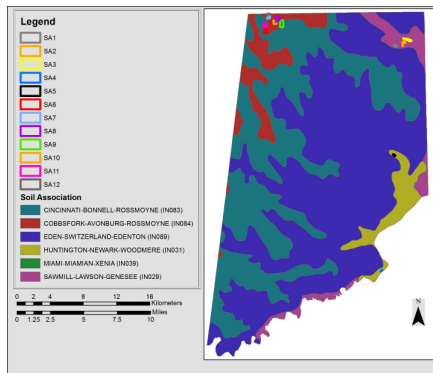
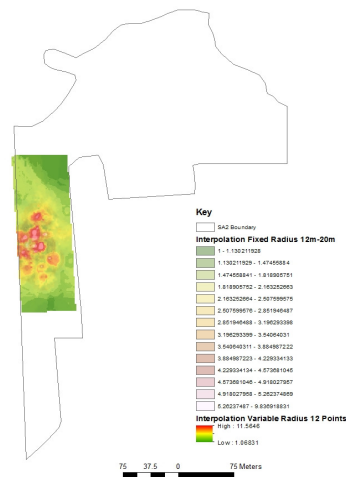


# INDIANA ARCHAEOLOGY

Volume 12  
Number 1  
2017



Indiana Department of Natural Resources  
Division of Historic Preservation  
and Archaeology (DHPA)



## ACKNOWLEDGMENTS

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Additional acknowledgments: The editors wish to thank the authors of the submitted article and report/feature, as well as all of those who participated in, and contributed to, the archaeological projects which are highlighted. The U.S. Department of the Interior, National Park Service is gratefully acknowledged for their support of Indiana archaeological research as well as this volume.

Cover design: The images which are featured on the cover are from the article and report/feature included in this journal.

This publication has been funded in part by a grant from the U.S. Department of the Interior, National Park Service's Historic Preservation Fund administered by the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology. In addition, the projects discussed in the articles received federal financial assistance for the identification, protection, and/or rehabilitation of historic properties and cultural resources in the State of Indiana. However, the contents and opinions contained in this publication do not necessarily reflect the views or policies of the U.S. Department of the Interior, nor does the mention of trade names or commercial products constitute endorsement or recommendation by the U.S. Department of the Interior. Under Title VI of the Civil Rights Act of 1964 and Section 504 of the Rehabilitation Act

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**Mission Statement:** *The Division of Historic Preservation and Archaeology promotes the conservation of Indiana’s cultural resources through public education efforts, financial incentives including several grant and tax credit programs, and the administration of state and federally mandated legislation.*

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2017

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## HISTORIC PRESERVATION FUND GRANTS

The article and report/feature in this journal were required products of successfully completed federal Historic Preservation Fund archaeology matching grant projects in Indiana. As described by the National Park Service (<https://www.nps.gov/orgs/1623/index.htm>), “. . . the Historic Preservation Fund (HPF) is the funding source of the preservation awards to the States, Tribes, local governments, and non-profits. Authorized at \$150 million per year, the funding is provided by Outer Continental Shelf oil lease revenues, not tax dollars. The HPF uses revenues of a non-renewable resource to benefit the preservation of other irreplaceable resources.”

Each year, the Division of Historic Preservation and Archaeology (DHPA) receives funding under the Historic Preservation Fund Program, which is administered by the U.S. Department of the Interior, National Park Service. The HPF Program helps promote historic preservation and archaeology in Indiana by providing assistance to projects that will aid the State in meeting its goals for cultural resource management. Of Indiana’s annual HPF allotment, about 50% is set aside to fund a competitive matching grant program and cooperative agreement projects to foster important preservation and archaeology activities statewide. Typical HPF-assisted projects include surveys to identify and document historic buildings, structures, and archaeological sites, nominations to add districts and neighborhoods to the National Register of Historic Places, rehabilitation of important Hoosier buildings that are listed in the National Register, and a variety of educational programs, including Indiana Archaeology Month programs and materials and co-sponsorship of the annual Preserving Historic Places: Indiana's Statewide Preservation Conference. The remainder of Indiana’s HPF funding helps pay for several DHPA staff positions and other office needs.

Between 2000 and 2015, HPF grant assistance resulted in archaeological survey of more than 14,000 acres and the identification and documentation of more than 2,900 archaeological sites across our state. HPF archaeology grants we have funded have covered a broad range of Indiana cultures, time periods, and site types, including, for example:

- African American and Quaker farmer sites
- Historic Potawatomi, Delaware, and Menominee villages and settlements
- French/French Canadian settlement patterns
- Paleoindian site inventories

Several years ago, the DHPA began requiring journal articles in addition to the list of required products for Indiana archaeology HPF grants. This requirement has resulted in a number of articles featured in past *Indiana Archaeology* journals, beginning with Volume 4 (<http://www.in.gov/dnr/historic/3676.htm>). Knowing that the public would have an interest in how these funds are being utilized for archaeological projects, the DHPA felt that this would be an easy, publicly-accessible, way to share summaries of these important projects.



# Archaeology Adds to the Historic Record for Spring Mill's Pioneer Village



## Historical archaeology

Historical archaeologists combine traditional research on written documents with information collected using archaeological methods of survey and excavation. These methods can build a richer picture of 19th century life at Spring Mill. Historical documents such as censuses, business records, and newspapers have much to say about specific people and their actions, but documents rarely discuss incidents of everyday life. Archaeology expands on more personal aspects of life in the 1800s, including precisely where outbuildings were located, what people ate for dinner, what their clothing looked like, what they had in their homes, or how they moved about the community. By adding archaeology, Spring Mill can be compared to other places in the Midwest where historic archaeology has been done.

Archaeology can help to understand change in the village over time. Earlier deposits lie underneath later ones, and by looking at stratigraphy, built-up layers of soil and sediment, archaeologists can see how the ground beneath the structures may have changed.

The entire Pioneer Village area is an archaeological site that encompasses the present structures as well as the locations of vanished structures or other facilities that retain a signature in the ground they once occupied. The village area has been given an official site number (12 Lr 1101) by Indiana's Division of Historic Preservation and Archaeology. Even something so simple as a fence line, detectable because the post holes will have a different character than the ground around them, can be identified by archaeologists. Such features can tell us about how people divided their property, or organized space.

## Archaeology at Spring Mill

Archaeology at Spring Mill started in 2004, when new utility lines were proposed. Nearly 800 artifacts of glass, ceramic, and metal were recovered from across the site. In 2007, archaeologists from Indiana University and the Office of the State Archaeologist at the University of Iowa began working with interpreters at Spring Mill State Park to conduct limited archaeological testing in the park. These investigations included collecting artifacts from the surface in the village center and garden, shovel testing in the field west of the garden, and test excavating near the Lower Residence, the Grist Mill, and the area between the mill and the Distillery.

In 2008 and 2010, archaeologists excavated an entire cellar that had been discovered during maintenance at the Leather Shop, or Munson House. The cellar had been dug, probably for storage, but was eventually filled in with the debris from many decades. From the cellar we have recovered remains of food animals, mostly pig and chicken, with some wild species as well. We found a great variety of ceramics and glass, buttons in great array, slate and slate pencils, and a variety of construction materials including chunks of lime, plaster, and wood.

Excavation is a destructive method in archaeology, and the archaeologists consider the benefits from doing excavations over the loss of irreplaceable archaeological deposits. There are other ways to collect information, usually referred to as "remote sensing." Remote sensing techniques include magnetometry, and ground penetrating radar (GPR). These techniques allow archaeologists to see beneath the surface. Both magnetometry and GPR have been done in the Pioneer Village area.

## Archaeology and the 19th century

Thomas and Catherine Bullitt of Louisville envisioned making a profit from the over 7,000 acres of land they acquired in what is now Lawrence County, after Indiana achieved statehood in 1816. At Spring Mill they saw the potential to harness waterpower of from the creek and built the massive three-story limestone grist mill. The mill settlement became an industrial center with farmers coming from miles away to grind their wheat and corn for shipment to places as far away as Louisville and New Orleans. Archaeologists see a different potential here, the opportunity to explore the 19th century at a site on protected state land. Many 19th century industrial places burged into towns whose growth eradicated signs of initial settlement.

The stage coach road that runs through the center of Spring Mill Pioneer Village is one of the earliest roads in Lawrence County, and remains one of the most visible archaeological features at Spring Mill today. The mill itself was constructed using hand-cut limestone blocks quarried from the cliff face upstream between the Grist Mill and Farmer Cave. Both the mill and the quarry are archaeological sites in its own right. A wooden flume over 500 feet long viewed as down the stream leading from Farmer Cave, carrying water to operate a 24-foot overcut waterwheel. Sediments below the mill have the potential to add to our knowledge of how the original millworks housed at Spring Mill operated. During work to restore the mill and village, evidence of the original sawmill and a fragment of an original water wheel were artifacts used to guide the restoration.

Restaurants and outbuildings soon followed. During the 1820s the lumber acquired a distillery, a sawmill, a post office, and other structures. The original village layout is recorded in the structures you see along the stage coach road today. While these structures give us a general idea of what people were doing at the site, little specific information is known. Archaeology gives us a more intimate picture, by showing what kinds of tableware, tea services, and eating utensils families used. It also has given very specific information about personal items and adornments the residents had. By recovering the artifacts and paying close attention to their contexts, exactly where an artifact was found and what it was found with, archaeologists and historians can forge better connections with people of the past.

Over time, residents moved out of the village, and the uses for the structures changed. Archaeologists are trained to see this type of change. In the Munson House, we have identified a change of use, from a dwelling to perhaps a smoke house.



Upper banner shows images of park structures. Left to right: modern photograph of Spring Mill, Spring Mill Pioneer Village original structures. Historic photograph of Spring Mill. House for Spring Mill. Village interior in front of the Grassy White House. Lower photograph shows archaeology equipment. Historic photographs from Spring Mill State Park archives are reprinted with permission. Other photographs were taken by Melody K. Page. Poster was designed by Angela R. Collier.

## Pioneer Village restoration

Richard Lober, head of the Indiana Department of Conservation when Spring Mill State Park was created in 1927, and Lawrence County historian Dick Guernsey developed the idea to turn the run-down village into a historic park attraction in which craftspeople would reawaken life in the 1800s for visitors. They were inspired by news from Virginia of the restoration of the colonial period at Williamsburg. Spring Mill, when it first opened in the 1930s, became one of the first pioneer period settlements to be showcased in the Midwest. Some village structures were restored or reconstructed in place. Important log houses from the area such as the Sheeks and Usaryn White houses were brought into the park where they could be maintained and kept safe.

How did the restoration efforts of the 1920s affect earlier traces of the milling and distilling businesses of the 19th Century? What evidence of this early development remains at site today? The historic preservation activities at Spring Mill in the 1920s and 1930s did not destroy the archaeological record of the 19th Century. Instead, they added another archaeological layer. Archaeologists investigated the area between the Grist Mill and the Distillery in 2008. Two excavation units revealed what may be an outdoor work area with many nails, metal fragments from a bucket, a horseshoe, and glass and ceramic fragments. This may be an area used as a staging area when workers from the Indiana Department of Conservation restored the Grist Mill, the Distillery and the Flume pylons in the late 1920s. The excavation units also contained several pieces of large mussel shells, probably collected from the White River. They bear unmistakable signs of shell button manufacture, an industry that flourished in the Midwest between 1890 and 1930, but which had never been verified at Spring Mill Village.

## Tourist life at Spring Mill

Archaeology can also tell about the people who visited Spring Mill as tourists or visitors over the past 90 years. Used foodstuffs are just one type of artifact unearthed by archaeologists working in the park. Other multi-stage of tourist activity are bits of bits of wrappers or concrete buttons. Even chewing gum, which has been excavated from below the surface, is an artifact of tourism. In the area beneath the Munson House archaeologists found an empty film box, and even an expanded roll of film. Soda bottles and cans, the sticks that hold cork candy, and packaging from snacks, were found around the village. These give insight into how visitors conduct themselves, what they like to purchase from the Mercantile, and where they spent time while at the park. In the area beneath the Munson House, many leather fragments in very good condition were recovered from the surface. These are evidence of the activity of park interpreters who have used the house for leatherworking demonstrations.

## What else is there to do?

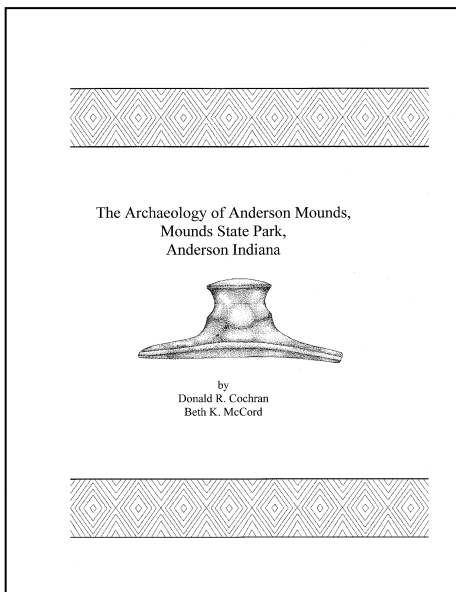
The archaeology has touched a number of places at the Pioneer Village, but there is still much that can be done. Spring Mill State Park encompasses much more than the Pioneer Village. Sites range from the pioneer era before 1830 to the tourist era of today. Other archaeological sites include the campgrounds used by the CCC during the 1930s, other mill sites, horsestables, cemeteries, a school, and kilns for making lime are present within the park. Archaeology is needed to record these many sites. In the village, testing for buried deposits will continue.



This poster was created with support from the U.S. Department of the Interior, National Park Service, Historic Preservation Fund administered by the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology.



The archaeology poster shown above was created using HPF grant assistance. You can read about this public archaeology project at Spring Mill State Park in the article beginning on page 125 of Volume 7, Number 1 of *Indiana Archaeology*. Another creative example of sharing archaeological information with the public, using products created using HPF funds, includes a book about the archaeology of Mounds State Park in Anderson, Indiana. This publication may be found online at (<http://cms.bsu.edu/academics/centersandinstitutes/applied-anthropology-laboratories/publications/61andersonmoundsarch>).



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**Notes:** The projects discussed in this volume received federal financial assistance from the Historic Preservation Fund Program for the identification, protection, and/or rehabilitation of historic properties and cultural resources in the State of Indiana.

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This is a refereed, open access journal. All articles and reports/features are reviewed by the Editor, Guest Editor, and two professional archaeologists not with the DHPA. They 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 Division of Historic Preservation and Archaeology (DHPA) is proud to present this volume of the journal *Indiana Archaeology*. 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 the DHPA 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 prehistoric and historic 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 is wide-ranging and impressive. Virtually all of the cultural groups prehistorically and historically in Indiana are represented archaeologically in one way or another.

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 prehistoric time periods may be found at the end of this volume. Additional archaeological outreach documents, including *Early Peoples of Indiana*, may be accessed at [www.IN.gov/dnr/historic](http://www.IN.gov/dnr/historic). For those readers who may not be familiar with the authors and editors of the volume, biographical information is provided. Feel free to access our Indiana archaeological travel itinerary (<http://www.in.gov/dnr/historic/files/travelsarchaeo.pdf>) if you would wish to visit an archaeological site. The DHPA also urges you to participate in the annual Indiana Archaeology Month in September. If you have an interest in providing a voluntary financial donation to contribute to archaeology in our state, please consider the Archeology Preservation Trust Fund (<http://www.in.gov/dnr/historic/5897.htm>).

To view previous volumes of *Indiana Archaeology*, go to <http://www.in.gov/dnr/historic/3676.htm>.

- We thank our colleagues who contributed peer reviews for the journal.
- Steve Kennedy, DHPA, is thanked for his assistance with the text regarding the Historic Preservation Fund grants.

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## ABOUT THE EDITORS AND AUTHORS

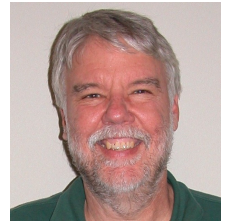
### Editor

Johnson, Amy L.– Ms. Johnson, State Archaeologist, Archaeology Outreach Coordinator, and Team Leader for Archaeology, has worked for the DHPA since 1991. She is also Indiana’s state network coordinator for the Public Education Committee of the Society for American Archaeology. Ms. Johnson holds a B.S. and a M.A., both Anthropology, from Ball State University. Her main research interests are prehistoric archaeology (specifically the Adena and Hopewell periods), historic cemeteries, and public outreach regarding archaeological resources. She is the Editor of this volume and was responsible for the layout of the document.



### Guest Editor

Jones, James R. III, Ph.D.– Dr. Jones was with the DHPA from 1987 through August 2014. He served as Indiana State Archaeologist from 1991 to 2014. Dr. Jones received his B.A. in Anthropology and English from the University of New Mexico, and his M.A. and Ph.D. in Anthropology from Indiana University. He has substantial experience in prehistoric and historical archaeology, and his research interests include historical cultures in Indiana. Dr. Jones is the Guest Editor of this volume.



### Editorial Assistance

Draeger-Williams, Cathy– Archaeologist Cathy Draeger-Williams has been with the DHPA since 2003. She holds an A.A. from Vincennes University, a B.A. in History and Anthropology from Ball State University, and a M.A. in Anthropology from Ball State University. She provided editorial assistance with this volume.





