.

AVOCATIONAL ARCHAEOLOGIST

A person who participates in archaeology but does not practice it as a profession. Avocational archaeologists may volunteer to work with qualified professional archaeologists, and many take courses and gain substantial experience in archaeological methods and techniques. Others may be involved in archaeology as a hobby. Generally, avocational archaeologists subscribe to a preservation ethic to protect archaeological resources and to responsibly and legally preserve and study information from sites.

B.P.

Before present. By professional agreement present was established to be A.D. 1950 based on radiocarbon dating. For example, 1,000 B.P. means 1,000 years before A.D. 1950, or A.D. 950.

CELT

An ungrooved axe. Celts may be made of pecked and ground stone, or hammered copper. It is thought that celts appeared in Late Archaic times, and they continue to occur through later prehistory.

CERAMICS

Pottery vessels or potsherds.

CHERT

Stone of microscopic or small quartz particles used for the making of stone tools. Some types of chert include flint, agate, and jasper.

CHIEFDOM

A non-egalitarian hierarchial social organization with a fixed and permanent role for a chief/leader.

COLLARED

Refers to a thickened area present below the rim and above the neck on a clay pottery vessel.

COMPLICATED STAMPED

Decorations of curvilinear or rectilinear design paddle stamped into a clay vessel.

CONTEXT

The position of an artifact or feature in its soil matrix, horizontal, and vertical location, and its relationship with other artifacts and features, related to the behavioral activities which placed it there.

CORD-IMPRESSED

Impression into a clay vessel surface before firing by a stick wrapped with cord, or cord on the edge of a paddle.

CORDMARKED

Cordage impressions on a pottery vessel as a result of stamping with a cord-wrapped paddle.

CORE

A stone which exhibits one or more flake scars, showing that it has been used as a raw material for flintknapping.

CRM

Cultural resource management. The protection, preservation, and recovery of information from archaeological sites, under federal and state laws. Universities and private archaeological companies often are hired to conduct CRM archaeology mandated under federal or state statutes.

CULTURE

A system of shared, learned, symbolic human behavior for adaptation to our natural and social environment. Culture may be thought of as a system composed of interrelated parts or subsystems, where a change in one part affects or influences the other parts. Subsystems interrelated with culture include technology, communication (and language), biological and physical characteristics, psychology, economics, social and political organization, beliefs and values, subsistence, settlement, environment, etc.

EXCAVATION

The systematic recovery of archaeological deposits through the removal and screening of soil. These can be either test excavations (termed Phase II in CRM investigations) or large-scale excavations (termed Phase III in CRM investigations).

FABRIC-IMPRESSED

Impressions of woven fabric in the surface of a pottery vessel.

FEATURE

Non-portable evidence of past human behavior, activity, and technology found on or in the ground. Precontact features commonly include fire pits and hearths, burned earth and clay, trash and garbage pits, post molds, evidence of house floors or basins, storage pits, clusters of artifacts (e.g., chipped and broken stones, caches of projectile points, ceramics or pottery sherds), human and animal burials, clusters of animal bone, earthworks (such as mounds and circular enclosures), petroglyphs and pictographs, and middens. Historical archaeological features can include postholes, garbage pits and dumps, house foundations and other structural remains (e.g., wells, cisterns, canals, mill races), and more.

FLAKE

A by-product of flintknapping, toolmaking, use, or other human activities, resulting in a fragment of stone detached from a parent stone. Often, a flake has evidence of purposeful removal, including a bulb of percussion, ripple marks, a striking platform, etc.

GORGET

Decorative object worn on the chest.

GROG-TEMPERED

Ceramics tempered with fragments of crushed pottery.

LITHICS

Stones used or modified for human activities such as the manufacture of precontact tools, cooking, hunting, etc.

MICROTOOLS

Small tools, predominately of stone, manufactured and used to perform certain tasks.

MIDDEN

Cultural refuse or deposits built up at a site.

MULTICOMPONENT

An archaeological site with occupations from more than one culture or time period.

PETROGLYPHS

Naturalistic or symbolic representations or depictions carved into stone.

PICTOGRAPHS

Pictures or drawings painted on rocks, cave walls, stone outcrops, or rockshelters.

PRECONTACT

Human activities, events, and occupations before written records. In North America, this primarily includes Native American precontact cultures, but does not imply that these cultures did not have long, rich, and varied cultural and oral histories and traditions.

