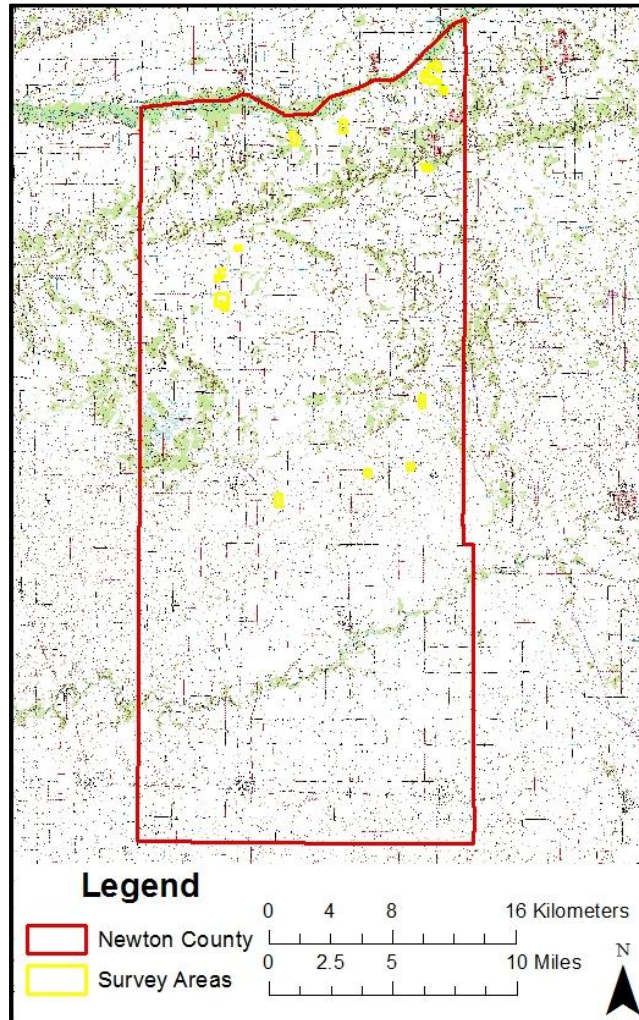


An Archaeological Survey of Newton County: Enhancement of a Data Deficient Region, Part II

Grant # 18-15FFY-05



By: Jamie M. Leeuwrik, Christine Thompson, and Kevin C. Nolan

Principal Investigators: Christine Thompson and Kevin C. Nolan

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Jamie Leeuwrik

Abstract

The Applied Anthropology Laboratories (AAL) at Ball State University conducted a data enhancement project for archaeological resources in Newton County, Indiana for a FY2015 Historic Preservation Fund Grant (Grant #18-15FFY-05). This Historic Preservation Fund grant project investigated the archaeological resources of Newton County, Indiana with a focus on the Kankakee River, Beaver Lake, and the northern half of the county. Approximately 856.1 acres (346.45 hectares) of agricultural land were surveyed, which includes 7.1 acres of resurveyed area, and 76 new archaeological sites were recorded. The survey recovered 525 prehistoric artifacts and 1,761 historic artifacts from nine parcels of land within Newton 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, Late Archaic, Late Archaic/Early Woodland, Late Woodland/Late Prehistoric, and 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 42.45 acres and for Historic sites was one site per 13.69 acres.

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Introduction

The Applied Anthropology Laboratories (AAL) at Ball State University was awarded a FY2015 Historic Preservation Fund Grant to survey portions of Newton County, Indiana. The project involved a pedestrian survey of approximately 856.1 acres of agricultural land, which includes 7.1 acres of resurveyed area. The main goals of the project were to increase the site data base, resolve inconsistencies in the SHAARD database, refine the cultural chronology for the county, and examine evidence for the settlement and interaction of the Euro-American settlers and Native Americans along the Kankakee River. Specifically we hope to add to the understanding of the various prehistoric cultural periods of the county based on the low number of previously documented sites compared to the surrounding counties. We also hope to add to the understanding of the Euro-American presence and Native American interaction in Newton County. Newton County had 267 archaeological sites recorded in the State Historic Architecture and Archaeological Research Database (Division of Historic Preservation and Archaeology 2015) database prior to this survey. This investigation focused on the northern portion of Newton County, including areas near the Kankakee River and builds upon the FY2014 Historic Preservation Fund Grant (Grant #18-14-FFY-03) which included survey areas in the southern portion of Newton County and along the Iroquois River.

The following research questions, while not exhaustive, guided this project.

1. What is the cultural chronology for Newton County?
2. What are the densities and distributions of archaeological sites along the Kankakee River and on Northern Moraine and Lake Region within the county?
3. What is the settlement pattern for Euro-American people along the Kankakee River?
4. What is the average site density within the county?
5. Is there evidence for interaction between Euro-American settlers and Native American tribes at and after the time of settlement?

Background

Environmental Setting

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

Location

The project area is located in Newton County (Figure 1), which has an area of 258,080 acres (104,441.3 hectares) (Barnes and Osterholz 1998:1). For the proposed research, we targeted areas around the Kankakee River watershed within the Northern Moraine and Lake region in the northern half of the county (Figure 2 and Figure 3).

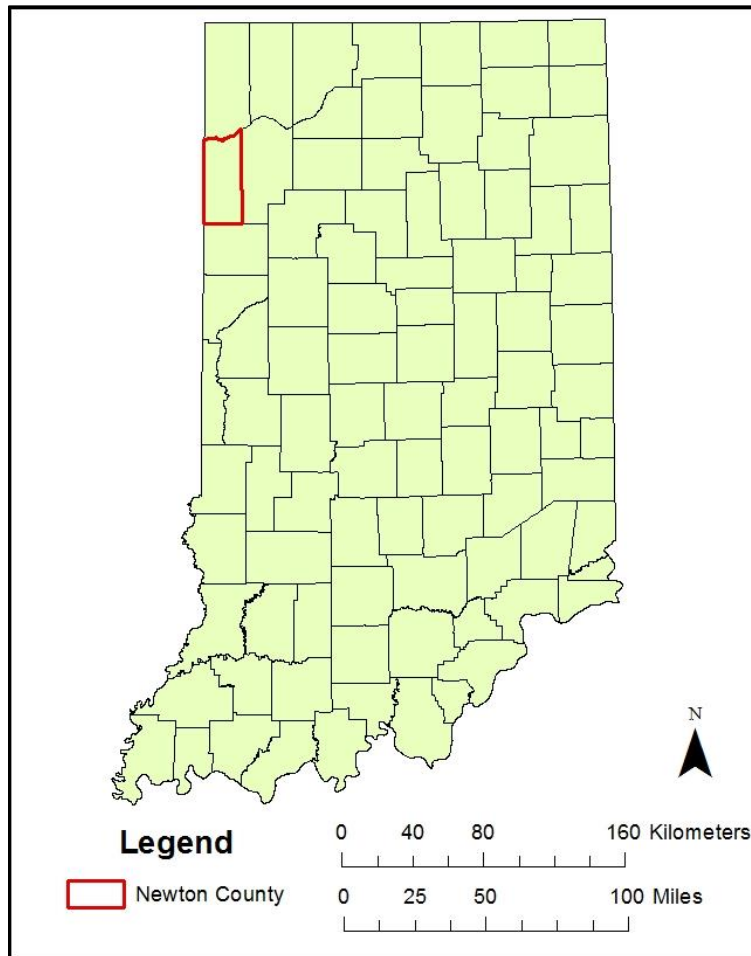


Figure 1: Newton County within the state of Indiana (based on Yellowmap World Atlas 2015).

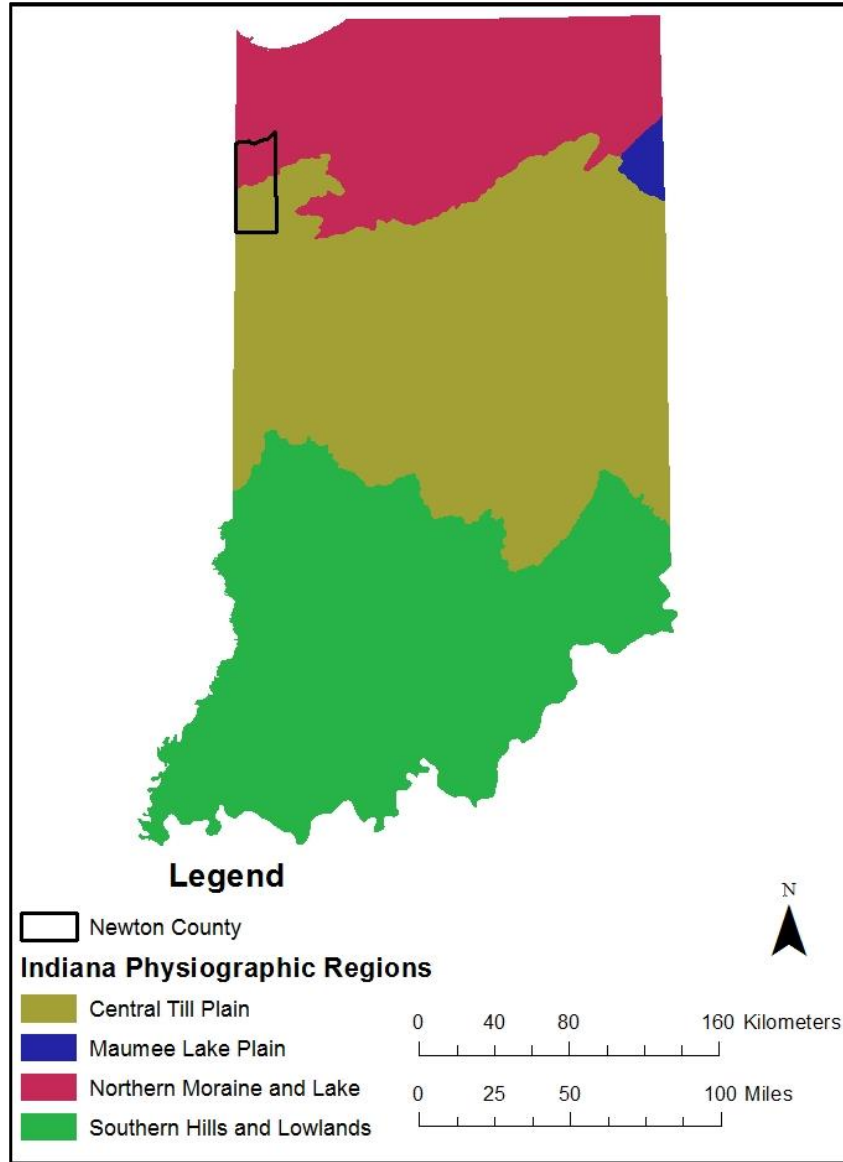


Figure 2: Newton County within the Northern Moraine and Lake Region (based on Gray and Sowder 2002).

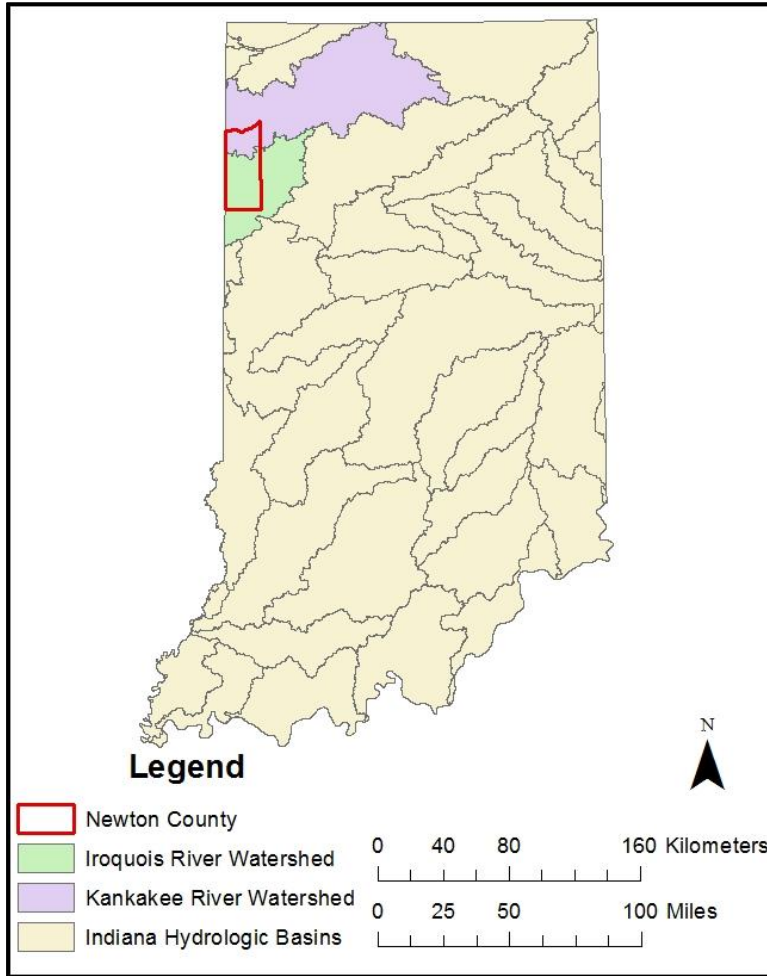


Figure 3: Newton County within the Iroquois and Kankakee River Watersheds (based on IndianaMAP 2015).

Geology

The structural framework of Indiana is divided into three general areas: the Illinois and the Michigan Basins which are separated by the Cincinnati Arch and its branches of the Findlay and Kankakee Arches (Gutshick 1966:9). Newton County is located within the broad region of uplift known as the Cincinnati Arch (Schneider 1966:41).

The Cincinnati Arch can then be divided further into smaller bedrock physiographic units. The project area is within one of those units known as the Rensselaer Plateau (Schneider 1966:54). The Rensselaer Plateau occupies all of Newton County. This bedrock unit is described as being physiographically distinct from other physiographic belts that are found in more southern regions of Indiana (Schneider 1966:55). Attica chert, Liston Creek chert and Kenneth chert are the documented bedrock cherts in the region around Newton County (Figure 3).

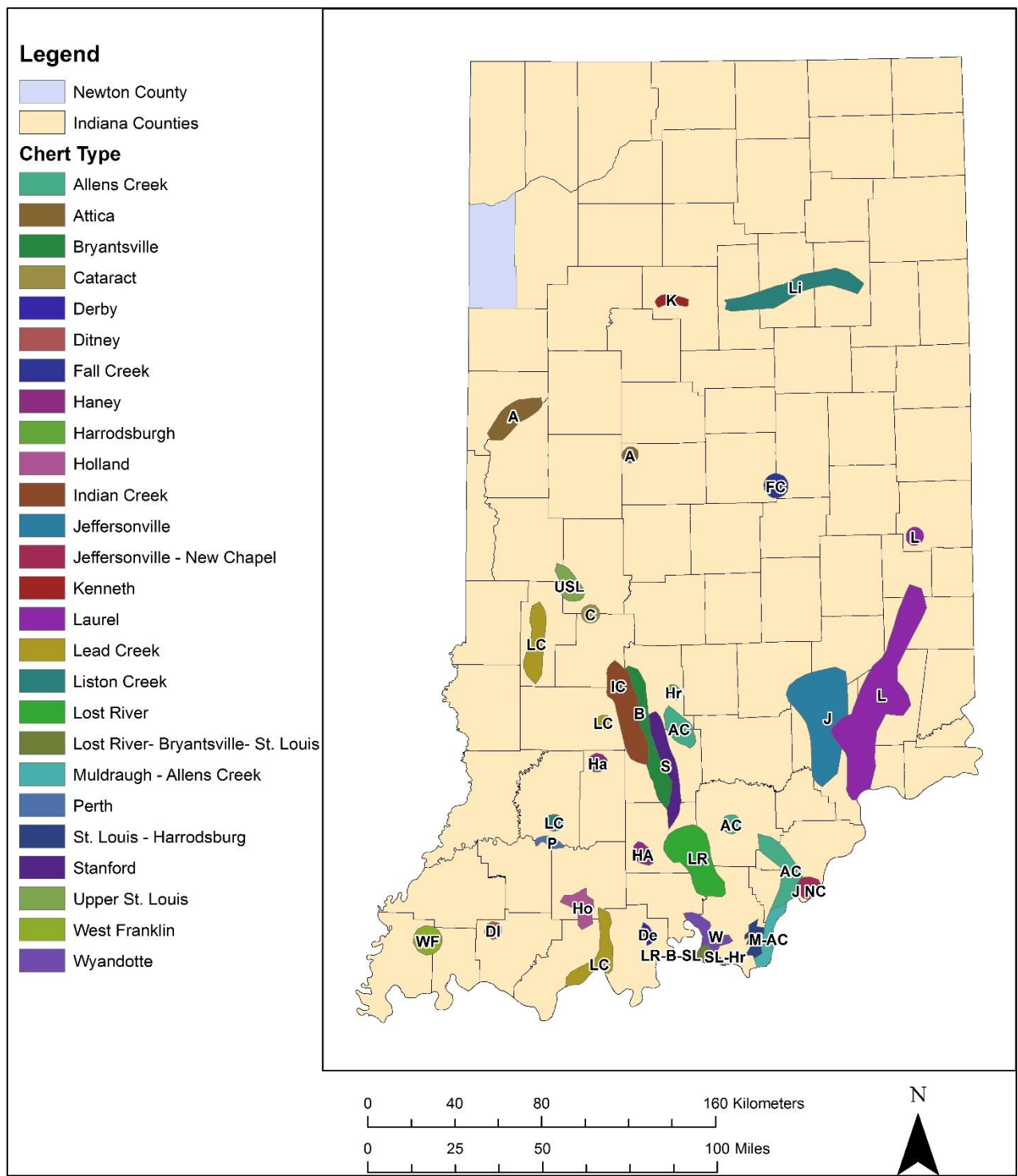


Figure 4: Chert outcrop locations in Indiana (digitized by Brad Painter from Cantin 2008).

Stratigraphically, Attica chert (Figure 5) is a member of the Muldraugh Formation of the Borden Group of the Mississippian Period (Cantin 2008:15). 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; luster is generally usually dull to slightly glossy (Cantin 2008:12). Fossil inclusions are rare with the exception of microscopic sponge spicules; however 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 5: Example of Attica Chert from the Ball State University AAL Chert Collection (photo by Ball State University).

Liston Creek chert (Figure 6) is both a nodular and bedded chert found in Liston Creek limestone which is a member of the Wabash Formation, Niagara Series, of the Silurian System (Cantin 2008:54). Liston Creek chert is always grey in color, but the shade of grey varies from very light to medium grey. As it weathers, Liston Creek chert can develop tan or brown patches. All these variations in color can occur within one sample. Textures of Liston Creek chert can be coarse to medium fine. Small calcitic or siliceous speckles are found within this chert type. These specks are most likely small fossils; however, the spots are too small to be determined as such. Liston Creek chert was used heavily by prehistoric groups (Cantin 2008:55).



Figure 6: Example of Liston Creek Chert from the Ball State University AAL Chert Collections (photo by Ball State University).

Kenneth chert (Figure 7) is a bedded chert found in Kenneth limestone which is a member of the Salina Formation of the Silurian System (Cantin 2008:46). Kenneth chert is known to be white to light grey in color, with light to dark grey and, or brownish-grey patches. These color variations can all be present within one sample. When weathered, Kenneth chert's appearance and texture become chalky white. Fossils are found within Kenneth chert, however the fossils are mostly "siliceous blobs" (Cantin 2008:47). Information on the usage of Kenneth chert is limited. Cantin (2008:48) notes that Kenneth chert should be archaeologically found throughout the Tipton Till Plain region.



Figure 7: Example of Kenneth Chert from the Ball State University AAL Chert Collection (photo by Ball State University).

The close proximity of Newton County to Illinois chert sources (Figure 8) has led to several types being encountered during both the FY2014 and FY2015 HPF surveys. The closest chert outcrops are Harmilda and Elwood-Joliet located in DuPage and Will Counties respectively. Closely related to Elwood-Joliet chert are Blanding and Burlington cherts, which overlap in several classificatory properties along with Glacial Till chert (Stelle and Duggan 2003). The Blanding chert outcrop is located in Jo Davies County and Burlington chert outcrop is in Jackson County.

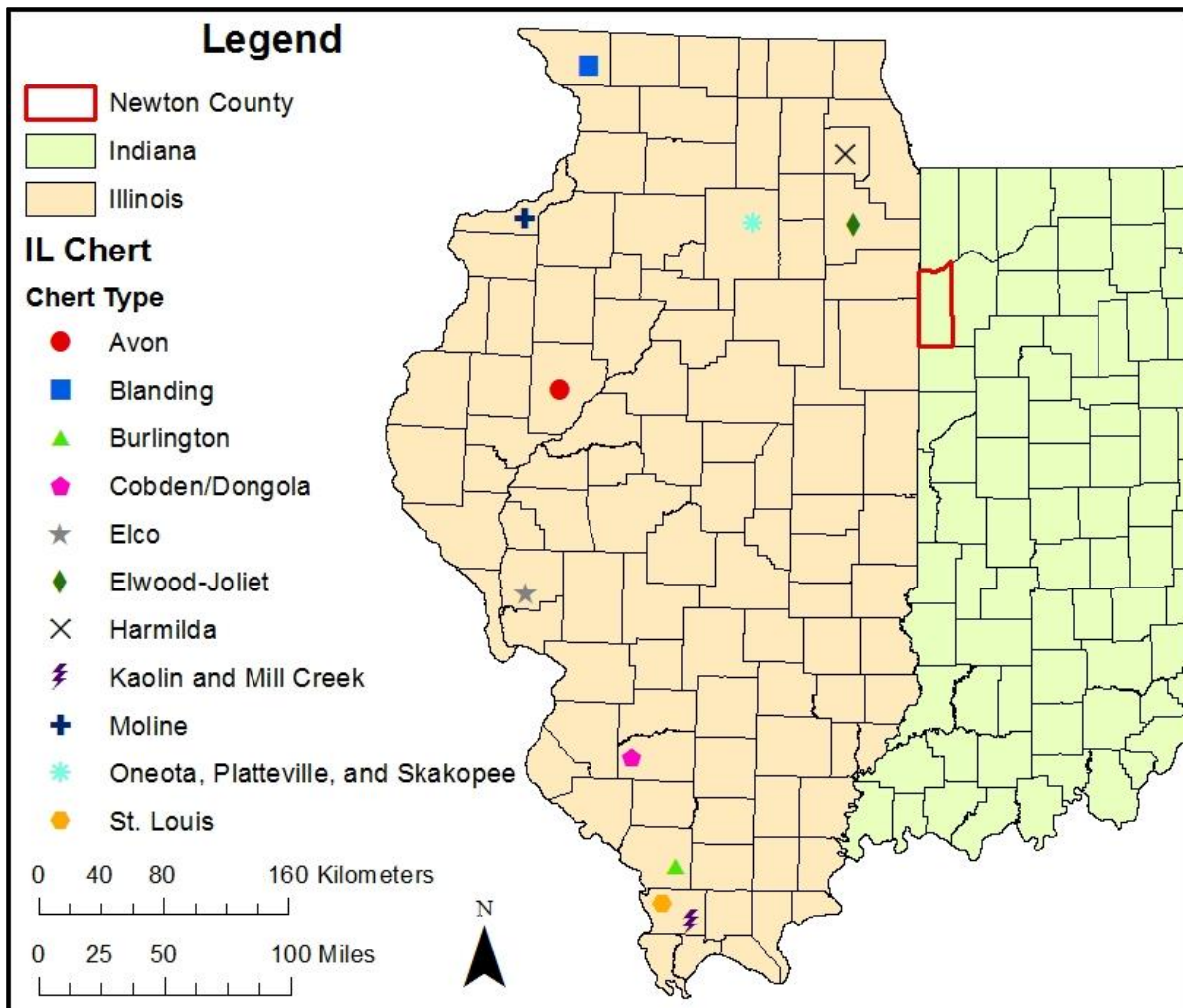


Figure 8: Chert outcrop locations in Illinois (from DeRegnaucourt and Geogiady 1998).

Blanding chert (Figure 9) is a medium to medium fine texture Mississippian Period chert that is dull in luster and naturally occurs in northwestern Illinois. Blanding chert can range from white to gray in color with pale yellowish, brown, or orangish streaks and faint banding (Stelle and Duggan 2003). Heat treatment of Blanding chert can cause the color to move to pink tones and the luster becomes more satin-like. Fossil fragments of sponge spicules, corals, and crinoid columnals are found frequently in the contrasting colors (Stelle and Duggan 2003).



Figure 9: Example of Blanding Chert (Stelle and Duggan 2003).

Burlington chert (Figure 10) is a bedded Mississippian Period chert derived from the Burlington Limestone Formation occurring in the west-central region of southern Illinois (Koldehoff 1985:12). Burlington chert commonly has a base color of white to gray to tan with a waxy luster and can occasionally be mottled or banded (Stelle and Duggan 2003). Heat treatment of Burlington chert is frequently encountered and changes the base to a pure white or very light pink color. Fossil present in Burlington chert can include sponge spicules, brachiopods, bryozoans, corals, and crinoid columnals (Stelle and Duggan 2003). Due to the medium to fine texture and the enhanced flaking properties from heat treatment, Burlington chert was often selected for biface production (Koldehoff 1985:12; Stelle and Duggan 2003).



Figure 10: Example of Burlington from the Ball State University AAL Chert Collection (photo by Ball State University).

Elwood-Joliet (Figure 11) chert is a medium texture Mississippian Period chert that is dull in luster and is naturally occurring in northeastern Illinois. Elwood-Joliet chert white to gray in color and contains small iron pyrite structural inclusions (Stelle and Duggan 2003). Fossil inclusions present are sponge spicules, brachiopods, bryozoans, and crinoid columnals. Other inclusions present in Ellwood-Joliet chert are druse and limestone, which can make the chert appear sugary under magnification (Stelle and Duggan 2003). Heat treatment effects on color and luster of Elwood-Joliet chert is unknown.



Figure 11: Example of Elwood-Joliet Chert (Stelle and Duggan 2003).

Harmilda chert (Figure 12) is a Silurian chert that is a member of the Silurian System occurring in DuPage County, Illinois. The luster of Harmilda chert ranges from dull to waxy corresponding to the variable texture with semi-translucent regions being fine to medium grained and waxy, while the opaque regions are medium to coarse grained and dull (Stelle and Duggan 2003). Few fossils are present in Harmilda chert, sponge spicule inclusions can be found in the semi-translucent regions and crinoid casts can be found in the opaque regions. Heat treatment causes Harmilda chert to turn a red or reddish brown color and the luster is enhanced weakly (Stelle and Duggan 2003). Harmilda chert tends to overlap visually with Kenneth chert from Indiana.



Figure 12: Example of Harmilda Chert (Stelle and Duggan 2003).

Glacial History

Modern Indiana has been shaped by the cumulative effects of three glaciations: the Kansan, Illinoian, and the Wisconsin glacial episodes (Shurig 1970:6). The glaciers were formed in the upland east area near the Hudson Bay and spread out across the North American continent, reaching its farthest in the Wabash and Ohio Valleys – south of the 38th parallel – farther than anywhere else in the Northern Hemisphere during the Pleistocene Epoch (Wayne 1966:21). Each new glacial migration brought with it tons of glacial drift that resurfaced the face of Indiana. The current homogenous appearance of Indiana’s central region is misleading because underneath the surface lies a blending of bedrock and glacial drift that indicates its volatile glacial past.

The Kansan Age glaciation was the first to impact Indiana and dates from approximately 350,000 to 400,000 years ago (Melhorn 1997:18). It extended southward towards the Scottsburg Lowland. The glaciation was responsible for the formation of the Ohio River. The pre-glacial Teays River valley was the main drainage system across the country stretching from North Carolina to Illinois. The waterway was dammed in western Ohio by the encroaching glacier and forced to find alternative outlets. The drainage was diverted to what is now the Ohio River (Shurig 1970:6). The Kansan glaciation was also responsible for some of the deepest valley-cutting during the Ice Age and deposited roughly 75 to 100 feet of glacial drift (Wayne 1966:32).

Glaciations are followed by years of warming, which result in differences in fossils and soil deposits. These differences make it possible to clearly delineate various glacial episodes. The Yarmouth Age was the warming period that followed the Kansan Age and lasted for 200,000 years (Melhorn 1997:18); it was later followed by the second glacial episode, the Illinoian Age.

The Illinoian Age began 125,000 years ago (Wayne 1966:32). This is the glaciation that was responsible for delving the farthest into the Northern Hemisphere. The glacier margin fluctuated three times from its origin in the Lake Michigan Lowland to just south of the 38th parallel (Wayne 1966:33). Each fluctuation resulted in distinct till coloration as well as types of fossils present. The warming period known as the Sangamonian Age succeeded this glaciation and then gave way to the next major ice age known as the Wisconsin Age (Wayne 1966:34).

The most recent glaciation, the Wisconsin Age, began its encroachment upon Indiana from the northeast 70,000 years ago and produced the Trafalgar Formation (Wayne 1966:34). The glacier was approximately 1,700 feet thick in certain areas (Wayne 1966:27). Portions of southern and central Newton County are in the Cartersburg Till Member (Figure 13), which is part of the Trafalgar Formation (Wayne 1966:26). The Trafalgar formation is primarily composed of massive calcareous conglomeritic mudstones (a compact but uncemented sandy, silty, matrix) with scattered beds of gravel, sand and silt (Wayne 1963:45).

Unconsolidated sediments overlie the Trafalgar Formation in some areas and were deposited extraglacially as the Atherton Formation (Wayne 1963:31, 1966:26). These sediments of gravel, sand, silt, and clay were derived primarily from glacial outwash and were sorted and deposited by meltwater currents, wind action or in the quiet waters of glacial lakes (Wayne 1963:31, 1966:26). Most of the Atherton Formation sediments in the project area in the northern portion of the county would belong to the outwash and dune facies (Wayne 1966:26; see Figure 13). This facies consists of sand dunes and glacial outwash, which drained to the Kankakee basin. The movement of glacial ice through the Lake Michigan and Kankakee basins piled more till onto what became the Valparaiso Moraine and the melt created Lake Chicago (Wayne 1966:36). Stable dunes were created by the formation and recession of Lake Chicago into present day Lake Michigan. The remaining portion of central to southern Newton County is part of the

lacustrine facies. This facies consists of stratified coarse-grained sediments which were deposited in sheets by glacial meltwater current in valley fill (Wayne 1963:32).

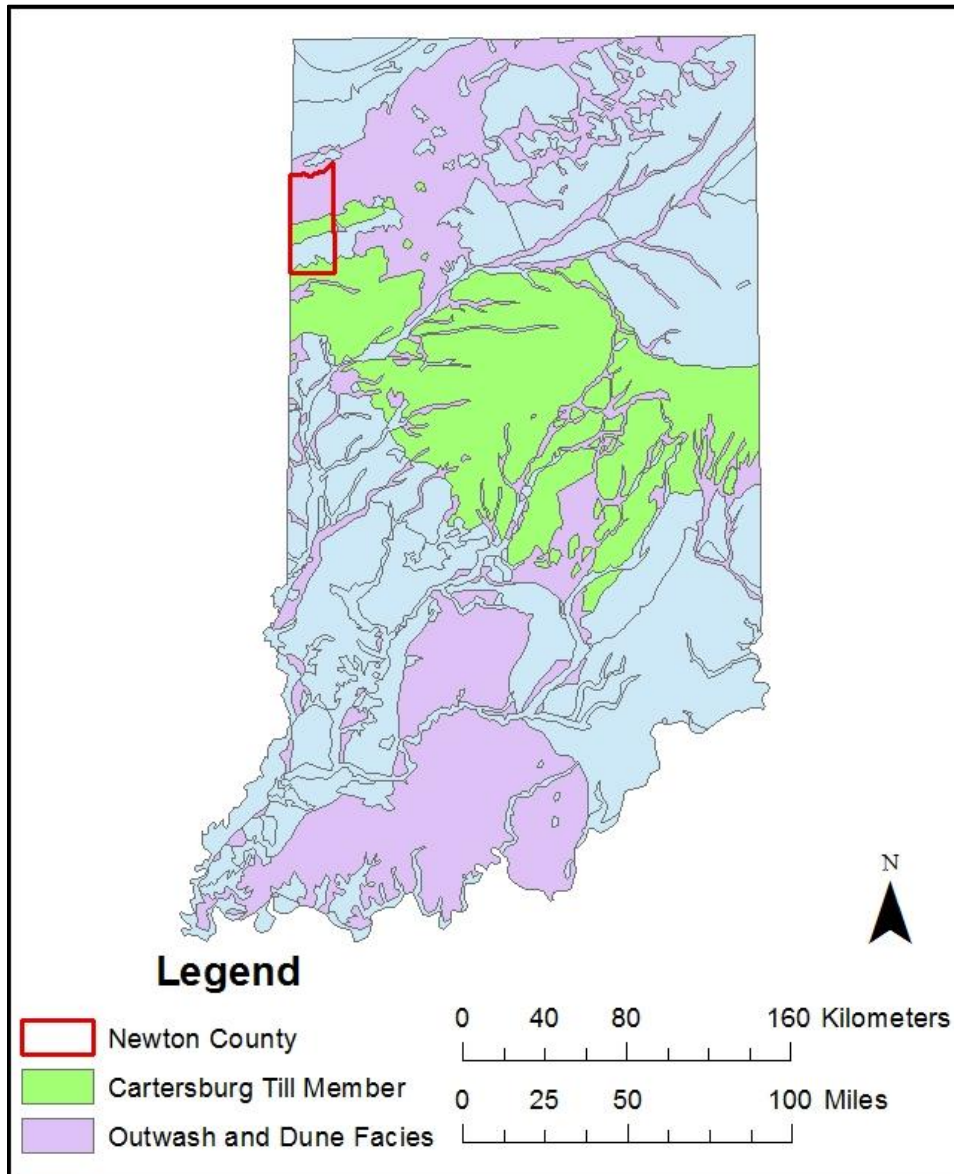


Figure 13: Location of Newton County, the Cartersburg Till Member, and Outwash and Dune Facies (based on Wayne 1966:26).

Physiography

Newton County is within the general physiographic units known as the Northern Moraine and Lake Region and the Tipton Till Plain (Schneider 1966). Gray (2000) and Gray and Sowder (2002) places the county within the Kankakee Drainageways (northern half) and the Iroquois Till Plains (southern half) (Figure 14). The Tipton Till Plain is an area of low relief with extensive areas of ice-disintegration features. It covers a small portion of the southern part of Newton

County (Schneider 1966:41). These poorly drained soils, combined with the low lying topography, contributed to the formation of the Beaver Lake and other wetlands which covered much of the county until its draining, in the mid-19th thru early 20th, centuries for agricultural purposes (Barnes and Osterholz 1998:1).

The portion of Newton County that falls within the Northern Moraine and Lake Area is characterized as being part of the Kankakee Outwash and Lacustrine Plain. This is an area that is predominantly underlain by sand deposited as outwash during the retreat of the last glaciers which resulted in a predominance of poorly drained sediments in lowlands around the Iroquois, Tippecanoe, and Kankakee Rivers (Schneider 1966:52). Much of the existing topography within the Kankakee Outwash and Lacustrine Plain has been modified over the past 12,000 years by the prevailing westerly wind (Schneider 1966:52). The wind blows across the surface and redistributes the sandy soil deposits, which creates dunes as well as featureless sand plains.