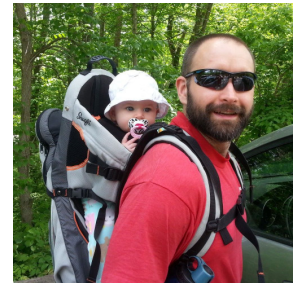
## Authors

Cook, Robert, Ph.D.– Robert Cook is an Associate Professor of Anthropology at Ohio State University. His research interests are focused on examining social structure, chronology, settlement patterning, regional and inter-regional interactions, and ethnic formations/affiliations in archaeological contexts. His most recent research efforts have been focused on the late prehistoric Middle Ohio Valley.

Macleod, Colin L.– Colin received his Master's degree in Anthropology from Ball State University in 2016. During his graduate work he focused on archaeology and worked as a Graduate Assistant in the Ball State University Applied Anthropology Laboratories. He received his B.A. in 2012 from Eastern Michigan University with majors in Anthropology, History, and Geology. His research interests are predominantly prehistoric and include chert sourcing, Geoarchaeology, and Archaeometry. His geographic areas of interest focus on the U.S. Midwest, Western Europe and the British Isles. Much of his research in these areas involves the application of X-Ray Fluorescence Spectrometry in order to improve the accuracy of chert source association.



Nolan, Kevin C., Ph.D.– Dr. Nolan, originally from Dayton, Ohio, has been involved in archaeology since 1992. He has a Bachelor's degree from Heidelberg University, a Master's degree from Kent State, and earned his Ph.D. from the Ohio State University. His major research interests are the Late Prehistoric period, regional analysis, siteless survey, and archaeological systematics. Dr. Nolan moved to Ball State University, joining the Applied Anthropology Laboratories in June 2011.



Steinwachs, Erin A.– Ms. Steinwachs is a GIS Analyst for the Baltimore City Department of Public Works. She recently graduated with an M.A. in Anthropology from Ball State University and received her B.A. in Anthropology from SUNY Geneseo. Her research interests include GIS, spatial analysis, database management, and prehistoric archaeology.



Swihart, Matthew R.– Mr. Swihart is a Staff Archaeologist with Environmental Resources Management (ERM) in Cleveland, Ohio. His work has generally been focused on the prehistoric peoples of the Midwestern and Southeastern United States. He received his B.A. in Anthropology from Wright State University and his M.A. in Anthropology from Ball State University. Mr. Swihart's research interests include Woodland archaeology, use-wear analysis of flaked stone tools, archaeological systematics, and cultural resource management.



# INVESTIGATIONS OF FORT ANCIENT SETTLEMENT AND COMMUNITY PATTERNS IN DEARBORN COUNTY, INDIANA

Matthew R. Swihart<sup>1</sup>, Kevin C. Nolan<sup>1</sup>, Robert A. Cook<sup>2</sup>, and Erin A. Steinwachs<sup>1</sup>

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## Abstract

The Applied Anthropology Laboratories (AAL) of Ball State University conducted an archaeological reconnaissance and reinvestigation project for archaeological materials in Dearborn County, Indiana, for a FY2013 Historic Preservation Fund Grant (Grant 13FFY03). We specifically focused on Late Prehistoric period (cf. Fort Ancient) settlement and community organization patterns. We targeted previously identified Late Woodland and Late Prehistoric archaeological sites for pedestrian survey, soil phosphate, and geophysical investigations. Second, AAL attempted to identify new archaeological sites through pedestrian survey of agricultural fields in the county. Approximately 345.67 acres (139.89 ha) of agricultural land were subject to pedestrian survey, encountering 50 archaeological sites and 12,363 artifacts. Sites 12D45, 12D396, and 12D480 were subjected to soils (chemical and geophysical) analyses revealing new details of settlement organization. Diagnostics from pedestrian surveys indicate activity during the Middle Archaic, Middle Woodland, Late Woodland, and Late Prehistoric periods. We also examined landowner collections from investigated sites which demonstrate occupation spanning the Early Archaic through Late Prehistoric periods. Overall, the average site density recorded is one site per 7.18 acres (0.14 sites/acre). The average artifact density is one artifact per 0.03 acres (34.42 artifacts/acre). As a result of the surveys conducted, nine sites were recommended as potentially eligible for the Indiana Register of Historic Sites and Structures (IRHSS) and the National Register of Historic Places (NRHP).

## Introduction

The Applied Anthropology Laboratories (formerly Applied Archaeology Laboratories) at Ball State University conducted a reconnaissance survey funded by a FY2013 Historic Preservation Fund Grant (HPF) for Dearborn County, Indiana, during the fall of 2013 through spring of 2014. Research centered primarily upon the Late Woodland and Late Prehistoric periods, focusing on reinvestigation of previously recorded sites of these periods in the county. These reinvestigations included pedestrian, soil phosphate, and geophysical surveys. At the start of the project, very few Fort Ancient village sites in the county had been systematically surveyed. Lack of systematic survey of these villages has created a data void that prohibits full understanding of the development of the Late Prehistoric Fort Ancient cultural phenomenon in southeastern Indiana (see Moore and Raymer 2014). Recent work in the county (Cook et al. 2015) has shown that

Mississippian-style communities developed early in Dearborn County and vicinity (see Cook 2008).

Approximately 345.67 acres (139.89 ha) of pedestrian survey at ten locations, as well as 24.5 acres (9.91 ha) of soil phosphate surveys at three locations, were completed for this project. This project is the second Historic Preservation Fund project conducted by the AAL to include soil phosphate (P) and magnetic susceptibility (MS) analyses (see Nolan 2014; Swihart and Nolan 2013). The analysis of soil P consisted of a molybdate colorimetric examination of the amounts of phosphates within the soil samples collected. Simply put, a weak acid is used to extract phosphate adsorbed to clays, and the extracted phosphate turns blue when mixed with the molybdate reagent. The colorimeter measures the intensity of the blue reaction, thereby measuring the quantity of phosphate extracted from the sediment. Soil samples were also used to examine MS, or the ability of the sample to conduct a magnetic current. The mapping of collection loci of soil samples in a GIS, coupled with geostatistical analysis, enables a visual analysis of P and MS distributions. These methods were used to delineate potential inter- and intra-site activities at previously recorded Fort Ancient sites. The analyses of Late Woodland/Late Prehistoric sites were the main focus of the research for this project.

## Background

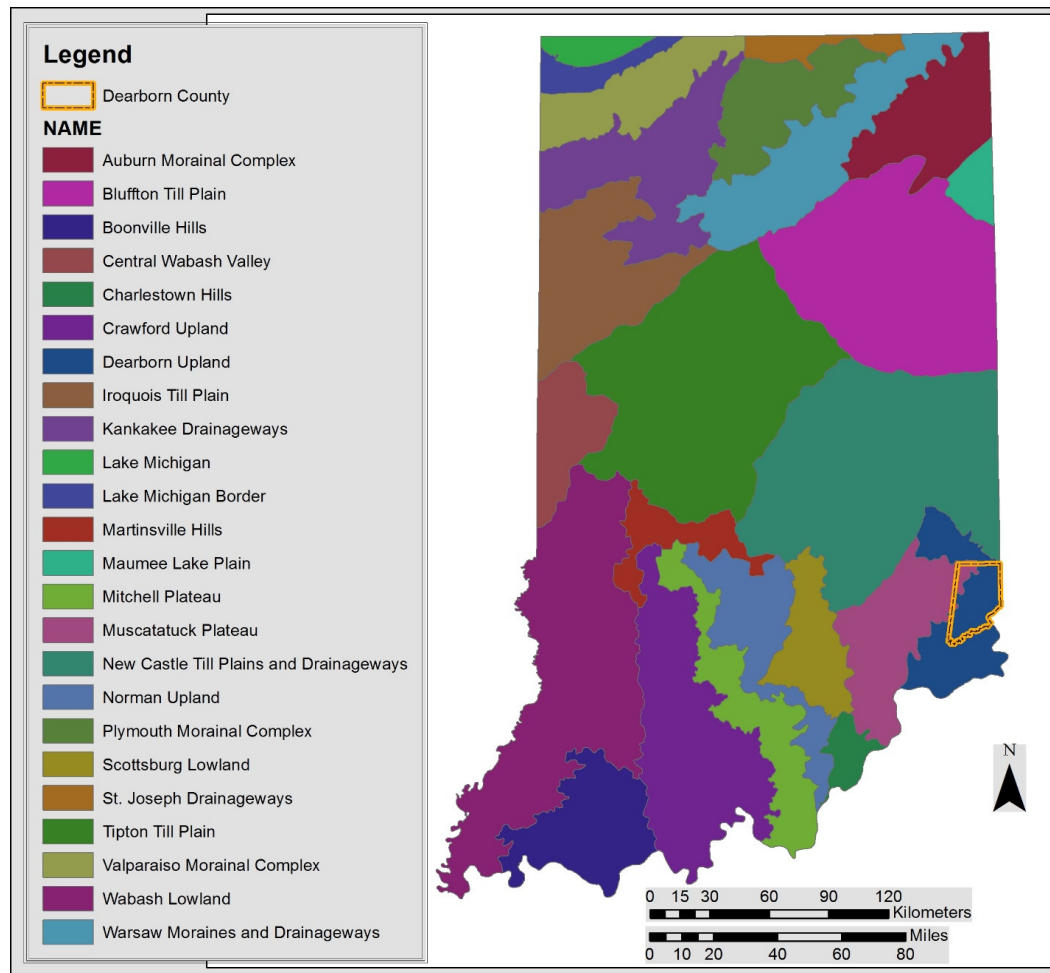
Dearborn County is located in the southeastern portion of the state, situated next to Ohio and Kentucky (Figure 1). As shown below, it is located between Wisconsin and Pre-Wisconsin age glaciations. Dearborn County is part of the Butlerville Till Member of the Jessup Formation, deposited during the Illinoian Age of glaciation. Dearborn County also contains very small portions of lacustrine facies from the Atherton Formation as well as a very small portion of the Martinsville Formation, represented by an accumulation of non-glacial sediment that began with the melting of glacial ice in the region (Wayne 1966:37).

**Figure 1. Location of Dearborn County and glacial boundaries within Indiana. Glacial limit shapefiles by Gray and Letsinger (2010).**



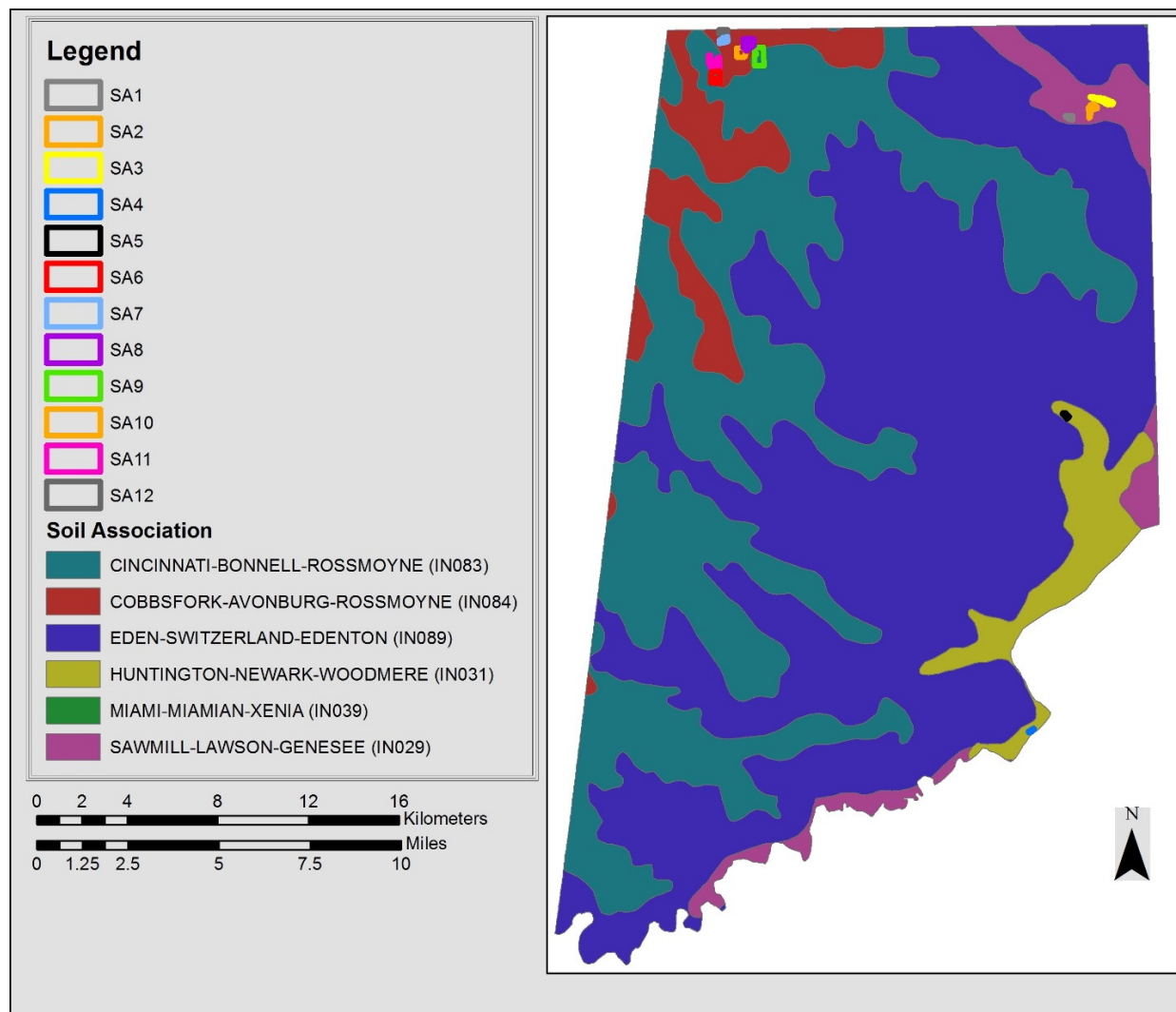
Dearborn County is located primarily within the physiographic region known as the Dearborn Upland (Figure 2), yet also within a small portion of the Muscatatuck Plateau (Gray and Sowder 2002). These two physiographic units are also the two bedrock physiographic units that Dearborn County is located on (Schneider 1966:42-44).

The soils in Dearborn County are composed of a mix of parent material, including loess over pre-Wisconsin glacial till, pre-Wisconsin till, outwash, lacustrine, and alluvial deposits. There are six general soil map units (associations) in Dearborn County (Soil Survey Staff et al. 2013): Cincinnati-Bonnell-Rossmoyne, Cobbsfork-Avonburg-Rossmoyne, Eden-Switzerland-Edenton, Huntington-Newark-Woodmere, Miami-Miamian-Xenia, and Sawmill-Lawson-Genesee (Figure 3). Nickell (1981:3-4) describes the soils as highly variable in depth from shallow upland soils over Ordovician bedrock, to deep till covered in loess, to very deep and young alluvial lowlands. The soils within our survey areas range from level to as much as 25%-50% slopes, and ranging from poorly drained to excessively drained (Soil Survey Staff et al. 2013). There is also a range of parent material of the soils within our survey areas, including parent material of loamy alluvium, silty over loamy alluvium, and loess over clayey deposits (Soil Survey Staff et al. 2013).



**Figure 2. Physiographic regions of Indiana with location of Dearborn County (Gray and Sowder 2002).**





**Figure 3. Soil associations of Dearborn County (Soil Survey Staff et al. 2013).**

Dearborn County is occupied by three hydrological sub-basins (HUC08, Figure 4; USDA-NRCS, USGS, and EPA 2010). The Whitewater River basin occupies the northeastern, eastern, and a small portion of the northwestern portions of the county. The Middle Ohio– Laughery Creek basin occupies the southwestern, southern, and middle portions of the county. The small remaining portion of the county is occupied by the Lower Great Miami. No survey areas for this project were within the Lower Great Miami. These three sub-basins are located within the Great Miami and the Middle Ohio major watersheds (HUC04; USDA-NRCS, USGS and EPA 2010). In addition, the major watersheds that Dearborn County is located within have minor watersheds that follow the same boundaries. These are the Great Miami and Middle Ohio –Little Miami minor watersheds (HUC06; USDA-NRCS, USGS, and EPA 2010).