PROTOHISTORY

Protohistoric cultures can be defined as those precontact groups developing or continuing directly into early recorded history, some associated with early historic artifacts.

PROVENIENCE

The horizontal and vertical location of an artifact at a site.

RED OCHRE

Late Archaic-Early Woodland culture with burial practices, usually in mounds, involving the use or placement of red ochre (a red hematite pigment).

SHELL-TEMPERED

Ceramics (pottery) tempered with fragments of crushed shell.

SITE

The presence or occurrence of one or more artifacts or features indicates an archaeological site. An archaeological site is an instance of past human behavior or activity, where humans conducted some activity and left evidence of it behind, on or in the ground. Some common precontact site types include artifact caches, villages and camps, cemeteries, burials, workshops (e.g., stone debris from flintknapping activities), quarries, and earthworks (mounds, embankments, enclosures, fortifications, etc.). Some common historical site types include cemeteries, farmsteads, industrial sites, historical military sites (e.g., fort) and transportation related sites.

STRATIGRAPHY

Horizons, strata, or layers of soil deposited at a location, where the deepest strata were deposited the earliest, and the more recent layers deposited higher in the stratigraphic sequence.

SURVEY

The systematic discovery, recovery, and recording of archaeological information such as site locations, artifacts, and features by visually inspecting the surface of the ground if the soil is visible. Or, the use of shovel probes, cores, and/or augers near the surface, if surface visibility is restricted or poor. Termed Phase I in CRM investigations.

TEST EXCAVATION

Systematic excavation of a representative portion or percentage of a site to evaluate and determine its nature and extent, what information is present, whether there are intact or *in situ* deposits present, and the degree of disturbance to the site, often to determine whether it is eligible for the National Register of Historic Places. Termed Phase II in CRM.

WYANDOTTE CHERT

A type of dark blue-gray chert found in southern Indiana.

FOR THOSE WITH ACCESS TO THE INTERNET, THE FOLLOWING SITES ALSO PROVIDE OPPORTUNITIES TO ACCESS DEFINITIONS AND ADDITIONAL INFORMATION REGARDING ARCHAEOLOGICAL TERMS AND CONCEPTS:

<http://www.archaeological.org/education/glossary>

<http://archaeology.about.com/od/rterms/g/radiocarbon.htm>

PRECONTACT INDIANS OF INDIANA

PALEOINDIANS:

Paleoindians are the first known people who lived in the Americas, including Indiana. They lived here during the last stages of the last glacial advance, or ice age, and the early part of a changing environment and climate as the glaciers retreated. These people occupied the area now known as Indiana some 12,000 years ago, and lasted until about 10,000 years ago.

These early peoples probably lived in small groups of related individuals who moved around a lot, hunting large game animals, including some now extinct, such as the Mastodon, a large elephant-like creature. They also relied upon the gathering of wild plants to eat for their survival. Their population was very low.

The Paleoindians had very well-made stone tools, made out of a type of stone archaeologists call chert, which is a fine-grained rock that breaks a little like glass when hit by hard materials like another rock or a piece of deer antler. The tools they made by chipping, flintknapping, and flaking included long spearpoints, cutting and scraping implements, and engraving items. Some of their spear and piercing tools are called Clovis, Gainey, Barnes, Cumberland, Holcombe, Quad, Plainview, Hi-Lo, and Agate Basin points.

Evidence of these peoples is often found in Indiana on land near water sources like major rivers and springs, and where chert is found. Little is known about the Paleoindians since they moved around a lot and did not occupy any one place for a very long time. Therefore, they did not leave behind much evidence of their lives in any one place.

ARCHAIC PEOPLES:

American Indians known as the Archaic peoples lived here for a long time: some 6–7,000 years. Although these people did change over time, increasing in population and using new tool types and food preparation techniques, they did share certain general characteristics. These included new types of spear points and knives, with various types of notches and stems for hafting to wooden handles and shafts. Some of the projectile point types of the Archaic Period are called Kirk, Thebes, MacCorkle, LeCroy, Faulkner, Godar, Karnak, Matanzas, Brewerton, Riverton, and Terminal Archaic Barbed points.

They also used ground stone tools such as stone axes, woodworking tools, and grinding stones. The grinding stones were used to pound, crush, and grind wild nuts, berries, seeds, and other plant foods. They were hunters and gatherers of wild plants and animals, and moved around in their natural environments by season, often scheduling their movements to coincide with the appearance of foods like nuts, fish, deer, and wild seeds. Over time, they became very selective in what kind of resource they were pursuing.