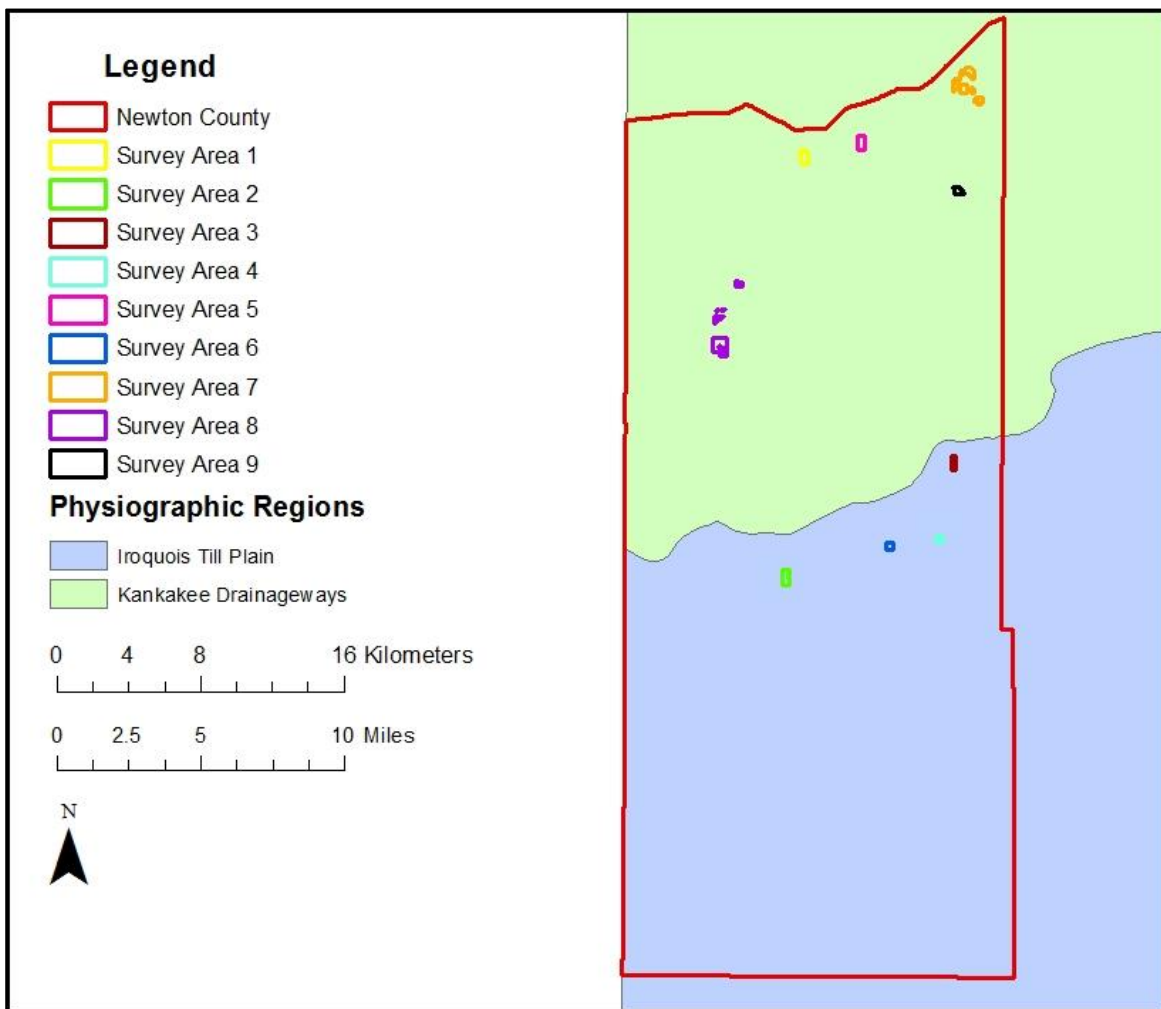


Figure 14: Physiographic divisions and survey areas in Newton County

Soils

The majority of soils found in Newton County are a product of either glacial or fluvial parent materials. Glacial till sediments typically have clayey to silty textures and contain particles of sand and gravel sizes with sharp corners not eroded by water. Glacial-fluvial, or outwash, deposits range from silty to gravelly textures depending on the water source that carries them. The more recent fluvial deposits found on flood plains and river terraces are dominated by loamy textures. Lacustrine sediments are deposited from glacial meltwater tend to have clayey textures (Barnes and Osterholz 1998).

There are twelve soil associations mapped within Newton County (Table 1). Soils with landforms of floodplains (Craigmile-Prochaska and Sawabash-Comfrey, consistent with Craigmille-Suman-Prochaska and Sawmill-Lawson-Genesee in STATSGO) (United States Department of Agriculture, Natural Resource Conservation Service 2002) represent a small percentage of the county. Associations with landforms of outwash plains (Oakville-Morocco-Brems and Selma-Darroch-Foresman, consistent with Coloma-Spinks-Oshtemo and Swygert-Bryce-Chatsworth in STATSGO) also account for a small percentage of Newton County. Associations that form lake plains and, or have some combination with outwash plains or lake bed landforms (Montgomery-Strole-Simonin, Toto-Ackerman-Adrian, Granby-Maumee-Zadog and Conrad-Zaborosky-Kentland consistent with Swygert-Bryce-Chatsworth, Houghton-Adrian-Carlisle, Granby-Zadog-Maumee, Kentland-Conrad-Zaborosky in STATSGO) account for the second largest percentage in Newton County. The largest percentage of soil associations in Newton County form moraine landforms, ground or recessional, (Swygert-Bryce-Swygert, Barry-Sumava-Octagon, Selma, Till Substratum-Barce-Gilboa, Selma, Till Substratum-Darroch, Till Substratum-Foresman, till Substratum consistent with Montgomery-Strole-Lenawee, Barry-Sumava-Octagon, Saybrook-Drummer-Parr, Saybrook-Drummer-Parr in STATSGO) (Barnes and Osterholz 1998:9-16). In 2002 the USDA revised their soil associations when producing STATSGO (USDA/NRCS 2002). Those associations are shown in Figure 15.

The locations of the FY2015 HPF survey areas show large scale variability in their soil associations. The nine survey areas are located within six separate soil associations with one survey area located within two associations. Survey Areas 1, 5, and the majority of survey Area 7 are both located within the Granby-Zadog-Maumee association, which has landforms consisting of outwash plains or lake plains. Survey Areas 2 and 6 are located within the Barry-Sumava-Octagon association, which has landforms consisting of moraines. Survey Areas 3 and 9 are located within the Coloma-Spinks-Oshtemo association, which has landforms consisting of outwash plains or lake plains. Survey Area 4 is located within the Montgomery-Strole-Lenawee association, which consists of moraine landforms. The remainder of Survey Area 7 is located within the Craigmile-Suman-Prochaska association, which consists of floodplain landforms. Survey Area 8 is located within the Kentland-Conrad-Zaborosky association, which has landforms consisting of lake beds and lake plains (STATSGO USDA/NRCS 2002).

Within Newton County, there are five unique soil orders present and within those orders are ten suborders (Figure 16). The most common orders within the county are Mollisols (72.1%) and Entisols (18.4%). The remaining orders include Alfisols (6%), Histosols (1.1%), and Inceptisols (2%). Mollisols are thick, organic-rich soils that are naturally very fertile and are common throughout the Great Plains and Prairie regions (USDA/NRCS 2015:381). The Mollisols are then further split into Typic/Udolic (32.3%) and Aquic Mollisols (39.8%). The wet, or Aquic, Mollisols are made up entirely of the suborder Aquolls, which have a seasonal high water table within the upper 50 centimeters of the soil profile (USDA/NRCS 2015:391). Aquolls are commonly encountered in the glaciated areas of the Midwest region, and have been primarily artificially drained and converted to agricultural land. The remainder of the Mollisols present in Newton County is made up of the suborder Udolls. Udolls are Mollisols that are more or less freely drained soils that were formed in deposits from the late-Pleistocene or Holocene periods (USDA/NRCS 2015:420). The majority of the soils have been converted to agricultural fields where mainly soybeans and corn are cultivated. The vegetation supported previously would have been tall grass prairies and occasionally a boreal forest (USDA/NRCS 2015:420).

Table 1: Soil Associations in Newton County (Barnes and Osterholz 1998)

Association	Description	Landforms	% of County
Barry-Sumava-Octagon	Very deep, nearly level to moderately sloping, poorly drained to well drained, moderately coarse textured soils that formed in glacial till or in loamy outwash over glacial till	Moraines	17%
Conrad-Zaborosky-Kentland	Very deep, nearly level or gently sloping, very poorly drained or somewhat poorly drained, coarse textured soils that formed in sandy sediments or in organic material over sandy sediment	On lake beds or lake plains	4%
Craigmile-Prochaska	Very deep, nearly level, very poorly drained, medium and coarse textured soils that formed in loamy alluvium over sandy alluvium.	Floodplains	2%
Granby-Maumee-Zadog	Very deep, nearly level, very poorly drained, coarse textured soils that formed in sandy sediments	Outwash plains or lake plains	22%
Montgomery-Strole-Simonin	Very deep, nearly level to strongly sloping, very poorly drained to moderately well drained, moderate fine or coarse textured soils that formed in lacustrine sediments or in sandy and loamy outwash over lacustrine sediments	Lake plains	5%
Oakville-Morocco-Brems	Very deep, strongly sloping nearly level, well drained to somewhat poorly drained, coarse textured soils that formed in sandy sediments	Outwash plain	17%
Sawabash-Comfrey	Very deep, nearly level, very poorly drained, moderately fine or medium textured soils that formed in silty and loamy alluvium or in loamy alluvium.	Floodplains	1%
Toto-Ackerman-Adrian	Very deep, nearly level, very poorly drained soils that formed in organic material over marl, coprogenous earth, and sandy sediments in organic material over coprogenous earth and sandy sediments, or in organic deposits over sandy sediments	Lake plains and outwash plains	2%
Selma-Darroch-Foresman	Very deep, nearly level or gently sloping, poorly drained to moderately well drained, medium textured soils that formed in loamy outwash or in silty and loamy sediments	Outwash plains	9%
Selma, Till Substratum-Barce-Gilboa	Very deep, nearly level or gently sloping, poorly drained to moderately well drained, moderately fine or medium textured soils that formed in loamy outwash over glacial till or in silty and loamy outwash over glacial till	Ground Moraines	5%
Selma, Till Substratum-Darroch, Till Substratum-Foresman, Till Substratum	Very deep, nearly level or gently sloping, poorly drained to moderately well drained, moderately fine or medium textured soils that formed in loamy outwash over glacial till	Ground moraines	14%
Swygert-Bryce-Swygert	Very deep, nearly level to strongly sloping, poorly drained to moderately well drained, medium or moderately fine textured soils that formed in glacial till	Recessional moraines	2%

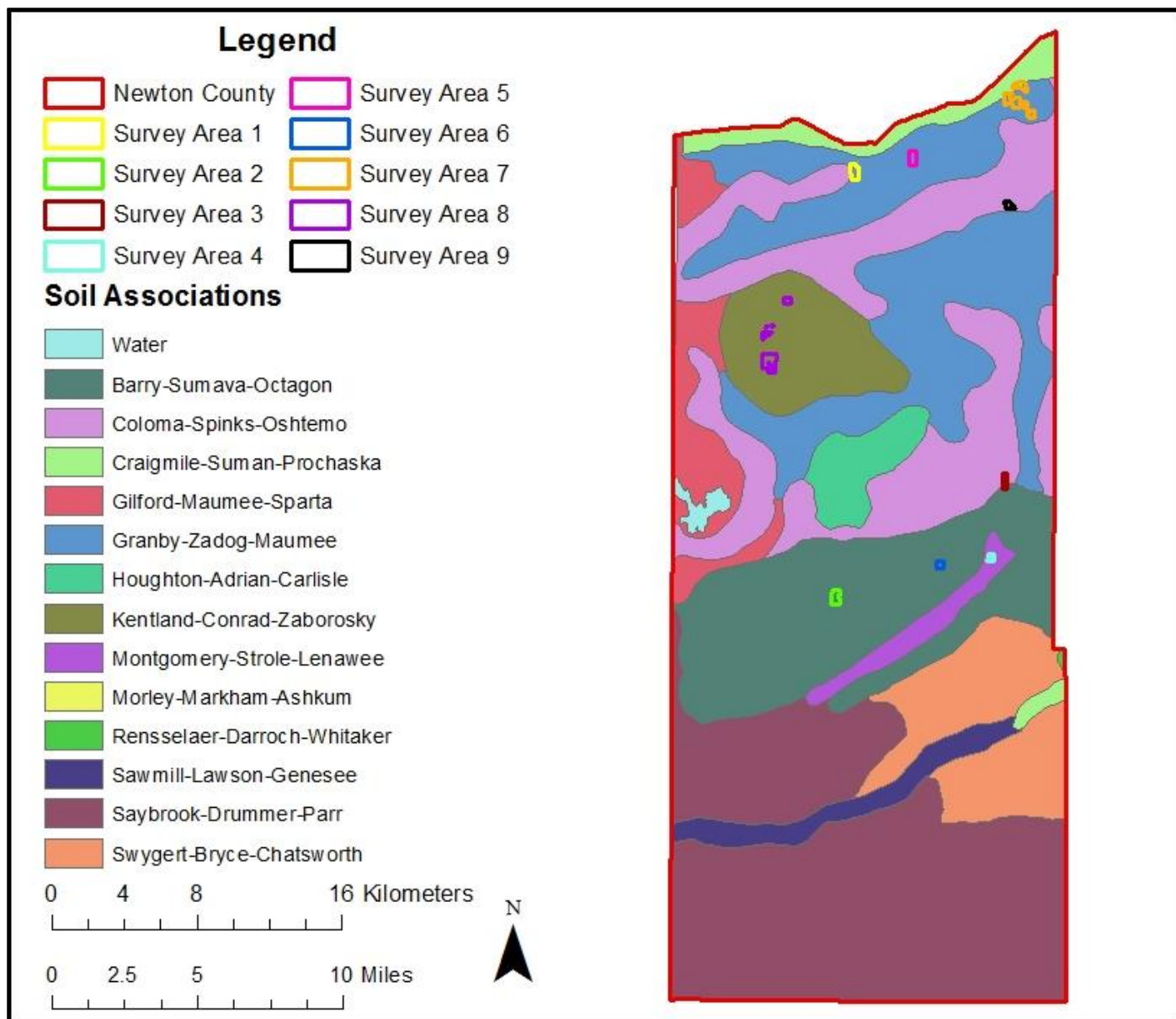


Figure 15: Soil Associations in Newton County (STATSGO, USDA/NRCS 2002).

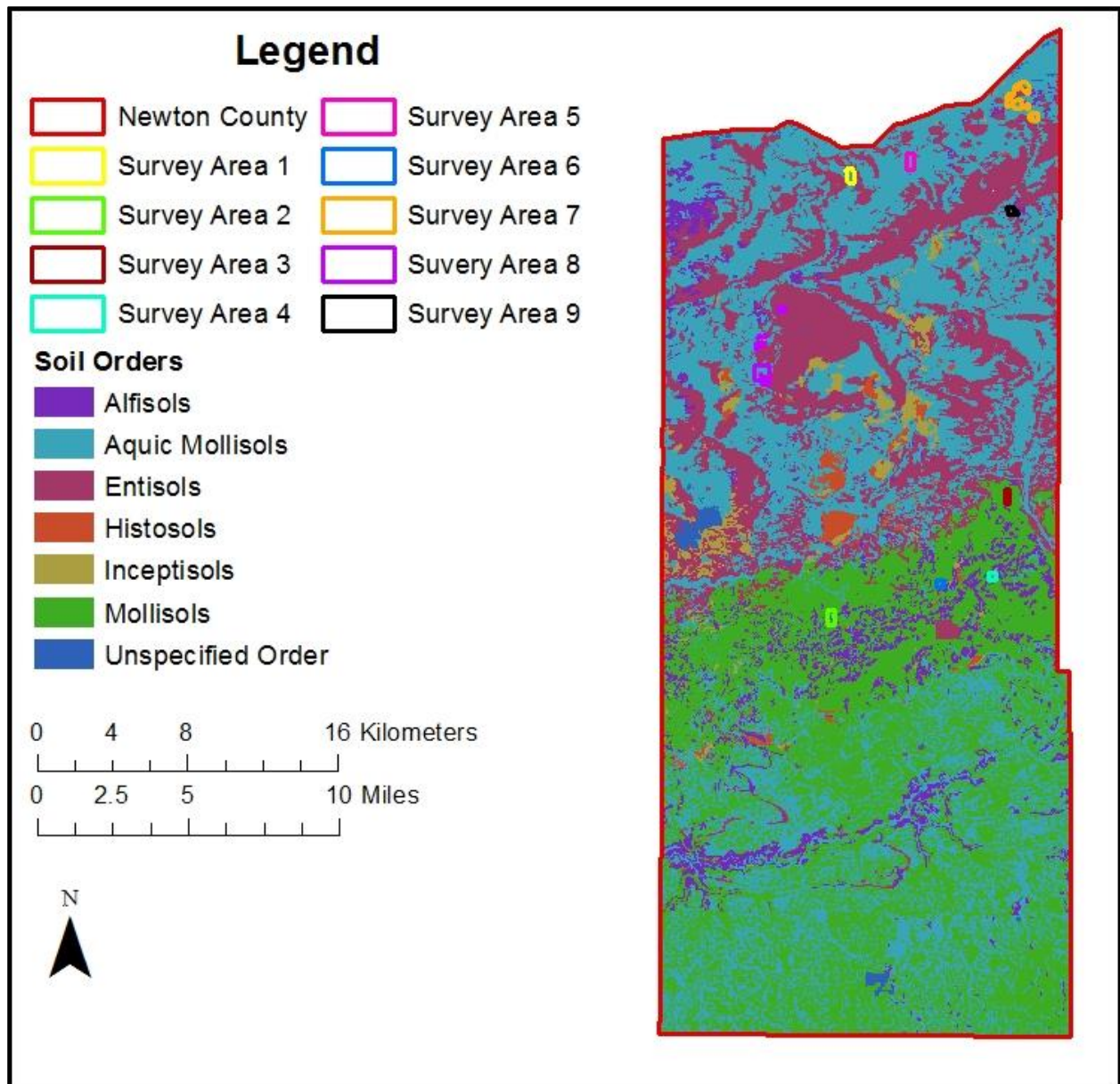


Figure 16: Soil orders located within Newton County (SSURGO, USDA/NRCS 2015).

Water Resources

Precipitation is the primary source of surface water for Newton County (Hale 1966:92). Eight to 20 percent of precipitation becomes surface water as it collects in rivers, streams, lakes, and reservoirs (Bechert and Heckard 1966:100). The flow or “discharge” of rivers fluctuates greatly throughout seasons and over years. The maximum discharge is experienced during the late winter and early spring. Melt water from snow and increased precipitation at this time increases the discharge so much that at times flooding becomes a serious concern. Minimum

discharge occurs during the summer and fall due to the effects of evaporation and transpiration by plant life. Roughly two-thirds of precipitation is lost due to this process. In contrast, maximum use of water also occurs during the summer and fall resulting in occasional drought (Hale 1966:94-95). In a landscape characterized by extensive wetlands, such as that found in prehistoric Newton County, these seasonal and annual precipitation fluctuations could have drastically influenced the size and location of habitable area (see e.g., Surface-Evans et al. 2005).

The remaining eight to 16 percent of precipitation percolates through the aeration zone of soil and rock until it reaches the water table where it becomes ground water (Bechert and Heckard 1966:100). Ground water moves laterally until it reaches a lower elevation. Eventually ground water will become surface water when it reaches an outlet (Bechert and Heckard 1966:110).

The Kankakee River, which lies in northwestern Indiana and northeastern Illinois is the major water source running through Newton County (Heistand 1951:9-10). However, there is also the Iroquois River and Beaver Creek, both tributaries of the Kankakee River, and also many other smaller streams and creeks. Both the Kankakee and the Iroquois Rivers ultimately flow westward into Illinois.

The Kankakee River has a shallow gradient of only five inches per mile making the river very sluggish and prone to flooding. Historically the Kankakee River had shallow standing water covering about five miles on either side of the banks for about nine months out of the year prior to its draining (Meyer 1935:364). The glacial outwash of the Kankakee is described as a “nearly level relief with low meandering sand dunes or ridges that occur irregularly” (Barnes and Osterholz 1998:3). Aeolian processes also affected the sandy sediments along the Kankakee River. Sand was blown out of the outwash deposits resulting in the formation of numerous small dunes, called islands, even though they are no higher than five feet above the alluvial plain, flanking the river in the Kankakee lowlands (Wayne and Zumberge 1983).

Newton County has only one major lake, J.C. Murphy Lake, as well as some smaller ponds, and all are manmade (Barnes and Osterholz 1998:4). J.C. Murphy Lake was constructed in 1951 as a flood control reservoir, which offers protection from high waters and a storage location for the county water supply (Hale 1966:96-97). Located south of the Kankakee in McClellan Township is a manmade drainage ditch called Lake Ditch which was constructed in the 1850s to drain Beaver Lake into the Kankakee River in order to create more agricultural land (Heistand 1951:9). The draining was completed in 1894 when Beaver Lake was reduced to a large ditch and converted entirely to agricultural land (Taylor 2009:12).

Water resources are extremely important to both prehistoric and historic human habitation patterns. Newton County’s multiple water, and especially wetland, resources would have been valuable resources to prehistoric and historic populations. The structure of surface

water, streams, and fluctuating wetlands would have provided a unique structure and set of opportunities for the occupants of Newton County.

Climate

The modern climate of Indiana is described as a humid, mesothermal-microthermal, continental climate (Newman 1966:171; see also Eichenlaub 1979 and Woods et al. 2003). This refers to Indiana's lack of average humidity less than 50 percent and cold periods of winter and hot periods of summer (Newman 1966:171). Northern Indiana is within the microthermal unit which has a cool temperature climate like those found farther north and east, whereas southern Indiana is a part of the mesothermal unit which has a warm temperature climate similar to those areas in the south and west (Newman 1966:171). Eichenlaub (1979) places this portion of the state within the Great Lakes climate region with the attendant influence of the lake on temperatures and precipitation. Further, Eichenlaub (1979:194, Figure 53) that the county is within the *Dfb* Köppen region characterized by cold and snowy forests, with no dry season, and relatively cool summers. Newton County is characterized by a coefficient of continentality of approximately 44-45 (Eichenlaub 1979:Figure 56) which is a measure of the strong influence of Lake Michigan on local climate. Since Newton County is located in northwestern Indiana, it experiences daily and seasonal variability in climate, with very cold winters and hot and humid summers due to some of the effects of Lake Michigan (Schaal 1966:166). Without Lake Michigan, northern Indiana would be much colder during the summer months due to the moisture in the air retaining heat, but the proximity to the lake also means that surface winds in the area are higher comparatively to other areas of Indiana (Schaal 1966:169).

Average rainfall for Newton County is 37.32 inches a year while average snowfall is 28.3 inches a year (Barnes and Osterholz 1998:4-5; see also Woods et al. 2003). The mean minimum January temperature is between 18 to 20 degrees Fahrenheit while the mean maximum January temperature is between 34 to 38 degrees Fahrenheit (Schaal 1966:162). Summer temperatures vary accordingly with intense heat, the mean minimum July temperature is 62 to 64 degrees Fahrenheit and the mean maximum July temperature is between 86 to 90 degrees Fahrenheit (Schaal 1966:162; see also Eichenlaub 1979).

Newton County is entirely within the Central Corn Belt Plains (CCBP) Level III Ecoregion 54 (Woods et al. 2003). Northern Newton County falls primarily within the Level IV ecoregion 54d, the Kankakee Sand Area, while the northern most reaches fall within 54c, the Kankakee Marsh (Figure 17). Southern Newton County is entirely within Level 54a, the Illinois/Indiana Prairies (IIP). The majority of the survey areas fall within ecoregions 54c and 54d, with three falling within ecoregion 54a. Ecoregions 54c and 54d experience up to 23 more frost free days compared to ecoregion 54a, which averages about 160- to 170 frost free days (Woods et al. 2003). Mollisols dominate the CCBP, the Kankakee Marsh and Sand Area (54c and 54d) are mostly mollisols as well, and the IIP is mostly prairies with aquolls more abundant.

Minor climatic properties may be influenced by natural features within the landscapes, creating variably hospitable small scale climatic zones. These features would have affected prehistoric and historic utilization of the local environment and created small scale preferential or detrimental climactic conditions. Newman (1966:174-176) refers to these areas as “meso-climates” and states that they are mainly caused by changes in wind patterns as a result of natural landforms such as major river valleys, the shore area around large lakes, high plateau areas and springs. These meso-climates, though very difficult to describe retroactively, may have played a part in the habitation patterns among prehistoric peoples.

The modern climate of Indiana is not an accurate reflection of the climate over the last 12,000 years. As other archaeologists have noted (e.g. King 1993:236), the reconstruction of paleo-climates has been hampered by ambiguous climatic data that have been used to support conflicting interpretations. Climatic change has been documented and can be discussed in generally accepted terms.

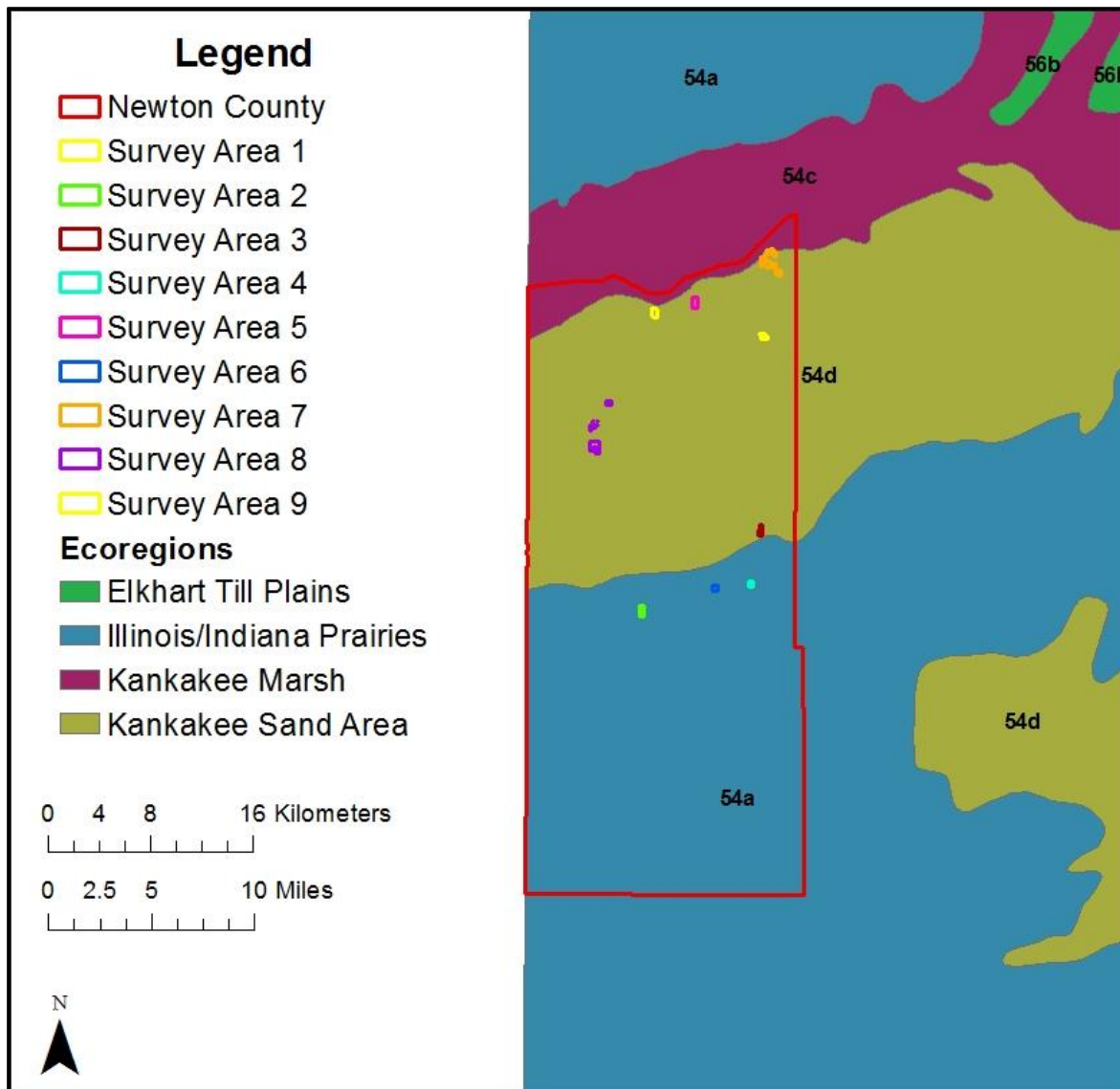


Figure 17: Level IV Ecoregions (Woods et al. 2003) for Northwest Indiana.

Biotic Communities

Flora

As the climate shifted in Indiana after the end of the Pleistocene, so did the plant species. Figure 18 presents the transformation of the vegetative sequence constructed by Shane and adapted by Don Cochran (Cochran and Buehrig 1985:9, after Shane 1976; see also Bond et al. 2001; Shane et al. 2001) to reflect the general changes that took place within the region since the retreat of the glacial ice. Shane (1976, Shane et al. 2001) discusses regional changes within the Ohio valley that have broad scale implications for the U.S. Midwest and Great Lakes regions.

The trends identified were a relatively rapid and dramatic change in vegetation from open parkland to closed forest was the result of a rapid acceleration in the rate of warming (Whitehead 1997:105). Figure 18 is a regional generalization and does not cover the project area specifically. It should be emphasized that vegetation varied greatly over time and space, and the introduction and extinction of species across Indiana produced a forest with mixed vegetation (Whitehead 1997:105). Vegetative responses to the expansion of prairie and the drying of the climate have not been universally recorded in sediments for the Great Lakes Region, but it has been found in Indiana and Illinois (Holloway and Bryant 1985:236-237).

With historic documentation, more detailed descriptions of the vegetation in northern Indiana can be given. The historic forest descriptions should be representative of the deciduous vegetation occurring during the Woodland period. Newton County has been characterized as having prairies in the southern portion of the county and wetlands in the north (Taylor 2009:12). Petty and Jackson's (1966) study of the pre-Euro-American settlement vegetation of Indiana in 1816 shows Newton County as predominantly wetlands with some pockets of oak-hickory forest and two tongues of dry prairie associations (Figure 19). However, within Indiana oak-hickory forests are found to be in balance and intertwined with beech-maple and western mesophytic forests (Petty and Jackson 1966:285-286). These forest communities use the topographic and edaphic variations throughout Indiana to thrive in their locations (Petty and Jackson 1966:286). During the time of European immigration to the Americas, oak-hickory was slowly being replaced by other competing associations like beech and maple. However, white oak was highly valued by the new settlers, which allowed oak-hickory to survive (Petty and Jackson 1966:287). All of the survey areas for the current project are distributed throughout the wetlands, oak-hickory, and dry prairie vegetative regions of the north of the county (see Figure 19).

The understories (layer of vegetation beneath the canopy) within oak-hickory forests are generally less developed in comparison to other forest communities. Maple and beech tree reproduction can occur within the understory of mature oak-hickory stands, and along with this reproduction within the understories, only one or two other species will be found (Petty and Jackson 1966:287). Species like hop hornbeam, blue beech, service berry or dogwood are found within the understory. Shrub species commonly found within oak-hickory forest are blueberry, huckleberry, snowberry and nannyberry. Herbs within oak-hickory communities include pussy-toes, common cinquefoil, wild licorice, tick clover, blue phlox, waterleaf, bloodroot, Joe-pye-weed, woodland asters, goldenrods, wild geranium and bellwort. These herbs are most prominent during late summer and autumn (Petty and Jackson 1966:287-288).

A.D. 2000	Historic	Deciduous Forest
A.D. 1000		
0		
1000 B.C.		
2000 B.C.		
3000 B.C.	Late Archaic	Deciduous Forest
4000 B.C.		
5000 B.C.	Middle Archaic	Prairies and Open Vegetation
6000 B.C.		
7000 B.C.	Early Archaic / Late Paleoindian	Deciduous Forest
8000 B.C.		
9000 B.C.	Early Paleoindian	Pine Maximum
10000 B.C.		Conifer-Deciduous Woodland
11000 B.C.		Boreal Forest
12000 B.C.		Park Tundra
13000 B.C.		Tundra or Open Areas
14000 B.C.		Periglacial Zone
15000 B.C.		Wisconsin Ice

Figure 18: Vegetation Sequence of Central Indiana (Cochran and Buehrig 1985:9, after Shane 1976).

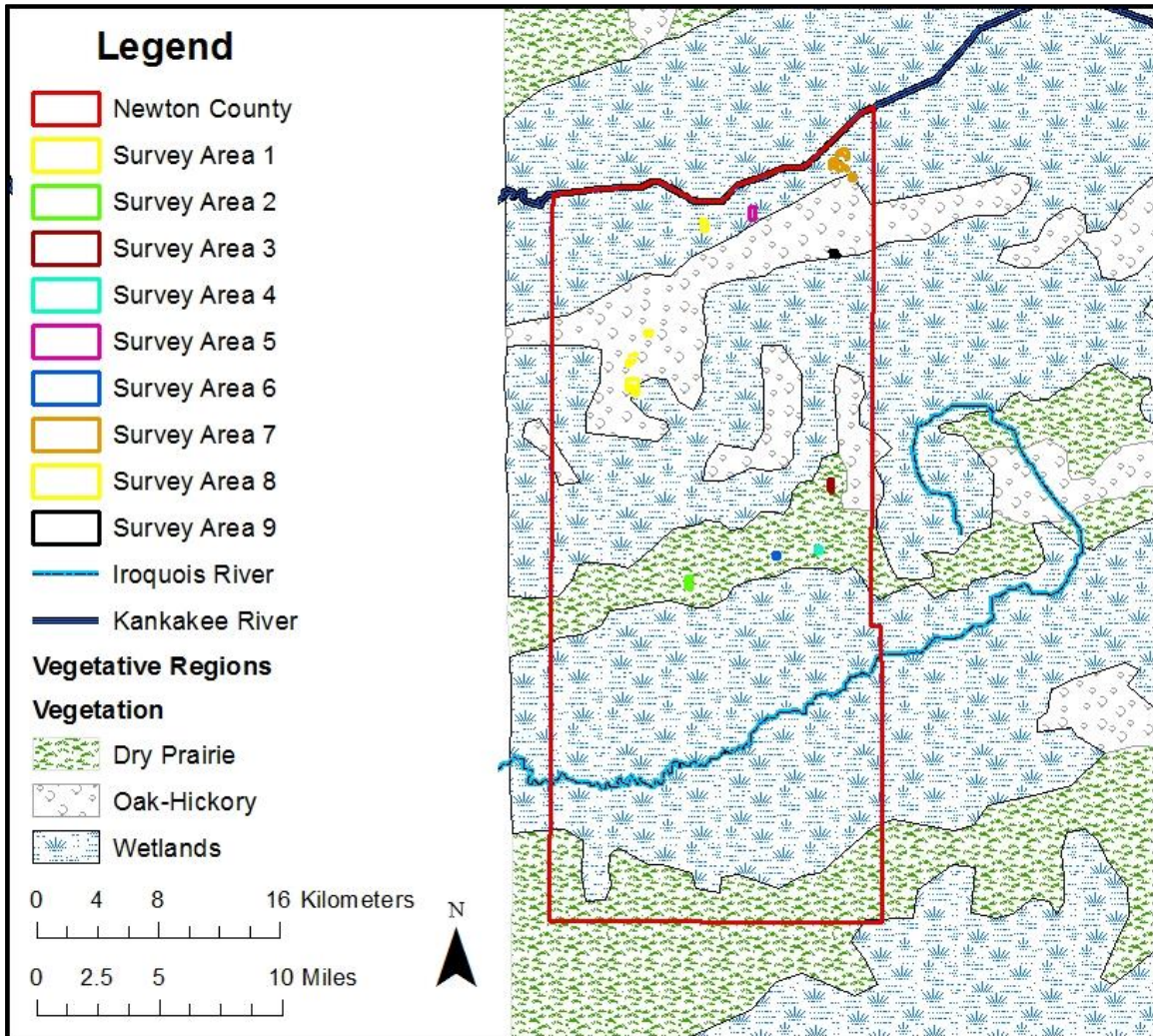


Figure 19: Pre-Euro-American Settlement Vegetation after Petty and Jackson (1966).