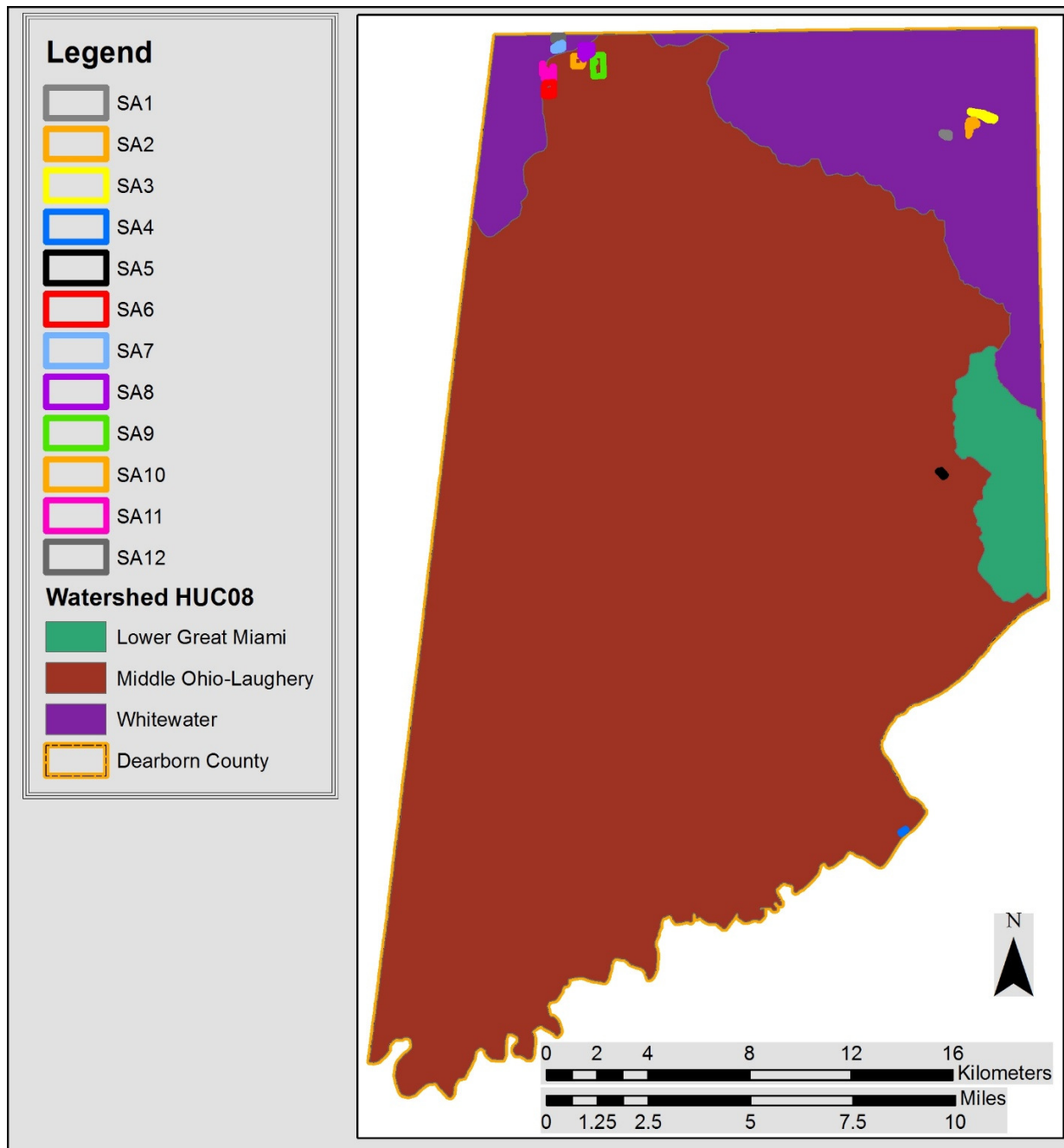


Figure 4. Watersheds of Dearborn County (HUC08; USDA-NRCS, USGS, and EPA 2010).

### Archaeological Background

Dearborn County has been the focus of many Cultural Resource Management (CRM) and academic archaeological investigations. This can be seen through the various documents that

have been logged in the State Historic Architectural and Archaeological Research Database (SHAARD 2013), as well as the reports generated from the large scale archaeological projects in the county. Following the protocol established by Swihart and Nolan (2013), analysis of CRM project data reveals one positive investigation per 2.7 CRM projects in the county, indicating archaeological resources are numerous. This is a lower ratio (1/1.94) than the findings tabulated for Hamilton County, Indiana (Swihart and Nolan 2013:Table 3).

Parrish and McCord (1995:40) report that archaeological research in the county began with the work of General William H. Harrison in the 1790s who documented hilltop enclosures. Within Dearborn County, one such enclosure exists (12D25, the Oberting Fort site [a.k.a. Oberting-Glenn site]). This hilltop enclosure is the reference point of many reports generated after Harrison's work, including MacPherson's (1879) report on Indiana geology (Figure 5) and Shaw's (1915) *History of Dearborn County, Indiana*. More recently the Oberting-Glenn site was investigated by Coon (2008) while studying Hopewell social organization and interaction. Additionally, an extensive amateur investigation of the site has recently come to light. This effort was conducted by Richard "Dick" Scammyhorn, and the collection is curated at the Cincinnati Museum Center. A brief review of the collection is included in the full grant report (Swihart and Nolan 2014). The site is now owned and protected by The Archaeological Conservancy.

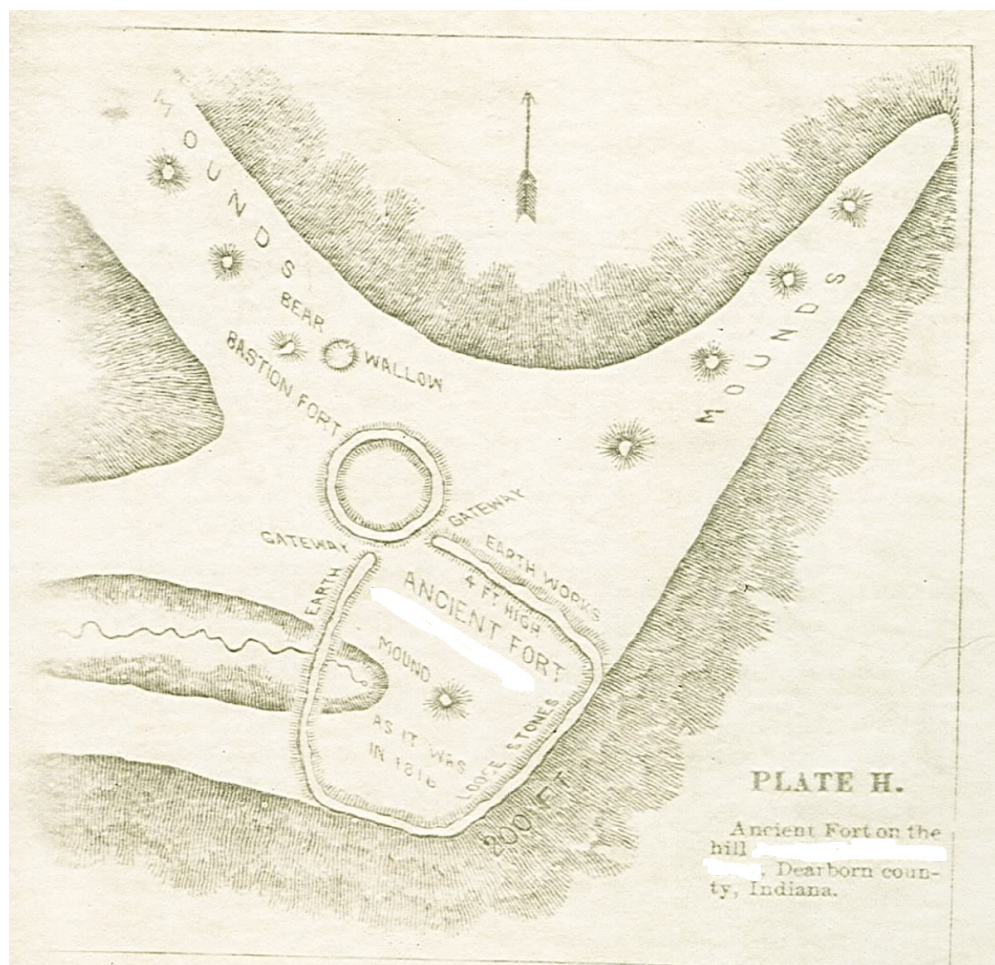


Figure 5. Samuel Morrison's 1816 drawing of the Oberting Fort site (MacPherson 1879:125).

In 1906, Warren K. Moorehead published accounts of the work he had completed in various states, including work completed in Dearborn County, Indiana. Moorehead (1906:60) discusses one relevant site, a “village site” between Lawrenceburg and Aurora:

Three or four small mounds were opened... The village *sites* certainly merit a thorough exploration... There were six mounds on the high terrace, within a third of a mile of the Ohio River.

Moorehead 1906:60, emphasis ours

This account is later referenced by Black (1934) in his discussion of site 12O18 as if the area described by Moorehead was actually located within Ohio County to the *south*. Swihart and Nolan (2014:Figure 14) shows roughly the area described by Moorehead. It is clear that this stretch of the Ohio River bank matches the vague description given with multiple mounds on the high terrace and numerous sites along the floodplain. It is clear also that Black conducted investigations in the vicinity along the Ohio River (12O18), but it is also clear that this is not the same place that Moorehead describes in the cited passage. The attribution of the above quoted passage as a description of 12O18 is erroneous. Either Moorehead got his geography wrong, or Black cited the wrong passage. Moorehead’s written description of his voyage has gaps, and glosses over many details; it is possible that Moorehead still excavated at the site Black designated 12O18, but it is not possible that the cited passage describes the location of 12O18.

After Moorehead’s work, the forty-second annual report of the Bureau of American Ethnology (BAE) was published in 1928. This included Myer’s “Indian Trails of the Southeast,” which discusses briefly the Oberting Fort site (Myer 1928:789). This report was not strictly archaeological, yet did discuss some influential archaeological sites such as the Oberting Fort site within Dearborn County.

Following the 1928 BAE report, Glenn A. Black conducted an archaeological survey of Dearborn County (Black 1934). This survey was concerned with mounds and burials more than other types of archaeological sites, comparing the Dearborn County mounds to mounds in Ohio such as Seip or Mound City (Black 1934:187-188). Also associated with Black is the “*Excavation of the Nowlin Mound*” (12D7) report generated from his work at this Early Woodland period burial mound in 1934 and 1935 (Black 1936). This work included ceramic analyses from both James Griffin and Frederick Matson, Jr. (Black 1936:285-296). Black’s work was instrumental in locating archaeological sites within Dearborn County. James B. Griffin became influential later on with works such as “*The Fort Ancient Aspect*,” in which he analyzes chronological and cultural aspects of Fort Ancient cultural phenomenon in the Late Woodland period of the Eastern Woodlands (Griffin 1966). Included in Griffin’s work are discussions of Fort Ancient sites within Dearborn County, including the State Line site (12D18), Haag site (12D19), and the Jennison Guard site (12D29) (Griffin 1966:184-186). The data yielded from these sites over various investigations has helped shape the understanding of Fort Ancient in Dearborn County and aided in our interpretation of Late Prehistoric activities at the sites we have reinvestigated during this FY2013 HPF project.

Other large scale archaeological investigations within Dearborn County include Reidhead’s (1981) work at the Haag site (12D19), Smith and Tankersley’s (1990) cave and rock shelter investigations, and Parish and McCord’s (1995) Historic Preservation Fund Grant project within Dearborn County. Reidhead’s work at the Haag site has been instrumental in providing data for interpreting the Fort Ancient cultural phenomenon. Smith and Tankersley’s (1990) and

Parish and McCord's (1995) surveys have yielded significant data on previously recorded sites and have identified numerous new sites. Altogether, these efforts combine to provide a summary of much of the archaeological work that has been conducted within the county.

There have been a variety of mitigation projects, notably those focused on the development of the Argosy (now Hollywood) casino near Lawrenceburg (Creasman et al. 2005). There have also been two recent academic research efforts in Dearborn County that included excavation, one focused on site 12D123 and one on the Jennison Guard site. The field investigation at 12D123 was conducted by Landmark Archaeology and summarized by Moore and Raymer on a portion of a circular village (Moore 2006a, 2006b; Raymer and Moore 2011). While there are no radiocarbon assays from the site, it has been suggested that it is a primarily a Middle Fort Ancient period (ca. A.D. 1200-1400) village on the basis of ceramic attributes (Raymer and Moore 2011). However, recent analyses at the Guard site call the assignation of site 12D123 to the Middle period, based on ceramic "type fossils," into question.

A recent project by Cook (Cook and Martin 2013; Cook et al. 2015) has begun to examine the Fort Ancient component of the Jennison Guard site; previous studies (Blosser 1989, 1996; Kozarek 1987; Reidhead 1975; Whitacre and Whitacre 1986) have focused on the Middle Woodland occupation in the southern portion of the site (12D29/12D246, also known as the Whitacre site). Cook's initial excavations at Jennison Guard in 2012 focused on uncovering why structures at the site are so clearly defined as magnetic anomalies. By excavating narrow (1 m) trenches through three structure anomalies, it was discovered that the structures were burned after their initial abandonment. Upon final abandonment they were often filled with trash and buried under alluvial deposits beneath the level of plow disturbance (Cook and Martin 2013). Very limited excavations of the Fort Ancient component were also conducted by Indiana University's Glenn A. Black Lab (Acc. #6203) (Cook and Martin 2013). There are abundant artifacts and faunal remains from this earlier excavation, which included eight pit features and three burials (see also Cook et al. 2015). The only other known excavation was conducted by the current property owners over two decades ago (Sedler 1990). These investigations confirmed that a dense Fort Ancient occupation is present. Cook and Burks (Cook et al. 2015) discovered a possible circular village outline via an extensive magnetic gradiometry survey, seeming to correspond with models of Mississippian inspired "Fort Ancient" villages in the Middle Ohio River Valley (Cook 2008).

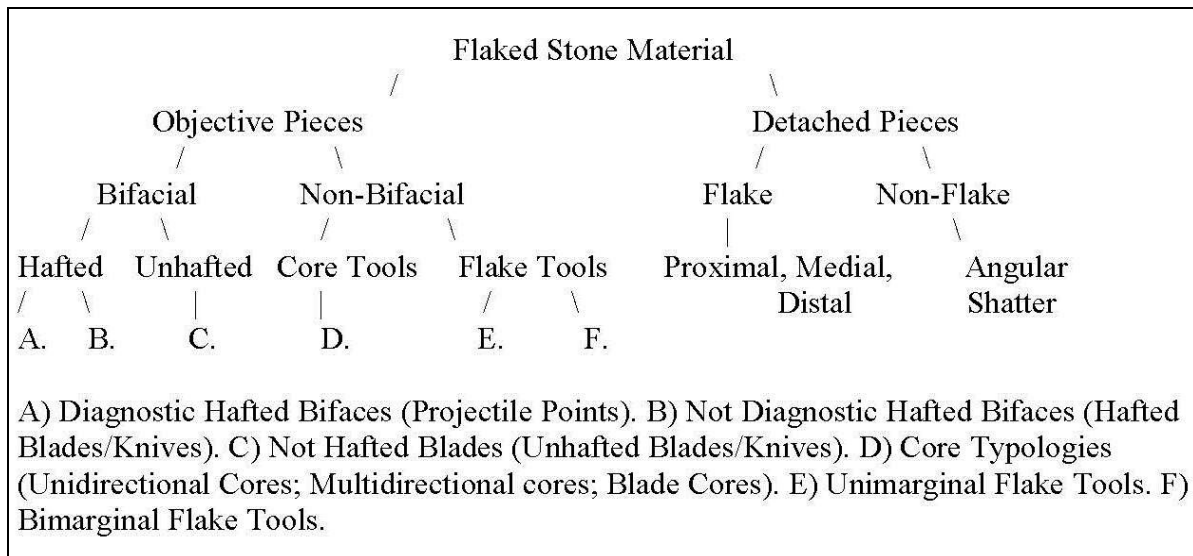
The Jennison Guard site is proving to be a crucial site for understanding the Early (ca. A.D. 1000-1200) Fort Ancient period. Most notable is the fact that it is a large village with what appears to be Middle period material culture (particularly many decorations on pottery). The radiocarbon dates clearly indicate that the site was occupied during the Early period requiring us to rethink what we deem to be temporally-diagnostic pottery types. There is also clear evidence here for Mississippian trade items at the beginning of the Fort Ancient period, which has more typically been assumed to not occur until later in the Fort Ancient cultural sequence. The village is also circular in plan with a housing arrangement very similar to SunWatch, a Middle period village located 85 km north along the same river. At the center of the SunWatch site is a large central pole and plaza, around which are placed rings of burials, pit features, and houses, all of which are enclosed by a stockade (Cook 2008; Heilman et al. 1988). While the house locations at both sites are very similar, it is not yet clear how similar they are in terms of the other site features or material culture characteristics.

## Field and Laboratory Methods

A total of 359.14 acres (145.33 ha) were surveyed at the Phase Ia level for this project. Approximately 345.67 acres (139.89 ha) of agricultural land were surveyed by pedestrian transects across ten survey areas (SAs). Two SAs were subjected to soil analyses only (13.47 acres, 5.45 ha). One SA was subjected to soil and pedestrian surveys (11.03 acres, 4.46 ha). All pedestrian surveys followed DHPA guidelines for Phase Ia reconnaissance. The soil surveys were conducted to examine potential settlement organization data at previously recorded Late Woodland and Late Prehistoric sites in the county.

Pedestrian survey involved field crew members walking in straight transect lines across agricultural fields. These transects were placed no more than ten meters apart. All prehistoric and historic artifacts encountered were collected, including fire-cracked rock (FCR). Each artifact collection locus was recorded with a Trimble GeoXT GPS unit and uploaded to the GIS program, ArcMap 10.1.