During the Archaic Period, the spearthrower was used. This consisted of a shaft with a handle, weighted for balance with a ground and smoothed stone, and a hook on the end. A spear was fitted onto the hook, and was thrown with the spearthrower shaft.

Towards the end of the Archaic, more evidence of mortuary activities is found, including human burials with a red pigment coloring remains or grave goods. Burial mounds appear. During the Archaic, the cultures became more different from one another, and more types of artifacts were used. Their settlements became more permanent. One type of settlement was along large rivers, where they discarded large amounts of mussel shells. These sites are called shell middens or “mounds,” although they are not really constructed, burial mounds. The general Archaic period ended at about 1500 B.C., although some Terminal Archaic groups of people lived until 700 B.C.

WOODLAND PEOPLES:

During the Woodland Period, a number of new cultural characteristics appear. A notable event was the appearance and use of ceramics and pottery vessels. Another significant occurrence was the use and increase of horticulture. A remarkable feature of some Woodland sites is earthen mounds and earthworks, such as embankments. The Woodland peoples persisted for over 1,500 years in Indiana.

During the early portion of the Woodland Period, the pottery was thick and heavy. One early Woodland culture called the Adena people had elaborate mortuary rituals, including log tombs beneath earthen mounds. Projectile points during this time included Adena, Kramer, Dickson, and Gary Contracting Stemmed types.

A little later in time, in the Middle Woodland, there were also elaborate burial rituals, but also long-range trade of exotic goods like mica, marine shells, copper, obsidian, copper axes, drilled wolf and bear teeth, and other goods from region to region throughout the Eastern Woodlands area of North America. Some of these groups were called Hopewell peoples. Their ceramics had all kinds of incised and stamped decorations. During this time, the Woodland Indians were likely organized into

groups we might recognize as what we today call tribes. Projectile points from the Middle Woodland include Snyders, Lowe Flared Base, Steuben, Chesser, and Baker's Creek.

The latter part of the Woodland Period is called Late Woodland. In Late Woodland, two important events occur. One is the first appearance of agriculture; that is, intensive cultivation and modification of crops such as corn and squash. Another important occurrence is the appearance of the bow and arrow. Prior to this time, most of the chipped stone tools were either spearheads, knives, engraving tools, or scrapers. In Late Woodland, however, small, triangular points occur which are true arrowheads. One type of these arrowheads is called Madison. Other point types are termed Jack's Reef Pentagonal and Raccoon Notched. Settlement during the Late Woodland time changed from the earlier more permanent and nucleated villages to a pattern of smaller sites dispersed more over the landscape. In some regions of the state, Woodland groups may have persisted almost until historic times, although in general, the Woodland Period ends at A.D. 1000.

MISSISSIPPIAN PERIOD:

The Mississippian peoples in Indiana lived in some cases almost until contact with Early European explorers, missionaries, soldiers, and traders. They lived from about A.D. 1000 until possibly as late as A.D. 1650. A noticeable change during this period is the nucleation of some peoples into large settlements akin to "towns," such as at the Angel Mounds site near Evansville, Indiana. These towns had large public areas such as plazas and platform mounds—like truncated or flat-topped pyramids—where influential or important public individuals lived or conducted rituals. Thus, there was social stratification and ranking of individuals in Mississippian societies. There were probably chiefs and religious leaders. The towns were supported by the harvesting of large agricultural fields growing corn, beans, and squash. People living in sites such as these are termed Middle Mississippian.

Notable artifacts indicating Mississippian settlements include large, chipped stone hoes, and pottery bowls and jars tempered with crushed shell. Straps, loops, and handles for these containers characterize this time period as well. Stone tools include point types known as Madison, Nodena, and Cahokia, and other implements such as mortars, pestles, pendants, beads, anvils, abraders, and other items.

Another less elaborate type of Mississippian society called Upper Mississippian was present in the state, with people living in hamlets and villages. Many of these people lived in northern and southeastern Indiana. They also grew and harvested maize, beans, and squash. One group to the southeast was called Fort Ancient, and lots of shell-tempered vessels with straps are found at these sites. In northern Indiana, incised shell-tempered pottery fragments are found on Upper Mississippian sites that are often located near the beds or former beds of lakes.