The Prairie Peninsula, historically found in northwest Indiana, once covered 13 percent of the Indiana landscape. In more recent times prairie lands of Indiana are predominantly found only in designated low maintenance areas such as settlement era cemeteries, and along highways and railroads. While prairie lands often appear to be simple grasslands, these lands have a complex system of both plants and animals within them. The development of prairies played a large part in the fertility of both Indiana and the United States as a whole. The species of plants that constituted the prairies in this area were a mix of both northern and southern species. These two groups grow and mature at different points throughout the year, allowing prairies to be successful vegetative communities in most seasons as well as to propagate fertile soils (Petty and Jackson 1966:288-289). There were two areas of dry prairie within Newton County, one of which contains four of our survey areas (see Figure 19). The intermingling of dry prairie and wetland may have fluctuated in the deeper past.

In Indiana, wetland vegetative communities are advantageous for humans because of the wildlife and the plant life they house (Meyers 1997:69). Wetlands in Indiana display the highest diversity of life, including endangered species, of all local habitats. Wetlands are characterized as low lying, often poorly drained areas found between land and water. This includes swamps, bogs, fens, marshes, seep springs, sloughs, bottomland, potholes, wet meadows or prairies, and most areas that are found in the margins of lakes, reservoirs, rivers and streams. Wetlands offer ways for humans to control water-based resources and indeed the resource of water itself. Wetland communities are decreasing within Indiana, but they can still be found within places like Newton County (Meyers 1997:67). Beaver Lake within Newton County was a diverse and seemingly inexhaustible wetland resource to both native people and Euro-American settlers before it was drained in from the 1850s to 1894 (Heistand 1951:10; Taylor 2009:12). Prehistorically, wetlands would have been economically important, and potentially attracted people from atypical distances seasonally. The fluctuations of surface moisture seasonally and through the centuries would have exerted a great influence on prehistoric activity distributions.

Beaver Lake and the Kankakee Marsh, surrounding the Kankakee River across northern Indiana and parts of Illinois, were areas of natural resources favored by both prehistoric and historic peoples. The first historically recorded population to utilize the marsh regions in northern Newton County were the Potawatomi, then French fur traders, and lastly Euro-American farmers and settlers before draining (Meyer 1935:366). Throughout its use, Beaver Lake and the Kankakee Marsh have transitioned from a largely unmodified landscape with thousands of acres of swamps, marshes, and sand islands to vast tracts of agricultural land used to raise livestock and grow cereals (Meyer 1935:366-368). The native vegetation of the Kankakee Marsh is separated into three formations including: the river swamp, the marsh, and the upland. Each of these formations has distinct native cover, but also can overlap in the case of the swamp and marsh (Meyer 1935:365).

The river swamp native vegetation was made up of timber of extraordinary size ranging from the westernmost extremity of the Kankakee Marsh to about halfway up to the river source (Meyer 1935:365). The stand of trees also ranged from a width of about one to three miles following the course of the Kankakee River. The trees could be up to two to four feet in diameter and the dominant species included ash, elm, maple, oak, and birch trees (Meyer 1935:365).

The marsh landscape was dominated by rank sedges, grasses, wild hay fields, and wild rice (Meyer 1935:365-366). This flora was interrupted sparsely by pin oak swamp timber outliers and other associated tree species. There were also occasional ponds or lakes that contained lily pads, cattails, reeds, and flags (Meyer 1935:366). Within the marshes were seasonal plants that provided huckleberry and cranberry food sources for man and animal alike. Draining of the marshes led to the disappearance of wild rice and marsh hay except in poorly drained pastures lands (Meyer 1935:365-366).

The uplands consisted mainly of sand dunes and other “islands” that rose above the shallow waters of the marsh and swamp areas by up to 35 feet (Meyer 1935:366). There are some remnants of these islands throughout the areas that once made up the Kankakee Marsh and Beaver Lake. This region was marked by thin herb or moss ground covering because of the high acidity in the soil. Other vegetation that was present in the upland area included thin strands of medium-sized trees or scrub that were made up of mainly white oak and black oak (Meyer 1935:366). The vegetation, though limited, was able to be utilized by human and animal alike as a food source. The fruits and nuts that were available seasonally included blueberries, blackberries, dwarf huckleberry, dewberry, and hazelnuts (Meyer 1935:366).

Fauna

The animals living in Indiana would have changed from the end of the Pleistocene through Holocene times. Various Pleistocene age fauna have been found in Indiana. Early twentieth century accounts list bison, giant beaver, caribou, Virginia deer, dire wolf, wapiti, horse, mammoth, mastodon, musk-ox, peccary, sloth and perhaps moose (Lyon 1936; Moodie 1929). More recent investigations have expanded this list to include moose, caribou, black bear, giant short-face bear, giant tortoise, white-tailed deer, Canada goose, armadillo, jaguar, sabertooth tiger and camel (Richards and Whitaker 1997:156).

The faunal arrangement greatly changed around 10,000 to 11,000 years ago with the extinction of many of the larger mammalian species. A rapidly changing climate combined with the introduction of humans resulted in a reorganization of biotic communities (Richards and Whitaker 1997:151). In 1816, an estimated 66 species of mammals were present in Indiana (Mumford 1966:475). Some of the common mammals found in Indiana include opossum, eastern cottontail, eastern chipmunk, white-tailed deer, beaver, deer mouse, white-footed mouse, meadow vole, pine vole, muskrat, southern bog lemming, Norway rat, coyote, red fox, gray fox, raccoon, long-tailed weasel, various species of squirrels, mice and shrews. Twelve species are listed as exterminated from Indiana and include bison, wapiti, porcupine, gray wolf, red wolf, black bear, fisher, eastern spotted skunk, wolverine, river otter, mountain lion and lynx (Mumford 1966:475).

Historic sources also report a large variety of other fauna in Indiana. Webster (1966:455-473) identifies 366 species of birds. A total of 177 fish have been identified in the state (Gammon and Gerking 1966:401-425). Approximately 200 species of mollusks and 400 species of crustaceans occurred in Indiana waters. Approximately 82 species of amphibians and snakes have been identified (Milton 1966:426-451). The species can be subdivided into 19 species of salamanders, two species of toads, 11 species of frogs, six types of lizards, some 30 types of snakes, and 14 turtle varieties (Milton 1966:426-451).

The Kankakee marsh and Beaver Lake regions of northern Newton County contain such variety in flora, which also influences the variety of fauna present as well. It is very well known that the Kankakee Marsh and Beaver Lake were utilized by both prehistoric and historic populations as hunting and trapping grounds due to large populations of favorable fauna (Meyer 1935:367-373). Animals that would have been present could have included those native to wetlands and oak-hickory forests. Beavers and muskrats were the most prized animals within the wetland region of Newton County (Meyer 1935:370; Mumford 1966:481). The muskrats from the Kankakee region provided a substantial amount of the furs available on the market during the earlier days of trapping. Deer were also a commonly hunted mammal in the region. White-tail deer, found in both upland and wetlands habitats, were hunted heavily until the 1850s (Mumford 1966:486). Ducks and other waterfowl would flock to the marshes and swamps of Newton County, thus making them prime targets for hunters of the past, and even today at hunting resorts located along the Kankakee (Meyer 1935:374-375).

Summary

As the ecological and natural setting of the project area changed and evolved over the last several thousand years, human settlement would also have changed. Settlement and use of resources within the project area would have been influenced by potential plant and animal resources and, conversely, may have influenced changes in flora and fauna (Delcourt and Delcourt 1991:87-89). The diversity of habitats that existed in the project area would have attracted prehistoric populations for the wide variety of natural resources available as food, water sources, and raw materials in the production of tools, clothing, adornment and shelter.

The environmental diversity of the northern region of Newton County during prehistoric times and into the mid-1800s has led to the area being likened to the Everglades in Florida (For Goodness Sake Productions 2012). The thousands of acres of fertile marshland contained in Newton County were a constant source of food, shelter, and other resources to both its seasonal and permanent occupants. Called “God’s renewable pantry” prior to dredging and draining, the vegetation rich marshes and swamps, mixed with upland sand dunes and islands, were a wildlife haven filled with muskrats, beavers, deer, and many other species of fauna prized for their pelts and meat (For Goodness Sake Productions 2012). Variety and population size were key factors in selecting northern Newton County as a hunting and trapping treasure trove by both prehistoric and historic populations.

Archaeological Background

In this section, the archaeological background of Newton County is reviewed. The background information was analyzed for data relevant to an understanding of archeological resources expected to be found during this investigation both in terms of the types and densities of archaeological data, as well as the history of the landscape. A records review was conducted at DHPA by Christine Thompson on June 15, 2015 and by Kevin C. Nolan on May 30, 2014 as part of the FY2014 grant for southern Newton County. The results of this review are presented in Table 2 which provides the references for previous surveys as well as the number of surveys conducted and those successful in locating sites. Following Swihart and Nolan's (2013, 2014) procedure, the results are segregated by civil townships, which are shown in Figure 20. The Positive column indicates the number of surveys that encountered artifacts and reported any sites. The S/P column is a ratio of the number of surveys conducted by the number of surveys that were positive. The P/S column is a ratio of the number of positive surveys to total surveys. These ratios give an approximate index of the average density of the archaeological record in the county and in each civil township. The results show that on average sites are encountered in about one in every 2.91 surveys in Newton County with an average positive density of 0.34. Prior to the current survey, 267 sites had been recorded in Newton County (Volume 2, Appendix A). Summaries of site components and projectile points recovered from the area are presented in Table 3, Table 4, and Table 5.

The information in Table 2 shows the townships within Newton County with the least amount of surveys, are located in the more central portions of the county. Jackson Township being the lowest with one survey, followed by Washington with four, Colfax with seven surveys, and McClellan with eight (Table 2). This is to be expected as this area is characterized by lower modern population and landscape development outside of farmland, which could account for the lower number of mandatory surveys. With such low numbers of surveys in these areas (especially Jackson Township) it is very difficult to say how dense the archaeological record really is in the central portion of the county. The highest density of positive surveys is misleading because Jackson has the highest density of 100 percent. This is because only one survey has been conducted and it was positive. The second and third highest positive site densities are Jefferson Township (n=7) at 58 percent and Beaver Township (n=5) at 56 percent. The townships in Newton County with the greatest amount of conducted surveys tend to be those in the northeastern and southernmost portions of the county. The greatest frequency of surveys are in Lincoln, Jefferson, and Grant Townships. The high volume of surveys conducted in Lincoln Township reflects the expansion of Roselawn (on the border of Newton and Jasper Counties) as a tourist destination.

In 2014, Ball State University was granted a FY2014 Historic Preservation Fund Grant to conduct surveys in the southern portion of Newton County with a focus on the Iroquois River.

The townships that were targeted include Washington, Iroquois, Jefferson, Grant, Beaver, and Jackson. Eight survey areas from this project were added to the previous surveys conducted within Newton County, and each survey areas was counted separately in Table 2. There were two survey areas added to existing surveys in Iroquois Township (n=1), two survey areas added to Washington Township (n=2), one survey area added to Jefferson Township (n=1), two survey areas added to Grant Township (n=2), and one survey area added to Jackson Township (n=1). There were no survey areas added to Beaver Township as a part of the FY2014 HPF Grant surveys in Newton County. The addition of eight survey areas from the FY2014 HPF Grant and additional survey areas from the most recent records check conducted effected the average S/P ratio by lowering it from sites encountered every 3.33 surveys to an average of 2.9 surveys. The P/S ratio was also raised from a positive density of 0.29 to 0.34 between FY2014 to FY2015. This may indicate that the previous CRM surveys do not adequately characterize the true density of the archaeological record at the county level.

With a ratio of one positive survey for every 2.9 CRM projects and HPF grant project survey areas (**Table 2**), Newton County exhibits a similar abundance of archaeological resources compared to an S/P ratio of 2.8, 2.7, and 1.94 for Jasper, Dearborn, and Hamilton Counties, respectively. This is accounting for the relatively low amount of archaeological investigations that have taken place in Newton County compared to counties like Hamilton County in central Indiana, Dearborn in southern Indiana, and Montgomery in west central Indiana (James and Cochran 1985; Macleod et al. 2015; Murray et al. 2011; Swihart and Nolan 2013:Table 3, 2014:Table 2). The lower levels of development and construction that has taken place within Newton County could account for the lower frequency of state and federal surveys conducted. The first federally mandated survey within Newton County did not take place until 1976 in Lincoln Township, but there had been known sites documented within the county in the 1950s and earlier (DeRegnaucourt 1976; Heistand 1951).

Archaeological investigations in Newton County have been predominantly oriented toward surface surveys and only a small percentage of sites have been tested or excavated. A Phase II survey was conducted in 2004 as part of a section 106 grant within a 390 acre area of the Kankakee Marsh in Lake County (La), immediately north of Newton County (Surface-Evans et al. 2005). Subsurface testing was done on five sites found during a previous Phase I survey conducted (Kullen and Greby 2003). This project included 13 hand excavation units, mechanical excavation of 34 trenches, geophysical survey of three 20m x 20m grids, and pedestrian survey of the western portion of site 12-La-91 (Surface-Evans et al. 2005:258). In this excavation, Surface-Evans found significant cultural deposits in all five sites and recommended either avoidance or Phase III mitigation. Contained in the cultural deposits were lithic artifacts such as flakes, bifaces, and groundstone tools, and also prehistoric ceramics. These artifact classes included the Early to Late Archaic, Middle Woodland, Late Woodland, and Upper Mississippian cultural periods (Surface-Evans et al. 2005:261-263).

Surface-Evans's project was a Section 106 Phase II National Register of Historic Places (NRHP) evaluation focused on increasing the understanding of the archaeology of the wetlands of northwestern Indiana. The project was located in a portion of Indiana notably lacking in archaeological data compared to other regions of the state and much of the archaeology is done under salvage conditions, so the data quality is very poor (Surface-Evans et al. 2005:263). This observation of the dearth of archaeological information in Lake County also applies to Newton County; especially in the Kankakee marsh region, as both counties have seen little economic development in the areas closest to the marsh and our understanding of the nature and trajectory of prehistoric use of these areas is woefully inadequate. Surface-Evans claims that the reason for this is because archaeologists tend to group wetlands into a homogenous category, which does not allow for adequate examination of wetland adaptations (Surface-Evans 2015:186). The upland dunes throughout the Kankakee marsh were highly utilized beginning in the Late Archaic as hunting camps, but beginning in the Middle Woodland period transitions to semi-permanent seasonal camps. The artifacts recovered and density of Middle Woodland features in sites 12-La-526 and 12-La-84 indicate settlement-subsistence patterns emphasizing more permanent use of the marsh focusing on hickory nut extraction developed deep roots in the Kankakee regions (Surface-Evans 2015:180-182). More permanent seasonal use of the Kankakee marsh continued to develop through the Late Woodland and Upper Mississippian period, which is supported through the prevalence of features associated with those culture periods (Surface-Evans 2015:185-186). Similarities in wetland adaptations and settlement patterns have been noted between the Kankakee marsh and Beaver Lake in McClellan Township before draining. Inlets, islands, and knobs around the lake's shoreline were a preferred place for campgrounds and were highly utilized for the game present before draining (Heistand 1951:36). The unique qualities of Beaver Lake and the Kankakee marsh across northwestern Indiana and into northeastern Illinois are what made it such a desired region.

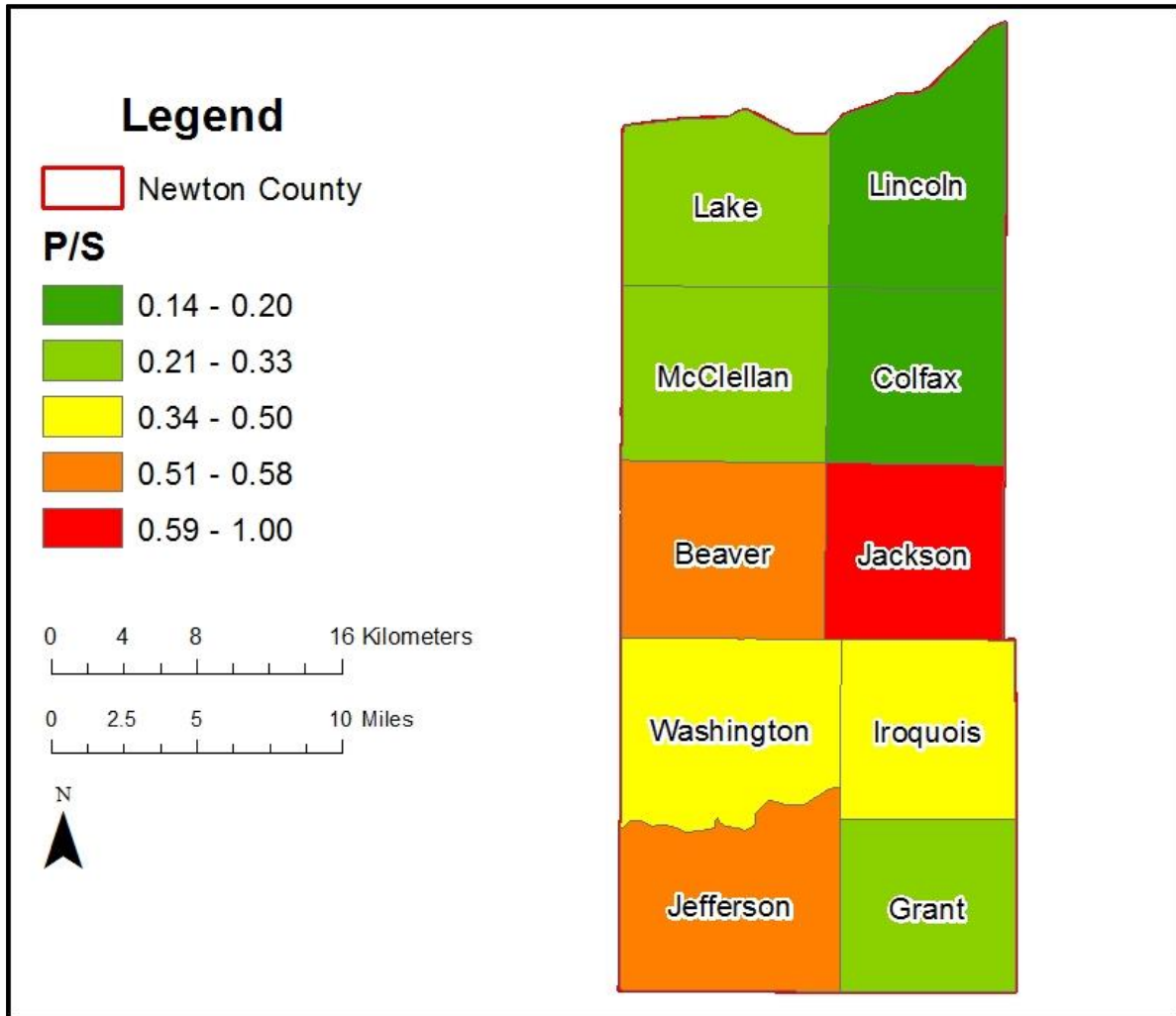


Figure 20: Ratio of positive surveys to total surveys within the Civil Townships in Newton County. See Table 2

Table 2: Summary of Previous Surveys in Newton County

Civil Township	# of Surveys	Positive	S/P	P/S	References
Beaver	9	5	1.8	0.56	(Brammer 1995; Conover 1985a; Coon 2012a; King 2007; McAlpine 2004; Westermeier 1997; King and Zoll 2007; Zoll and King 2010; Zunker 2001)
Colfax	7	1	7.0	0.14	(Adderly 2002; Keene 2010; Pace 1987; Parsell 2012; Stillwell 2001, 2004, 2010a)
Grant	14	4	3.5	0.29	(Beard 1991; Conover 1985b; Cree 1991a; Holycross 2001; King 2010a; Leeuwrik et al. 2015; Stafford 1988; Stillwell 2002, 2005, 2010b; Wappenstein 1999; Zoll 2010; Zunker and Nagle 2002) *Leeuwrik et al. 2015 includes two survey areas.
Iroquois	11	4	2.8	0.36	(Burkett 1993; Cochran and Cox 1977; Conover 1983; Coon 2008; Helmkamp and Kanne 2001; Holycross 1997; Hutchinson 1986; King and Zoll 2009; Leeuwrik et al. 2015; Stillwell 2000) *Leeuwrik et al. 2015 includes two survey areas.
Jackson	1	1	1.0	1.0	(Leeuwrik et al. 2015)
Jefferson	13	7	1.9	0.54	(Adderly 1996; Cochran 2006; Conover 1986a, 1986b; Coon 2012b; DeRegaucourt 1982; Helmkamp and Coon 1999; King 2010b; Leeuwrik et al. 2015; Miller 2006; Pace 1984; Rourke-Jordan 1979; Wepler 1978)
Lake	11	3	3.67	0.27	(Bellis 1979, 1984; Coon 2010; Craig 2015; Donaldson 2013; Evans 1990; King 2009; Lumbis 1984; Moffatt 2010; Stillwell 2006; Waters 1999)
Lincoln	20	4	5.0	0.20	(Angst 1998; Beard 1994; Bennett 2000; Black 2005; Black and Miller 2003; Conover 1986c; DeRegnaucourt 1976; Fabyan 1979, 1982; Greenhouse et al. 2000, 2001a; Greenlee 2007; Helmkamp 2000; McCord 2004; Rosenberg 2004; Stafford 1987; Stillwell 1999, 2006; Tomak 1984, West 1988)
McClellan	8	2	4.0	0.25	(Anslinger 1993; Beazley and Bazzill 2013; Cantin 1995; Conover 1985a; Greenhouse et al. 2001b; Keene and Hayes 2005; Moffatt 2009; Mangold 2003)
Washington	4	2	2.0	0.50	(Greenhouse et al. 2001c; Leeuwrik et al. 2015; Stillwell 2013) *Leeuwrik et al. 2015 includes two survey areas.
Unknown	2	1	2.0	0.50	(Fabyan ca. 1976-1979; White et al. 2007)
Total	100	34	2.94	0.34	
Average	9.1	3.09	2.94	0.34	

Table 3: Site Components Recorded Within Newton County (Division of Historic Preservation and Archaeology 2015)

***bold period headings include all sub-periods**

Component	No.	Number of Multicomponent sites included in total
Unidentified Prehistoric	138	37 Multicomponent
Paleoindian	0	
Archaic	8	6 Multicomponent
Early Archaic	2	2 Multicomponent
Middle Archaic	1	1 Multicomponent
Late Archaic	4	1 Multicomponent
Unknown Archaic	1	1 Multicomponent
Woodland	43	32 Multicomponent
Early Woodland	4	4 Multicomponent
Middle Woodland	4	4 Multicomponent
Late Woodland/Mississippian	12	6 Multicomponent
Unknown Woodland	23	18 Multicomponent
Mississippian	2	
Protohistoric/Contact	5	2 Multicomponent
Historic	92	19 Multicomponent
Unknown	25	

Table 4: Previously Documented Points Within Newton County (Prior to Survey)

Cultural Period	Projectile Point Types
Paleoindian	
Early Archaic	Palmer, Charleston Corner Notched, Rice Lobed, MacCorkle Stemmed, Kirk, Kanawha Stemmed, St. Albans Side Notched, Thebes
Early-Middle Archaic	Graham Cave side-notched
Middle- Late Archaic	Raddatz, Raddatz side-notched
Late Archaic	Matanzas, Table Rock Stemmed, Riverton, Merom cluster, Brewerton eared-notched, Matanzas side notched, Brewerton side notched
Terminal Late Archaic	Genesee cluster
Early Woodland	Adena stemmed, Motley
Middle Woodland	Affinis Snyder, Snyders
Late Woodland/ Late Prehistoric	Madison, Unclassified Side Notched, Unclassified Corner Notched, Unclassified Flared Stem

Table 5: Site Types Recorded Within Newton County (Data from SHAARD, CRM and research reports prior to survey)

Prehistoric Types	No.	Historic Types	No.
Burial	3	Agricultural Field	5
Lithic Scatter	123	Agricultural Outbuilding	1
Ceramics	1	Cabin	3
Habitation	1	Historic Scatter	31
Camp	1	Farmstead	1
Mound	1	Wigwam	3
Prehistoric Scatter	1		
Village	1		
Isolated Find	72		
Unknown	6		

A Phase Ia investigation of 505 acres of land was conducted by Archaeological Research, Inc. in 2005 within McClellan Township. Their field methods consisted of a combination of pedestrian survey and shovel testing. Within the project areas were two previously recorded sites (12-N-218, 12-N-219) consisting of two sand islands within an area which used to be Beaver Lake, but was converted to agricultural land (Keene and Hayes 2005:24). This investigation did not recover any archaeological materials or encounter any new sites (Keene and Hayes 2005:23-25).

A Phase Ia investigation of 90 acres located in Lincoln Township along State Road 10 from Roselawn into Jasper County. This survey was conducted as a result of recommendation for further study resulting from a previous survey (DeRegnacourt 1976:1; Fabyan 1982). This area was recommended for further investigation due to the higher relative elevation and proximity to a marsh being favored for prehistoric utilization as a hunting ground (DeRegnacourt 1976:1). The surveys conducted in both 1976 and in 1982 recovered no archaeological materials and encountered no new sites (DeRegnacourt 1976:1; Fabyan 1982).

In 2006, approximately 60 acres was surveyed for the Kentland Municipal Airport in Jefferson Township. This survey was carried out by Archaeological Resources Management Service of Ball State University. The results of this survey were two previously undocumented sites (12-N-29, 12-N-30). Site 12-N-29 consisted of an isolated flake of an unidentified chert and unknown prehistoric age (Cochran 2006:3). Site 12-N-30 consisted of an isolated flake with a modified age, consistent with Attica chert, and of an unknown prehistoric age (Cochran 2006:4). Neither of the sites were recommended for further study or archaeological assessment.

In 2003, the Indiana Division of Historic Preservation and Archaeology conducted surveys at J.C. Murphy Lake and the Willow Slough Fish and Wildlife area prior to the re-contouring of a few eroding sand islands. Nine new sites (12-N-20 to 12-N-28) were documented during three reconnaissance surveys of the targeted islands (Mangold 2003:1). During the course of the surveys and within the nine sites, a total of 201 artifacts, which include ceramic sherds, lithic debitage, projectile points and fragments, faunal fragments, and a Lincoln cent (Mangold 2003:3-12). The ceramic sherds consisted mainly of grit or shell-temper with one Havana dentate stamped sherd (12-N-20), which were used to determine Upper Mississippian, Middle Woodland, and Late Woodland occupations (Mangold 2003:2). Three diagnostic projectile points were recovered which include a Middle Woodland Snyders point (12-N-24), a Late Archaic Riverton point (12-N-24), and a Late Archaic Brewerton point (12-N-25) (Mangold 2003:8-9). One other diagnostic lithic was a Middle Woodland lamellar blade of unknown chert (12-N-24). The DHPA found that sites 12-N-20 to 12-N-23 and 12-N-28 would not be affected by the proposed re-contouring. Of those sites affected by the re-contouring, 12-N-26 and 12-N-27 were not found to be eligible for NRHP status and could be covered by re-contouring

(Mangold 2003:13). Sites 12-N-24 and 12-N-25 were found to be potentially eligible for the NRHP and the re-contouring would have adverse effects on the site integrity (Mangold 2003:13).

In 2014, the AAL conducted a Phase Ia survey of eight survey areas in the southern portion of Newton County as part of FY2014 Historic Preservation Fund grant (Grant #18-14-FFY-03). A total of approximately 902 acres were surveyed, 1,329 artifacts collected, and 89 previously unrecorded sites were documented. The strongest cultural presence of pre-Euro American occupation recorded was Late Archaic, followed by a possible Middle Woodland component, then other unidentified Prehistoric periods. The Historic period made up the vast majority of the artifact assemblage accounting for 1,274 artifacts collected. In addition to the field surveys, two collector visits were made by archaeologist Kevin C. Nolan, Colin Macleod, and Erin Steinwachs, which supplied information pertaining to unrepresented artifact classes and probable site types within Newton County and neighboring Jasper County.

The collector visit that produced the most significant information pertaining to Newton County was conducted in June 2015. AAL archaeologist Kevin C. Nolan and graduate student Erin Steinwachs visited the Newton County Public Library in Morocco, Indiana to examine a private collection on display. The collection had been donated by [REDACTED] and was initially collected by brothers [REDACTED] [REDACTED] and [REDACTED]. The men had collected the artifacts from farms they owned in Beaver and Washington Townships. In total, the collection contained 265 diagnostic tools or projectile points with intact bases and 41 ceramic sherds. All artifacts were organized, analyzed, and scanned when possible. The collection exhibited a fairly even split between side notched (29.06%), stemmed (28.3%), and triangular (26.76%) point types. The side notched points within the collection were more suggestive of Middle Archaic occupation, the triangular point types tend to be indicative of Late Woodland/Late Prehistoric period occupations, and stemmed points associated with Late Archaic and Early Woodland occupation. This information collected from the [REDACTED] collection was consistent with the findings of a survey conducted in the Lake County Kankakee marsh area (Surface-Evans et al. 2005; Surface-Evans 2015). The triangular points also suggested a Mississippian influence or connections with Mississippian groups in Newton County. Analysis of the pottery sherds in the collection indicated Middle Woodland and Mississippian period occupation. The 41 piece collection contained 21 decorated sherds, several of which were Hopewellian sherds with Rocker stamping and dentate Rocker stamping. Many of the sherds also exhibited shell tempering, indicative of post AD 1000 occupation. The Middle and Late Woodland ceramics directly contradicted the projectile point collection, which lacked Middle and Late Woodland corner notched points, though triangular points are present. Though the evidence is supported by surveys conducted in the area, the [REDACTED] collection is also differs from the [REDACTED] Collection, a collection which contains artifacts from Newton and Jasper Counties, and thus should not be considered to be representative of Newton County in its entirety (Leeuwrik et al. 2015:114-115).

The four most northern townships within Newton County are targeted for this FY2015 Historic Preservation Fund Grant survey project. These townships include Lake, Lincoln, McClellan, and Colfax. Within these townships are 88 documented archaeological sites. Of these 88 sites, 62 sites are classified as lithic scatters with one isolated prehistoric find, one burial, one habitation site, one mound, one prehistoric village, and one historic wigwam (Division of Historic Preservation and Archaeology 2015). Within the four southern townships targeted by the previous FY2014 HPF Grant surveys (Washington, Iroquois, Jefferson, and Grant) and the two middle townships (Beaver and Jackson) there are 179 documented archaeological sites, which totals 267 documented sites in Newton County. The strongest culture period present in these 267 sites is Woodland (n=43), which is also broken down to include Early Woodland (n=4), Middle Woodland (n=4), and Late Woodland/Mississippian (n=12). Other cultural periods documented in existing sites include eight Archaic sites, two Mississippian sites, five Protohistoric sites, 138 Unidentified Prehistoric sites, 92 Historic period sites, and 25 completely unidentified sites (Division of Historic Preservation and Archaeology 2015).

Due to the low amount of systematic archaeological surveys conducted within Newton County, the majority of sites listed in SHAARD are reported from collectors to the approximate location of the site. These collector reported sites have been compiled into written sources and also have been targeted during some archaeological surveys (Keene and Hayes 2005). In 1951, the Indiana Historical Bureau published a survey of known archaeological sites in Newton County, which was compiled by Kentland, Indiana resident and collector Joseph E. Heistand. He recounts the history of Newton County, all of the sites within each township, and provides maps of their approximate locations (Heistand 1951). This publication is consistent with the majority of archaeological sites in Newton County being collector reported and only having approximated locations. Many of the sites from Heistand's book have been added to SHAARD along with very brief descriptions of the artifacts encountered by the collectors or by the author himself (Division of Historic Preservation and Archaeology 2015).

All other surveys and investigation that have been conducted within Newton County were generally smaller and have documented little to no cultural materials. The amount of material culture collected does not necessarily reflect a dearth of sites. Since sites can consist of isolated finds, there can exist limited cultural materials, but a moderate abundance of sites, which appears to be the case for Newton County.

In summary, Newton County and the Kankakee marsh region has been extensively used beginning in the Late Archaic period continuing up through Upper Mississippian and even into the Historic period. The resource exploitation and settlement types evolved to fit the needs of prehistoric populations throughout the culture periods. Primary land use has been shown to reflect hunting camps and food collection and processing (Mangold 2009; Meyer 1935:367; Surface-Evans 2015:186). The abundance of natural resources in the marsh regions encouraged

exploitation, and the upland islands and dunes provided favorable areas for settlement. The natural vegetation for the swamps and uplands were able to be collected and utilized as food sources without horticulture or in supplement to horticulture at other seasonal settlements (Meyer 1935:365-366). The prevalence of projectile points from multiple cultural periods suggests that hunting was a popular activity which occurred in the marsh regions. The high amount of wildlife present provided ample sources of protein, which was even true into the historic period and today. Settlement in the area was more restricted to the upland regions and typically was seasonal, but people in later culture periods shifted to more permanent settlements as the hunter-gatherer subsistence lifestyle gave way to mixed subsistence strategies (Meyer 1935:367-368; Surface-Evans 2015:186).

Culture History

In Newton County, sites and site components indicate that Native Americans inhabited the region from the Paleoindian period through the Historic period. Given the above described environmental background we can expect highly variable density of artifacts over space due to the interrupted distribution of habitable areas interspersed with wetlands (see also Surface-Evans 2015), and a variable distribution through time as moisture levels fluctuated during the Holocene.