Archaeological sites were defined using the GIS using ArcMap after returning to the laboratory. A 15 meter buffer was used as a guide for defining clusters of mapped collection loci across the SAs. Laboratory analyses followed standardized procedures used for all projects conducted by the Applied Anthropology Laboratories (AAL). This included microscopic examination of archaeological specimens for identifying raw material type and signs of use. Definitions for lithic artifacts came from Andrefsky (2005; see Figure 6).



**Figure 6. Flaked Stone Implement Typological Flow Chart adapted from Andrefsky (2005:76, Figure 4.7).**

Survey Area (SA) 2 necessitated a slightly abbreviated form of artifact analysis for the 11,917 artifacts recovered. For SA2, the classification shown in Table 1 was used.



**Table 1. Artifact classification for Survey Area 2.**

Material	Chert		Other lithic			Fauna				Ceramic				
Type	Objective	Detached	FCR	Groundstone	Other	Mammal	Non-mammal	Fish	Shell	Shell	Grit	Grit/Shell	Other	
Subtype	Core/Biface	Flake/Shatter												Rim/Neck/Body/Base
Modified?	Diagnostic?	Yes/No												Yes/No

Soil collection surveys utilized a 10 m x 10 m offset isosceles grid system (see Banning 2002:97-100) to collect soil core samples. For each sample location within the collection grid, one sample was taken from the A/Ap horizon with an Oakfield soil probe. Roughly the top 5 cm of each core was discarded, with the next 10 cm of the core taken as a sample for analysis. All soil collection loci were mapped using sub-meter GPS and postprocessed with Pathfinder software by Trimble. These were then uploaded to ArcMap GIS. In floodplains (SA1 and SA5) additional soil samples were taken from approximately 30–40 cm below ground surface in every other transect at every other sample location. This resulted in a 20 m x 20 m offset isosceles collection grid for subsoil samples in alluvial settings.

Distributional patterns in soil properties are analyzed in the GIS through kriging interpolation, a geostatistical method for modeling the relationship between similarity among points and distance between those points. Kriging is more robust than other interpolation methods, and preferred for modeling soil properties. Interpolation enables the identification of expected values within the sampled frame to create a continuous surface of distribution and magnitude to analyze within the GIS relative to other layers.

## Results

Multiple SAs in this project yielded significant data. The most intriguing results, and that which we focus on here, came from SA1, SA2, SA4, and SA5. Each SA will be discussed individually. General findings and comparisons will be discussed last.

SA1 was targeted for reinvestigation of the Meyer’s site (12D480) reported, but not surveyed, by Parish and McCord (1995). SHAARD records the Meyer’s site as having Late Archaic, Mississippian (a.k.a. Late Prehistoric), and Woodland components. Parish and McCord’s informant had stated there were “dense concentrations of burnt earth, fire-cracked rock and charcoal. . .” when the field had been plowed (Parrish and McCord 1995:39). The collection that was reported for this area contains diagnostic projectile points ranging from the Late Archaic through the Late Woodland/Late Prehistoric and includes a number of celts associated with the Late Prehistoric period (Parrish and McCord 1995:39). This collection was donated by the current landowner to the AAL on October 12, 2013. The landowner stated she knew of only one collection location of the numerous artifacts in the collection, an Adena Stemmed projectile point which she herself collected. This was south and outside of the area previously designated as the Meyer’s site. Accompanying this Adena Stemmed projectile point were close to 100 other diagnostic projectile points. The majority of these diagnostic projectile points were of the Late/Terminal Archaic and Early Woodland chronological periods, with a few Late Prehistoric/Mississippian Triangular Cluster points (Justice 1987:224-227).

Our analyses of the soils at SA1 revealed two distinct areas of probable prehistoric activity. Within the plowzone (Figure 7) there are two patterns of note. There is a very high

enrichment south of the original site boundaries which may be related to the subsoil enrichment discussed next. Second, there is an anomalous area that corresponds with the artifact distribution from our pedestrian survey and the previously recorded boundaries of the Meyer's site. The first anomalous area is also seen in subsoil at SA1. The buried enrichment which dominates the subsoil distribution map represents an earlier depositional event which has been clipped by plowing and drawn into the plowzone (Figure 8). Stratigraphically, the cultural phenomena associated with the deeper subsoil is certainly older than the phenomena associated with the plowzone soil readings.

With this in mind, the plowzone pattern located in the northern portion of SA1 and within the original boundaries of the Meyer's site is likely a discrete occupation separated in time and space from the earlier (subsoil) event. The shallow, plowzone activity may be a Late Prehistoric village, as the phosphate distribution suggests a faint ring-shaped pattern that is typical of Late Prehistoric villages (see Brady-Rawlins 2007; Cook 2008; Graybill 1981; Henderson 1998; Nolan 2010; Pollack and Henderson 1992; among others). The subsoil activity encompasses the area in which the only diagnostic projectile point with a known provenience from the landowner collection was found. As of now, the soils analysis coupled with the artifact analysis suggest the possibility that this area may have been a large Early Woodland period habitation. The noticeable enrichment in soil phosphate content, large amounts of fire-cracked rock and debitage, as well as the flaked stone tools recovered, support this interpretation. Thus, two distinct phosphate signatures at different depths may reveal that SA1 has two chronologically separate habitation components.

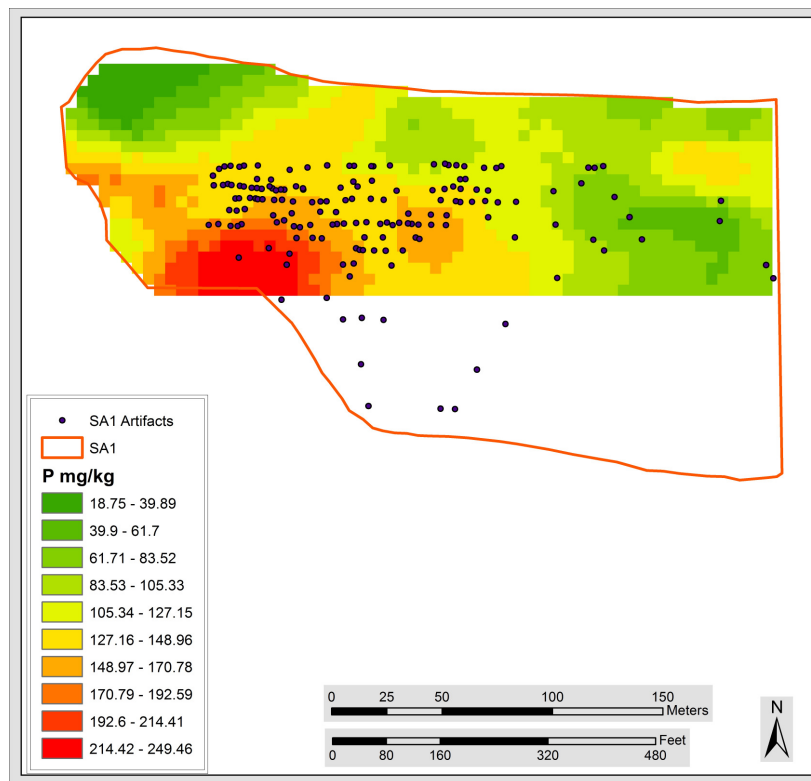
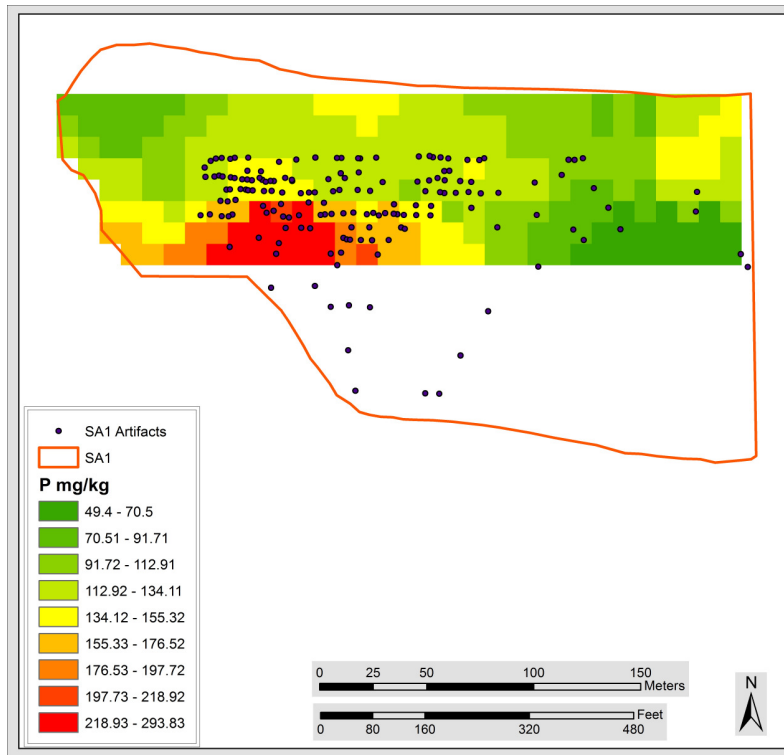


Figure 7. Kriging of SA1 soils phosphate in the plowzone.





**Figure 8. Kriging of SA1 soil phosphate from subsoil samples.**

Magnetic susceptibility (MS) analysis was conducted on the same soil samples analyzed for soil P. The low frequency (LF) mass specific MS enriched area matches the overall orientation of the original SHAARD polygon, but the peaks define a more constricted area of intense activity (Figure 9). The areas of most intense LF MS describes an arc along the southern edge of the original polygon up to the north towards the Whitewater River cutting through the middle of the polygon. The frequency dependent (FD) MS shows a distinct concentration on the southern end of the survey area centered in the same area as the largest peak in LF (Figure 10). Overall, however, there appears to be an extensive area with heat-induced magnetism focused at the southern end of the LF MS arc. The soil samples from SA1 have been nearly entirely measured; however, the southern thirty meters has only been completed to a 20 m x 20 m resolution. The trends in distribution at the southern extreme are therefore more generalized.

The relationship between P and MS in SA1 is very interesting. The extreme phosphate enrichment in the southwest corner of SA1 is not the most enriched in MS, though still high. Both LF MS and soil P exhibit an arc-shaped pattern within the western side of the original SHAARD polygon that overlaps. The eastern side of the arc is weaker in soil P and stronger in LF MS. The western arc is not visible in the LF MS, but relatively strong on soil P. The eastern low peak in soil P is not present in the LF MS, but is a narrow ridge in the FD MS. Direct comparison of the two is complicated by the extreme subsoil enrichment of soil P in the southwest corner which is overshadowing the strong plowzone soil P signal.

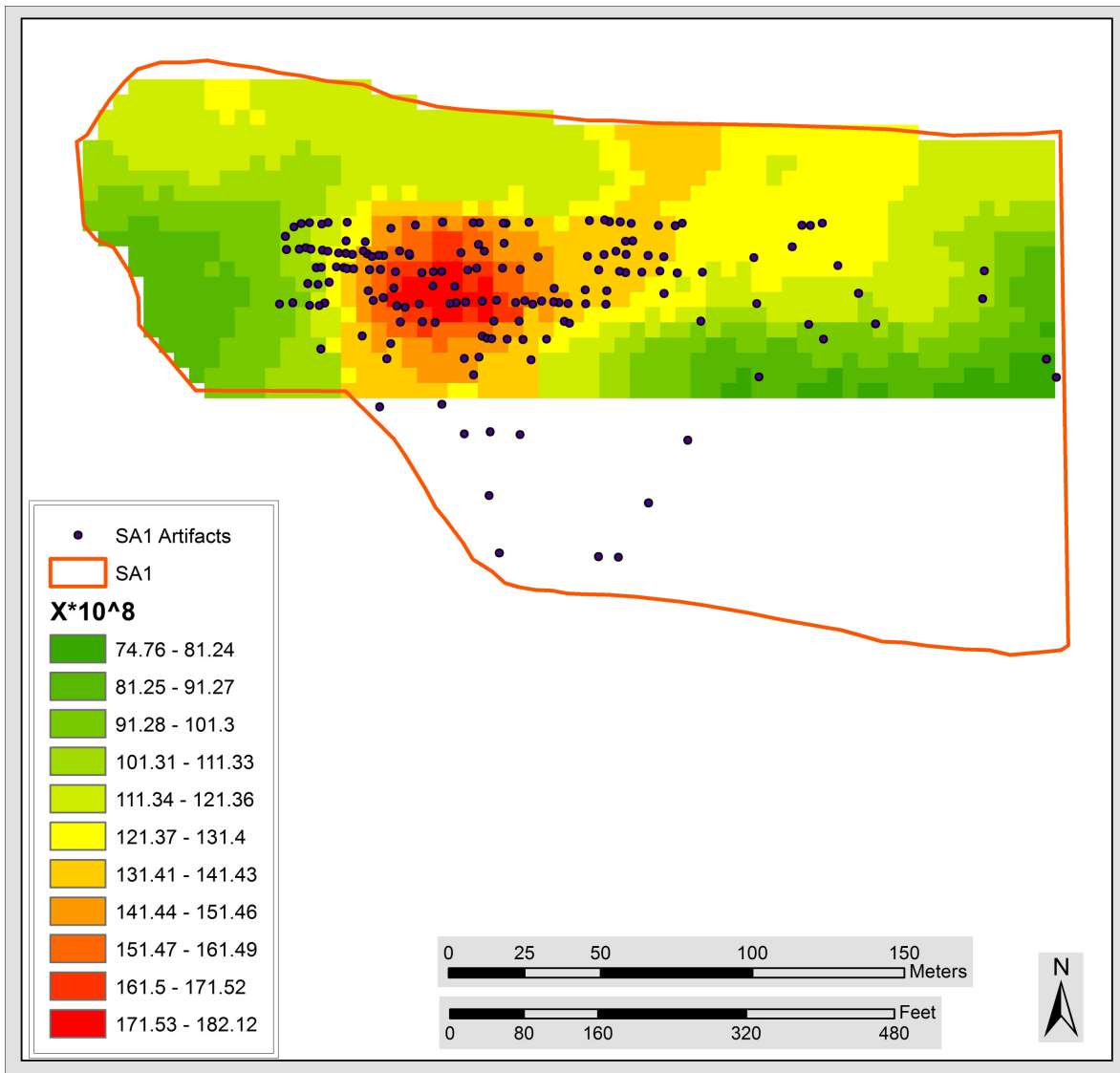
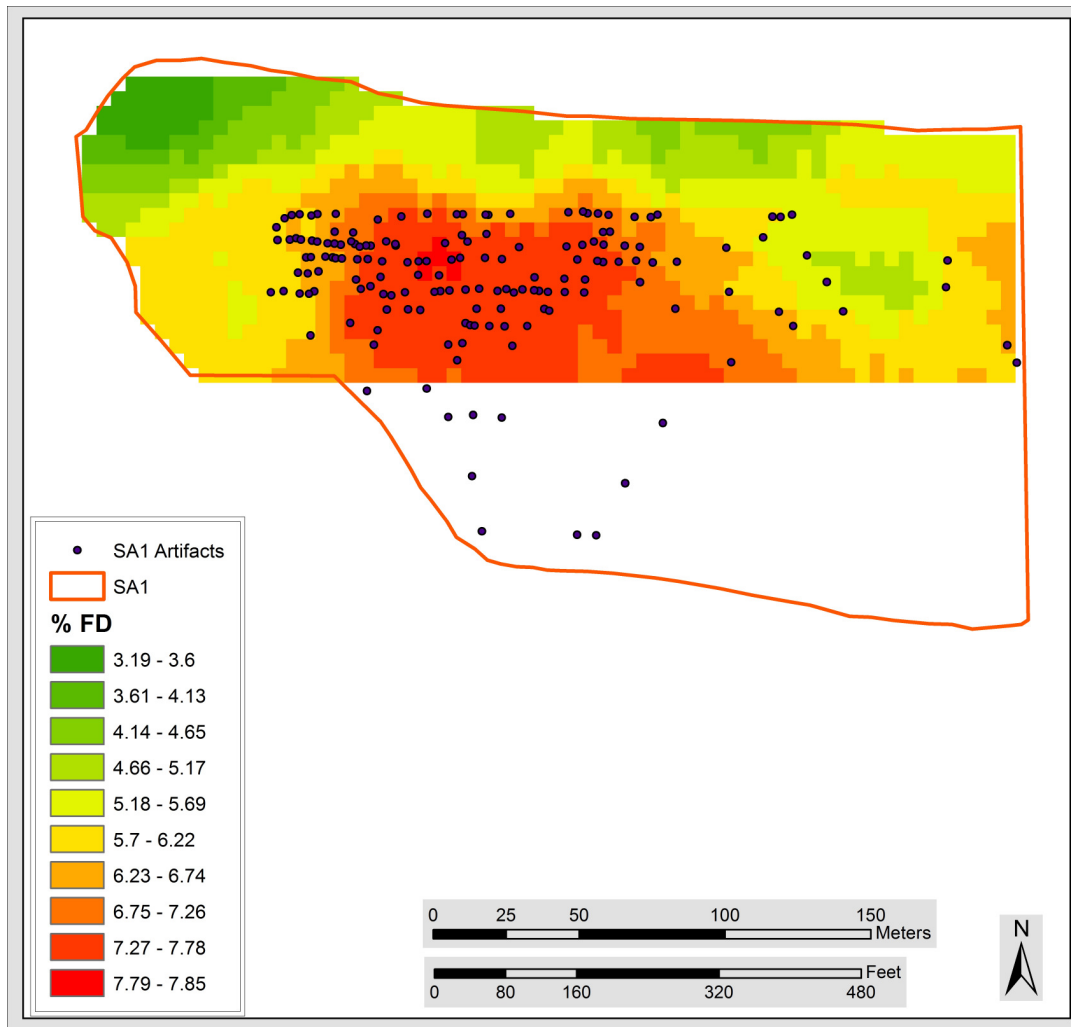


Figure 9. Kriging surface of SA1 low frequency mass specific magnetic susceptibility.