The majority of sites documented in Newton County are of unknown cultural affiliations. Of the known periods of occupation, the most frequently identified has been Historic (n=92), followed by Unidentified Woodland (n=23), and Late Woodland (n=12) (Division of Historic Preservation and Archaeology 2015). The prevalence of historic sites is to be expected as historic occupations typically display better preservation and a larger footprint than most prehistoric sites. The most dominant prehistoric sites being of Unidentified Woodland and Late Woodland cultural affiliation is distinct from neighboring counties (e.g., Macleod et al. 2015); however, this may not be representative of the true archaeological record due to low numbers of observations and limited extent of investigation. The absence of documented sites in SHAARD, and the low number of points recorded by Dorwin (1966:Figure 1) dating to the Paleoindian period is also consistent with the low frequency of these sites within the Midwest region (Shott 2004:208).

Paleoindian (10,000-8,000 B.C.) cultures entered Indiana with the recession of the Wisconsin glaciers (Jones and Johnson 2008:2; Smith et al. 2009:21; Swartz 1981:4). Paleoindian sites generally occur as small surface scatters due to the fact that most these groups were small family bands following herds and hunting large game, such as Pleistocene mega fauna, although also likely subsisting on smaller game and forage (Grayson and Meltzer 2003:588; Waguespack and Surovell 2003:348). Artifacts from this time include fluted Clovis points, un-fluted Agate Basin, Hi-Lo, Holcombe, Plainview and Dalton points (Justice 1987). There are no previously documented Paleoindian sites in the SHAARD database within Newton

County (Division of Historic Preservation and Archaeology 2015), but Dorwin (1966) reports two projectile points of unknown type from private collections and we identified two Paleoindian points in the [REDACTED] Collection and 15 Paleoindian points in the [REDACTED] Collection.

In the Early Archaic (ca. 8,000-6,000 B.C.) the warming climate caused changes in the ecology forcing local inhabitants to adapt their livelihood to the changes in the environment. The changing climate caused changes in the flora and fauna of the region (Shane 1976; Shane et al. 2001; Smith 1986:71). This offered more varieties of plant life and brought about the last extinctions of mega fauna which had begun to die off during the Paleoindian period (Grayson and Meltzer 2003:588). Technological changes in tools and techniques occurred during this time including new hafting techniques and ground stone tools (Smith 1986:72). Two Early Archaic sites have been found in Newton County (12-N-129 and 12-N-153) (Division of Historic Preservation and Archaeology 2015).

During the Middle Archaic (ca. 6,000-3,000 B.C.) the climate continued to become increasingly warmer and drier, bringing more variety and stability for food resources. The climatic oscillation is associated with the Hypisthermal or Holocene Climatic Optimum (e.g., Robertson 2011:183), which roughly coincides with the Middle Archaic time period. Stone tools became more diversified in this era and side notched points appear along with ground stone tools (Stafford and Cantin 2009:299). One Middle Archaic site has been documented in Newton County (12-N-129), a situation mirrored in other data-deficient counties (see Miller et al. 2012) (Division of Historic Preservation and Archaeology 2015). As represented by the [REDACTED] collection from Newton County, the presence of side-notched points indicates the presence of Middle Archaic occupation within northwestern Indiana and more specifically the Beaver Lake region (Leeuwrik et al. 2015:114).

During the Late Archaic (ca. 3,000-1,000 B.C.) the climate stabilized and the environment stayed deciduous forest. Late Archaic sites are very widely found and are generally multicomponent (Miller 1941:60; Smith et al. 2009:22). The primary use of the Kankakee Marsh region sites during the Late Archaic has been shown to be seasonal occupation for targeted hunting and resource extraction (White et al. 2007). Some cultivation of native plants and indications of trade routes occur. Pestles, axes, adzes, celts, bannerstones, gorgets and other ground stone artifacts are predominant in this period (Miller 1941:58; Smith and Yarnell 2009:22). Matanzas points make up the majority of Late Archaic points found in assemblages in Indiana (Stafford and Cantin 2009:305). Burials of the Late Archaic period in Indiana are the most represented of all archaic subdivisions. Grave items during this time were typically found to be segregated based on age and sex, although grave goods are typically not found with infant burials (Stafford and Cantin 2009:308). Four Late Archaic sites have been recorded in Newton County (12-N-37, 12-N-75, 12-N-15, and 12-N-284) (Division of Historic Preservation and Archaeology 2015). Two of the Late Archaic sites were encountered during surveys for the FY2014 HPF Grant in Grant Township and Jackson Township. Both of these sites were isolated finds that consist of projectile points, one of which was a Brewerton Side-Notched point (12-N-

75) and a Matanzas Side-Notched point (12-N-284) (Leeuwrik et al. 2015). Within the [REDACTED] collection, a strong Late Archaic presence is well represented by stemmed points.

The Terminal Late Archaic (ca. 1500-700 B.C) is characterized by the relative decrease in hunting and gathering practices, an increase in horticultural dependence and the inception of pottery production. Terminal Late Archaic Sites in Indiana are often from what is called the Riverton culture, though no Riverton culture sites have been confirmed in Newton County. This period is known for barbed points (Justice 1987) and for being the transitional period into the Early Woodland era. During this transitional time people were often found to be living on rivers and other major water sources. The Terminal Late Archaic saw turmoil in the region and evidence from this period shows a marked increase in both ceremonial activity and dress, and cremation of the dead (Mensforth 2001:123; Pedde and Prufer 2001; White et al. 2007).

The Woodland period has been the most commonly recorded cultural affiliation within Newton County. Forty-three out of the 267 sites are from the Woodland period. The Early Woodland period (ca. 1,000-200 B.C.) is when pottery was first widely produced in North America (Montet-White 1968:5). Hunting, gathering and some horticulture continued during this period (Caldwell 1971:370). The Adena culture is the most prominent cultural phenomena during this period and encompassed a region including Indiana, Kentucky, and Ohio. This period was initially thought to have seen the inception of ceramics, but more recent work has shown this to have occurred earlier, but pottery is still one of the most indicative features of the transition to the Early Woodland period (Black 1936:287-189). Many Adena sites also include burial mounds as evidenced by the presence of log tombs in mounds, such as the Nowlin Mound in southeastern Indiana, at characteristically Adena sites (Black 1936:297; Ruby 1994). Four Early Woodland sites have been documented within Newton County (12-N-2, 12-N-101, 12-N-108, and 12-N-215) (Division of Historic Preservation and Archaeology 2015). The [REDACTED] collection has a well-documented presence of the Early Woodland period in both stemmed projectile points and some ceramic sherds (Leeuwrik et al. 2015:116).

Middle Woodland period subsistence and settlement patterns (ca. 200 B.C.-600 A.D.) are roughly consistent with that of the Early Woodland within Indiana. Sites tend to be located in close proximity to a ponds, swamps, and drainage ways, and are relatively consistent in location and distribution (Montet-White 1968:18-19). Hunting, gathering, and some horticulture were the main forms of subsistence during this period (Abrams 2009; Caldwell 1971:370; Montet-White 1968:18-19). Middle Woodland sites throughout the Kankakee and Beaver Lake regions have been shown to be very reliant on marsh-focused subsistence practices and strategies with a strong dependence on seasonal hickory nuts. This period saw the rise of the Hopewell culture and extensive trade networks (Mangold 2009; Seeman 1979). Maize was introduced around this time in the Midwest though not as a staple. No evidence of maize has been recovered from this time in Indiana though regional neighbors have exhibited some (Hart 1999; Riley et al. 1994:496). Extensive trade networks are also identifiable through exotic artifacts and botanical remains (Mangold 2009:198). Lithics found in the Middle Woodland include Snyder's, Lowe, Chesser,

and Steuben points and lamellar bladelets (Justice 1987; Montet-White 1968:179). Within Newton County, four Middle Woodland Sites have been documented (12-N-2, 12-N-101, 12-N-102, and 12-N-108) (Division of Historic Preservation and Archaeology 2015). The [REDACTED] collection has a noted lack of projectile points associated with this cultural period, but several of the decorated of pottery sherds within the collection have decoration of a general Middle Woodland dentate design and several Hopewellian sherds with Rocker stamping and dentate Rocker stamping (Leeuwrik et al. 2015:115-116). The FY2014 HPF surveys in southern Newton County recovered a blade-like flake that indicated a possible Middle Woodland component.

In the Late Woodland period (ca. 600-1200 A.D.), the first bows and arrows were most likely introduced and eventually became the dominant weapon type (Seeman 1992:44). The first true arrow points were modifications of Middle Woodland side or corner notched points such, comprising types such as Jacks Reef and Raccoon Corner Notched (see Justice 1987). Maize was introduced as a more stable dietary constituent into the Late Woodland diet along with the continued consumption of other plant materials found in the earlier Woodland periods such as maygrass, goosefoot, and knotweed (Greenlee 2002:12). Domestic crops such as maize became increasingly important to subsistence during this period especially after 800 A.D. (Hart 1999:8; Shott 1993; Swartz 1981:59). In much of Indiana the Late Woodland period is synonymous with the Albee Phase (ca 800-1300 A.D.; see Redmond and Jones 2003; Redmond and McCullough 2000:652-662). While no Albee sites have been reported in Newton County the known distribution extends into Warren County and encompasses much of the nearby Wabash River watershed (Redmond and McCullough 2000:Figure 24.13). Albee occupations have yielded distinctive ceramics and Jacks Reef, Raccoon Notched, and Triangular Cluster projectile points. Eight Late Woodland sites have been found in Newton County (12-N-97, 12-N-98, 12-N-99, 12-N-102, 12-N-108, 12-N-125, 12-N-153, and 12-N-155) (Division of Historic Preservation and Archaeology 2015). A good portion of the [REDACTED] collection is made up of triangular points, which are associated with the Late Woodland/Late Prehistoric cultural period (Leeuwrik et al. 2015:116). This is suggestive of a strong Late Woodland occupation presence in the Beaver Lake region of Newton County, which is consistent with the findings found by the surveys conducted by IPFW (Surface-Evans et al. 2005; Surface-Evans 2015:183-185).

The Late Woodland/Mississippian period (ca. 1,100 A.D.) has the same characteristics as Late Woodland but shows adaptations toward a more focused agriculture; generally towards corn, but also squash and beans. Village sites show segregated activity in villages and triangular points are most frequently evident during this period (Redmond and McCullough 2000:656). The Vincennes culture of southwestern Indiana, and Fisher and Huber cultures of the northwest can be considered indicative of post-Middle Woodland occupations, but also of Mississippian cultural affiliation (Redmond and McCullough 2000:643). Four Late Woodland/Mississippian sites have been documented in Newton County (12-N-98, 12-N-104, 12-N-118, and 12-N-224) (Division of Historic Preservation and Archaeology 2015). The triangular projectile points

documented with the [REDACTED] collection have been found to be indicative of the Late Woodland period with indications of connection with Mississippian groups in Newton County (Leeuwrik et al. 2015:115).

The Mississippian period (ca. 1000-1650 AD) persisted up to and past European contact and was a period of change and transition with Native American groups (Munson et al. 2006:7; Faulkner 1972:13). A few of the cultures that were prominent during this period are quite well known for their societal structures and shell tempered pottery. Mississippian era archaeological sites in western and southern Indiana are commonly found with several aspects that are considered “classic” Mississippian features like platform mounds, public and ceremonial architecture and plazas, nucleated villages that were near their agricultural fields, enclosed settlements, cemeteries and societies with hierarchical social organizations (Benson et al. 2009:468-469; Redmond and McCullough 2000:648). Two sites of the Mississippian cultural affiliation have been discovered in Newton County (12-N-118 and 12-N-224) (Division of Historic Preservation and Archaeology 2015). In the [REDACTED] collection, there are no projectile point definitively associated with the Mississippian cultural period, though some of the many triangular points may have Mississippian affiliations. Further, the collection contained Mississippian shell tempered ceramic sherds, including a partial human effigy, directly indicative of Mississippian related groups (Leeuwrik et al. 2015).

The Protohistoric period (post 1500 A.D.) is the transitional period as the first European settlers began to arrive in the Americas and have first contacts with the Native Americans. This period is characterized by indirect contact with Euro-Americans and the first written accounts of the area by external observers. As such these types of sites often include both Native and European-derived materials. Though often not in direct contact, material goods, in addition to knowledge of Euro-American settlers had an influence on native life. Protohistoric sites are best identified when the site is undisturbed and contains both historic and prehistoric materials. This is evidence that these two cultures were in the location at the same period in time. Three Native American groups of the Protohistoric period are documented in the areas around Newton County. The Potawatomi, Kickapoo, and Miami, groups were recorded to live in the north and northwest of the state, near Newton County (Heistand 1951:8). Three Protohistoric sites have been documented within Newton County (12-N-98, 12-N-255, and 12-N-260) (Division of Historic Preservation and Archaeology 2015).

Late in the Woodland/Mississippian period, much of Indiana was reportedly depopulated. Contact with Europeans that resulted in epidemic diseases and warfare associated with the fur trade are believed to be key factors in the abandonment of the region (Heistand 1951:8). In the early 1800's Native Americans inhabiting Indiana began to cede their land rights and were moved, often forcefully, to reservations within the state or out west. The largest western removal took place in 1838 and moved much of the local tribes to Kansas. This pattern continued until

1840 when all commonly held reserve lands had been ceded and Indiana was open for Euro-American Settlement (Heistand 1951:8-9; Taylor 2009:12).

Historic

In the times before European settlers made their way to Newton County, multiple Native American groups, like the Miami, Wea, Kickapoo and Potawatomi, populated the area (Heistand 1951:8). French fur traders' movement into these groups' original homelands along the Great Lakes has been considered as one of the possible causes of these Native American groups moving southward into Indiana. The Kickapoo, Potawatomi, and Miami tribes were the most pervasive tribes in the prairies surrounding the Kankakee River in what was to become northwest Indiana (Callendar 1978:681; Callendar et al. 1978:656-657; Clifton 1978:725-726). They created small villages along the Iroquois River and hunted and trapped throughout the area and exploited its aquatic sources. However, after siding with the British in the War of 1812 against the United States, and continuing bad relations and broken treaties with the Americans, the Potawatomi were forcibly removed from Indiana in 1838 in a federal government action known as the Potawatomi Trail of Death (Carmony 1998).

The General Land Office survey notes (1795-1840) and maps illustrate many of the cultural resources that were once within Newton County. Three wigwams, one Native American field, four historic agricultural fields, one old course of a river, and one cabin are recorded on the General Land Office maps of Newton County (Maust and Cochran 1989). Other historic landmarks that are illustrated on Maps of Indiana Counties in 1876 (Andreas 1968) are 42 school houses, five churches, five cemeteries and 47 farm houses. Guernsey (1932) shows an "Old Potawatomi Village" between Beaver Creek and the Iroquois River. Newton County currently has 613 historic structures throughout the county (Taylor 2009).

European settlers had been in Newton County since the early 1830's before the Native Americans had been forced out of the area. Like the Potawatomi, the settlers lived along and near the Iroquois River. Settlement of the whole county was slow due to the wetlands of the north; however, in 1835 Newton County was organized. Later in 1839, Newton was combined with its eastern neighbor Jasper County due to low populations in both counties. The years of 1836 and 1837 saw the organization of Porter and Lake Counties, respectively, which took land north of the Kankakee River from Newton County (Ade 1911:55). In 1860, Newton County was reorganized as its own individual county (Taylor 2009:12). Expansion of people into Newton County grew more rapidly with the development of the railroads. As more people came to the county the more drastically the landscape changed. Prairie lands were transformed into farmland and marsh lands were drained. Beaver Lake covered 16,000 acres with an additional marshland of 26,000 acres and was a major source of resources for the Native Americans who once populated the area (Heistand 1951:8-9). Beaver Lake was drained near the end of the Civil War to the north of Morocco through Lake Ditch and into the Kankakee River (Taylor 2009:12).

Before Beaver Lake (Figure 21) was drained, it was a large source of resources for both Native Americans and the European settlers. It was a part of the Kankakee Marsh, which encompassed over one million acres of fertile marshland prior to draining (Prince 1997:50). This land was an excellent source of beaver, mink, deer, and other wildlife due to the constant flooding and abundance of flora (Ade 1911:41-42). This fertile land attracted French fur traders during the seventeenth century who claimed the region for New France and established trading posts (Drury 1955:3-4). When American settlers moved into Newton County, they viewed the swampy land in northern Newton County in the vicinity of Beaver Lake as a deterrent to farming (Taylor 2009:12)

During the early settlement years of Newton County, Beaver Lake was a hub of criminal activity. A sand island within the lake was a known hideout for horse thieves and counterfeiters during the early 19th century. ██████████ was named as such because of the counterfeiting activity which took place on the island. It was considered to be an impenetrable fortress because of the elaborate protection systems in place, such as a hidden corduroy road leading from the shore of the lake to ██████████ In 1858, a company named the Jasper Rangers was formed to deal with the rising crime rates in both Jasper and Newton Counties. This company was given the ability to work outside of the law without repercussion in order to bring the bands of criminals to justice. The Jasper Rangers were successful in drastically reducing the crime rate, which increased rates of growth within the county and ultimately helped in the reformation of Newton as a separate county in 1860 (F.A. Battey & Co. 1883:639-641).

The first push towards draining Beaver Lake came after the federal Swamp Land Acts of 1849 and 1850. Initially all swamp and marsh lands were owned by the Federal Government, but that changed in the mid-19th century when there was a large push to deed all swamplands back to their respective states (F.A. Battey & Co. 1883:621). The purpose of deeding the land back to the states, like the 1.2 million acres gained by Indiana, was to drain the marshes and create arable land to in turn generate revenue for the state. During 1853, Beaver Lake and considerable portions of the Kankakee Marsh were drained into the Kankakee River through various hand dug ditches, thus turning Beaver Lake into dry farm land (Ade 1911:44-45)

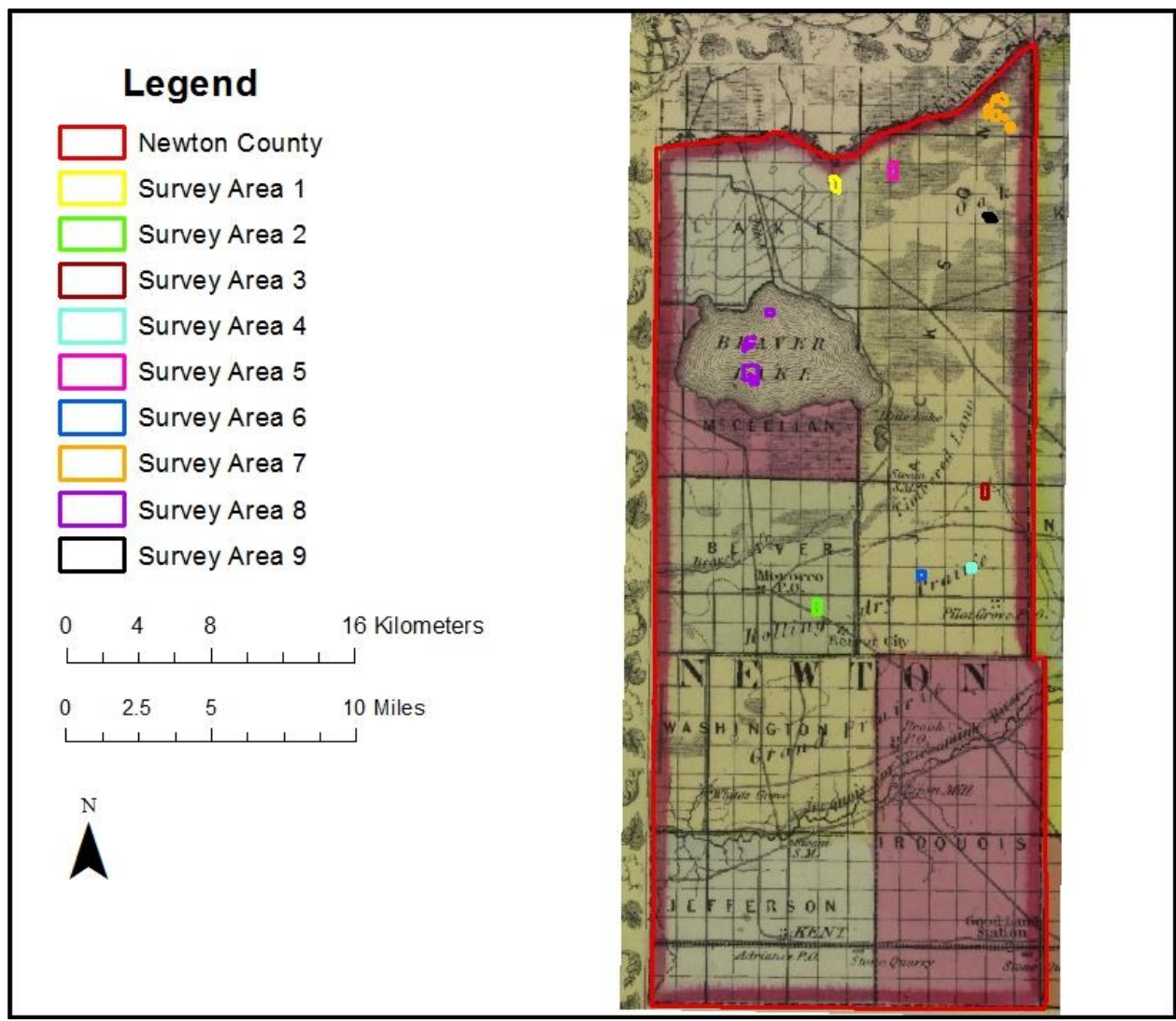


Figure 21: Location of Beaver Lake within Newton County in 1867 (Newton County Historical Society).

Archaeological Survey

Introduction

Approximately 856.1 acres (346.45 hectares) of agricultural land, which includes 7.1 acres of resurveyed area, were surveyed by pedestrian transects during this project. The survey areas were located on moraines, outwash and lake plains, floodplains, and lake beds or lake plains. The survey documented 76 new archaeological sites and recovered 525 prehistoric artifacts and 1,761 historic artifacts. No human remains were discovered as a result of this grant project. The results are discussed by survey area below.

Methods

Field Survey

For this project, 800 acres of pedestrian survey were initially proposed. It was anticipated that by surveying 800 acres, approximately 200 to 250 new sites would be discovered to increase the existing site database. Our planning projected that different landforms and environmental zones consisting of flood plain, moraines, and till plain would be systematically surveyed. Areas were selected for survey using topographic maps, aerial maps, soil information, historic sources and reconnaissance information. The survey was constructed to sample different regions within the project area, with an emphasis on the southern portion of the county. Cultivated fields with optimal visibility were sought for survey. Ultimately, landowner permission and field visibility dictated the areas sampled by this survey which included approximately 849 acres of moraines, outwash and lake plains, floodplains, and lake beds or lake plains.

This project was conducted by AAL Archaeologists and AAL student employees. Principal Investigators were AAL Archaeologist Christine Thompson and Senior Archaeologist Kevin C. Nolan. The field survey was conducted between August 5 and October 25, 2015. The field survey was executed using pedestrian transects spaced at 10 meter intervals. The survey interval was reduced to 5 meters when artifacts were encountered. The areas surveyed by pedestrian transects had between 30 and 90 percent ground surface visibility. All artifacts that were within two meters of the first artifact encountered, except fire-cracked rock and brick, were collected, bagged and given a temporary transect and find numbers. Objects found farther than that within the same transect were given the same transect number and the next sequence number. If a site only consisted of one collection point, a 10 x 10 meter radial survey was conducted around the point. Each new radial find was assigned a new find number. If multiple artifacts were encountered along multiple transects, short transects were run at five meter intervals to refine the boundaries of the cluster. Fire-cracked rocks and bricks were counted in

the field, but were not collected. Find points were mapped with a Trimble GeoXT Series GPS with a minimum of 20 readings logged for each find spot. GPS data was post-processed to sub-meter accuracy using Trimble GPS Pathfinder Office series 5.3 software and exported to ESRI shapefile formats (UTM NAD83 Zone 16N) for inclusion in the project GIS. Field notes were maintained by AAL field supervisors.

Laboratory

All collected artifacts were taken to the AAL laboratory for processing, identification, analysis and temporary curation. Artifacts were cleaned, classified and catalogued. Definitions used for classifying prehistoric lithic materials are included in Volume 2, Appendix B. Diagnostic point types were classified and dated using standardized reference materials (Justice 1987). Metric attributes and raw material identifications were recorded in accordance with AAL standards (Volume 2, Appendix C). Lithic raw materials were identified by comparison with reference samples and published descriptions on file in the AAL laboratory (Cantin 2008; DeRegnaucourt and Geogiady 1998; Stelle and Duggan 2003). Their association was reported to geologic period, with the chert typology being reported as the type most consistent with the specimen. All prehistoric artifact and chert identifications were made microscopically at 10x or greater. Historic artifacts were identified and dated using published references (Adams 1980; Berge 1980; Coleman et al. 1968; Godden 1964; Horn 2005; IMACS 1984, 1992, 2009; Lofstrom et al. 1982; Majewski and O'Brien 1987; Miller 2000; Nelson 1964; ODOT 1991; Raycraft and Raycraft 1990; Smith 1983; Stelle 2001; Trussel 2010). Notes, maps and photographs were reviewed and prepared for illustration and curation. State site numbers were obtained and a DHPA Sites and Structures Inventory form was entered in SHAARD for each site identified during the project.

BSU AAL Standard Lithic Identification Method

By Kevin C. Nolan, Mark A. Hill, and Colin L. Macleod

Chippable stone raw materials were identified in comparison with the AAL chert collections. All artifacts are compared macroscopically and microscopically with samples of known provenience from the AAL comparative chert collection. The comparative collection contains hundreds of samples of all of the known varieties of Indiana chert and several cherts from neighboring states. This provides an invaluable perspective on the variability within each defined category. Our method of raw material identification involves several steps.

The initial step involves the visual sorting of materials into groups based on broad categories of raw materials such as sedimentary rocks, igneous rocks, cherts, quartzites, orthoquartzites, chalcedonies, obsidian, and other metamorphic, sedimentary, and igneous

categories (Kooyman 2000:37). As most of the raw materials in the Midwest consist of marine cherts, the next steps are often the key to material identification. Each artifact is macroscopically identified with probable match categories using hand samples and reference manuals (e.g., Cantin 2008) at this stage. Attention is paid to luster, color, patterning, inclusions, translucency, and texture. Next, several samples from the probable match categories are collected and examined under magnification with a 57900-04 Boreal Zoom Stereo Microscope at 10x to 40x magnification. We microscopically compare matrix, color, texture, inclusions, luster, and other physical and visual characteristics of the unknown artifact to the known comparative collection samples from the probable match categories and Cantin's (2008, 2011) resources. This step is crucial in obtaining the most accurate identification possible as Cantin (2011:Slide 10) notes that "Macroscopic identification is sketchy at best... microscopic identification ... is far more reliable." Further, Cantin (2008:2) notes that what he terms "microfabric" is perhaps the best way to differentiate chert types and varieties. Microfabric is a result of the genesis of the raw material including the process by which the rock was formed (metamorphic, igneous, sedimentary) and in particular, with the marine cherts of the Midwest, the source of silica, the environment in which the silica is precipitated, and the matrix within which this silica is deposited (Andrefsky 2005). Microfabric may include evidence of bedding, fossils present in the environment at the time of formation, or structures such as oolites, silicified worm burrows, and crystalline growths. As fossils and other structures will vary with the conditions and time in which these cryptocrystalline silicates were formed, they are often good visual indicators of raw material source.

The propensity for micro/cryptocrystalline silicates to be strongly influenced by formational and diagenetic processes indicates that identifications of chert material are most appropriately an assessment of the geological age of the material (Luedtke 1992). For this reason specimens are identified to geologic age (period) which is, in turn, consistent with specific geologic formations. Next, the more specific material "type", as described in the reference collection and Cantin (2008), is noted based on the consistency of the material with listed sources. The inconsistent nature, and often heterogeneous representation of many of the identifying features of micro- and cryptocrystalline silicates means that any one of these features is not enough to make a confident material association. A combination must therefore be employed in order to mount evidence for the association of the material with a particular type, and by extension, source. This combination, particularly in small or anomalous samples can lead to association with multiple sources. This is particularly true of materials that share the same age and geographic location as they will have likely undergone comparable formational and diagenetic processes. Where the sample resembles multiple sources in our collection, such is noted. Our identifications to "type" are illustrative of method and not an indication of source.

Finally, we revisit Cantin's (2008:9) map of the known provenience of Indiana chert types to identify the most proximate sources (aside from the nearly ubiquitous gravel chert).

Samples from the proximate source(s) are selected and compared microscopically to the unknown artifact. This final step is employed to ensure that we are able to rule out a proximate source from our identification. If the local variety cannot be ruled out, identification will favor the proximate source as most probable. However, location cannot be a primary criterion when attempting to identify the raw material of an artifact. Identifications are based on the best overall match of observed macroscopic and microscopic characteristics between known and unknown samples. If a clear match cannot be made, the material is categorized as unidentified.

Rocks of the same age and of the same or comparable formation may, and often do, have distributions outside of Indiana and can find their way into Indiana from these extra-local sources. This occurs through glaciations, human mobility, or trade as a result of contact. For this reason Cantin's (2008) work, while effective at identifying the known locations of primary chert sources in Indiana, cannot alone account for the diversity of materials found archaeologically in Indiana. Cantin's information on chert is therefore supplemented with sources from surrounding states such as Illinois Michigan, Ohio, and Kentucky (DeRegnaucourt and Geogiady 1998; Stelle and Duggan 2003) which stand to have the greatest extra-local influence on lithic material types found in Indiana.

There is always the possibility of misclassification with visual identification; however, our procedures are the same for all projects, and replicable across projects that employ the same procedures. Inter-observer variability is unavoidable in the absence of discrete criteria for identification of unknowns with ideal categories. Our procedures attempt to limit the magnitude of these errors. Finally, it must be said that identifications made by these and similar procedures are provisional, and cannot definitively match an unknown to a known geological provenience. For more definitive results, geochemical methods such as Instrumental Neutron Activation Analysis, X-ray Florescence, or other methods are required (Andrefsky 2005; Kooyman 2000). However, using the criteria and procedures detailed above, our identifications (and all visual identifications) should be taken as an assessment of the geological age and context of the raw material. Rocks of the same age and context have known distributions outside of Indiana and may well find their way into Indiana from another deposit of the same geological formation through natural or cultural processes. Our identifications do not presume mechanism of transport.

All materials generated by this project were accessioned under AAL Accession number 15.34. All project materials were curated at Ball State University, Department of Anthropology. Landowners were given their choice of having the artifacts returned to them or having the artifacts curated at Ball State University (see Volume 2, Appendix D for listing). All artifacts returned to the landowners were identified, analyzed, measured, and photographed per DHPA guidelines. A DVD of these artifact photos is attached to this report. The DVD with the artifact photos also contains the catalog sheets for all sites and Volume 2 of the report. All artifacts not

requested to be returned to the landowner were catalogued, labeled and curated at Ball State University's Applied Anthropology Laboratories and will be used for student education and research.

Collector Visit

In addition to field and laboratory investigations, we examined one private collection that reveals archaeological information and data beyond what has been recorded by professional investigations. As part of the FY2014 Historic Preservation Fund grant presentation given on April 25, 2015 AAL archaeologists met [REDACTED], a landowner from Newton County, who has collected prehistoric artifacts on his farm for many years. We surveyed [REDACTED] farm in northern Newton County as a part of this FY2015 HPF Grant (Survey Area 7). We also documented and investigated [REDACTED] private artifact collection. The results of this analysis are presented in full in the Results section of this report.

When recording the private collections, the collection was examined initially in order to assess general artifact classes and raw material association. Once this was roughly determined, the artifacts were scanned and/or photographed in order to keep a record of the collection. These images were saved with reference to a spreadsheet file where initial material type and artifact class were recorded. Projectile points were sorted by base shape and raw material. A total of 150 points were analyzed and documented. Artifact photographs and scans from the [REDACTED] Collection are presented in Volume 2, Appendix I. The resources afforded by this private collection will be essential to developing a fuller understanding of the content and location of Newton County's cultural resources.

Archaeological Survey Results

A total of nine survey areas were investigated as part of this grant project as shown in (Figure 22).

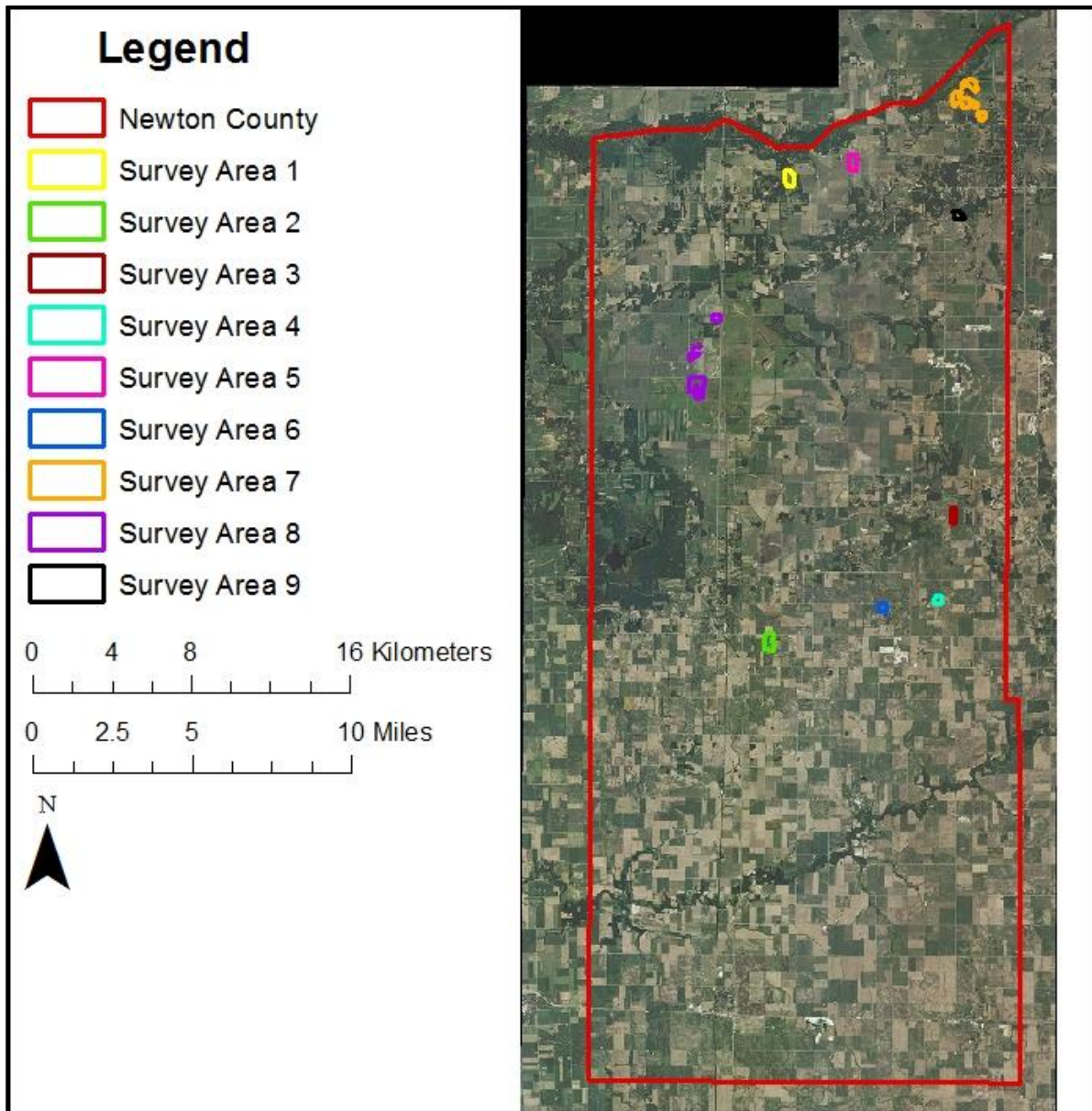


Figure 22: 2012 Aerial (Indiana Spatial Data Portal 2015) showing the location of the nine survey areas within Newton County.

Survey Area 1

Survey Area 1 was located in Lake Township in ██████████ Township 31 North, Range 9 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Schneider, Indiana Quadrangle (Figure 23 and Figure 24). The property was surveyed on August 5, 2015. Ground surface visibility was approximately 50 to 90 percent with small amounts of corn debris, the corn stalks themselves, and some patches of tall weeds being the only visual obstacle. The field was still planted in corn, which was approximately four to five feet tall. Due to the large amount of rain experienced in the area during the spring and summer months, the corn was much shorter than is typical for August. The shortness of the corn influenced visibility due to the lack of a canopy created by taller stalks, which typically kill off the majority of the weeds we encountered on this survey. Approximately 78.9 acres were surveyed consisting of outwash and lake plains. The area contained Aubbeenaubbee-Whitaker (AuA) and Ayr (AyB) soils. Two sites were encountered during the survey. The sites were a historic isolated find and a small historic scatter of 2,034.53 square meters (0.5 acres).

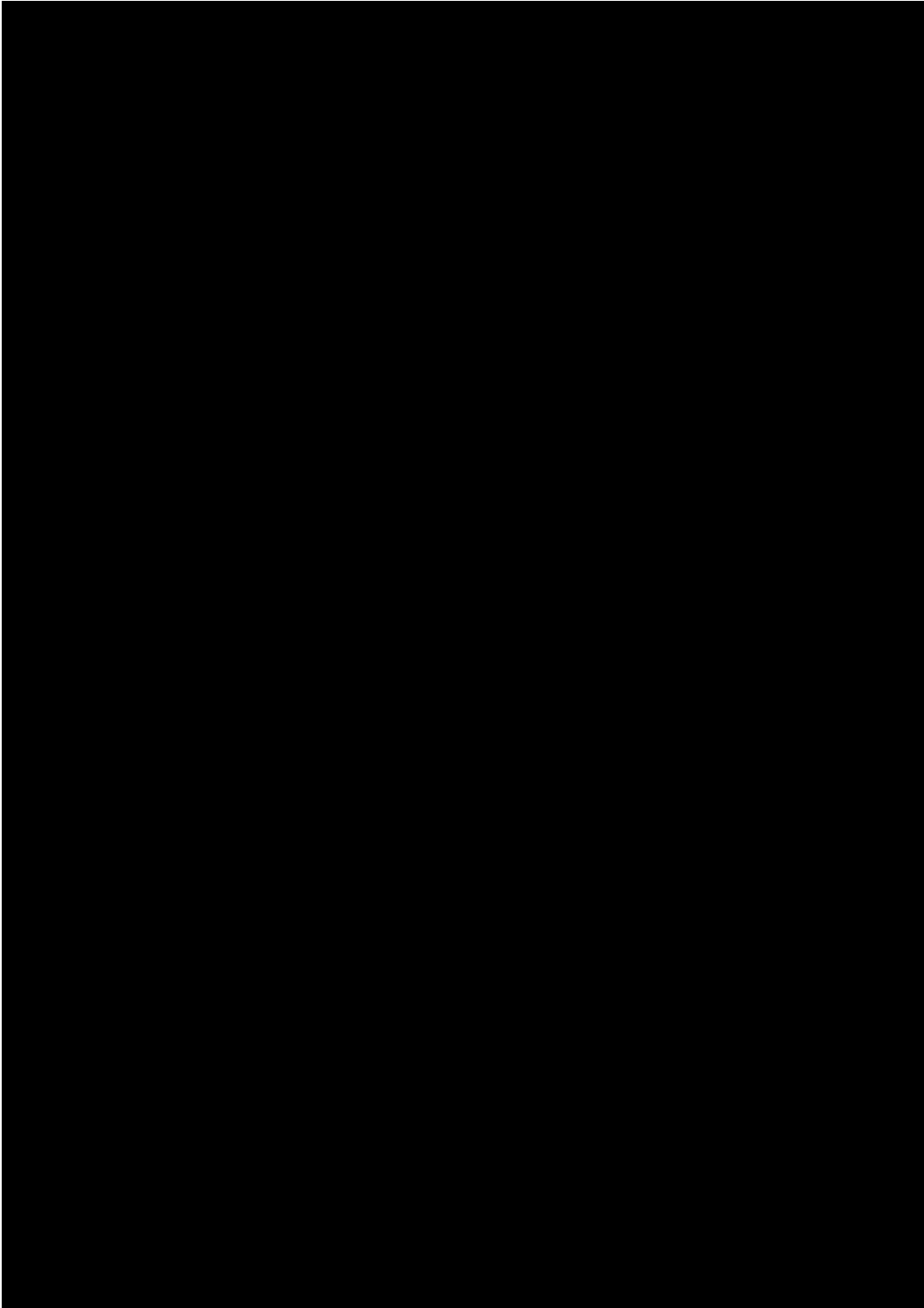


Figure 23: A portion of the map of Lake Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 1.

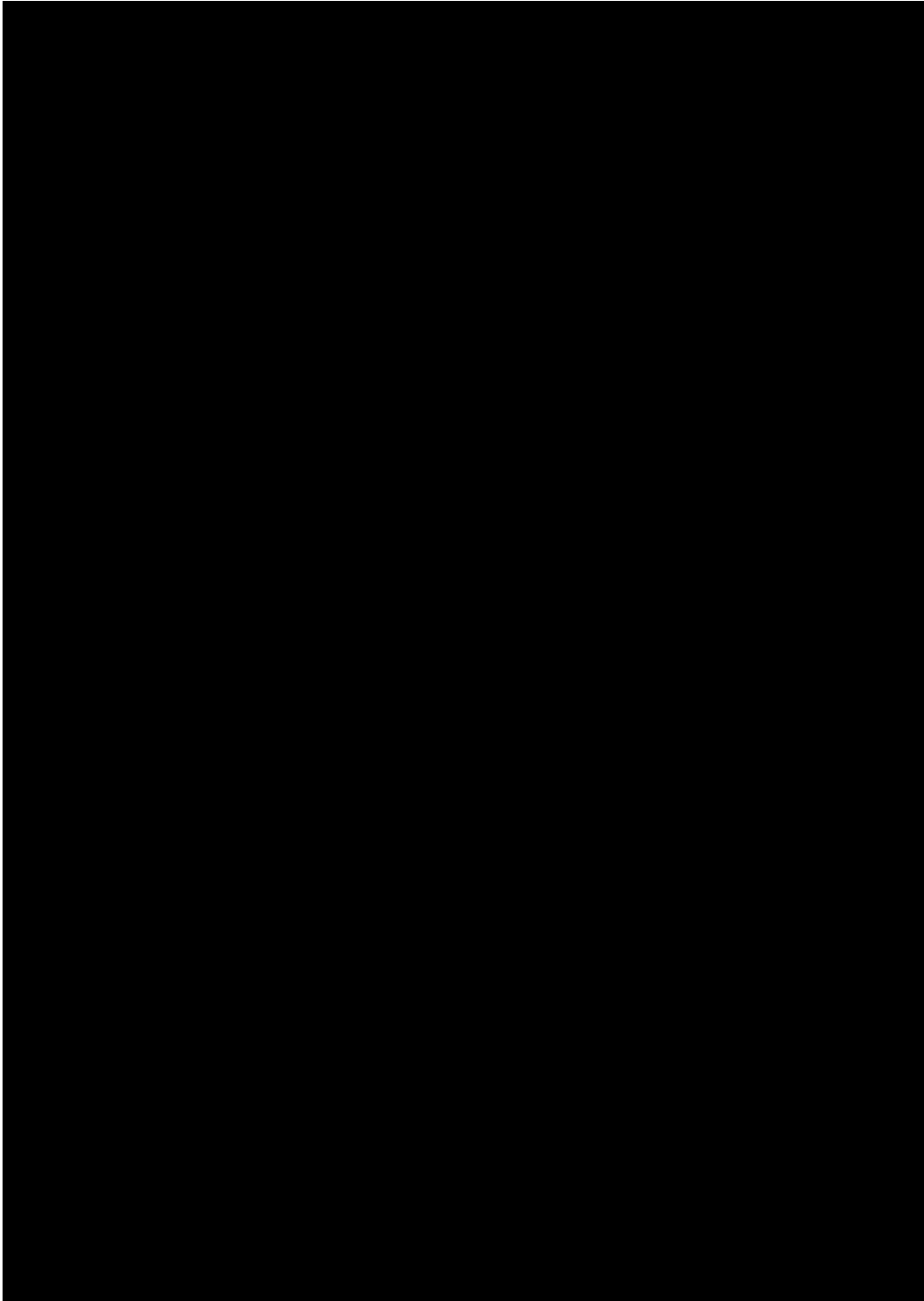


Figure 24: A portion of the USGS 7.5' Schneider, Indiana Quadrangle showing the location of Survey Area 1.

Artifacts

A total of seven artifacts were encountered in Survey Area 1. Table 6 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 25. Artifacts are listed by individual site in Volume 2, Appendix E.

No prehistoric artifacts were recovered in Survey Area 1.

Seven historic artifacts were recovered from Survey Area 1 (Figure 25) and all seven are diagnostic (Table 7). Chronologically expressed these items include Aqua glass recovered from sites 12-N-293 and 12-N-294 which was manufactured between 1800 to the 1920s (Horn 2005:1). Amber glass recovered from site 12-N-294 was manufactured between the 1860s to present (Horn 2005:1). Clear glass recovered from site 12-N-294 was manufactured between 1875 to present (IMACS 1992:473).

Table 6: Artifacts from Survey Area 1.

Prehistoric	No.	Historic	No.
		Glass, Amber	1
		Glass, Aqua	3
		Glass, Clear	3
Total	0	Total	7

Table 7: Historic Diagnostics from Survey Area 1

Artifact Type	Site	Date Range	Citation
Aqua glass	12-N-293, 12-N-294	1800-1920s	Horn 2005:1
Amber glass	12-N-294	1860s to present	Horn 2005:1
Clear glass	12-N-294	1875 to present	IMACS 1992:473



Figure 25: Representative historic glass artifacts from Survey Area 1 (photo by Kiya Mullins, Ball State University).

Sites

Two archaeological sites (12-N-293 and 12-N-294) were recorded in Survey Area 1 (Figure 26 and Figure 27). Summaries for the individual sites are contained in Volume 2, Appendix F. Both sites (12-N-293 and 12-N-294) had diagnostic artifacts. One site (12-N-294) was a historic scatter and one site (12-N-293) was a historic isolated find.

Both sites (12-N-293 and 12-N-294) were discovered on outwash and lake plains. One site (12-N-293) was on Zadog-Granby complex (Zg) soil, and one site (12-N-294) was on Brems loamy sand (BmB) soil.

The site types found in Survey Area 1 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 1 consisted of approximately 78.9 acres of outwash and lake plains. Within Survey Area 1, a density of one site per 39.45 acres occurred and sites covered 0.85 percent of the surface area.

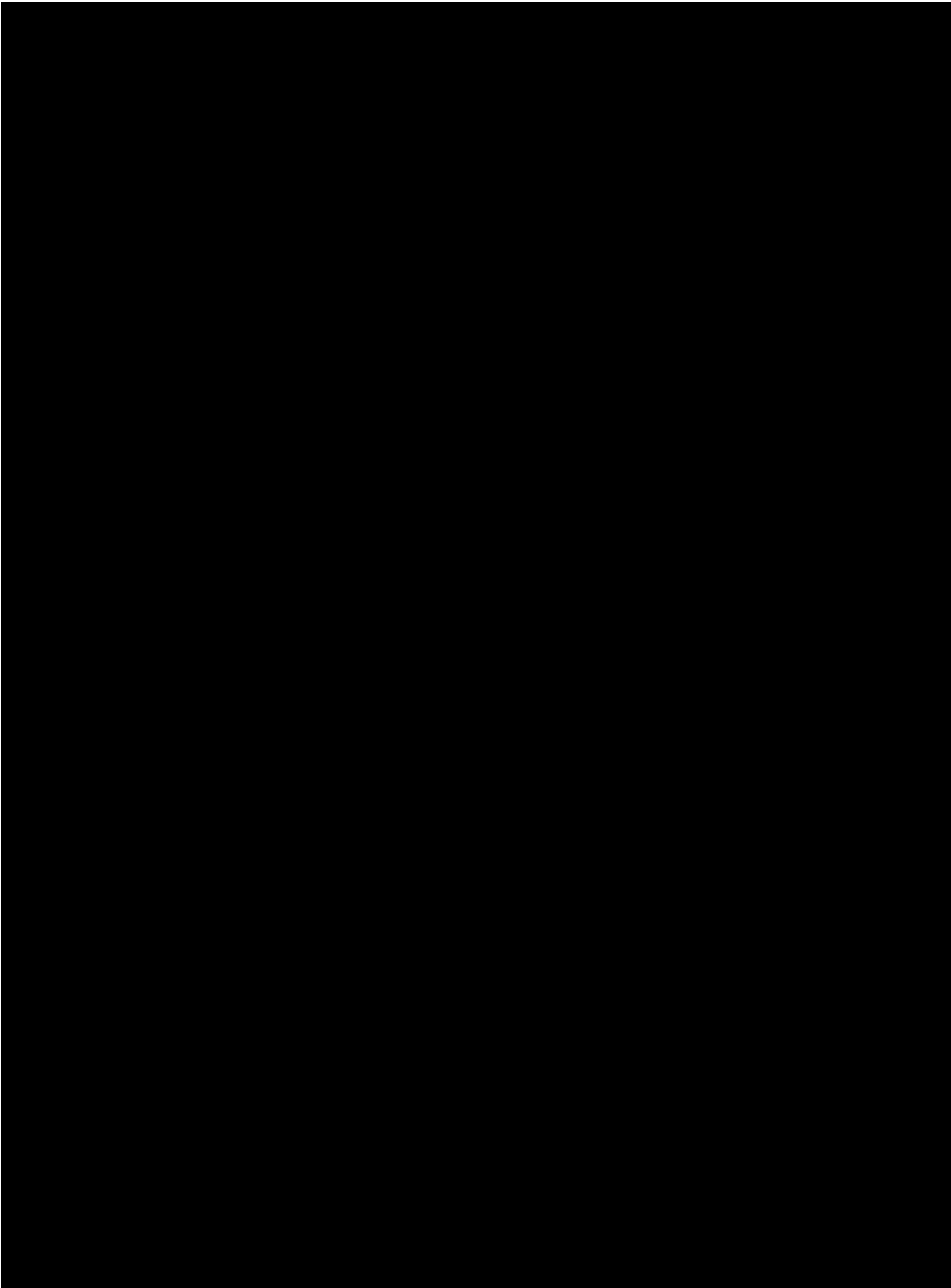


Figure 26: A portion of the USGS 7.5' Schneider, Indiana Quadrangle showing the location of sites 12-N-293 and 12-N-294.

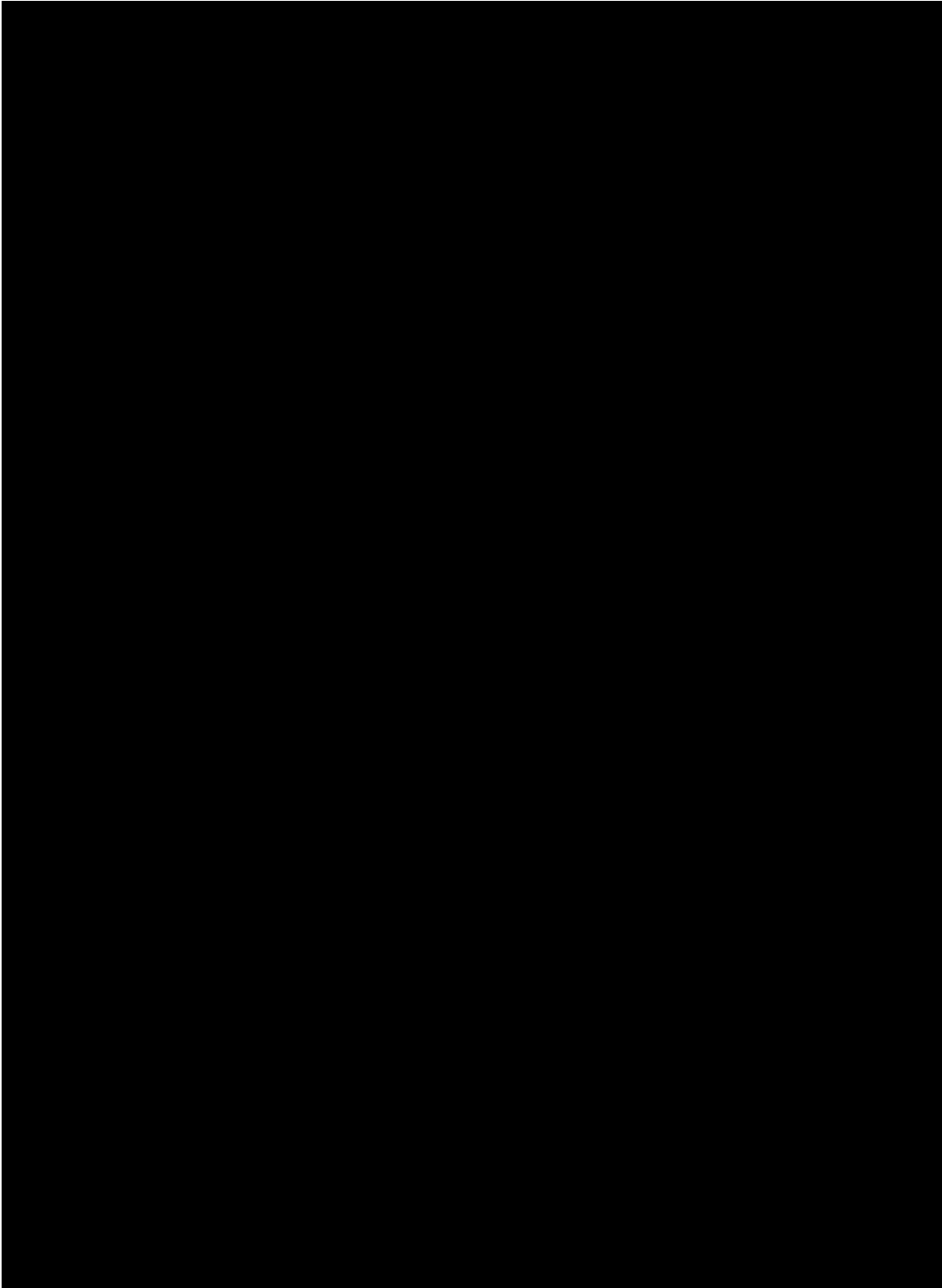


Figure 27: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of sites 12-N-293 and 12-N-294.

Survey Area 2

Survey Area 2 was located in Beaver Township in ██████████ Township 29 North, Range 8 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Morocco, Indiana Quadrangle (Figure 28 and Figure 29). The property was surveyed on August 6, 2015. Ground surface visibility was approximately 80 to 90 percent with small amounts of corn debris, and the corn stalks themselves being the only visual obstacles. The field was still planted in corn, which was approximately four to seven feet high. Approximately 78.4 acres were surveyed consisting of moraines. The area contained Foresman silt loam (FoA, FoB2, FrA, and FtA) and Foresman fine sandy loam (FrB2) soils. Five sites were encountered during the survey. The sites ranged in size from prehistoric isolated finds to a historic scatter of 3,360.21 square meters (0.83 acres).

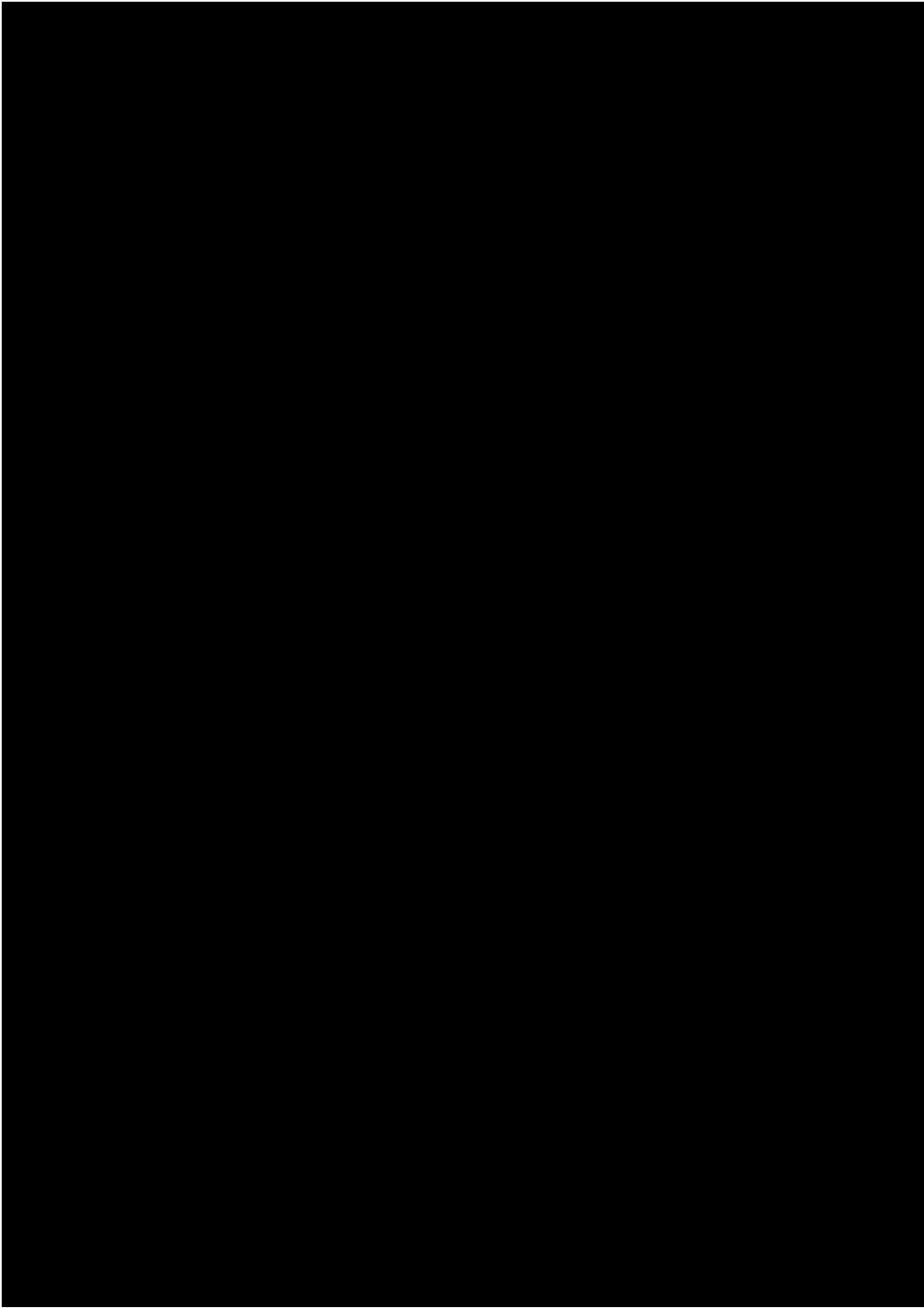


Figure 28: A portion of the map of Beaver Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 2.

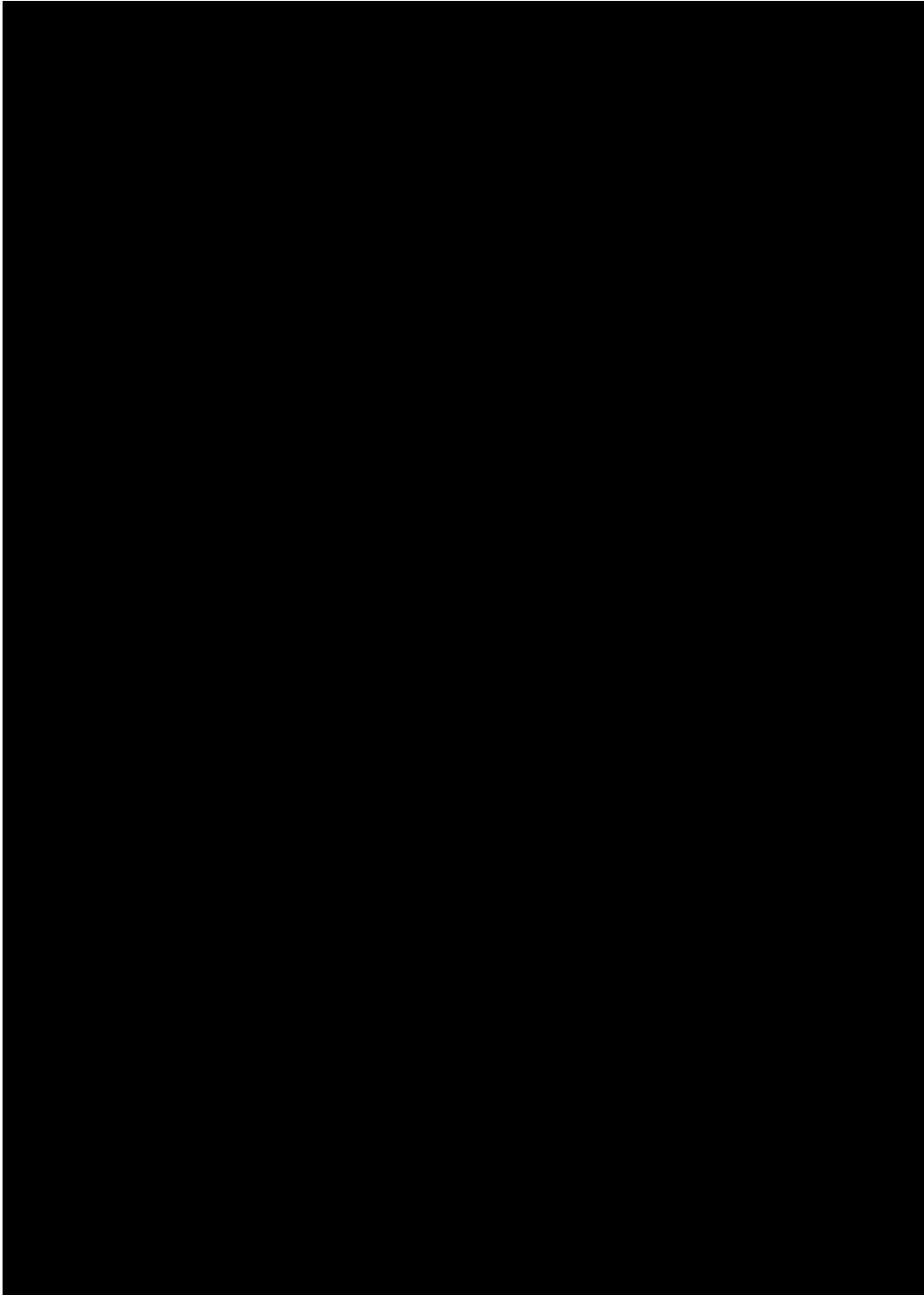


Figure 29: A portion of the USGS 7.5' Morocco, Indiana Quadrangle showing the location of Survey Area 2.

Artifacts

A total of 73 artifacts were encountered in Survey Area 2. Table 8 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 30, Figure 31, and Figure 32. Artifacts are listed by individual site in Volume 2, Appendix E.

Two prehistoric artifacts were recovered. One diagnostic prehistoric artifact was recovered from Survey Area 2. A Madison project point (Figure 30) dating to the Late Woodland/Late Prehistoric Period was recovered from site 12-N-295 (Justice 1987:224).

Seventy-one historic artifacts were recovered from Survey Area 2 (Figure 31 and Figure 32) and of those, 70 are diagnostic (Table 9). Chronologically expressed these items include redware recovered from site 12-N-296 which was manufactured between 1725 to present (Stelle 2001:Chapter I). Aqua glass recovered from site 12-N-296 was manufactured between 1800 to the 1920s (Horn 2005:1). Plain and decorated whiteware recovered from sites 12-N-296 was manufactured from 1820 to present. Plain ironstone recovered from sites 12-N-296 was manufactured between 1842 to 1930 (Miller 2000; Stelle 2001:Chapter I). Amber glass recovered from sites 12-N-296 and 12-N-297 was manufactured between the 1860s to present (Horn 2005:1). Green glass recovered from sites 12-N-296 and 12-N-297 was manufactured between the 1860s to present (Horn 2005:1). Clear glass recovered from sites 12-N-296 and 12-N-297 was manufactured between 1875 to present (IMACS 1992:473). Amethyst glass recovered from site 12-N-296 was manufactured between 1885 to 1920 (Horn 2005:1). Milk glass recovered from site 12-N-296 was manufactured between the 1890s to present (Horn 2005:1). Stoneware with Albany glaze interior and exterior recovered from site 12-N-296 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I). Stoneware with Albany glaze interior and salt glaze exterior recovered from sites 12-N-296 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I).

Table 8: Artifacts from Survey Area 2.

Prehistoric	No.	Historic	No.
Biface, Hafted, Madison	1	Ceramic, Ironstone	4
Flake	1	Ceramic, Whiteware	15
		Ceramic, Redware	1
		Ceramic, Stoneware	12
		Glass, Amber	7
		Glass, Amethyst	4
		Glass, Aqua	16
		Glass, Clear	8
		Glass, Green	2
		Glass, Milk	1
		Glass, Marble	1
Total	2	Total	71



Figure 30: A Madison diagnostic point from 12-N-295 (photo by Kiya Mullins, Ball State University).



Figure 31: Representative historic ceramic artifacts from Survey Area 2 (photo by Kiya Mullins, Ball State University).



Figure 32: Representative historic glass artifacts from Survey Area 2 (photo by Kiya Mullins, Ball State University).

Table 9: Historic Diagnostics from Survey Area 2

Artifact Type	Site	Date Range	Citation
Redware	12-N-296	1725 to present	Stelle 2001:Chapter I
Aqua glass	12-N-296	1800-1920s	Horn 2005:1
Plain and decorated whiteware	12-N-296	1820 to present	
Plain ironstone	12-N-296	1842-1930	Miller 2000; Stelle 2001:Chapter I
Amber glass	12-N-296, 12-N-297	1860s to present	Horn 2005:1
Green glass	12-N-296, 12-N-297	1860s to present	Horn 2005:1
Clear glass	12-N-296, 12-N-297	1875 to present	IMACS 1992:473
Amethyst glass	12-N-296	1885-1920	Horn 2005:1
Milk glass	12-N-296	1890s to present	Horn 2005:1
Stoneware with Albany glaze interior and exterior	12-N-296	Termination date of 1940	Stelle 2001:Chapter I
Stoneware with Albany glaze interior and salt glaze exterior	12-N-296	Termination date of 1940	Stelle 2001:Chapter I

Sites

Five archaeological sites (12-N-295 to 12-N-299) were recorded in Survey Area 2 (Figure 33 and Figure 34). Summaries for the individual sites are contained in Volume 2, Appendix F. Four sites (12-N-295, 12-N-296, 12-N-297, and 12-N-299) had diagnostic artifacts. Two of the sites (12-N-295 and 12-N-298) were prehistoric isolated finds. One site (12-N-296) was a historic scatter and two sites (12-N-297 and 12-N-299) were isolated historic finds.

All five sites (12-N-295 to 12-N-299) were discovered on moraines. One site (12-N-295) was on Sumava-Ridgeville-Odell complex (SxA) soil, one site (12-N-298) was on Nesius loamy fine sand (NsB) soil, and two sites (12-N-297 and 12-N-299) were on Barry-Gilford complex (Bh) soil. One site (12-N-296) was found on multiple soil types, Ayr loamy fine sand (AyB) and Sumava-Ridgeville-Odell complex (SxA) soils.

The site types found in Survey Area 2 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 2 consisted of approximately 78.4 acres of moraines. Within Survey Area 2, a density of one site per 15.68 acres occurred and sites covered 1.92 percent of the surface area.

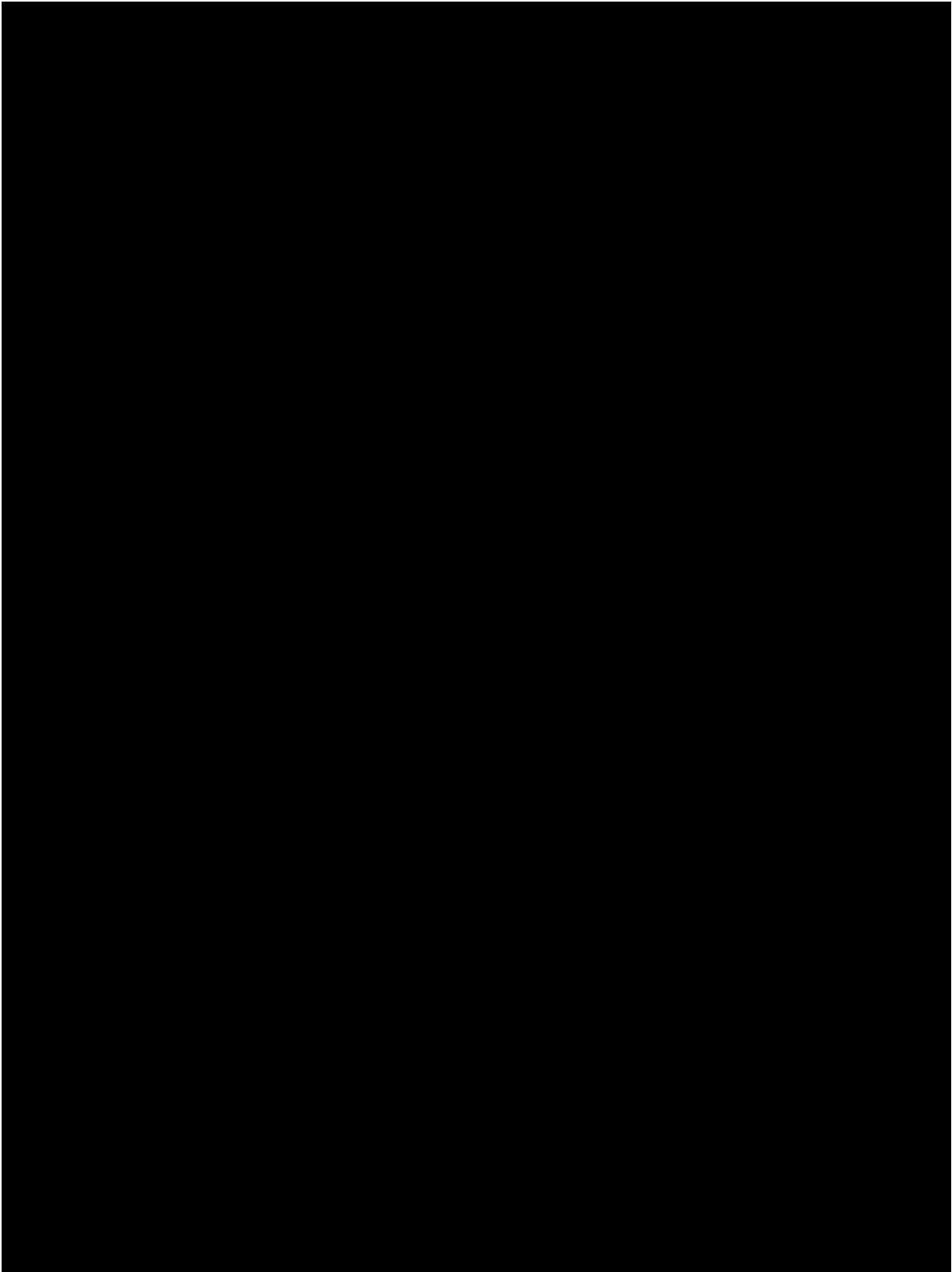


Figure 33: A portion of the USGS 7.5' Morocco, Indiana Quadrangle showing the location of sites 12-N-296 to 12-N-299.