**Figure 10. Kriging surface of the frequency dependent magnetic susceptibility distribution in SA1.**

At SA2, our field crews encountered site 12D491, also known as the Kocher site (Parrish and McCord 1995). Two days were spent in the field for pedestrian survey at SA2, recovering 11,917 artifacts. The densest regions of SA2 were within the confines of the Kocher site. Analysis of the material culture at Kocher revealed multiple chronological periods were represented, with a majority of them being Late Prehistoric. Spatial analysis of artifacts revealed interesting patterns at the site (Figure 11). The combination of these data led to the suggestion that the Kocher site is a Fort Ancient village site. The circular arc morphology typical of a Fort Ancient village can be seen in Figure 11. This figure is a composite kriging interpolation of all artifacts recovered from the village area.

A second interesting aspect of the investigation of SA2 was discovered after the pedestrian survey while viewing the surrounding properties with elevation data from the remote sensing technology known as LiDAR (Light Detection And Ranging). A possible mound is readily visible in the elevation model (Figure 12). The age of the possible mound is unknown, but the feature is approximately the same size as the Late Prehistoric village to the east (the Kocher site). Given the abundance of Hopewell activity (i.e., multiple Hopewell bladelets and a Snyder's projectile point, and possibly some of the grit-tempered ceramics) within SA2, it is possible that this represents a Middle Woodland mound. The current landowners of SA2

informed us that when their father owned the parcel with the possible mound, he had tried to plow it down and that he also recovered at least one burial from the hill.

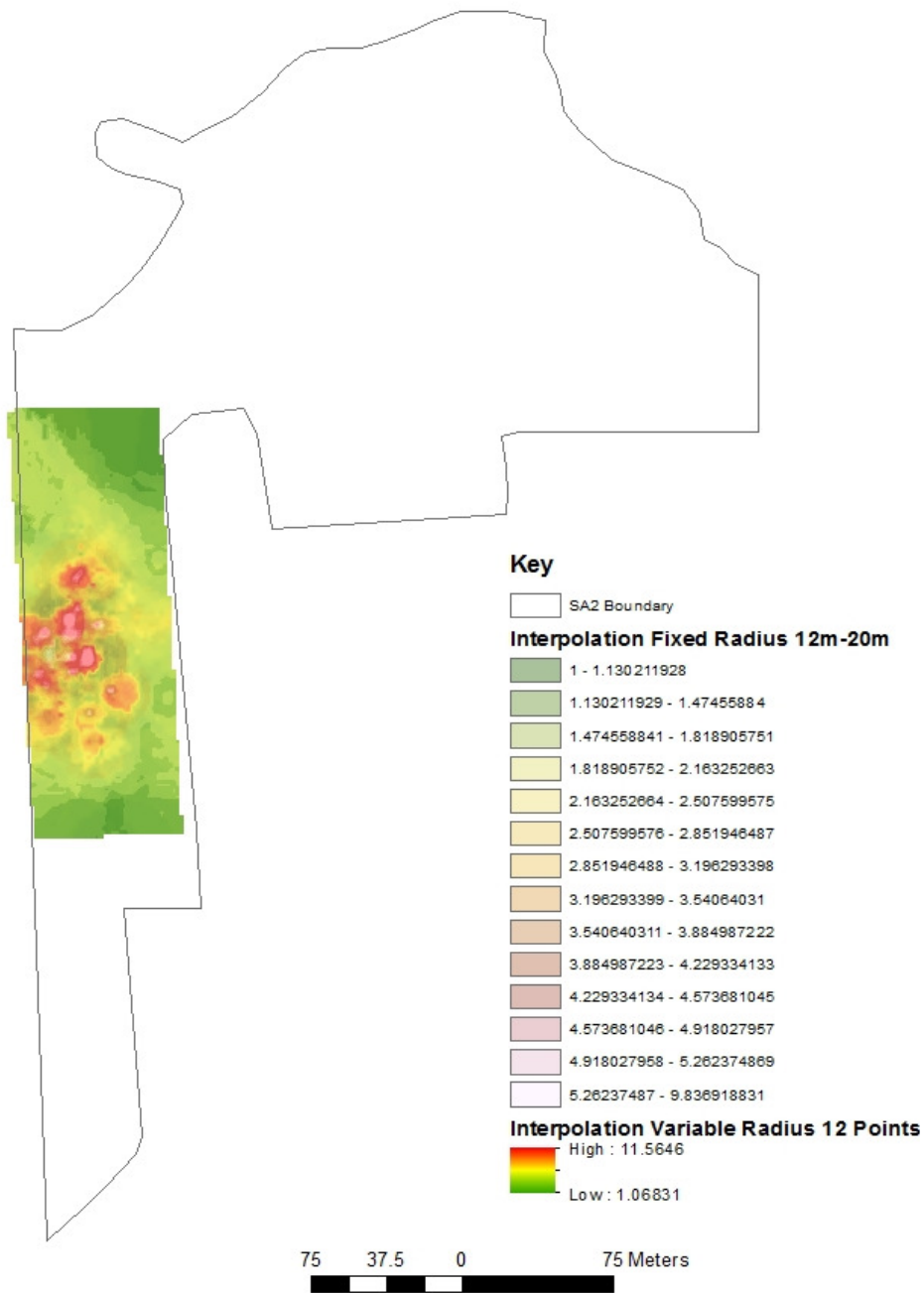
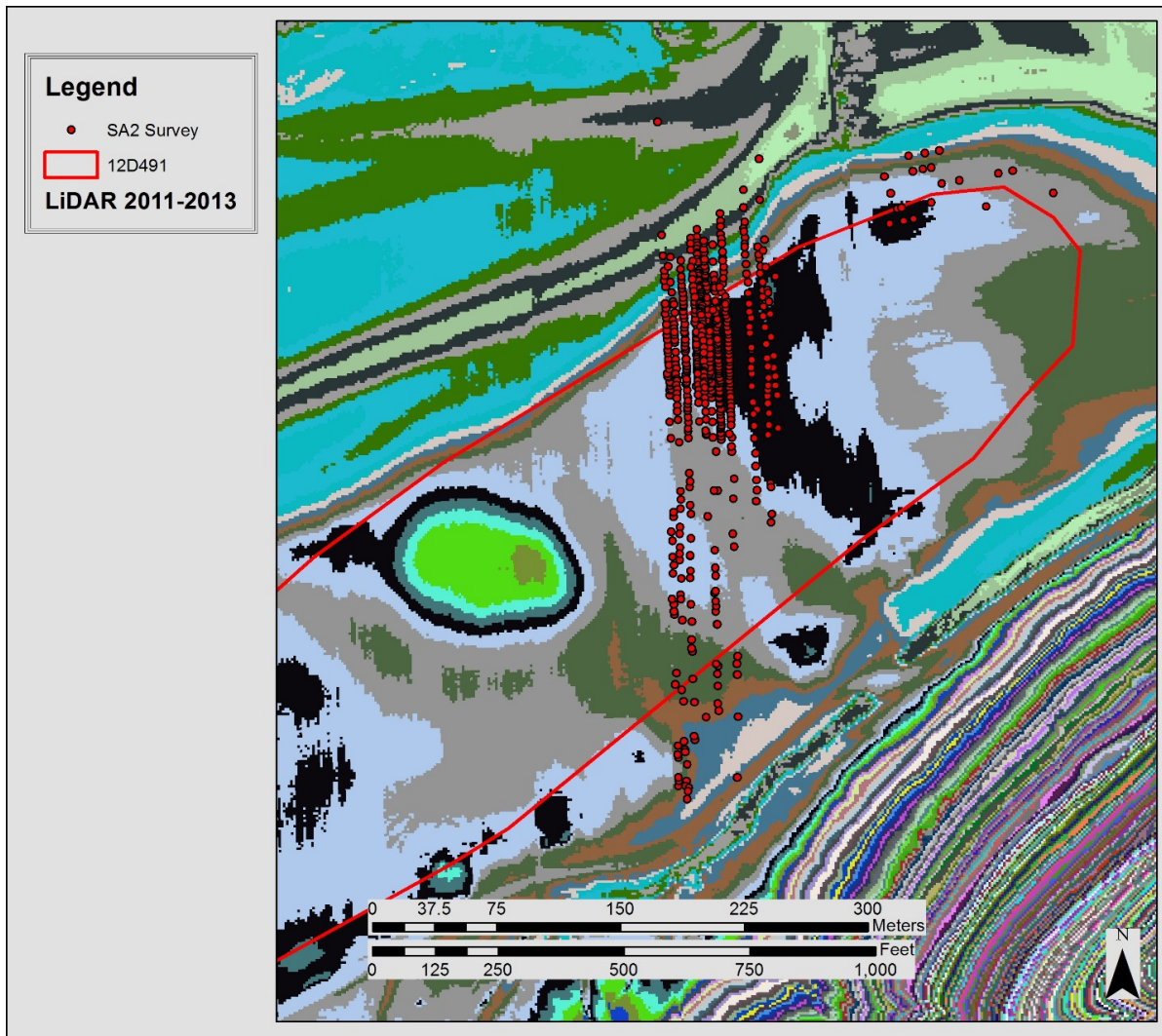
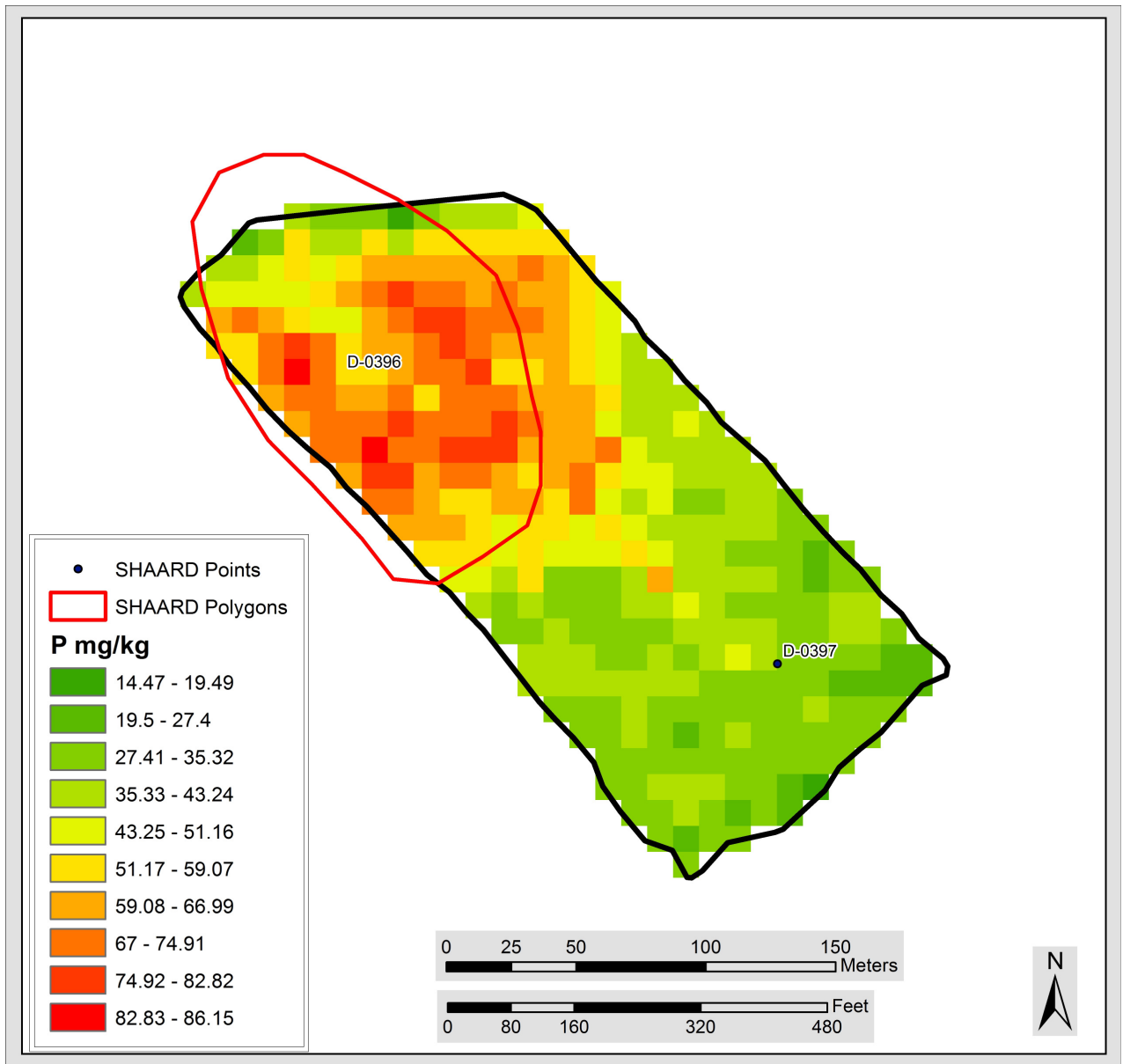


Figure 11. Composite interpolation of all SA2 artifacts.

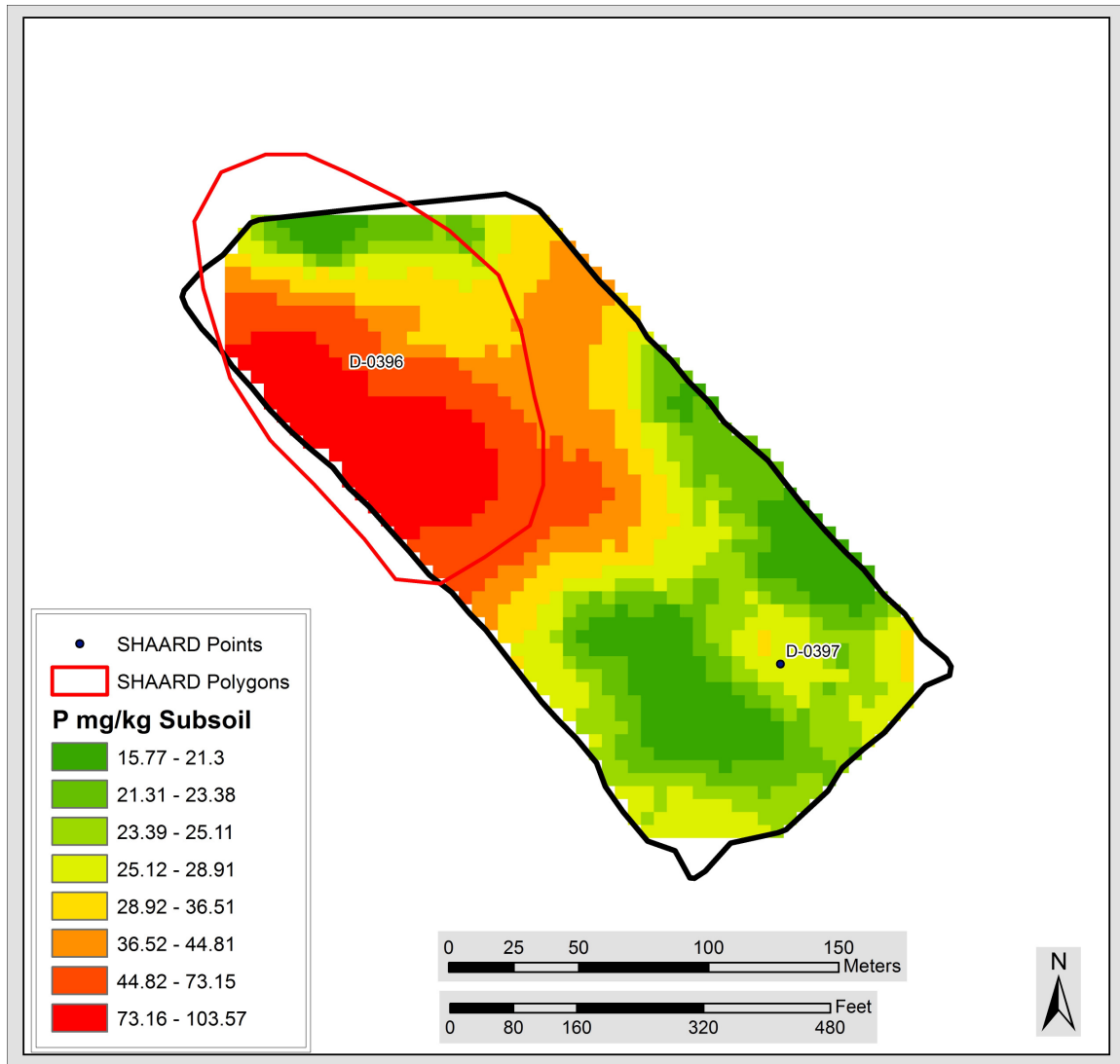


**Figure 12. Reclassified LiDAR elevation data depicting SA2 artifact distribution and probable mound to the southwest. IndianaMap Framework Data (2013).**

In SA5 we reinvestigated sites 12D396 and 12D397, sites previously surveyed and reported by Parrish and McCord (1995). Site 12D396 contained over one hundred artifacts. Diagnostics were associated with the Late Prehistoric, though with no known artifact distribution, site structure was unknown. Our analyses of soil P and MS revealed several peaks that can be associated with organic waste deposition (midden) and activities associated with burning. Similar to the Kocher site at SA2, within SA5 we see the morphological characteristics of a circular Late Prehistoric village (Figure 13). Other surprising results were obtained from the soils analyses in SA5 with regard to site 12D397. The site contained only two artifacts, neither of which are temporally diagnostic. Such sites are often written off as non-significant because they are presumed to lack intact subsurface features and therefore lack information potential. Our soils analyses revealed phosphate signatures in both the plowzone and the subsoil beneath site 12D397 (Figure 14). Given this, the argument that small lithic scatter sites lacking fire cracked rock are unlikely to have intact subsurface deposits or yield additional information beyond a Phase Ia survey may be untenable.