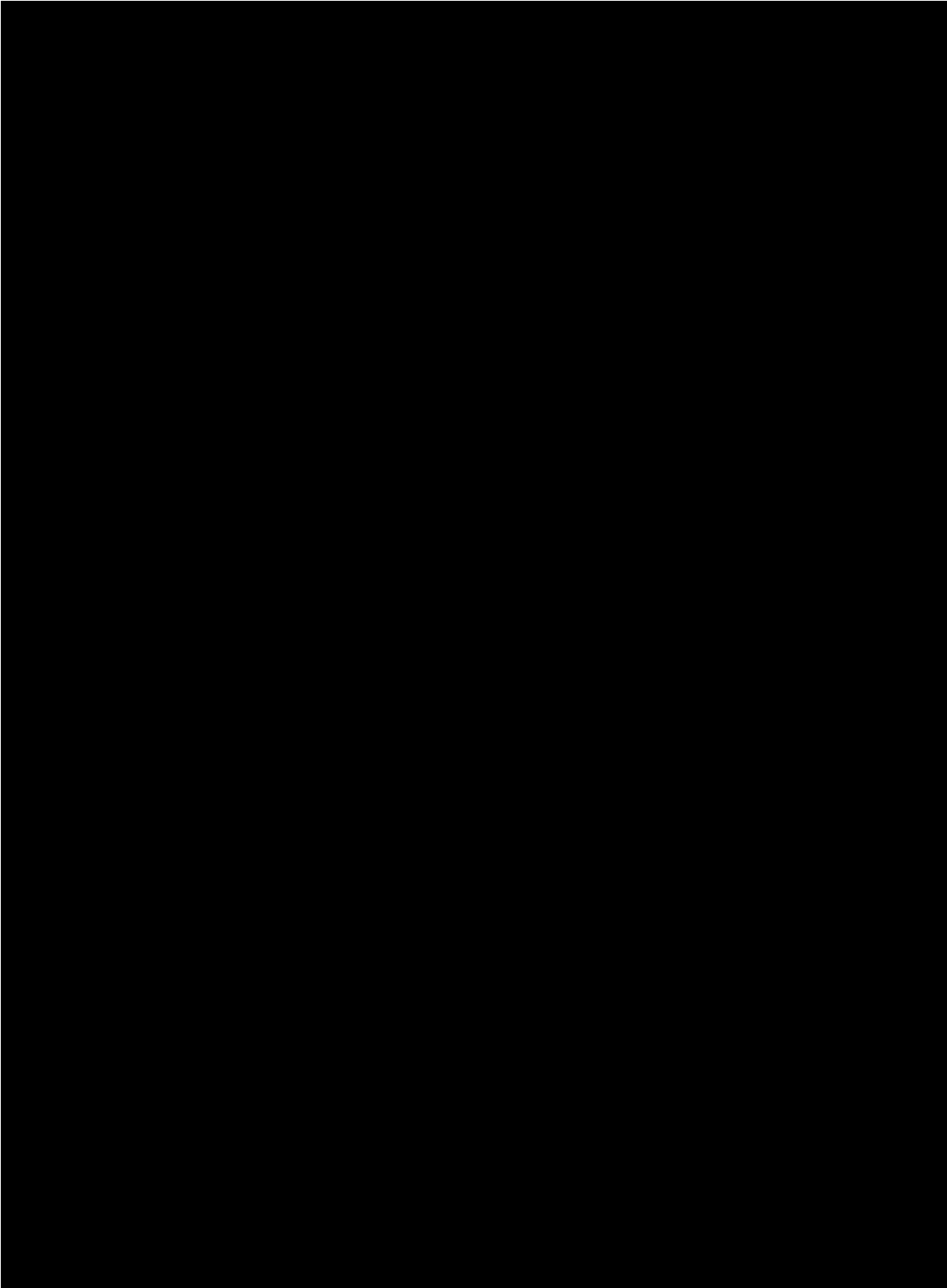


Figure 34: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of sites 12-N-295 to 12-N-299.

Survey Area 3

Survey Area 3 was located Jackson Township in ██████████ Township 29 North, Range 8 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Mount Ayr, Indiana Quadrangle (Figure 36 and Figure 37). The property was surveyed on August 21, 2015. Ground surface visibility was approximately 80 percent with small amounts of corn debris, and the corn stalks themselves being the only visual obstacles. The fields were planted in corn that was still standing, which ranged from seven to 11 feet tall. Approximately 51.9 acres were surveyed consisting of outwash plains. The area contained Brems loamy sand (BmB), Corwin fine sandy loam (CtA), and Corwin fine sandy loam, eroded (CtB2) soils. Ten sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a historic scatter of 5,788.02 square meters (1.43 acres).

One of the landowners, ██████████, stopped by the survey area while the crew was surveying. ██████████ also mentioned that a farmhouse and four historic barns once stood on the northwest portion of the property. The location of the farmhouse was not located on any historic maps (Andreas 1968; Taylor 2009:47), but can be located using the USGS 7.5’ Mount Ayr Quadrangle (Figure 35). During his visit, ██████████ pointed out two more parcels owned by his family within the area. The two parcels were then subsequently surveyed as Survey Areas 4 and 6.

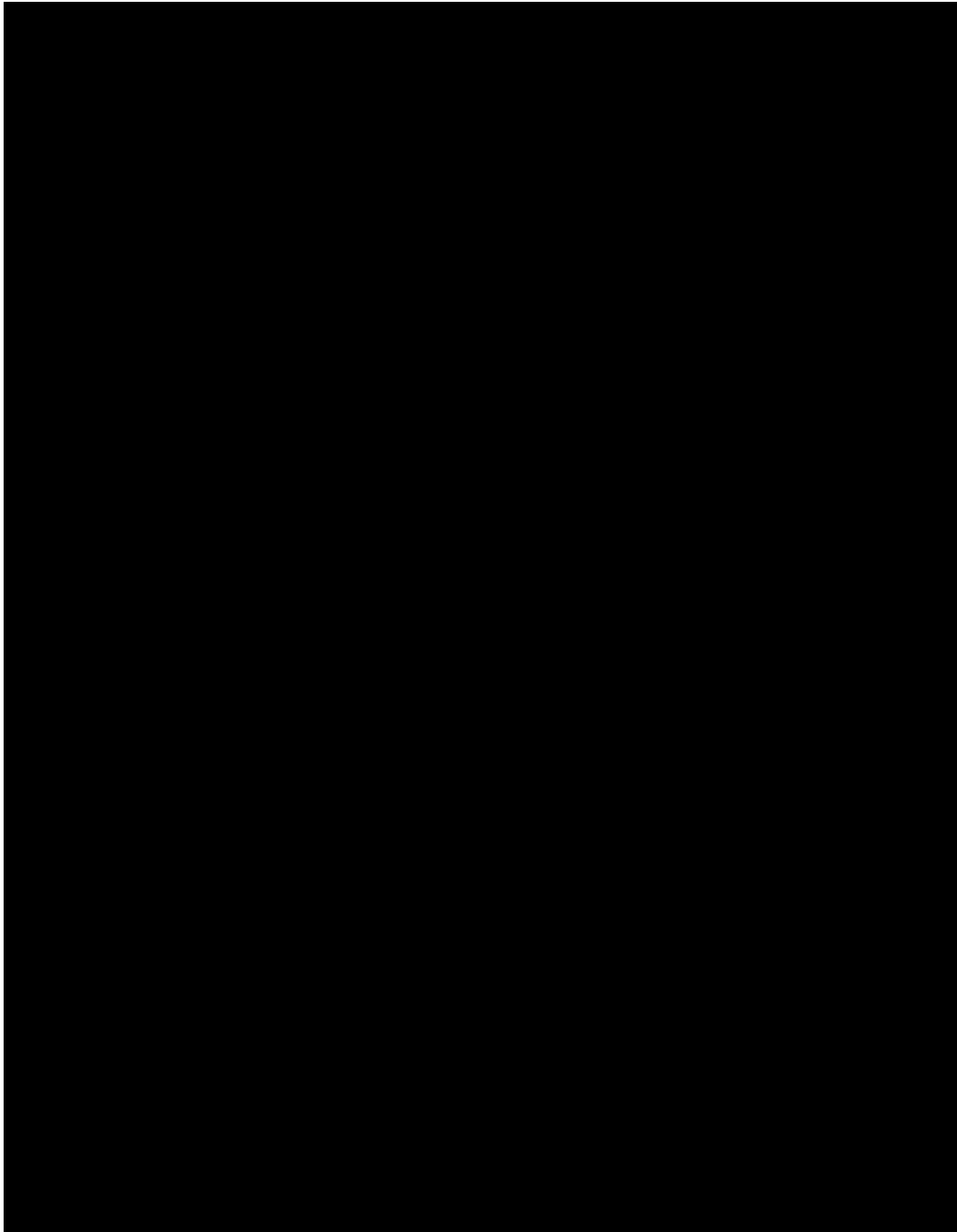


Figure 35: A portion of the USGS 7.5' Mount Ayr, Indiana Quadrangle showing the location of the historic farmhouse in Survey Area 3.

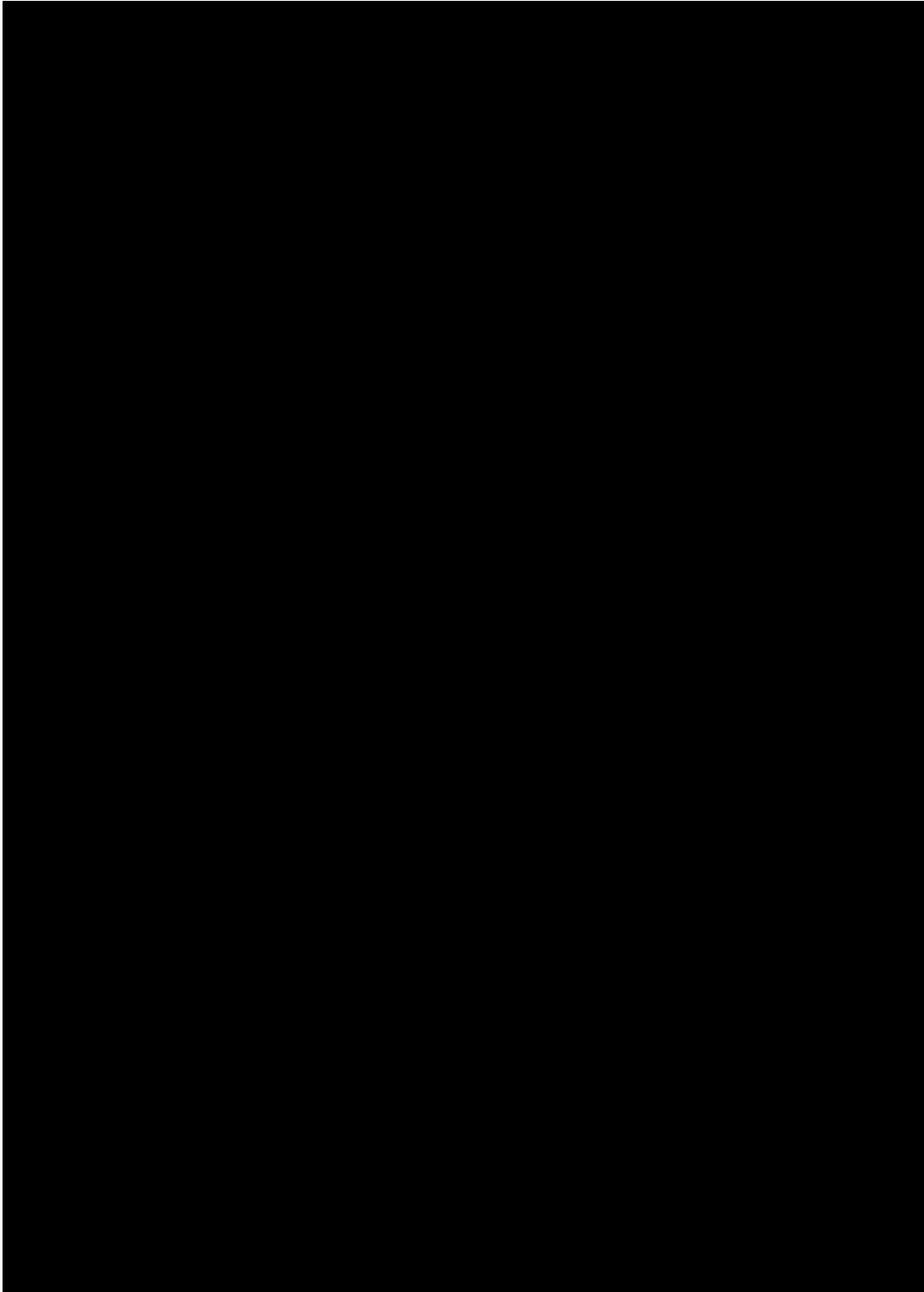


Figure 36: A portion of the map of Jackson Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 3.

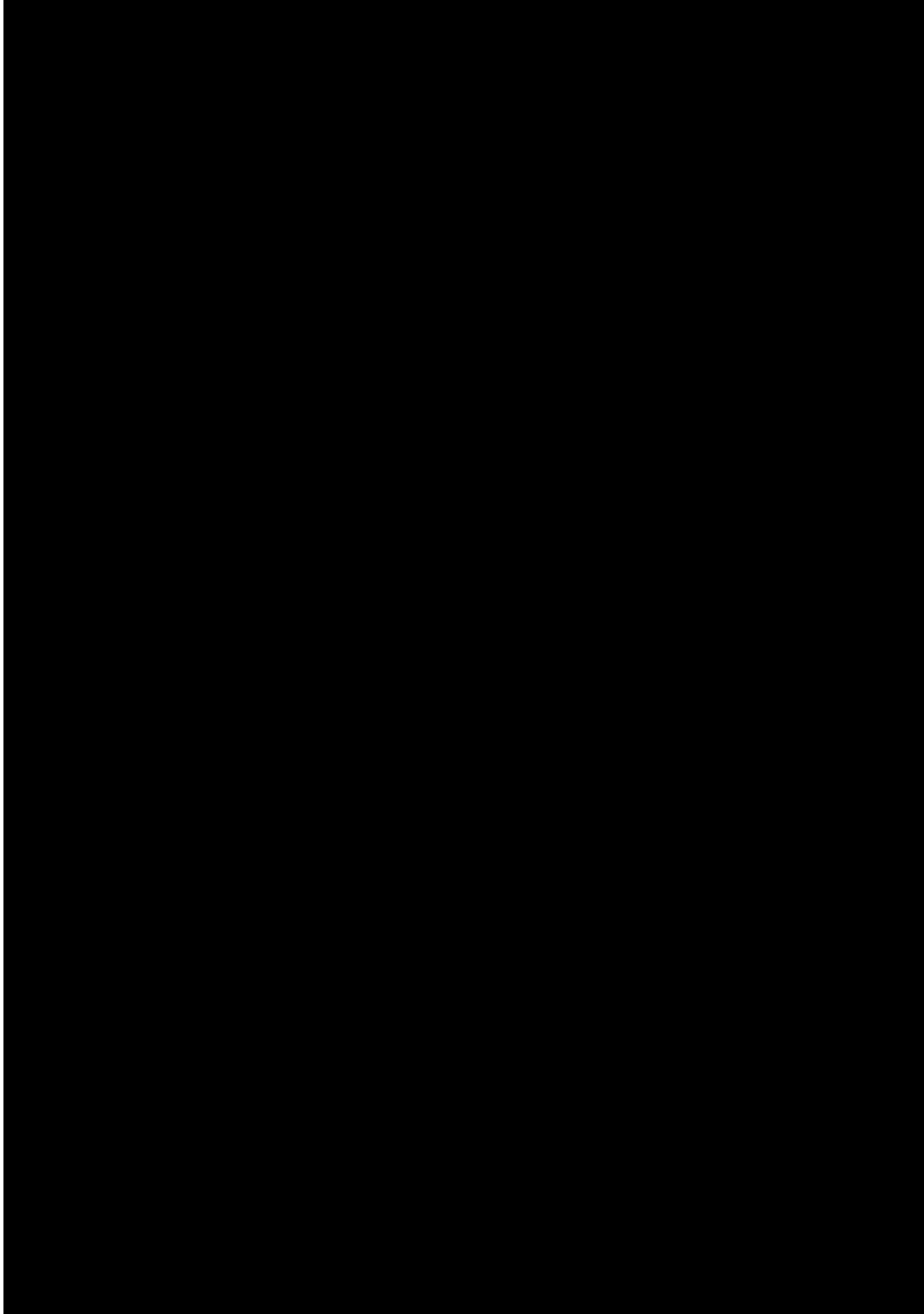


Figure 37: A portion of the USGS 7.5' Mount Ayr, Indiana Quadrangle showing the location of Survey Area 3.

Artifacts

A total of 608 artifacts were encountered in Survey Area 3, and of those artifacts 607 were collected. The one artifact not collected (12-N-300) consisted of a buried wooden post in the center of the field. Table 10 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 38, Figure 39, Figure 40 and Figure 41. Artifacts are listed by individual site in Volume 2, Appendix E.

One prehistoric artifact was recovered from site 12-N-303 (Figure 38). No diagnostic artifacts were recovered from the Prehistoric period in Survey Area 3.

Six hundred and six historic artifacts were recovered from Survey Area 3 (Figure 39, Figure 40, and Figure 41) and of those, 561 are diagnostic (Table 11). Chronologically expressed these items include plain and decorated porcelain recovered from site 12-N-309 which was manufactured between 1745 to 1850 (Stelle 2001:Chapter I). Undecorated creamware recovered from site 12-N-309 was manufactured from 1762 to 1820 (Lofstrom et al. 1982; ODOT 1991). Aqua glass recovered from sites 12-N-302 and 12-N-309 was manufactured between 1800 to the 1920s (Horn 2005:1). Plain whiteware recovered from site 12-N-309 was manufactured from 1820 to present (Stelle 2001:Chapter I). A zinc shoe eyelet recovered from site 12-N-309 was manufactured from 1829 to present (IMACS 2001:476). Black/Green hand painted whiteware recovered from site 12-N-309 was manufactured from 1830 to 1850 (Stelle 2001:Chapter I). Undecorated yellowware recovered from site 12-N-309 was manufactured between the 1830s to present (Stelle 2001:Chapter I). Stoneware with Bristol glaze interior and exterior was recovered from site 12-N-309 was manufactured from 1835 to present (Stelle 2001:Chapter I). Whiteware with a pink and green floral decal recovered from site 12-N-309 was manufacture from 1840 to 1860 (Stelle 2001:Chapter I). Plain ironstone recovered from site 12-N-309 was manufactured between 1842 to 1930 (Miller 2000; Stelle 2001:Chapter I). Amber glass recovered from site 12-N-309 was manufactured between the 1860s to present (Horn 2005:1). Green glass recovered from site 12-N-309 was manufactured between the 1860s to present (Horn 2005:1). Clear glass with an applied lip and closure bead recovered from sites 12-N-303, 12-N-306, 12-N-307, and 12-N-309 was manufactured from 1870 to 1920 (IMACS 1992:473). Clear glass recovered from sites 12-N-50 and 12-N-52 was manufactured between 1875 to present (IMACS 1992:473). Pink glass recovered from site 12-N-309 was manufactured from 1875 to present (IMACS 1992:473). Amethyst glass recovered from sites 12-N-303 and 12-N-309 was manufactured from 1885 to 1920 (Horn 2005:1). Cobalt glass recovered from site 12-N-309 was manufactured between the 1890s to present (Horn 2005:1). Milk glass recovered from site 12-N-309 was manufactured between the 1890s to present (Horn 2005:1). Whiteware with gray floral and multicolored floral decals recovered from site 12-N-309 which were manufactured from 1890 to present (Stelle 2001:Chapter I). Green glass with a crown lip recovered from site 12-N-309 was manufactured from 1892 to present (IMACS 1992:473). Industrial porcelain recovered from site 12-N-309 was

manufactured from 1892 to an unknown end date (Berge 1980:156). Ironstone with a maker's mark from Wilkinson Ltd. recovered from site 12-N-301 was manufactured in 1896 (Godden 1975:672). A Model T hubcap recovered from site 12-N-109 was manufactured from 1914 to 1927 (MFTCA 2007). Yellowish glass recovered from site 12-N-309 was manufactured from 1918 to the 1920s (Horn 2005:1). Whiteware with a pink fiesta glaze recovered from site 12-N-309 was manufactured from the 1930 to present (Stelle 2001:Chapter I). Stoneware with Albany glaze interior and exterior recovered from site 12-N-309 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I). Stoneware with Albany glaze interior and brown salt glaze exterior recovered from site 12-N-309 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I).

Table 10: Artifacts from Survey Area 3.

Prehistoric	No.	Historic	No.
Flake, Proximal, Retouched	1	Ceramic, Creamware	6
		Ceramic, Earthenware	3
		Ceramic, Industrial Porcelain	1
		Ceramic, Ironstone	5
		Ceramic, Porcelain	5
		Ceramic, Stoneware	26
		Ceramic, Whiteware	68
		Ceramic, Yellowware	1
		Glass, Amber	21
		Glass, Amethyst	21
		Glass, Aqua	118
		Glass, Clear	197
		Glass, Cobalt	7
		Glass, Green	7
		Glass, Green Milk	1
		Glass, Milk	75
		Glass, Pink	2
		Glass, Yellowish	2
		Metal, Brass Hubcap	1
		Metal, Aluminum Tube	1
		Metal, Iron, Staple	1
		Metal, Iron, Washer	1
		Metal, Iron, Nut	1
		Metal, Iron, Bar	1
		Metal, Iron, Screw	1
		Metal, Iron, Bracket	1
		Metal, Iron, Lock Hasp	1
		Metal, Iron, Unidentified	6
		Metal, Zinc, Lid Fragments	8
		Metal, Zinc, Shoe Eyelet	1
		Hard Rubber	1
		Plastic, Button	1
		Wood Post (Uncollected)	1
		Coal/Clinker	14
Total	1	Total	607



Figure 38: Proximal Flake, with retouch recovered from 12-N-303 in Survey Area 3 (photo by Kiya Mullins, Ball State University).



Figure 39: Representative historic ceramic artifacts from Survey Area 3 (photo by Kiya Mullins, Ball State University).



Figure 40: Representative historic glass artifacts from Survey Area 3 (photo by Kiya Mullins, Ball State University).

Table 11: Historic Diagnostics from Survey Area 3

Artifact Type	Site	Date Range	Citation
Plain and decorated porcelain	12-N-309	1745-1850	Stelle 2001:Chapter I
Undecorated creamware	12-N-309	1762-1820	Lofstrom et al. 1982; ODOT 1991
Aqua glass	12-N-302, 12-N-309	1800-1920s	Horn 2005:1
Plain whiteware	12-N-309	1820 to present	Stelle 2001:Chapter I
Zinc shoe eyelet	12-N-309	1829 to present	IMACS 2001:476
Black/Green hand painted whiteware	12-N-309	1830-1850	Stelle 2001:Chapter I
Undecorated yellowware	12-N-309	1830s to present	Stelle 2001:Chapter I
Stoneware with Bristol glaze interior and exterior	12-N-309	1835 to present	Stelle 2001:Chapter I
Whiteware with a pink and green floral decal	12-N-309	1840-1860	Stelle 2001:Chapter I
Plain ironstone	12-N-309	1842-1930	Miller 2000; Stelle 2001:Chapter I
Amber glass	12-N-309	1860s to present	Horn 2005:1
Green glass	12-N-309	1860s to present	Horn 2005:1
Clear glass with an applied lip and closure bead	12-N-303, 12-N-306, 12-N-307, and 12-N-309	1870-1920	IMACS 1992:473
Clear glass	12-N-50, 12-N-52	1875 to present	IMACS 1992:473
Pink glass	23-N-309	1875 to present	IMACS 1992:473
Amethyst glass	12-N-303, 12-N-309	1885-1920	Horn 2005:1
Cobalt glass	12-N-209	1890s to present	Horn 2005:1
Milk glass	12-N-309	1890s to present	Horn 2005:1
Whiteware with gray floral multicolored floral decals	12-N-309	1890 to present	Stelle 2001:Chapter I
Green glass with a crown lip	12-N-309	1892 to present	IMACS 1992:473
Industrial porcelain	12-N-309	1892 to an unknown end date	Berge 1980:156
Ironstone with a maker's mark from Wilkinson Ltd.	12-N-301	1896	Godden 1975:672
Model T hubcap	12-N-109	1914—1927	MFTCA 2007
Yellowish glass	12-N-309	1918-1920s	Horn 2005:1
Whiteware with a pink fiesta glaze	12-N-309	1930 to present	Stelle 2001:Chapter I
Stoneware with Albany glaze interior and exterior	12-N-309	Termination date of 1940	Stelle 2001:Chapter I
Stoneware with Albany glaze interior and brown salt glaze exterior	12-N-309	Termination date of 1940	Stelle 2001:Chapter I



Figure 41: Representative historic metal artifacts from Survey Area 3 (photo by Kiya Mullins, Ball State University).

Sites

Ten archaeological sites (12-N-300 to 12-N-309) were recorded in Survey Area 3 (Figure 42 and Figure 43). Summaries for the individual sites are contained in Volume 2, Appendix F. Seven sites (12-N-301, 12-N-302, 12-N-303, 12-N-306, 12-N-307, 12-N-308, and 12-N-309) had diagnostic artifacts. Seven sites (12-N-300, 12-N-301, 12-N-302, 12-N-304, 12-N-305, 12-N-307, and 12-N-308) were historic isolated finds, two sites (12-N-306 and 12-N-309) were historic scatters, and one site (12-N-303) was a multicomponent site.

All ten sites (12-N-300 to 12-N-309) were discovered on outwash plains. Four sites (12-N-300, 12-N-301, 12-N-302, and 12-N-303) were located on Glenhall loam (GhB) soil, one site (12-N-304) was located on Sumava-Ridgeville-Odell complex (SxA) soil, two sites (12-N-305 and 12-N-307) were located on Barry-Gilford complex (Bh) soil, and one site (12-N-308) was

located on Darroch fine sandy loam, till substratum (DdA) soil. Two sites (12-N-306 and 12-N-309) were located on multiple soil types, Glenhall loam (GhB) and Barry-Gilford complex (Bh) soils.

The 594 artifacts recovered from site 12-N-309 consisted primarily of historic glass, ceramic, and metal dating from the mid-1800s to the present. Clear glass accounts for 194 pieces of the assemblage and undecorated ceramics account for 107 pieces of the assemblage. No subsurface features were encountered during survey. The landowner, [REDACTED], reported that a house or barn was previously located in the northwest corner of Survey Area 3 in the general location of site 12-N-309. The site itself is approximately 5,788 square meters, or 1.43 acres, in size, which leads to an artifact density of about 415.4 artifacts per acre. Site 12-N-309 was only impacted by normal agricultural practices, which did not severely impact the integrity of the site. After consulting several historic sources (Andreas 1968; Drury 1955; Geo. A. Ogle & Co. 1916), the structure referenced by [REDACTED] was potentially located on a 1941 General Highway map of Jackson Township (Drury 1955). Based on the types of artifacts collected and the lack of historic documentation of a structure before 1941, site 12-N-309 could be a secondary deposit. Based on archaeological and historical research, site 12-N-309 does not appear to have the potential to yield additional information beyond the Phase I level and are therefore is not considered eligible for the National Register of Historic Places.

The remainder of the site types (12-N-300 to 12-N-308) found in Survey Area 3 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 3 consisted of approximately 51.9 acres of moraines. Within Survey Area 3, a density of one site per 5.19 acres occurred and sites covered 6.09 percent of the surface area.

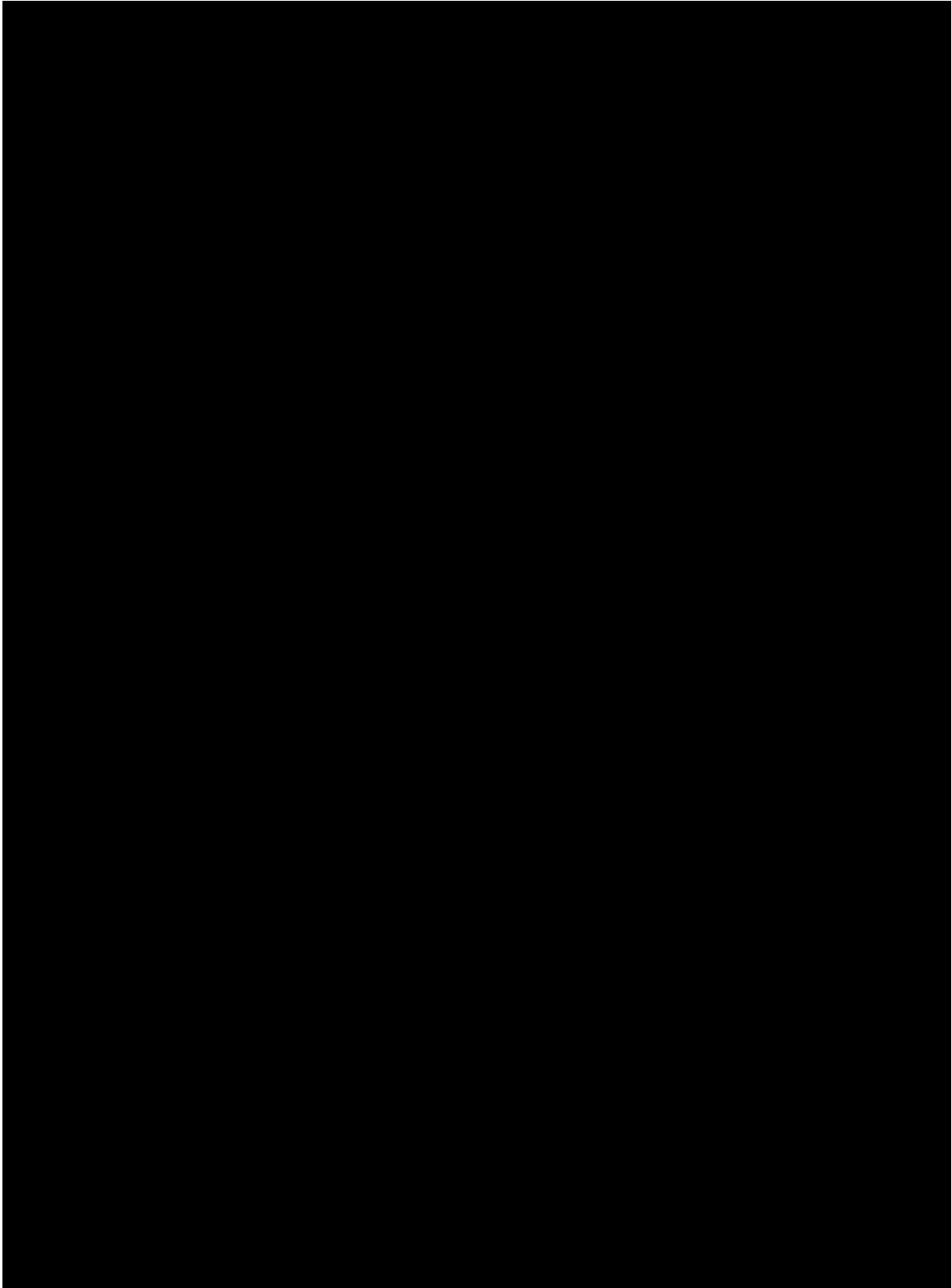


Figure 42: A portion of the USGS 7.5' Mount Ayr, Indiana Quadrangle showing the location of sites 12-N-300 to 12-N-309.

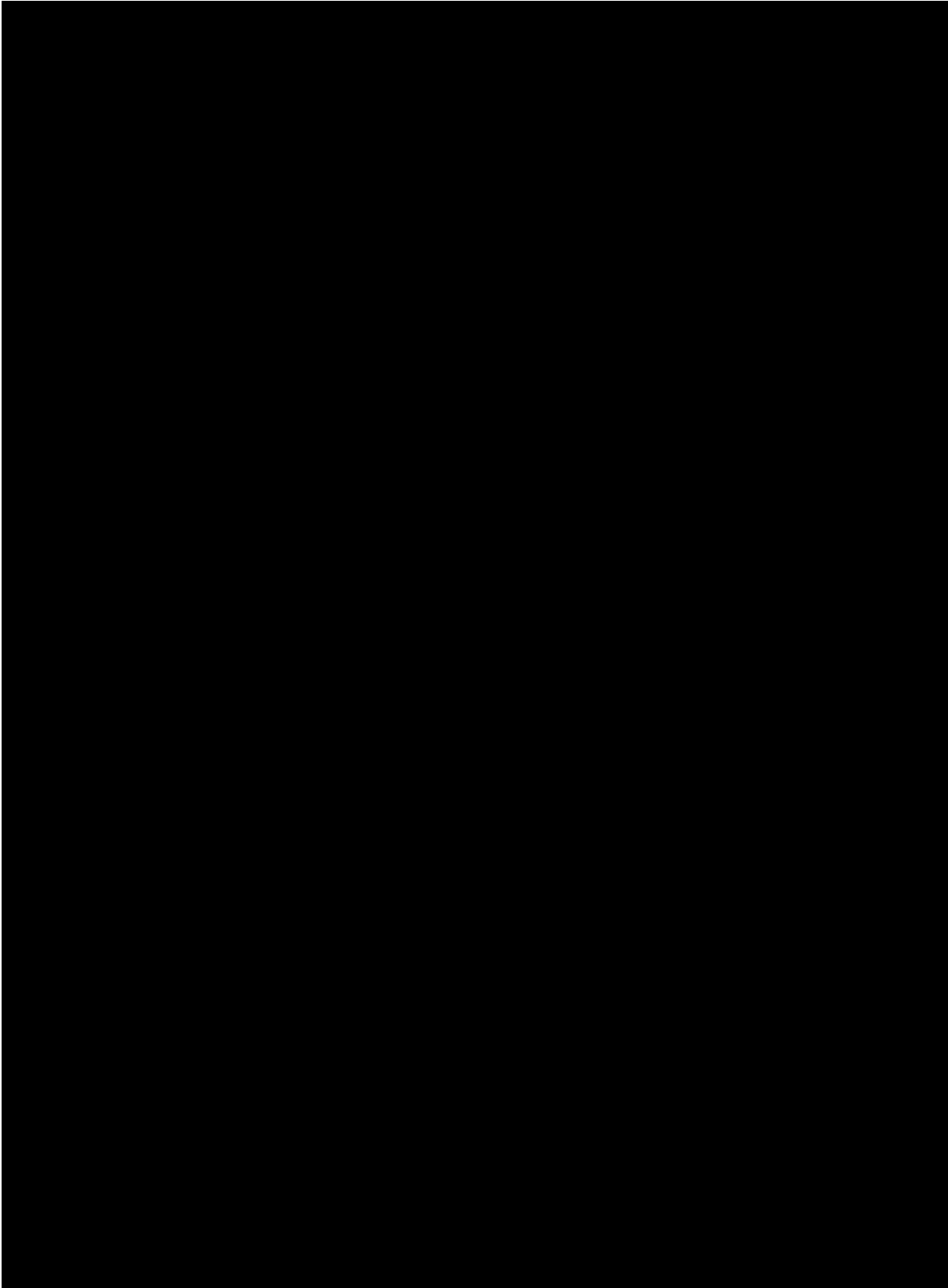


Figure 43: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of sites 12-N-300 to 12-N-309.

Survey Area 4

Survey Area 4 was located in Jackson Township in [REDACTED], Township 29 North, Range 8 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Mount Ayr, Indiana Quadrangle (Figure 44 and Figure 45). The property was surveyed on August 21, 2015. The field surveyed was still planted in corn that was standing between seven to 10 feet tall. Ground surface visibility was approximately 70 percent with small amounts of corn debris, and the corn stalks themselves being the only visual obstacles. Approximately 39.9 acres were surveyed consisting of moraines. The area consisted of Darroch loam, till substratum (DgA) and Craigmile mucky silt loam (Cz) soils. Four sites were encountered during the survey. The sites ranged in size from historic isolated finds to a lithic scatter of 816.58 square meters (0.20 acres) and a historic scatter of 1,044.53 square meters (0.26 acres).

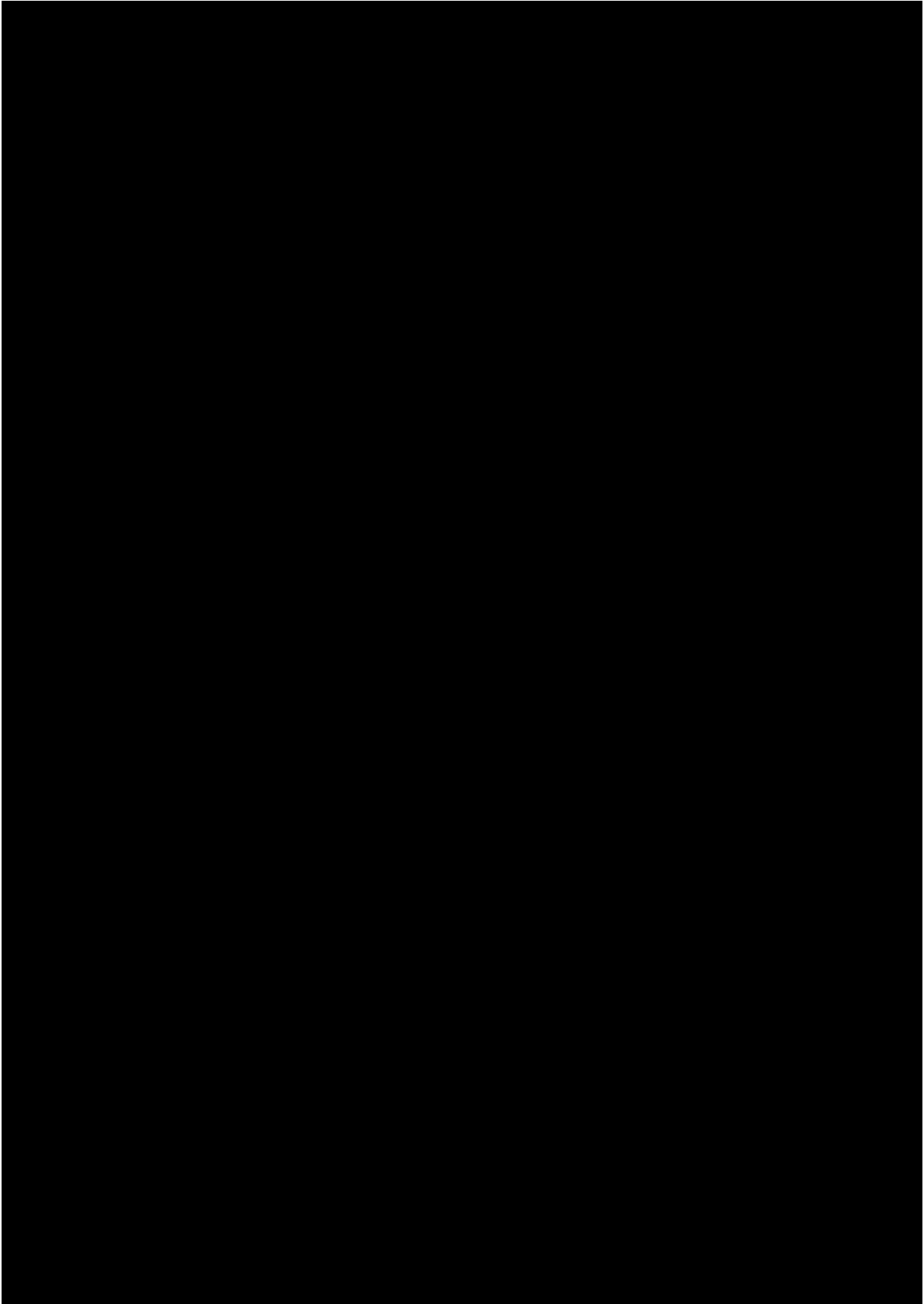


Figure 44: A portion of the map of Jackson Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 4.

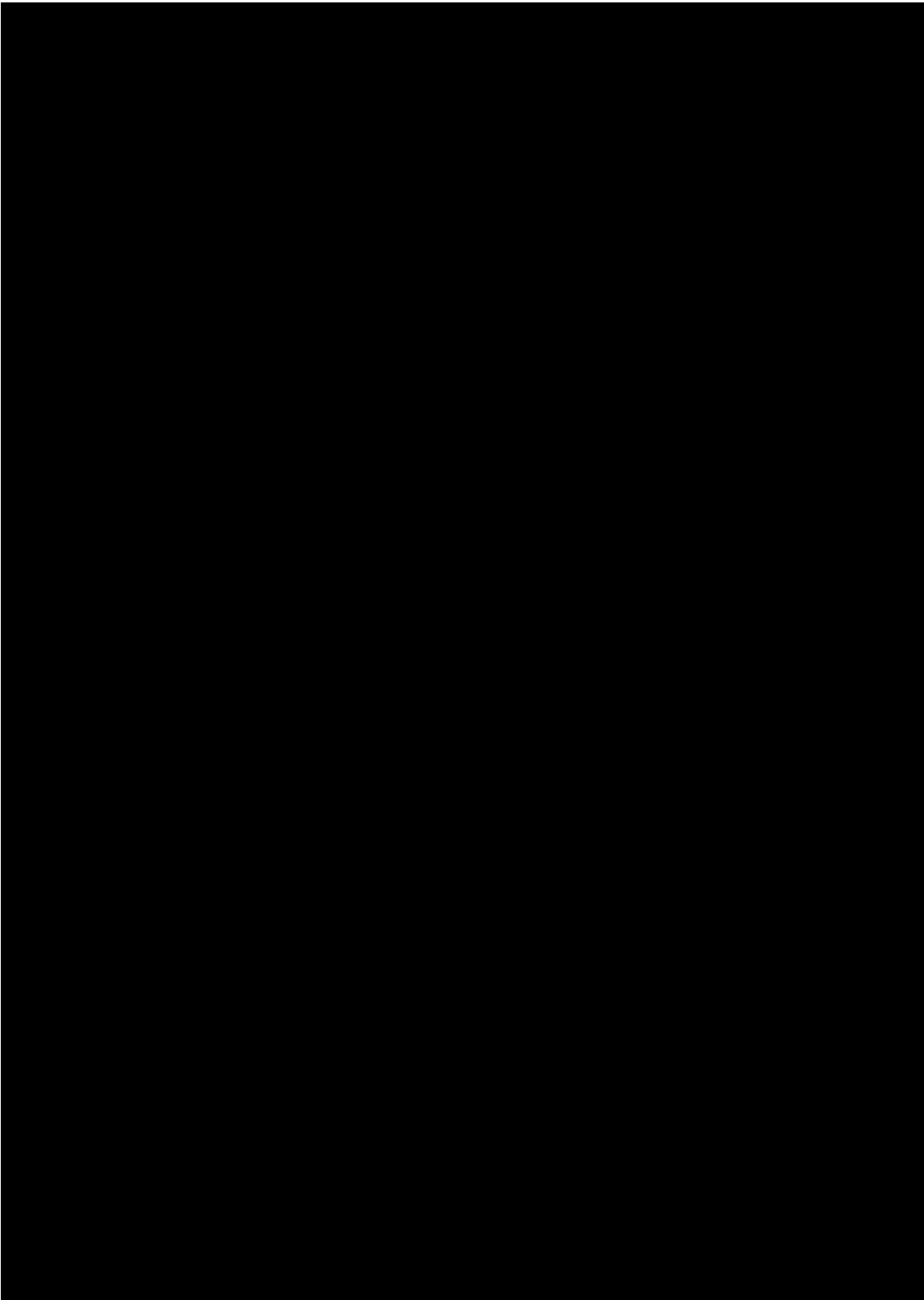


Figure 45: A portion of the USGS 7.5' Mount Ayr, Indiana Quadrangle showing the location of Survey Area 4.

Artifacts

A total of 30 artifacts were encountered in Survey Area 4. Table 12 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 46, Figure 48 and Figure 49. Artifacts are listed by individual site in Volume 2, Appendix E.

Two prehistoric artifacts were recovered. One diagnostic artifact was recovered from site 12-N-312 in Survey Area 4 consisting of a Kirk Corner-Notched projectile point (Figure 46) dating to the Early Archaic Period (Justice 1987:71).

Thirty historic artifacts were identified in Survey Area 4 (Figure 47, Figure 48, Figure 49, and Figure 50) and of those collected, 24 are diagnostic (Table 13). Chronologically expressed these items include redware recovered from site 12-N-310 which was manufactured from 1725 to present (Stelle 2001:Chapter I). Aqua glass recovered from sites 12-N-310 and 12-N-313 was manufactured between 1800 to the 1920s (Horn 2005:1). Plain whiteware recovered from site 12-N-310 was manufactured from 1820 to present (Stelle 2001:Chapter I). Stoneware with Albany glaze interior and a Bristol glaze exterior recovered from site 12-N-310 was manufactured from 1830 to 1940 (Stelle 2001:Chapter I). Blue speckled decorated ironstone recovered from site 12-N-310 was manufactured between 1842 to 1930 (Trussel 2010; ODOT 1991). Clear glass recovered from site 12-N-310 was manufactured between 1875 to present (IMACS 1992:473). Milk glass recovered from site 12-N-310 was manufactured between the 1890s to present (Horn 2005:1). Industrial porcelain recovered from site 12-N-311 was manufactured from 1892 to an unknown end date (Berge 1980:156). Stoneware with Albany glaze interior and exterior recovered from site 12-N-310 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I).

Table 12: Artifacts from Survey Area 4.

Prehistoric	No.	Historic	No.
Biface, Kirk Corner-Notched	1	Ceramic, Industrial Porcelain	1
Biface, Partial Base	1	Ceramic, Ironstone	1
		Ceramic, Redware	1
		Ceramic, Stoneware	2
		Ceramic, Whiteware	2
		Glass, Aqua	2
		Glass, Clear	15
		Glass, Milk	1
		Rubber Washer	1
		Metal, Iron, Unidentified	3
		Metal, Steel Band	1
Total	2	Total	30

Table 13: Historic Diagnostics from Survey Area 4

Artifact Type	Site	Date Range	Citation
Redware	12-N-310	1725 to present	Stelle 2001:Chapter I
Aqua glass	12-N-310, 12-N-313	1800-1920s	Horn 2005:1
Plain whiteware	12-N-310	1820 to present	Stelle 2001:Chapter I
Stoneware with Albany glaze interior and a Bristol glaze exterior	12-N-310	1830-1940	Stelle 2001:Chapter I
Blue speckles decorated ironstone	12-N-310	1842-1930	Trussel 2010; ODOT 1991
Clear glass	12-N-310	1875 to present	IMACS 1992:473
Milk glass	12-N-310	1890s to present	Horn 2005:1
Industrial porcelain	12-N-311	1892 to an unknown end date	Berg 1980:156
Stoneware with Albany glaze interior and exterior	12-N-310	Termination date of 1940	Stelle 2001:Chapter I



Figure 46: A Kirk Corner-Notched point recovered from 12-N-312 in Survey Area 4 (photo by Kiya Mullins, Ball State University).



Figure 47: Fractured partial point base from 12-N-312 in Survey Area 4 (photo by Kiya Mullins, Ball State University).



Figure 48: Representative historic ceramic artifacts from Survey Area 4 (photo by Kiya Mullins, Ball State University).



Figure 49: Representative historic glass artifacts from Survey Area 4 (photo by Kiya Mullins, Ball State University).



Figure 50: Representative historic metal and rubber artifacts from Survey Area 4 (photo by Kiya Mullins, Ball State University).

Sites

Four archaeological sites (12-N-310 to 12-N-313), were recorded in Survey Area 4 (Figure 51 and Figure 52). Summaries for the individual sites are contained in Volume 2, Appendix F. All four sites (12-N-310, 12-N-311, 12-N-312, and 12-N-313) had diagnostic artifacts. One site (12-N-312) contained an Early Archaic component as part of a lithic scatter. Two sites (12-N-311 and 12-N-313) and were historic isolated finds one site (12-N-310) was a historic scatter.

All four sites (12-N-310 to 12-N-313) were discovered on moraines. One site (12-N-310) was located on Barry-Gilford complex (Bh) soil, two sites (12-N-311 and 12-N-312) were encountered on Swygert-Simonin complex (SzB2) soil, and one site (12-N-313) was located on Papineau fine sandy loam (PaA) soil.

The site types found in Survey Area 4 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 4 consisted of approximately 39.9 acres of moraines. Within Survey Area 4, a density of one site per 9.98 acres occurred and sites covered 2.01 percent of the surface area.

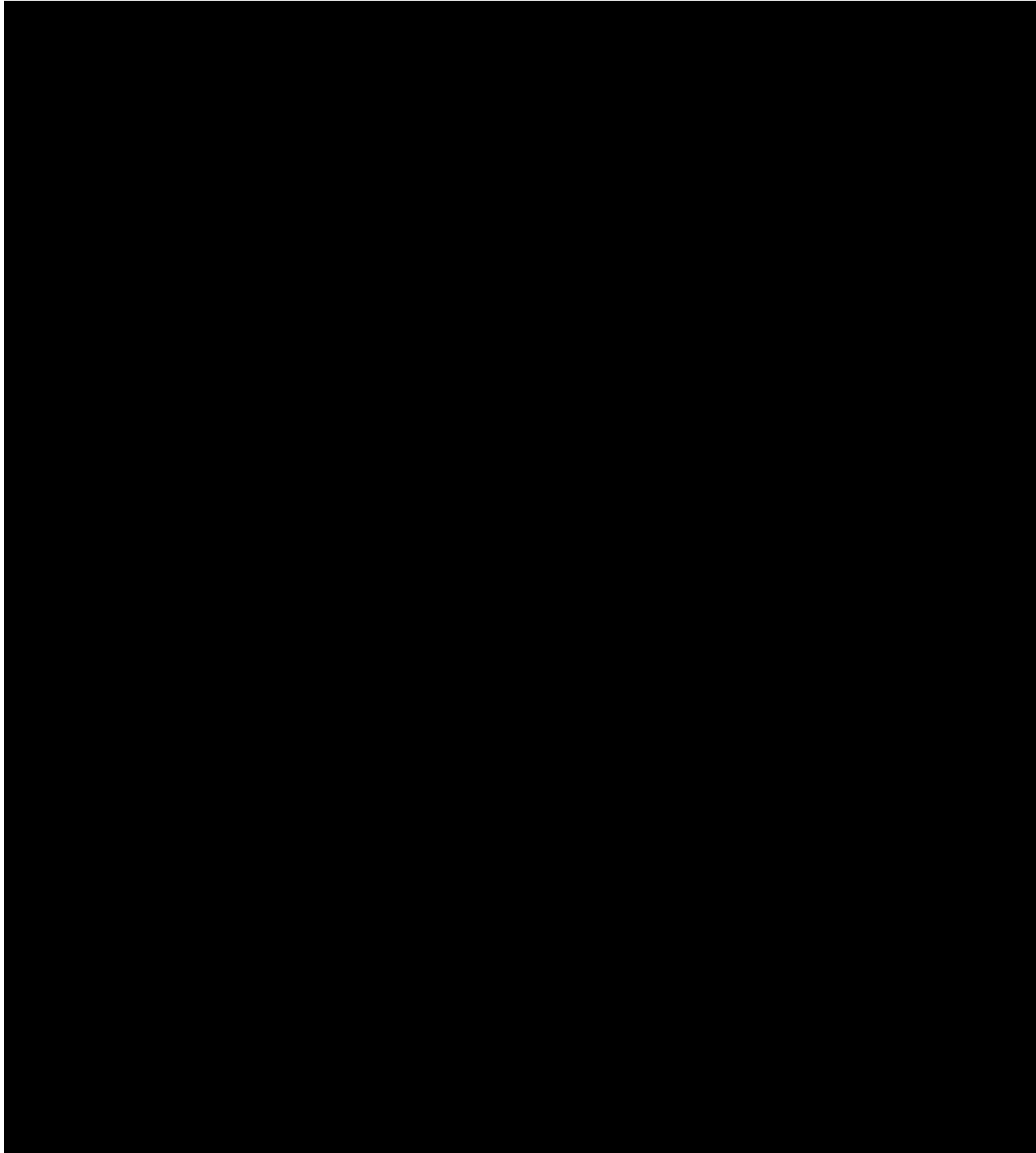


Figure 51: A portion of the USGS 7.5' Mount Ayr, Indiana Quadrangle showing the location of sites 12-N-310 to 12-N-313.

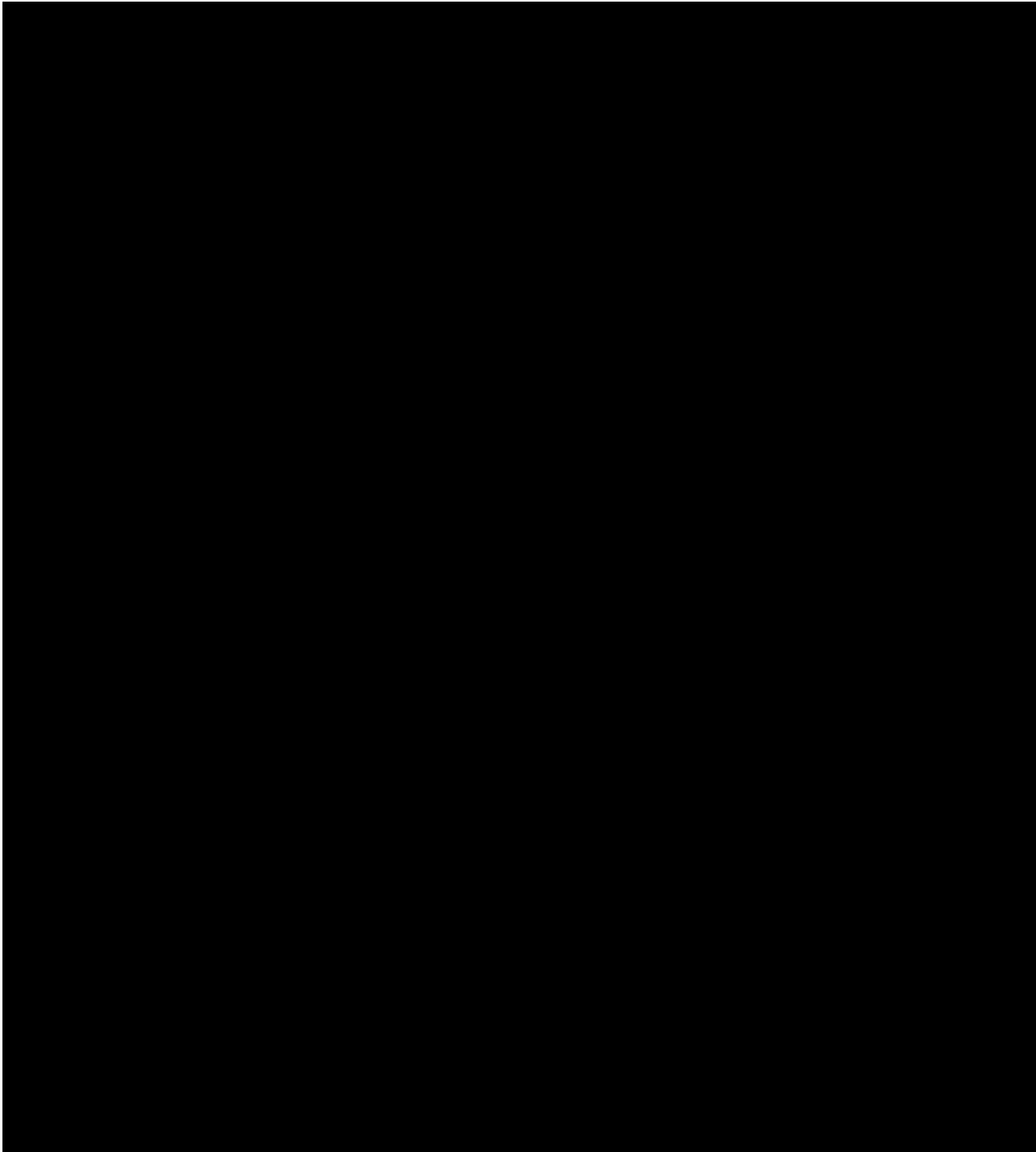


Figure 52: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of sites 12-N-310 to 12-N-313.

Survey Area 5

Survey Area 5 was located in Lincoln Township in ████████ Township 31 North, Range 8 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Shelby, Indiana Quadrangle (Figure 53 and Figure 54). The property was surveyed on August 22, 2015. Ground surface visibility was approximately 30 to 90 percent with small amounts of corn debris, the corn stalks themselves, and some patches of tall weeds being the visual obstacles. The field was still planted in corn, which was approximately four to five feet tall. Due to the large amount of rain experienced in the area during the spring and summer months, the corn was much shorter than is typical for August. The shortness of the corn influenced visibility due to the lack of a canopy created by taller stalks, which typically kill off the majority of the weeds we encountered on this survey. Approximately 80.3 acres were surveyed consisting of outwash and lake plains. The area contained of Aubbeenaubbee-Whitaker complex (AuA) and Ayr loamy fine sand (AyB) soils. Two sites, both isolated historic finds, were encountered during the survey.

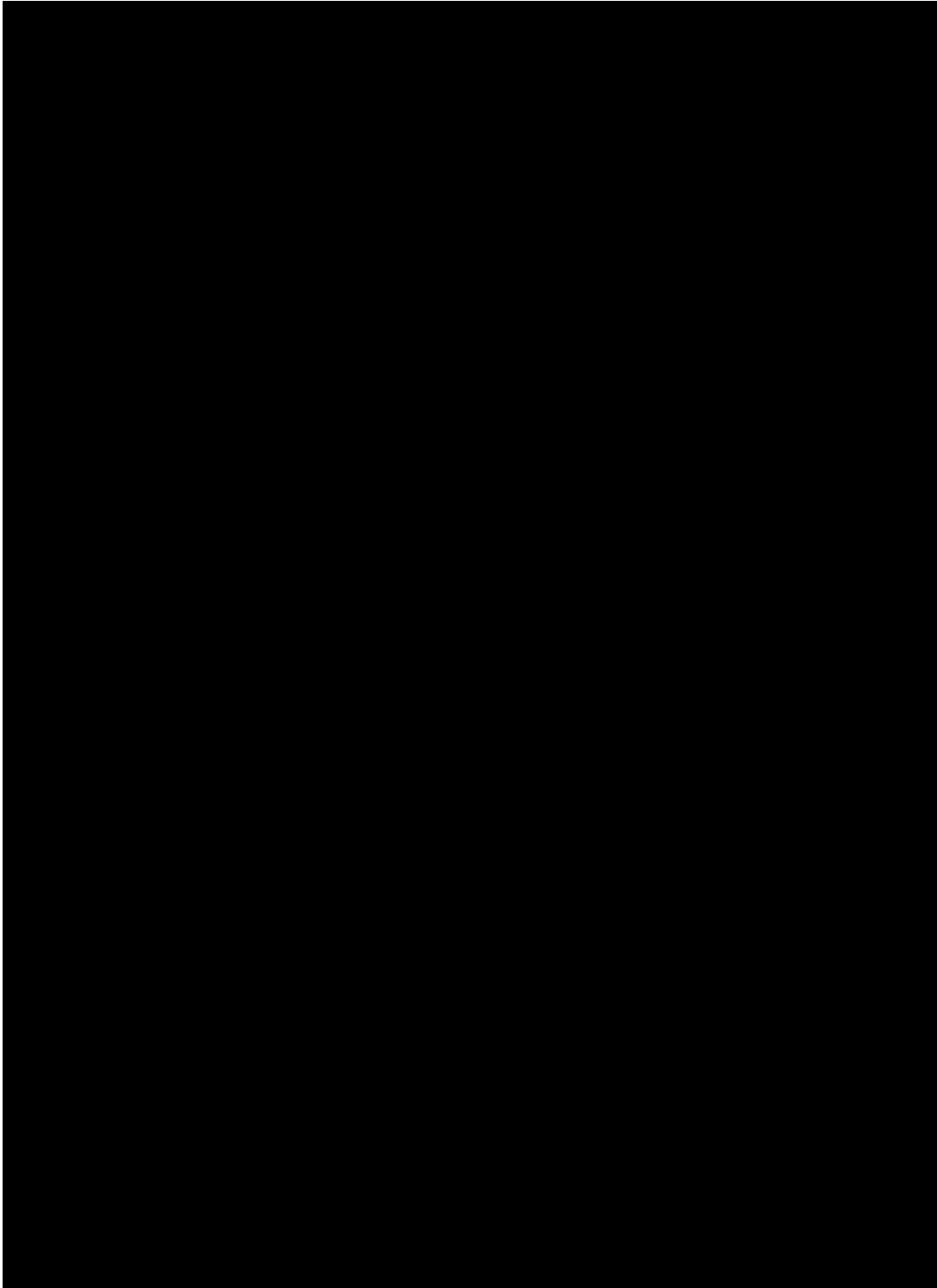


Figure 53: A portion of the map of Lincoln Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 5.

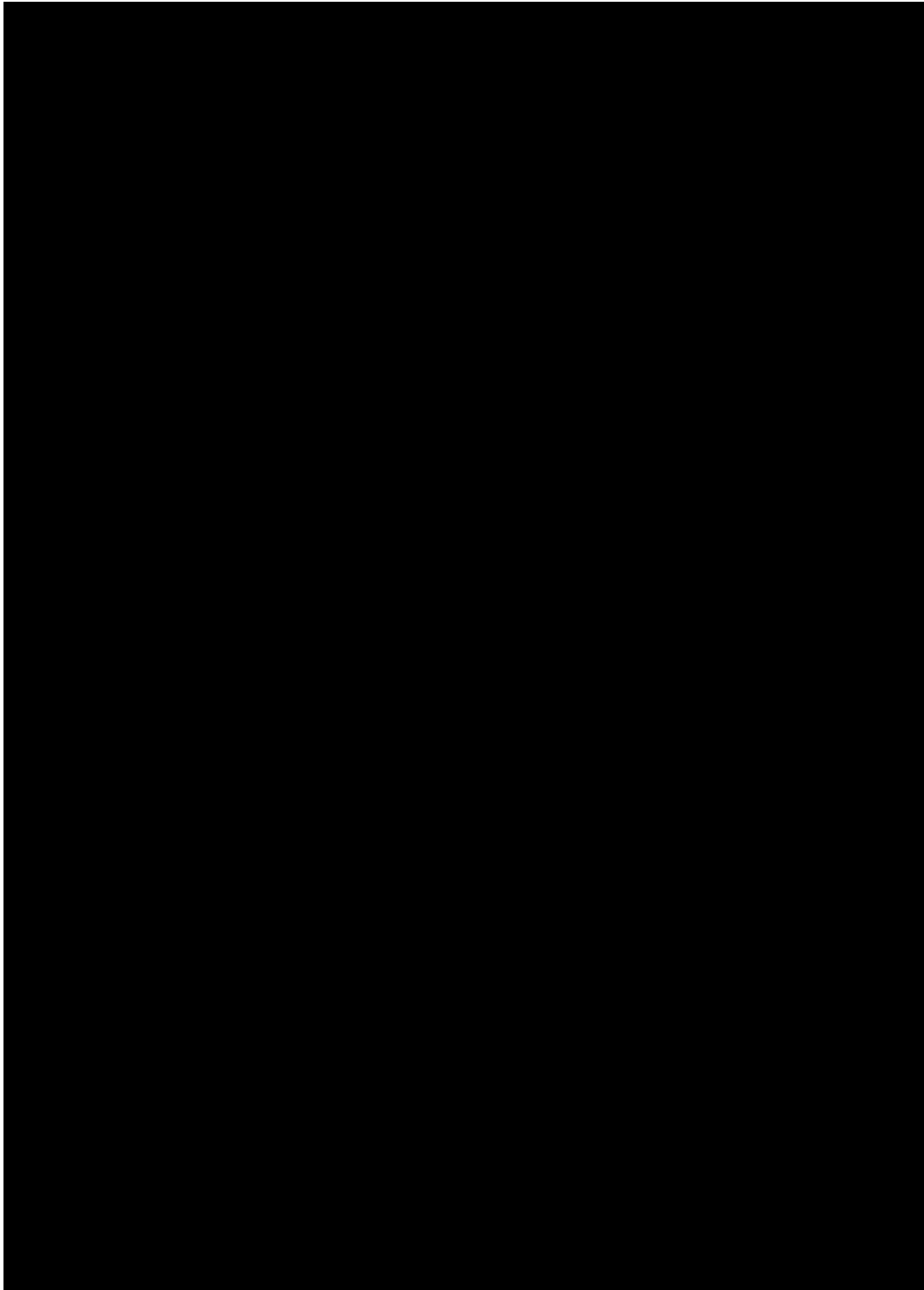


Figure 54: A portion of the USGS 7.5' Shelby, Indiana Quadrangle showing the location of Survey Area 5.

Artifacts

A total of two artifacts were encountered in Survey Area 5. Table 14 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 55. Artifacts are listed by individual site in Volume 2, Appendix E.

No prehistoric artifacts were recovered Survey Area 5.

Two historic artifacts were recovered from Survey Area 5 (Figure 55) and both are diagnostic (Table 15). Chronologically expressed these items include brown glazed whiteware recovered from site 12-N-315 which was manufactured from 1820 to present (Stelle 2001:Chapter I). Stoneware with Albany glaze interior and exterior recovered from site 12-N-314 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I).

Table 14: Artifacts from Survey Area 5.

Prehistoric	No.	Historic	No.
		Ceramic, Stoneware	1
		Ceramic, Whiteware	1
Total	0	Total	2

Table 15: Historic Diagnostics from Survey Area 5

Artifact Type	Site	Date Range	Citation
Brown glazed whiteware	12-N-315	1820 to present	Stelle 2001:Chapter I
Stoneware with Albany glaze interior and exterior	12-N-314	Termination date of 1940	Stelle 2001:Chapter I



Figure 55: Historic ceramic artifacts from Survey Area 5 (photo by Kiya Mullins, Ball State University).

Sites

Two archaeological sites (12-N-314 and 12-N-315) were recorded in Survey Area 5 (Figure 56 and Figure 57). Summaries for the individual sites are contained in Volume 2, Appendix F. Two sites (12-N-314 and 12-N-315) included diagnostic artifacts. Two sites (12-N-314 and 12-N-315) were historic isolated finds.

Both sites (12-N-314 and 12-N-315) were found on outwash and lake plains. One site (12-N-314) was found on Brems loamy sand (BmB) soil and one site (12-N-315) was found on Zadog-Granby complex (Zg) soil.

The site types found in Survey Area 5 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 5 consisted of approximately 80.3 acres of outwash and lake plains. Within Survey Area 5, a density of one site per 40.15 acres occurred and sites covered 0.42 percent of the surface area.

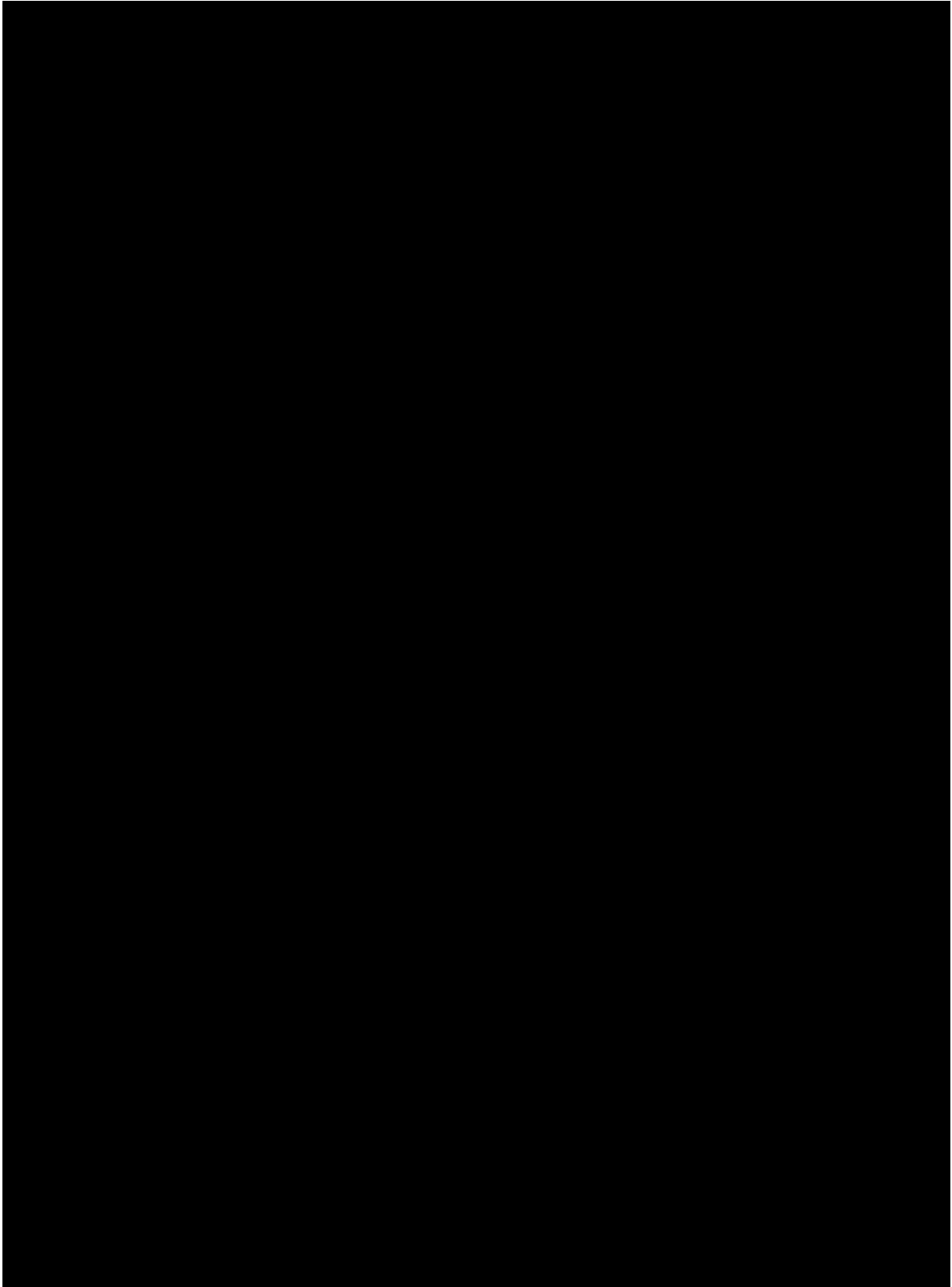


Figure 56: A portion of the USGS 7.5' Shelby, Indiana Quadrangle showing the location of sites 12-N-314 and 12-N-315.