**Figure 13. Kriging surface for plowzone soil phosphate at SA5.**



**Figure 14. Kriging surface for subsoil phosphate concentration in SA5.**

Lastly, intriguing results were obtained from the soils analyses of SA4. This survey area is located in an area that is mapped in SHAARD as containing site 12D44, which was reported in the SHAARD database as being located in two separate areas. The area mapped as site 12D44 is actually a village extension of site 12D45. Black (1934) found this site (12D45) to be rich in village debris near the mound, but a full-scale traditional archaeological investigation of the site is now precluded. However, through our application of geochemistry and geophysics we are able to document the organization and extent of previous midden where no previous distributional information was available (Figure 15). This distributional pattern is not explicable by variable disturbance, construction, or the presence of roads or any other feature of historic land use. Further, the FD MS (Figure 16) shows that the spikes in soil P are also grossly correlated with peaks in fire-induced MS. Even when the site has been nearly entirely destroyed, the methods employed here can reveal surprising and crucial details about the nature and distribution of activities.



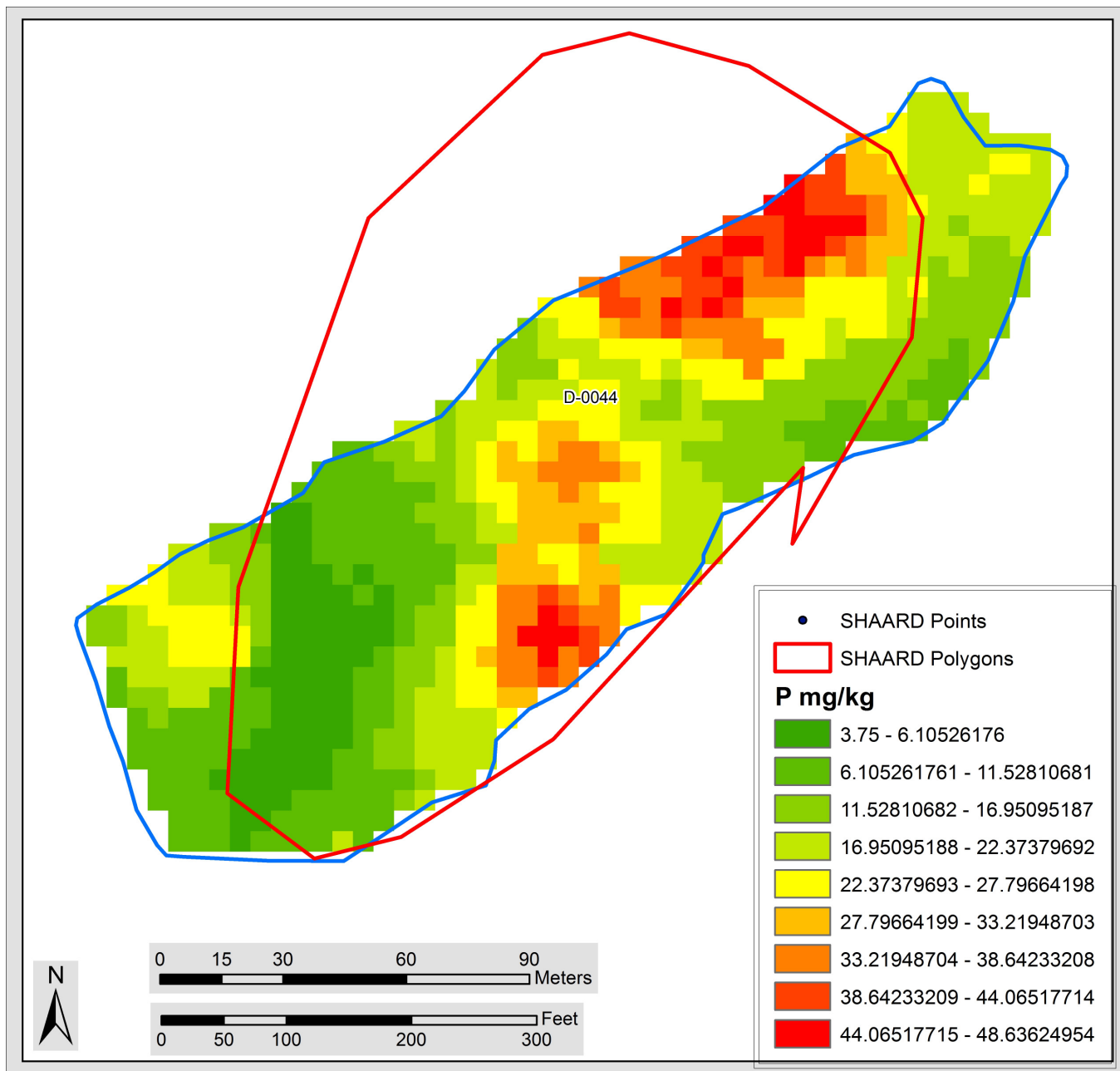
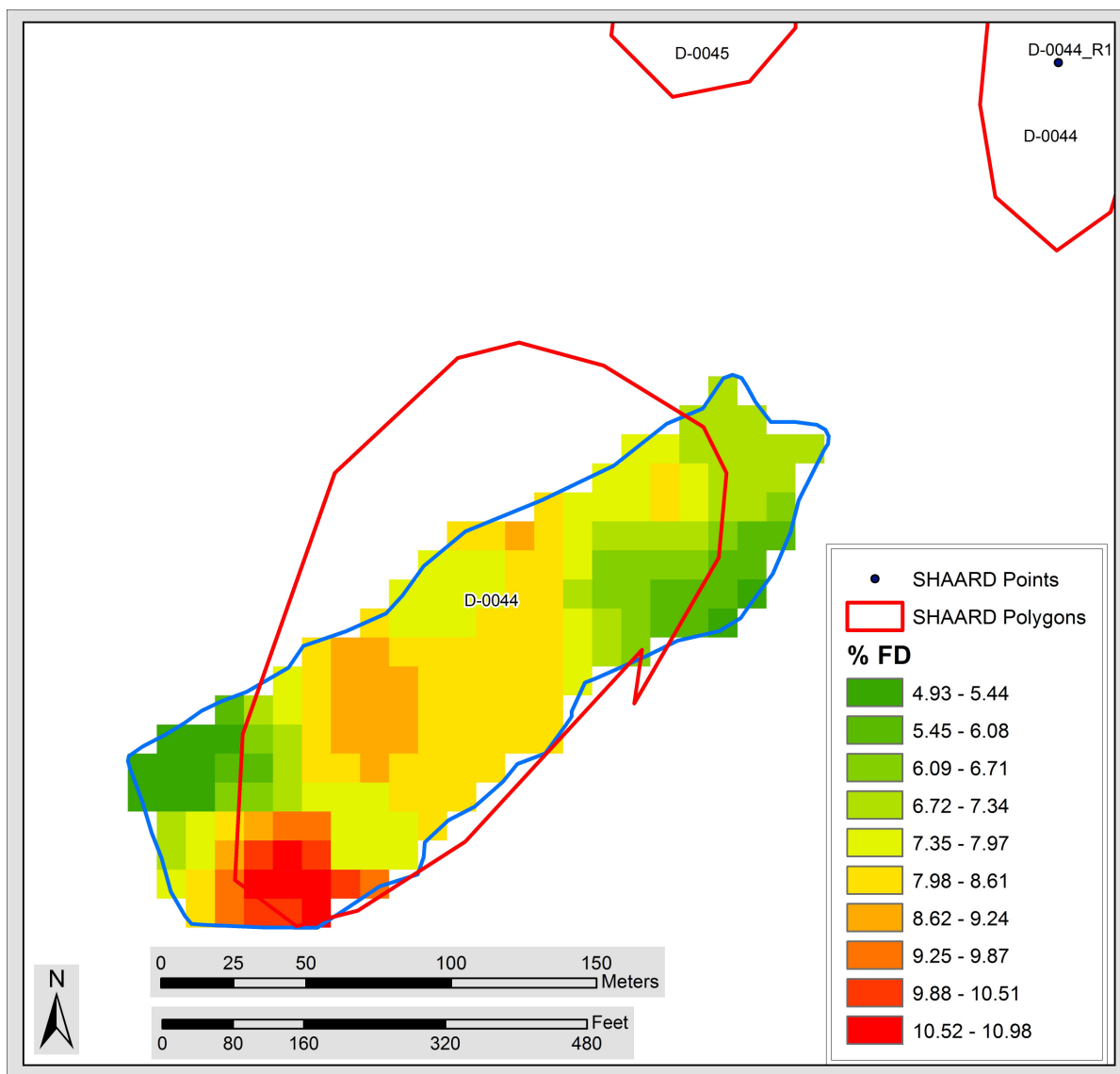


Figure 15. SA4 soil phosphate analysis kriging results.





**Figure 16. Kriging surface of frequency dependent magnetic susceptibility for SA4.**

## Conclusion

The reinvestigation of multiple Late Woodland/Late Prehistoric sites during this study has produced significant data about settlement patterns and site morphology. This is especially true for Late Prehistoric village sites. Smaller lithic scatters that, at present, may be considered ineligible for listing on the National Register of Historic Places have been shown to contain geochemical soil traces of subsurface deposits. It is not known how they fit into regional prehistoric sequences and settlement systems because no one has investigated them. Multiple SHAARD data inconsistencies have been investigated and resolved. These have included the locations of continuous sites discussed by Moorehead (1906) and Black (1934), as well as more recent inconsistencies such as the true location of site 12D44.

Lastly, our surveys were conducted in areas where artifact collecting has been heavy, and in some cases little trace of the archaeological sites were left on the surface. In some cases, only FCR and flakes are thinly scattered at a well-known village site (12D480). Analyses of soil P and MS have shown that vital information can still be obtained from these sites, even when there is little evidence left of them on the surface. Perhaps the most significant observation that can be made from this project is that often the traditional methods that we employ as archaeologists may not be enough to identify important cultural resources in a first pass reconnaissance typical of federally mandated surveys. As threats to these resources are increasing, geochemical and geophysical analyses are becoming necessary to providing a reasonable and good-faith effort to document and understand the archaeological record.

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## **Report / Feature**

# **AN ARCHAEOLOGICAL SURVEY OF THE SOUTHERN HALF OF MONTGOMERY COUNTY, INDIANA**

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## **Abstract**

The Applied Anthropology Laboratories (AAL), Department of Anthropology, Ball State University conducted a data enhancement project for archaeological resources in Montgomery County, Indiana, for a FY2013 Historic Preservation Fund Grant (Grant #18-13-13FFY-04). This Historic Preservation Fund grant project investigated the archaeological resources of Montgomery County, Indiana with a focus on the larger water sources including but not limited to the major creeks in the southern half of the county. Approximately 900.1 acres (364.26 hectares) of agricultural land were surveyed, and 246 new archaeological sites were recorded. The survey recovered 610 prehistoric artifacts and 1,174 historic artifacts from 13 parcels of land (survey areas) within Montgomery County. No human remains were discovered as a result of this grant project. Cultural periods that are represented in the artifact assemblage include Early Archaic, Middle Archaic, Late Archaic, Middle Woodland, and Late Woodland/Late Prehistoric components that were documented from the precontact era, in addition to historic components. The average site density recorded for the project area for precontact sites was one site per 5.26 acres and for historic sites was one site per 12.00 acres.

## **Introduction**

From 2013 to 2014 the Applied Anthropology Laboratories (AAL) in the Department of Anthropology at Ball State University surveyed approximately 900.1 acres of agricultural land as part of a Historic Preservation Fund Grant that focused on the southern half of Montgomery County, Indiana. The project relied on pedestrian surveys conducted in transects spaced at 10 meter intervals. The goals of the project were to increase the site database, resolve inconsistencies in the State Historic Architecture and Archaeological Database (SHAARD), refine the cultural chronology for the county, refine settlement patterns of the precontact era, and enhance our understanding of the early Euro-American period. Specifically we hoped to add to the understanding of the Paleoindian and Early Woodland periods of the county based on the low number of previously documented sites for these cultural periods in comparison to the surrounding counties. Montgomery County had 440 recorded archaeological sites in SHAARD prior to this survey, 220 of which were added as a result of Ball State's previous FY2010 HPF

Grant of the northern portion Montgomery County (Division of Historic Preservation and Archaeology 2014; Murray et al. 2011). Major waterways targeted in this investigation included the Big and Little Raccoon Creeks, East Fork Coal Creek, Rattlesnake Creek, Sugar Creek, Indian Creek, and Cornstalk Creek. The southern half of the county is primarily comprised of till plain and moraine landforms. Due to landowner permissions and visibility of specific parcels, the majority of the survey also consisted of these landforms with relatively few alternative landforms being surveyed such as floodplains.

## **Background**

To provide a framework for interpreting the data collected during this project, a review of the natural and cultural setting of the research universe was undertaken. The background information presented in this article includes environmental and archaeological information concerning Montgomery County, Indiana.

### *Natural Setting*

Montgomery County (Figure 1) has an area of approximately 323,500 acres (130,916 hectares) (Hosteter 1989:1). For this project, the research focused on the southern portion of the county. For the proposed research, we targeted areas surrounding the aforementioned waterways available in the southern half of the county.

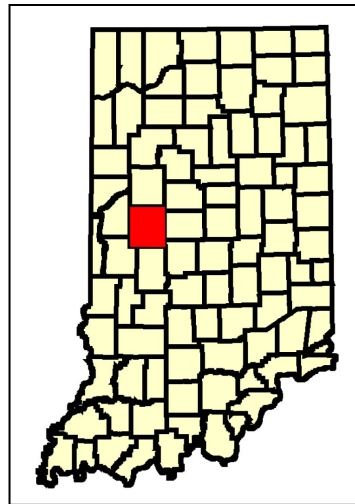
Montgomery County is within the general physiographic unit known as the Tipton Till Plain, an area of low relief with extensive areas of ice-disintegration features (Gray 2000). The Tipton Till Plain has a nearly flat to gently rolling topography which is crossed by several end moraines created during the Wisconsin glaciation (Wayne 1966:34). However, the end moraines within the area are so low and poorly developed that the Tipton Till Plain is generally characterized as “virtually featureless” (Schneider 1966:49).

Sugar Creek is the major water source running through Montgomery County; however, there are also many other smaller streams and creeks. Near Sugar Creek, the topography is characterized by abrupt elevation changes and deep draws that cut into level areas (Hosteter 1989:1). Sugar Creek is a tributary of the Wabash River watershed which acts as a drainage system for two thirds of the state flowing in a northeast-southwest direction (Hale 1966:92; Schneider 1966:50). In addition, the county has two lakes, Lake Waveland and Lake Holiday in the southern part of the county, which are important surface water deposits.

Attica chert (Figure 2) and Sugar Creek chert (an Attica variant) are the only documented bedrock cherts in the region around Montgomery County (Cantin 2008). Attica chert outcrops appear in adjacent Fountain, Warren, and Boone counties (Cantin 2008:11-12). Stratigraphically, Attica chert is a member of the Muldraugh Formation of the Borden Group of the geological Mississippian Period (Cantin 2008:15). Outcrops likely do not occur in Montgomery County because Sugar Creek does not cut deep enough to reach Mississippian bedrock. Pennsylvanian sandstone dominates the rock facies in the county. Also known as “Wabash Green” and “Independence,” Attica chert is described as being blue-green in color with blue-grey streaks, bands and mottles (Cantin 2008:11-12). When heat treated, Attica chert takes on a purple color with pinkish bands and streaks (Cantin 2008:12). Texture is variable, ranging from fine-medium



to medium coarse, and luster is generally dull to slightly glossy (Cantin 2008:12). Fossil inclusions are rare with the exception of microscopic sponge spicules, but crystalline vugs have been encountered (Cantin 2008:12). Temporally, Attica chert is found in all cultural periods in Indiana; however, little use is documented for Woodland and Mississippian periods in Indiana (Cantin 2008:13).



**Figure 1. Location of Montgomery County within the State of Indiana (Yellowmap World Atlas 2012).**



**Figure 2. Example of Attica chert from the Ball State University AAL Chert Collection (photo by Ball State University).**

## *Cultural Setting*

The natural setting of Montgomery County demonstrates a hospitable environment following the retreat of the Wisconsin glaciation. Site components in the county include Paleoindian through the historic period. Per SHAARD, the most frequently identified cultural affiliation is historic, followed by Late Archaic and Early Archaic (Division of Historic Preservation and Archaeology 2014).

Archaeological investigations in Montgomery County have been predominantly oriented toward surface surveys and only a small percentage of sites have been tested or excavated. Major surveys have been conducted within and around the current research universe and include portions of the drainage basin of the Wabash River. One major survey performed within the region consisted of a major Phase Ia survey conducted by Ball State University in 2010 which concentrated on the northern portion of the county (Murray et al. 2011). Other surveys include those focused on Miami occupations (Wepler 1984), an archaeological survey of the Wabash Moraine (Cochran and Buehrig 1985), and a survey of Paleoindian and Early Archaic sites (Holstein and Cochran 1986). Excavations within the region of the current research universe consist of an archaeological assessment of the Wingate Sewage Treatment Plant resulting in the location of one site (12My21) through test excavations (Pace 1980). Excavation in Montgomery County has focused on Middle Woodland Havana and Late Woodland Albee sites (Anslinger 1986, 1990; Anslinger and Pace 1978; McCord and Cochran 1994; Pace 1989; Trubowitz 1989). Montgomery County holds one of the best known Albee Phase sites (Morell Sheets, 12My87) in the state which was excavated by Ball State University (McCord and Cochran 1994).

The first European settlers in Montgomery County were William Offield and party who settled in what is now southwestern Union Township in 1821. Within a year, a community began to settle at what is now Crawfordsville, the county seat. The county was organized in 1822 with the Indiana State Legislature voting to take a part of northern Putnam County and turn it into Montgomery County (Henning 1986:xiii). The county was named for Brigadier General Richard Montgomery who found fame in the Revolutionary War (Lu 2001:59). In 1823, the federal land office was relocated from Terre Haute to Crawfordsville which led to growth for the county (Henning 1986:xiii). Land sales brought an influx of immigrants from Kentucky and Ohio (Lu 2001:59). Another notable name from Montgomery County is Major General Lew Wallace, the son of Indiana's sixth governor who participated in several Civil War battles. Wallace later became the Indiana's adjutant general and went on to receive fame as a war hero and author of the novel *Ben Hur* (Graham 2011; Lu 2001:63; Moore et al. 2012).

## **Archaeological Survey**

### *Results*

The survey documented some of the human occupation of Montgomery County beginning from the Early Archaic period and extending until the historic period. Considering the limitations of Phase I surveys, such as partial ground coverage, surveyor limitations, field conditions, etc., it is presumptuous to assign functionality to sites identified solely by pedestrian survey. Site types were therefore not defined beyond isolates and scatters. However, it appears likely based upon

the variation in the type of artifact classes discovered on the sites (e.g. formal vs. expedient tool production), as well as the amount of artifacts found at the sites (e.g. 2 artifacts vs 20 artifacts), that multiple sites types were represented.

This project was conducted by AAL archaeologists and Ball State University (BSU) anthropology students. Principal Investigators were BSU archaeologists Christine Thompson and Kevin C. Nolan. The survey was conducted between September 21, 2013, and March 7, 2014. 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 40 and 95 percent ground surface visibility. All artifacts except fire-cracked rock and brick were collected and bagged by site specific provenience. Fire-cracked rocks and bricks were counted in the field, but were not collected. Artifact locations were assigned temporary site numbers in the field. Site coordinates were collected with a Trimble Geotracker 6000 Series and post-processed to sub-meter accuracy using Trimble GPS Pathfinder Office series v5.3 software. Field notes were maintained by AAL archaeologist Christine Thompson and graduate assistant Colin Macleod.

All materials generated by this project were accessioned at the AAL at Ball State University under accession number 13.62. Artifacts were identified, analyzed, and photographed per DHPA guidelines and then returned to the landowner.

### *Artifacts*

The project recovered 610 prehistoric artifacts and 1,174 historic artifacts (Table 1). The majority of prehistoric artifacts consisted of lithic debitage. Edge modification noted on several flakes indicates some debitage could function as expedient tools. The majority of formal lithic tool types were projectile points dating to the Early Archaic, Middle Archaic, Late Archaic, Middle Woodland, and Late Woodland/Late Prehistoric periods (Table 2 and Figures 3-6) (Justice 1987). Other stone tools consisted of a ground stone axe head (Figure 7), endscrapers, sidescrapers, groundstone tools, burins, and core tools. Historic artifacts included various types of ceramics, various colors and types of glass, metal objects, and brick fragments, dating from the late 18<sup>th</sup> century to present (Figure 8-10).

<b>Table 1. Artifacts Recovered.</b>			
<b>Prehistoric</b>	<b>No.</b>	<b>Historic</b>	<b>No.</b>
Biface, Hafted	18	Amber Glass	65
Biface, Unhafted	23	Aqua Glass	193
Flake, Retouched Edge	19	Clear Glass	274
Core Tool	15	Cobalt Glass	9
Core	42	Frosted Glass	1
Flake, Proximal	155	Green Glass	6
Flake Tool	25	Milk Glass	46
Flake, Edge Modified	65	Sun Colored Amethyst Glass	88
Flake, Utilized	11	Creamware	6
Angular Shatter	41	Earthenware	1
Groundstone Axe	1	Ironstone	56
Groundstone Tool	7	Porcelain	3

<b>Table 1. Artifacts Recovered.</b>			
<b>Prehistoric</b>	<b>No.</b>	<b>Historic</b>	<b>No.</b>
Hammerstone	2	Redware	1
Nutting Stone	3	Semi-Porcelain	18
Flake, Shatter	183	Stoneware	179
		Whiteware	71
		Whiteware, Burned	2
		Ceramic Insulator	6
		Doll Fragment	1
		Metal, Bolt	1
		Metal, Doorknob	1
		Metal, Horseshoe	9
		Metal, Nail	3
		Metal, Gear	1
		Metal, Wheel	1
		Metal, Pipe	1
		Metal, Signpost	1
		Rubber, Shoe Sole	1
		Unidentified Metal	29
		Light Bulb	1
		Copper Heart	1
		Bone, Non-Human	4
		Plastic	4
		Floor Tile	1
		Brick	34
		Cement	1
		Clinker	13
		Coal	11
		Field Tile	30
<b>Total</b>	<b>610</b>	<b>Total</b>	<b>1174</b>

<b>Table 2. Diagnostic Prehistoric Artifacts by Cultural Time Period.</b>	
<b>Cultural Period</b>	<b>Projectile Point Styles</b>
Early Archaic	MacCorkle Stemmed (1), Stilwell (1), Kirk Corner Notched Cluster (1)
Middle Archaic	Raddatz Side Notched (2), Large Side Notched Cluster (1)
Late Archaic	Karnak Stemmed (1), Turkey Tail Cluster (1), Kirk Corner Notched Cluster (1), Brewerton Corner Notched Cluster (1)
Middle Woodland	Snyders (1)
Late Woodland/ Late Prehistoric	Triangular Cluster (2), Nodena Cluster (1)



**Figure 3. A Middle Archaic Raddatz Side Notched point from site 12My480 (photo by Sarah Aown, Ball State University).**



**Figure 4. Hafted biface consistent with Karnak Stemmed points recovered from site 12My588 (photo by Sarah Aown, Ball State University).**



**Figure 5. Snyders point recovered from site 12My599 (photo by Sarah Aown, Ball State University).**



**Figure 6. Triangular Cluster point recovered from site 12My632 (photo by Sarah Aown, Ball State University).**





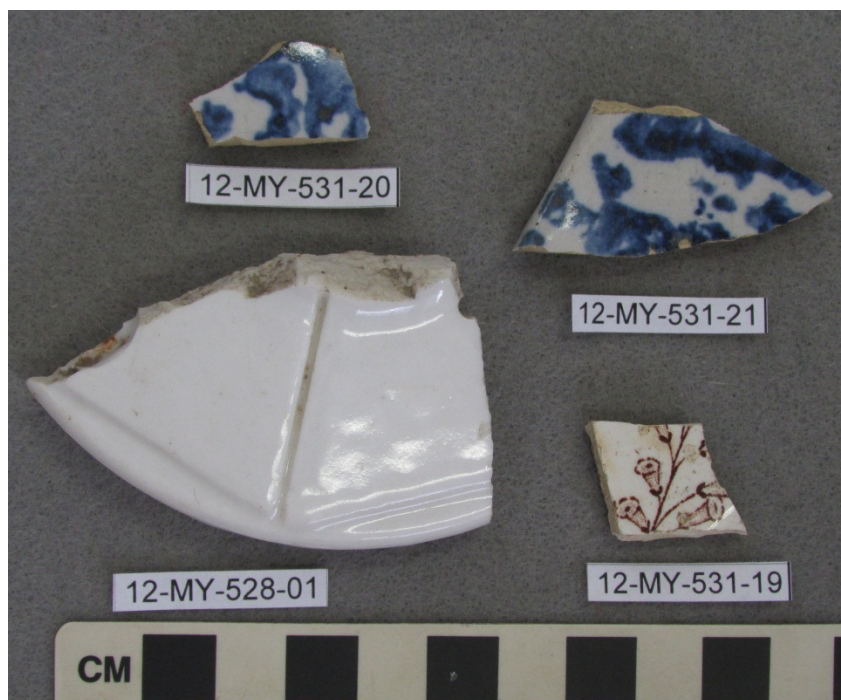
Figure 7. Groundstone axe head from site 12My560 (photo by Sarah Aown, Ball State University).



Figure 8. Copper heart shaped mold from site 12My519 in Survey Area 7 (photo by Sarah Aown, Ball State University).



**Figure 9. Representative historic artifacts from Survey Area 9 (photo by Sarah Aown, Ball State University).**



**Figure 10. Representative historic artifacts from Survey Area 9 (photo by Sarah Aown, Ball State University).**



## *Chert*

Lithic artifact chert types are shown in Table 3. The chert identification is listed by geologic time period as this is the most accurate and consistent means of identification (Andrefsky 2005; Kooyman 2000). Chert was then listed by which type it is most consistent with as described in Cantin (2008), and through direct comparison with specimens of known source in the AAL comparative collection. If the artifact material displayed characteristics that were consistent with multiple chert types, per Cantin's descriptions, then all applicable types were listed in the identification. Many chert types and their descriptions overlap in observable traits. Further, no chert types described by Cantin possess discrete class definitions (see Dunnell 1970); that is, all types have a definition that is contingent upon varying degrees of presence and lack necessary and sufficient characteristics for membership. Therefore, the chert types identified below are listed by which types they are most consistent with, in terms of possessing the necessary characteristics in some capacity. As any one type of chert can vary considerably in its observable characteristics, there are necessarily limits on the ability to confidently assign an artifact's material to one purported type. Thus, all identifications are made at the highest order of affiliation and level of confidence possible, given that the methods used decrease the level of confidence as specificity increases. This method is conducted in this study by listing geologic period first and then subsequently all chert types the material in question is consistent with.

The lithic artifacts for this survey were dominated (50.5%) by cherts from the geologic period known as the Mississippian (ca. 359-323 mya [million years ago] [Cohen et al. 2013]). Of the Mississippian assemblage, an overwhelming majority was consistent with Attica chert (45.9%). This is likely due to two factors. First, Attica chert was the predominant chert type recovered in Survey Area 12 which contributed a substantial amount of lithic material to the survey as a whole. Second, while no outcrops of Attica chert exist in Montgomery County, it is by far the closest primary chert source and is found in nearby Boone, Fountain, and Warren counties. Three of the projectile points recovered were consistent with Attica chert, all of which dated to the Late Archaic period.

Chert from the Silurian period (ca. 444-419 mya [Cohen et al. 2013]) had the second greatest representation in this survey (39.4%). Of the Silurian material recovered, those consistent with Liston Creek comprised the majority of the collection with a representation of 30.0% of the total chert assemblage. There are no naturally occurring Liston Creek chert outcrops in Montgomery County; however, Cantin shows Liston Creek chert occurring upriver in nearby Huntington, Wabash, and Miami counties (Cantin 2008:9). The hydrologic action of Sugar Creek combined with glacial activity may have contributed to the presence of this raw material in the county. Four of the projectile points recovered were made from Silurian chert, three of which were consistent with Liston Creek chert and one that was consistent with both Liston Creek and Laurel chert.

Pennsylvanian period (ca. 323-299 mya [Cohen et al. 2013]) chert is the third greatest in abundance (3.4%) with specimens consistent with Holland chert being the most common from this period, forming 3.2 percent of the total chert assemblage. The low amount of Pennsylvanian chert is to be expected as the sources of these cherts in Indiana are located exclusively in the southern half of the state. One projectile point was recovered that was identified as being most consistent with Holland chert.

Devonian period chert (ca. 419-359 mya [Cohen et al. 2013]) is the fourth most abundant chert with a low representation (0.7%). All of this was Jeffersonville chert, and its poor representation is expected as Jeffersonville is the only Devonian chert in Indiana and it outcrops far to the southeast in the state (Cantin 2008). Unidentified chert also makes up a relatively small part of the total chert assemblage (6.1%).

The breakdown of the chert tells us that prehistoric people living in Montgomery County were relying primarily on local, easily obtained resources (75.9%) such as Attica and Liston Creek for all uses including formal tools. It also indicates that this heavy reliance on local resources was supplemented occasionally with more exotic lithic materials from farther south such as Holland and Wyandotte. These exotic materials seem to have been procured primarily for formal tool production or even more likely as readymade formal tools as evidenced by the presence of projectile points but relatively low amounts of debitage.

**Table 3. Chert Raw Materials.**

<b>Chert</b>	<b>No.</b>	<b>Percent of the Whole Assemblage</b>
<b>Silurian Chert (ca. 444-419 mya)</b>	<b>234</b>	<b>39.4</b>
Laurel	9	1.5
Laurel HT	2	0.3
Liston Creek	161	27.1
Liston Creek HT	17	2.9
Fall Creek	5	0.8
Fall Creek HT	1	0.2
Kenneth	10	1.7
Consistent with Laurel and Liston Creek	24	4.0
Consistent with Laurel, Liston Creek and Kenneth	4	0.7
Consistent with Liston Creek and Kenneth	1	0.2
<b>Devonian Chert (ca. 419-359 mya)</b>	<b>4</b>	<b>0.7</b>
Jeffersonville	3	0.5
Jeffersonville HT	1	0.2
<b>Mississippian Chert (ca. 359-323 mya)</b>	<b>300</b>	<b>50.5</b>
Attica	255	42.9
Attica HT	18	3.0
Harrodsburg	1	0.2
Derby	4	0.7
Cataract	7	1.2
Wyandotte	8	1.4
Indian Creek	3	0.5
Consistent with Attica and Wyandotte	1	0.2
Consistent with Allens Creek and Harrodsburg	2	0.3
Consistent with Indian Creek and Cataract	1	0.2
<b>Pennsylvanian Chert (ca. 323-299 mya)</b>	<b>20</b>	<b>3.4</b>
Holland	19	3.2
Holland Dark Phase	1	0.2

<b>Table 3. Chert Raw Materials.</b>		
<b>Chert</b>	<b>No.</b>	<b>Percent of the Whole Assemblage</b>
<b>Unidentified Chert</b>	<b>36</b>	<b>6.1</b>
Unidentified	31	5.2
Unidentified HT	5	0.8
<b>Total</b>	<b>594</b>	

### *Sites*

Of the 246 archaeological sites, 158 had unidentified prehistoric components (Table 4). The identified precontact components consisted of Early Archaic, Middle Archaic, Late Archaic, Middle Woodland, Late Woodland, and Late Woodland/Late Prehistoric. Seventy-five sites had historic components, variously dating from the mid-18<sup>th</sup> century to present.

<b>Table 4. Site Components.</b>		
<b>Component</b>	<b>No.</b>	<b>Comment</b>
Unidentified Prehistoric	158	43 Multicomponent (35 Historic) (2 Early Archaic) (2 Middle Archaic) (1 Late Archaic) (3 Late Woodland/Late Prehistoric)
Early Archaic	3	2 Multicomponent
Middle Archaic	2	2 Multicomponent
Late Archaic	4	2 Multicomponent
Early Woodland	0	0 Multicomponent
Middle Woodland	1	0 Multicomponent
Late Woodland/Late Prehistoric	3	3 Multicomponent
Historic	75	40 Multicomponent (35 Unidentified Prehistoric) (2 Early Archaic) (2 Late Archaic) (1 Late Prehistoric/Protohistoric)

Prehistoric Sites. The frequency of identified prehistoric components encountered in the project area was similar to what had already been identified in Montgomery County. Almost every cultural period was represented, the exceptions being Paleoindian and Early Woodland. Five substantial prehistoric scatters (12My632, 12My642, 12My644, 12My645, 12My649) were discovered as a result of this project and were recommended for further investigation. These recommendations are based predominately on Criterion D of the National Register of Historic Places, information potential. The determination was generally made due to increased artifact density, unique artifact classes, and contextual understandings such as proximity to other prehistoric items or known prehistoric locations. These five sites were located in close proximity to one another and offered a disproportionately large amount of formal tools, as well as lithic debitage, predominantly consistent with a single chert type (Attica).

Historic Sites. Seventy-five sites with historic components were discovered. These sites ranged from small to extensive historic scatters and were oftentimes multicomponent with unidentified prehistoric scatters. The historic component sites yielded the majority of artifacts (n=1,174) recovered during the project. Seven substantial historic scatters (12My519, 12My531, 12My548, 12My580, 12My583, 12My586, 12My681) were discovered as a result of this project and were recommended for further investigation. As above, historic period site eligibility recommendations were made predominantly per Criterion D, a combined result of increased artifact density, unique artifact classes, and contextual understandings, such as proximity to known structures, etc.

### *Density*

The project documented an average of one prehistoric site per 5.26 acres and an average prehistoric artifact density (total number of prehistoric artifacts/total number of acres surveyed) of one prehistoric artifact per 1.49 acres surveyed. The project documented an average of one historic site per 12.00 acres and an average historic artifact density (total number of historic artifacts/total number of acres surveyed) of one historic artifact per 0.77 acres surveyed.

## **Discussion**

### *Cultural Chronology*

Prior to this year's grant, Montgomery County had 284 unidentified prehistoric sites, one Paleoindian site, 70 Archaic sites (with 50 sites specifically identified as: 19 Early Archaic, 3 Middle Archaic and 28 Late Archaic), 29 Woodland sites (with 19 sites specifically identified as: 2 Early Woodland, 5 Middle Woodland and 12 Late Woodland), one Late Prehistoric site, and 70 historic sites per the SHAARD database (Table 5) (Division of Historic Preservation and Archaeology 2014).

Upon completion of fieldwork and artifact processing, this project has added to the cultural chronology of the county. One hundred fifty-eight unidentified prehistoric sites were added along with 10 Archaic sites (three Early Archaic, three Middle Archaic, and four Late Archaic), three Woodland sites (one Middle Woodland and two Late Woodland), one Late Prehistoric site, and 75 historic sites (Table 5). Prehistoric diagnostic items came exclusively in the form of formal lithic tools, whereas diagnostic historic items came in a variety of forms including glass, ceramic, and metal. Examples of diagnostic materials from the survey may be found in Figures 3-10.

<b>Table 5. Number of Sites Added.</b>			
<b>Cultural Period</b>	<b>Added</b>	<b>Previous</b>	<b>Total</b>
<b>Unidentified Prehistoric</b>	<b>158</b>	<b>284</b>	<b>442</b>
<b>Paleoindian (ca. 10,000 – 7500 B.C.)</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Archaic</b>	<b>10</b>	<b>70</b>	<b>80</b>
Early Archaic (ca. 8000 – 6000 B.C.)	3	19	22
Middle Archaic (ca. 6000 – 3500 B.C.)	3	3	6
Late Archaic (ca. 4000 – 700 B.C.)	4	28	32
<b>Woodland</b>	<b>3</b>	<b>29</b>	<b>33</b>
Early Woodland (ca. 1000 – 200 B.C.)	0	2	2
Middle Woodland (ca. 200 B.C. – A.D. 600)	1	5	6
Late Woodland (ca. A.D. 500 – 1200)	2	12	14
<b>Late Prehistoric (A.D. 1000-1650)</b>	<b>1</b>	<b>1</b>	<b>2</b>
<b>Historic (post A.D. 1650)</b>	<b>75</b>	<b>70</b>	<b>145</b>

In addition, eight previously undocumented projectile point types were added to the knowledge of Montgomery County’s prehistory. These included a serrated point belonging to the Kirk Corner Notched Cluster, a Stilwell point, a Lamoka point, a Karnak Stemmed point (Figure 4), a Turkey Tail Cluster point, a Brewerton Corner Notched Cluster point, a Triangular Cluster point (Figure 6), and a Nodena Cluster point.

Precontact settlement within the research universe is dominated by Late Archaic and Early Archaic cultural periods, followed by Late Woodland, Middle Woodland, and Middle Archaic cultural periods. Relatively little information has been recovered for the Paleoindian, Early Woodland, and Late Prehistoric cultural phases. Large-scale change in local geomorphology can affect interpretations of areas that display high site potential. These changes may cause researchers to look differentially in areas that display high site yields of only one or a few distinct cultural phases as these are the phases that current geomorphological patterns might guide towards. Cultural phase representations may also be skewed due to development. Montgomery County is primarily farm land and remains largely within the private sector. Compared to other counties, Montgomery County has had less archaeology conducted as a result of federal requirements or state regulations. These archaeological consults have helped build the cultural chronology in other counties by requiring investigations in areas that would not have otherwise been targeted by researchers. It is likely that the surveys conducted in Montgomery County have not been extensive enough or have not sampled enough landforms within the county to locate underrepresented cultural time periods.

*Landform Distribution*

Montgomery County is predominantly comprised of till plain/moraine landforms, and eleven of the thirteen survey areas investigated in this project were found totally on this landform. Floodplains also exist in the county, but only along major waterways such as Sugar Creek, East Fork Coal Creek, and the Big and Little Raccoon Creeks (Hosteter 1989). One survey area was located completely on a floodplain landform and another survey area was split between till plains/moraines and floodplains.

Two of the diagnostic prehistoric sites discovered were located on soils indicative of floodplains. All other prehistoric sites were recovered on till plains/moraines (Tables 6, 7). This could indicate that there may have been a preference across all prehistoric cultural phases for upland land forms such as till plains/moraines. This interpretation, however should be viewed as a tool for future investigation as opposed to a formal assertion as a disproportionate amount of the surveyed area was on till plains and moraines due to limited permission and visibility issues.

<b>Table 6. Projectile Point Site Numbers and Cultural Periods Per Landform.</b>	
<b>Landform</b>	<b>Sites and Cultural Periods</b>
Till Plain and Moraines	12My480 (Middle Archaic) 12My514 (Early Archaic) 12My548 (Early Archaic) 12My588 (Late Archaic) 12My596 (Middle Archaic) 12My599 (Middle Woodland) 12My603 (Late Archaic) 12My632 (Late Woodland/Late Prehistoric) 12My649 (Late Prehistoric/Proto-Historic) 12My655 (Early Archaic) 12My682 (Late Archaic)
Floodplains	12My540 (Late Woodland/Late Prehistoric) 12My657 (Late Archaic)

<b>Table 7. Site Densities and Distributions By Landform.</b>				
<b>Landform</b>	<b># of acres</b>	<b># of sites</b>	<b>Density</b>	<b>Distribution</b>
Till Plain/Moraines	795.78	224	1 site per 3.55 acres	Sites cover 1.16% of surface area
Floodplains	104.32	22	1 site per 4.74 acres	Sites cover 0.30% of surface area

The majority of sites were discovered on silt loam texture soils (Soil Survey Staff 2013; see also Hosteter 1989). A total of 89.47 % of sites are located on silt loams (n=221), 4.07 % of

sites are located on silty clay loams (n=10), 2.85 % of sites are located on loam (n=7), 2.44 % of sites are located on clay loam (n=6), and 0.81 % of sites are on gravelly sandy loam (n=2). All diagnostic prehistoric sites were located on silt loams indicating either a heavy preference for these soils for habitation, or more likely simply reflective of the surveyed areas.

Overall, somewhat poorly drained soils (n=147) were the predominant drainage class with 59.76 % of the sites occurring on these types of soils (Soil Survey Staff 2013; see also Hosteter 1989). A total of 30.49 % of sites were found on well drained soils (n=75), 4.88 % of sites were found on moderately well drained soils (n=12), 4.07 % of the sites occurring on very poorly drained soils (n=10), and only 0.81 % of sites were found on poorly drained soils (n=2). Of the diagnostic prehistoric sites, there was a preference for somewhat poorly drained soils (n=7), well drained soils (n=4), and moderately well drained soils (n=2).

### *Settlement Patterns*

The historic cultural contexts representative of initial Colonial settlement through modern times were present in all survey areas. Prehistoric settlement displayed a slight patterning with the Early Archaic, Middle Archaic, and Late Archaic periods having a universal presence among all surveyed areas, except the Late Woodland/Late Prehistoric components which were concentrated in the northwestern portion of the southern half of the county. This could be a result of more intensive survey along waterways in the northwestern portion of the southern half of the county. The two areas that produced Late Woodland/Late Prehistoric points were Survey Areas 8 and 12, which were also the only two survey areas which were located entirely (Survey Area 8) or partially (Survey Area 12) on floodplains. Half of the Late Woodland/Late Prehistoric materials were recovered on floodplains and the other half were recovered on till plains and moraines immediately adjacent to floodplains. This may point to a propensity for Late Woodland/Late Prehistoric materials to be located near a water source, possibly indicating habitation patterns of later prehistoric peoples. If this is the case, the high amount of recovered materials in close proximity to modern water sources could speak to the relative stability of geomorphic features in the region. This can help effectively target areas of possible Late Woodland/Late Prehistoric occupation. As a result of this possible tendency, it is recommended that future surveys focusing on Late Woodland/Late Prehistoric occupation in the northeastern, southeastern, and southwestern portions of the southern half of the county focus on upland features adjacent to floodplains in order to see if this trend persists.

### *Occupation at Ecotones*

Survey Area 12 was the only survey area that displayed both the floodplain and till plain/moraine landforms and as such would likely have represented different environmental zones prior to agricultural development. The southern fields which were located on the till plain/moraine feature displayed a very high prehistoric site density (one site per 1.66 acres) where the northern field also yielded prehistoric sites but at a considerably lower density than the southern fields (one site per 4.12 acres). The fact that this survey area contained both upland and floodplain features and displayed an identifiable emphasis of occupation on the upland features can indicate one of two things. Either there was a heavy preference for upland areas adjacent to water sources or there was differential preservation of archaeological materials in this area as a result of separate geomorphic and hydrologic processes.



The prehistoric cultural remains recovered in Survey Area 12 included two Late Archaic points, two Late Woodland/Late Prehistoric points, and one Early Archaic point. As such, the conclusions drawn here apply most decidedly to those periods of occupation. The tendency for survey areas on upland features (till plains/moraines) immediately adjacent to floodplains to produce a higher density of prehistoric sites is corroborated to a lesser degree in all other survey areas that produced diagnostic prehistoric artifacts. The other survey areas that produced diagnostic prehistoric artifacts included Survey Areas 9, 10, 11, and 13. All of these survey areas were on upland environments adjacent to floodplain environments indicating that prehistoric people from all cultural phases encountered displayed a preference for upland occupation at this ecotone. Conversely, the lower quantity of diagnostic prehistoric artifacts from survey areas not located immediately next to floodplain features, particularly Survey Areas 2, 4, 5, and 7, further support the assertion that there was preferential selection for land use at the upland floodplain-adjacent ecotone. In short, though the scope of this survey was limited, it found that there was a more intensive use of land located along ecotones between environmental zones, particularly between upland environments, dominated by till plains and moraines, and lowland environments, particularly floodplains. While this project surveyed a disproportionately higher amount of till plains/moraine features, these conclusions were drawn from a variety of sources including scaled variables such as artifact density and surface area coverage.

### **Public Outreach**

On September 7 and 8, 2013, Ball State University's AAL took part in Mound State Park's annual Indiana Archaeology Month activities. There were numerous hands-on demonstrations and participant activities for children. A poster display for the Montgomery County FY2010 Grant was included in this display. The methodology and goals of both the FY2010 and FY2013 Grant surveys were discussed with the event attendees. Ball State archaeologists and students also spoke with numerous local individuals fostering public interest and awareness in this HPF Grant survey. Approximately 200 members of the public attended this event at Mounds State Park in Anderson, Indiana.

In February 2014, an open house was held in the AAL at Ball State University. The goals of the open house were to showcase current projects that included student involvement, encourage additional student involvement, and to invite possible community and professional collaborators to view our work and in-process projects. The focus of the Montgomery County FY2013 Grant exhibit was chert and lithic identification with hands-on demonstrations of the identification and cataloging processes being given to open house attendees.

On April 2, 2014, a public presentation was given at the Carnegie Museum of Montgomery County in Crawfordsville, Indiana by AAL archaeologist Christine Thompson and Department of Anthropology students Colin Macleod, Erin Donovan, and Trey Hill. The hour long presentation reviewed all aspects of the grant including background, methodology, and results. Both historic and prehistoric artifacts representative of newly discovered sites were available for the attendees to view. A student-created video was also shown that described and illustrated our methodology, field techniques, artifact processing, and identification. At least 25 people attended the presentation which included a question and answer session, and a short discussion of Indiana archaeology laws (Figure 11). A reporter from the Crawfordsville *Journal*

*Review* attended this presentation and an article was included in the next day's edition of the print and online newspaper. Coverage of this presentation and project proceedings in general were also posted to the AAL's Facebook page and various other social media sites.



**Figure 11. Residents of Montgomery County attending the Applied Anthropology Laboratories HPF Grant presentation on April 2, 2014 (photo by Trey Hill, Ball State University).**

## **Conclusions and Recommendations**

This project primarily targeted major waterways as well as adjacent upland areas in the southern half of Montgomery County, Indiana. The project area was selected due to the lack of known archaeological sites in SHAARD and the identification of Montgomery County as a data deficient region. The goals of the project were to increase the site database, construct a cultural chronology for the county, refine settlement patterns of the precontact era, and enhance our understanding of the early Euro-American period.

The absence of artifacts from the Early Woodland and the low amount of artifacts recovered from the Middle Woodland are in keeping with previous findings in the county. This may indicate a decrease in population, a decrease in comparable land use patterns as compared to other prehistoric periods, or it may reflect geomorphological changes causing researchers to be unable to survey, or unaware of, the areas that reflect high site densities for these periods. There was a good representation of the Archaic period, especially the Late Archaic, as well as the Late Woodland/Late Prehistoric period, both of which reflect what has been previously described in the county.

Approximately 900.1 acres of agricultural land were surveyed during this project and 246 new archaeological sites were recorded. The survey recovered 1,784 artifacts consisting of 610 prehistoric artifacts and 1,174 historic artifacts. No human remains were discovered as a result of this grant project. The majority of the precontact sites were unidentified by cultural period; however, five different prehistoric cultural periods were documented. Twelve sites (seven

historic scatters and five prehistoric scatters) were recommended for further testing, and 234 sites were recommended as not eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places. An anomalously high density of lithic debitage in the southeast field of Survey Area 12, combined with a relatively high number of projectile points recovered from both the southeast and southwest fields, indicates that further research into this area would be beneficial for a more complete understanding of the prehistory of Montgomery County.

Previous large-scale surveys on the Tipton Till Plain (Smith et al. 2009) show a greater occupation in upland areas. Montgomery County also displayed greater prehistoric land use on upland features particularly those located at the ecotones between upland and floodplain features. These tendencies could be the result of a number of different factors, however this general trend may prove a useful tool in the future for the pursuit and discovery of prehistoric sites.

The project results suggest that precontact populations were using Montgomery County in different ways and during different cultural time periods. For example, the concentration of diagnostic lithic material along the two major waterways in the southern portion of the county display differential use in the Late Woodland/Late Prehistoric time period. The northwestern corner of the southern half of Montgomery County displays a higher concentration of Late Woodland/Late Prehistoric sites relative to other surveyed areas. This is possibly a result of survey practices or a preference among prehistoric peoples for the area surrounding the East Fork Coal Creek. Because of this discrepancy, further investigation into the distribution of Late Woodland/Late Prehistoric distribution in other areas of southern Montgomery County in the future is recommended.

Many factors could have influenced the project data including the location of the surveyed properties, whether a field was tilled recently or not, the collection of fields by lithic enthusiasts, and even local weather patterns prior to field survey. For this and other reasons further research into prehistoric landform usage is recommended within Montgomery County. This survey contributed to the understanding of Montgomery County by updating the existing archaeological material with the cultural remains recovered from 900.1 acres of surveyed agricultural land. Future investigation is necessary and recommended; however, these pursuits will be better equipped to target high yield areas and ask more specific research questions as a result of the contributions of this HPF grant survey.

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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 prehistoric 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.

### **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, 1000 B.P. means 1000 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.

**Chieftdom**

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

**Collared**

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. Prehistoric 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.

**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 prehistoric 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.

**Prehistory**

Human activities, events, and occupations before written records. In North America, this primarily includes Native American prehistoric 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 prehistoric 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 prehistoric 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.).

**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**

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>

## PREHISTORIC INDIANS OF INDIANA

Note- The word prehistory is a technical term used by archaeologists to indicate information about cultures before written records were kept—in North America at first by Europeans and people of Old World descent—in that area. It does not imply by any means the cultures described did not have long, rich, and varied cultural and oral histories and traditions. All of the cultures certainly did.

### **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 Indians:**

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 1,500 B.C., although some Terminal Archaic peoples 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. 1,000.

### **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. 1,000 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.