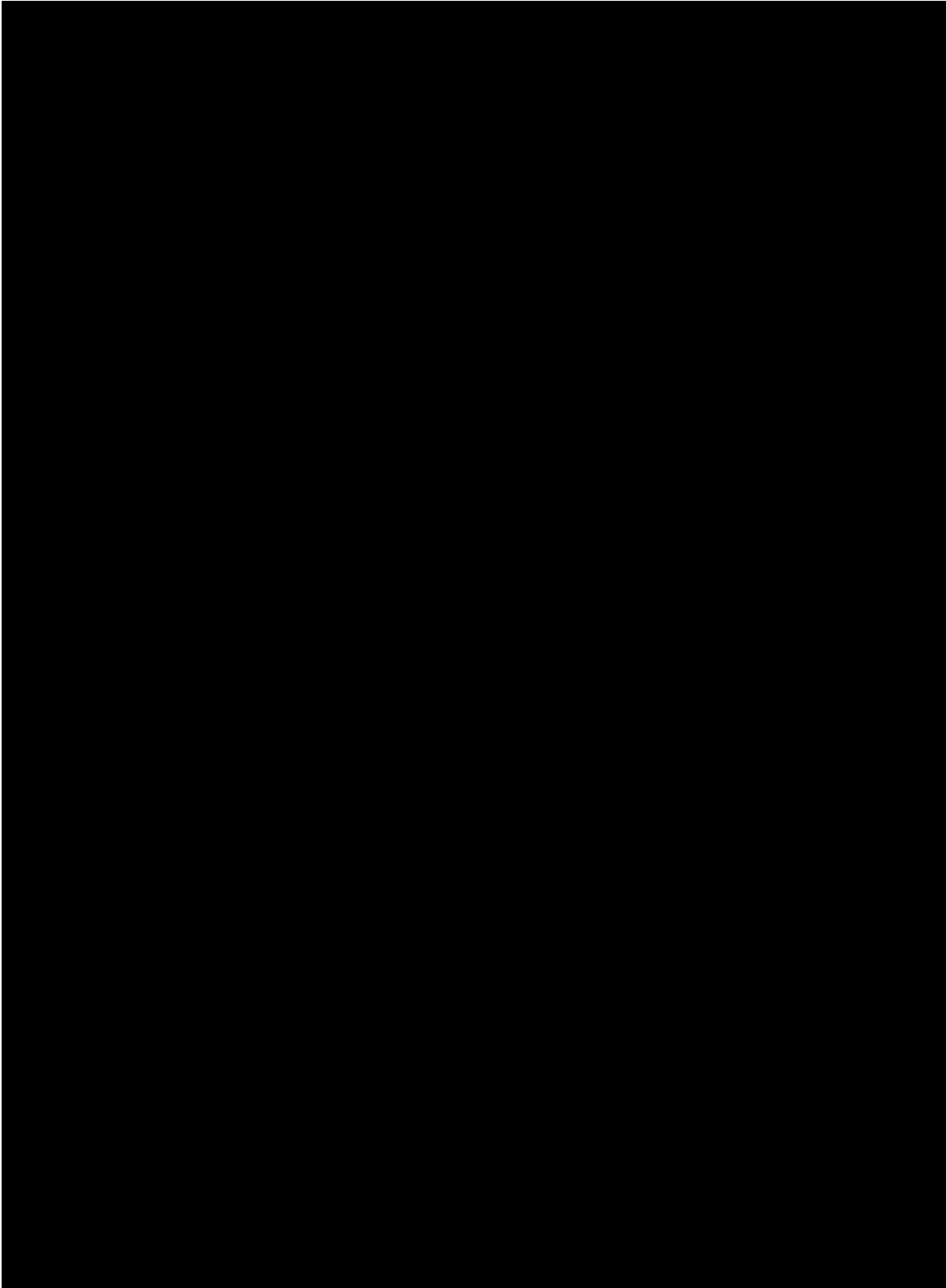


Figure 57: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of sites 12-N-314 and 12-N-315.

Survey Area 6

Survey Area 6 was located in Jackson Township in [REDACTED], Township 29 North, Range 8 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Mount Ayr, Indiana Quadrangle (Figure 58 and Figure 59). The property was surveyed on August 22, 2015. The field surveyed was still planted in corn that was standing between seven to 10 feet tall. Ground surface visibility was approximately 80 percent with small amounts of corn debris, and the corn stalks themselves being the only visual obstacles. Approximately 39.7 acres were surveyed consisting of moraines. The area consisted of Darroch loam, till substratum (DgA) soil. Four sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a historic scatter of 703.28 square meters (0.17 acres).

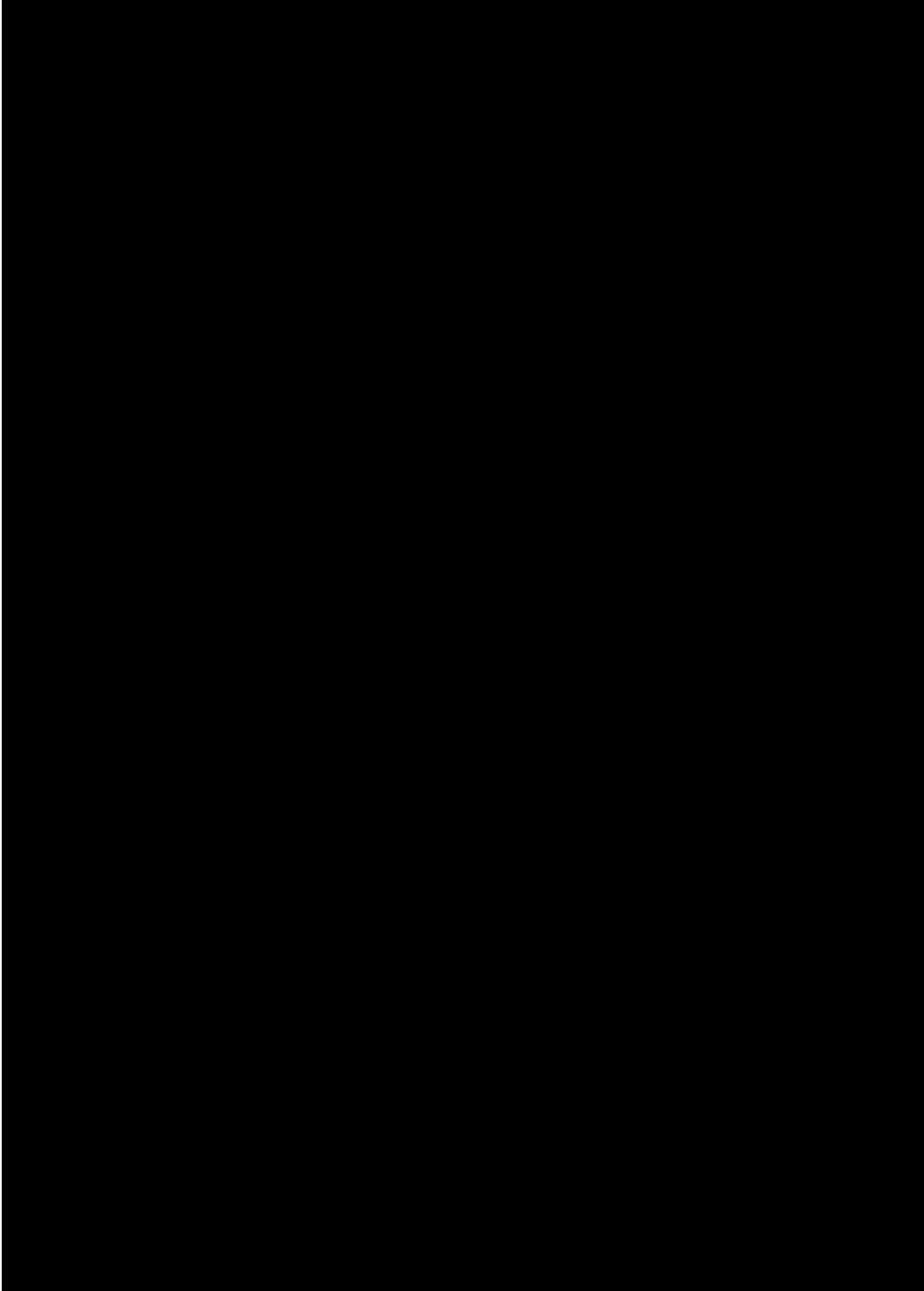


Figure 58: A portion of the map of Jackson Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 6.

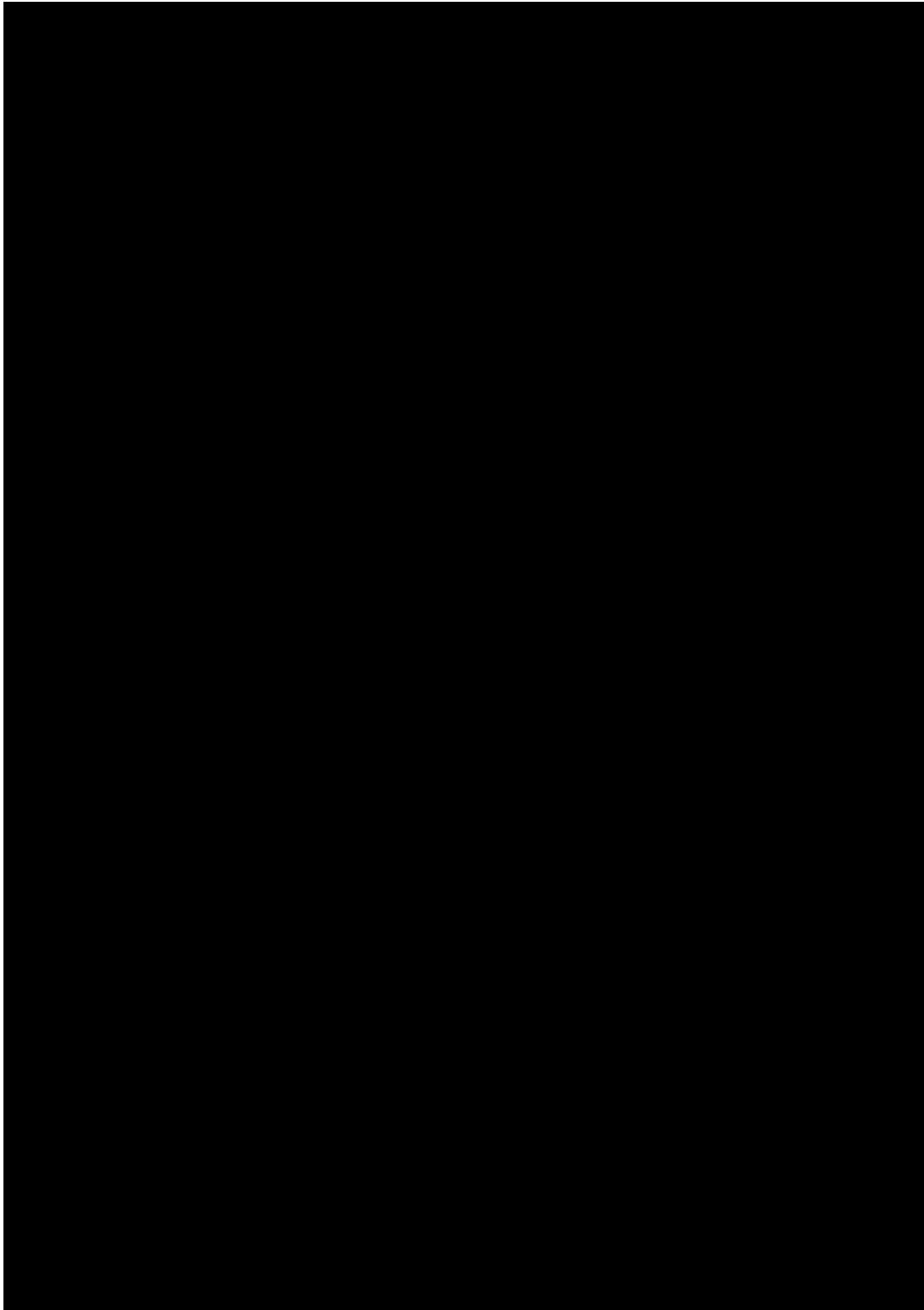


Figure 59: A portion of the USGS 7.5' Mount Ayr, Indiana Quadrangle showing the location of Survey Area 6.

Artifacts

A total of 19 artifacts were encountered in Survey Area 6. Table 16 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 60 and Figure 61. Artifacts are listed by individual site in Volume 2, Appendix E.

One prehistoric artifact was recovered from site 12-N-317 (Figure 60). No diagnostic prehistoric artifacts were recovered from Survey Area 6.

Eighteen historic artifacts were recovered from Survey Area 6 (Figure 61) and of those, two are diagnostic (Table 17). Chronologically expressed these items include aqua glass recovered from site 12-N-319 which was manufactured between 1800 to the 1920s (Horn 2005:1). Stoneware with Bristol glaze interior and exterior recovered from site 12-N-318 was manufactured between 1835 to present (Stelle 2001:Chapter I).

Table 16: Artifacts from Survey Area 6.

Prehistoric	No.	Historic	No.
Flake, Proximal	1	Ceramic, Stoneware	1
		Glass, Aqua	1
		Metal, Iron, Mechanical Part	1
		Wood Fragments	15
Total	1	Total	18

Table 17: Historic Diagnostics from Survey Area 6

Artifact Type	Site	Date Range	Citation
Aqua glass	12-N-319	1800-1920s	Horn 2005:1
Stoneware with Bristol glaze interior and exterior	12-N-318	1835 to present	Stelle 2001:Chapter I



Figure 60: A proximal flake from site 12-N- 317 (photo by Kiya Mullins, Ball State University).



Figure 61: Representative historic artifacts from Survey Area 6 (photo by Kiya Mullins, Ball State University).

Sites

Four archaeological sites (12-N-316 to 12-N-319) were recorded in Survey Area 6 (Figure 62 and Figure 63). Summaries for the individual sites are contained in Volume 2, Appendix F. Two sites (12-N-318 and 12-N-319) had diagnostic artifacts. One site (12-N-317) was a prehistoric isolated find. Two sites (12-N-316 and 12-N-318) were historic isolated finds, and one site (12-N-319) was a small historic scatter.

All four sites (12-N-316 to 12-N-319) were discovered on moraines. Three sites (12-N-316, 12-N-318, and 12-N-319) were encountered on Sumava-Ridgeville-Odell complex (SxA) soil and one site (12-N-317) was located on Ayrmount loamy fine sand (AZA) soil.

The sites found in Survey Area 6 were determined to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 6 consisted of approximately 39.7 acres of moraines. Within Survey Area 6, a density of one site per 9.93 acres occurred and sites covered 1.71 percent of the surface area.

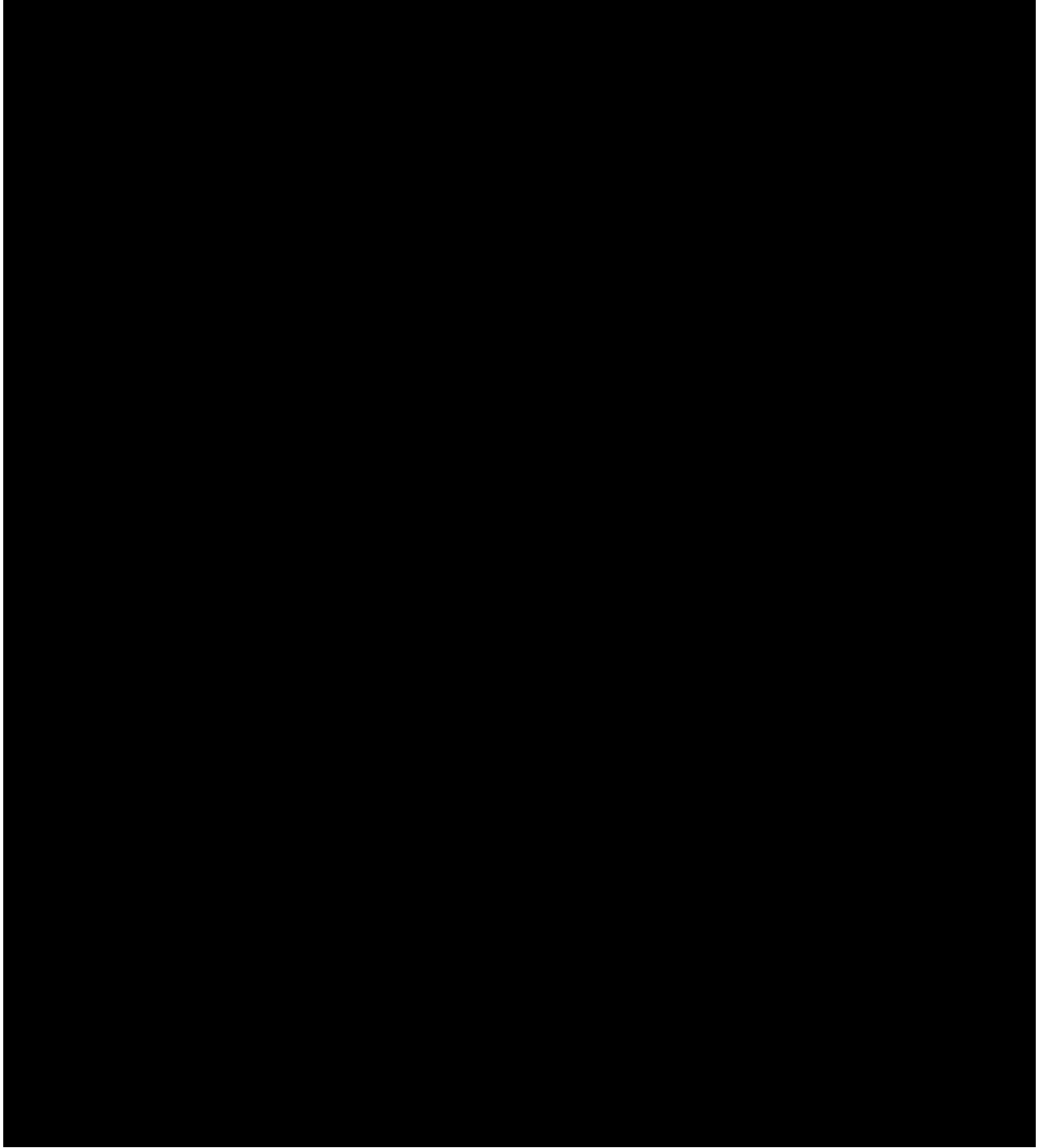


Figure 62: A portion of the USGS 7.5' Mount Ayr, Indiana Quadrangle showing the location of sites 12-N-316 to 12-N-319.

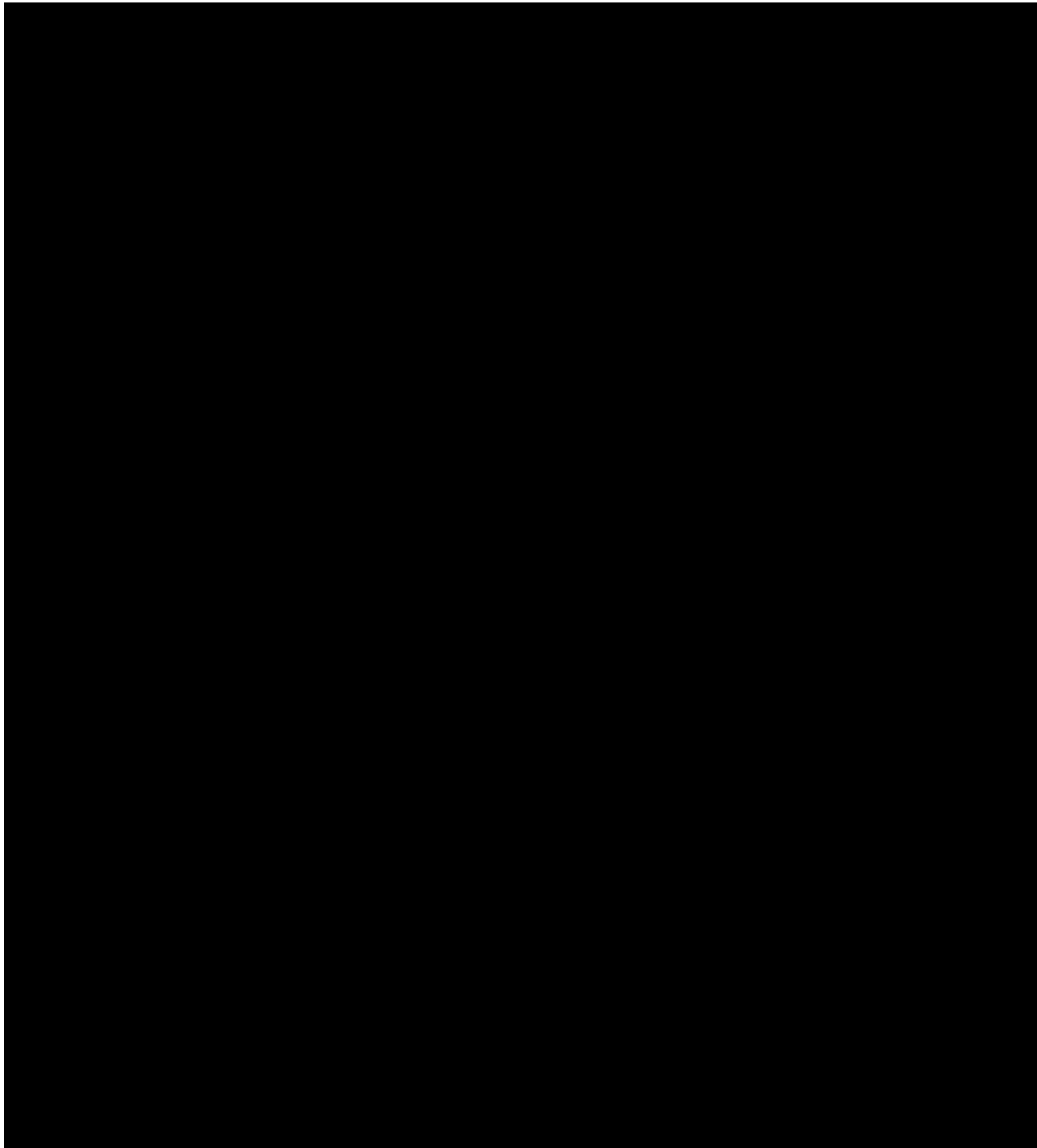


Figure 63: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of sites 12-N-316 to 12-N-319.

Survey Area 7

Survey Area 7 was located in Lincoln Township in [REDACTED], Township 32 North, Range 8 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Shelby, Indiana Quadrangle (Figure 64 and Figure 65). The property is separated into four parcels: A, B, C, and D. All parcels were surveyed from October 10 to 12, 2015. Parcels C, D, and part of Parcel B were planted in corn that was standing between seven to 10 feet tall. Ground surface visibility was approximately 40 to 80 percent with small amounts of corn debris and the corn stalks themselves being the only visual obstacles. Parcel A and the remaining portions of Parcel B were planted in beans that had not been harvested, but were not very thick given the large amount of rainfall and stunted growth. Ground visibility was approximately 40 to 70 percent with small amounts of bean debris and the bean plants themselves being the only visual obstacles. Approximately 215.7 acres were surveyed consisting of outwash and lake plains, and floodplains. The area contained Aubbeenaubee-Whitaker complex (AuA) soil. Twenty-one sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a historic scatter of 1,822.98 square meters (0.45 acres) and a multicomponent scatter of 7,278.32 square meters (1.80 acres).

The landowner [REDACTED] met the survey crew at Survey Area 7 to point out the location of his fields and show the survey crew how to get to each parcel. [REDACTED] also gave the survey crew a DVD copy of “Everglades of the North: The Story of the Grand Kankakee Marsh” as well as a sesquicentennial Newton County map. [REDACTED] has collected in all of his fields as well as some wooded areas on his property. Due to the amount of artifacts that he has collected, a separate visit was scheduled in order to document and analyze his entire collection. The results of this visit are detailed in the Archaeological Survey Results – Collector Visit section.

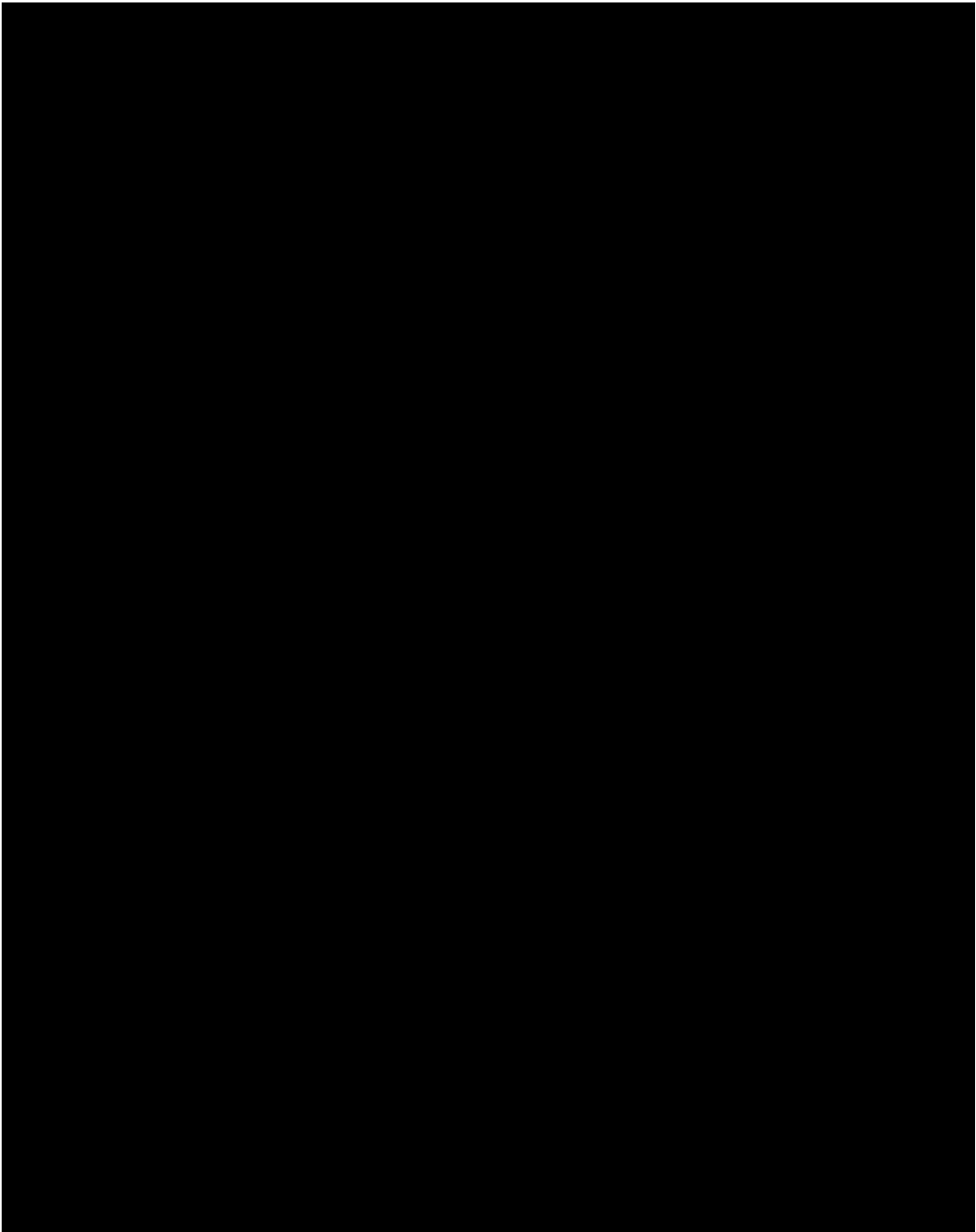


Figure 64: A portion of the map of Lincoln Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 7.

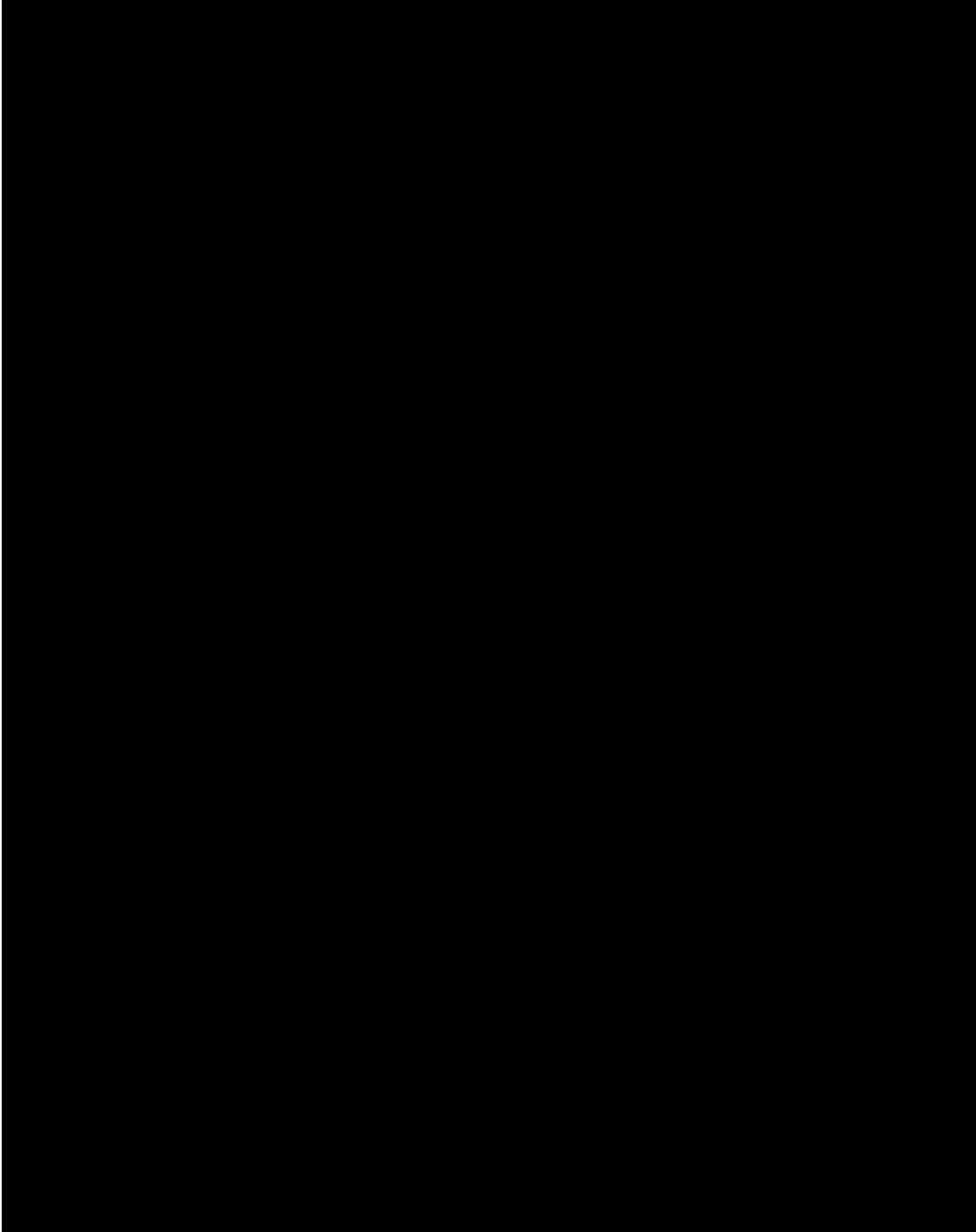


Figure 65: A portion of the USGS 7.5' Shelby, Indiana Quadrangle showing the location of Survey Area 7.

Artifacts

A total of 343 artifacts were encountered in Survey Area 7. Table 18 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 66 through Figure 74. Artifacts are listed by individual site in Volume 2, Appendix E.

Sixty-eight prehistoric artifacts were recovered. Four diagnostic prehistoric artifacts were recovered from Survey Area 7. A hafted Brewerton Side Notched biface (Figure 66) dating to the Late Archaic period was recovered from site 12-N-325 (Justice 1987:115). A hafted Bottleneck Stemmed biface (Figure 68) dating to the Late Archaic Period was recovered from site 12-N-327 (Justice 1987:124-125). A hafted Matanzas Cluster biface (Figure 69) dating to the Late Archaic period was recovered from site 12-N-327 (Justice 1987:119). A hafted Triangular cluster biface drill (Figure 67) dating to the Late Prehistoric Period was recovered from site 12-N-327 (Justice 1987:224).

Two hundred and seventy-five historic artifacts were recovered from Survey Area 7 (Figure 71, Figure 72, Figure 73, and Figure 74) and of those, two hundred and thirty-six are diagnostic (Table 19). Chronologically expressed these items include aqua glass recovered from sites 12-N-324, 12-N-327, 12-N-333, 12-N-340, and 12-N-343 which was manufactured between 1800 to the 1920s (Horn 2005:1). Plain whiteware recovered from sites 12-N-327 and 12-N-340 was manufactured from 1820 to present (Stelle 2001:Chapter I). Light blue transferprint whiteware recovered from site 12-N-327 was manufactured from 1826 to 1831 (Stelle 2001:Chapter I). Red transferprint recovered from site 12-N-327 was manufactured from 1829 to 1850 (Stelle 2001:Chapter I). Stoneware with Bristol glaze interior and exterior recovered from site 12-N-324 was manufactured between 1835 to present (Stelle 2001:Chapter I). Plain ironstone recovered from site 12-N-327 was manufactured between 1842 to 1930 (Miller 2000; Stelle 2001:Chapter I). Amber glass recovered from sites 12-N-324, 12-N-327, 12-N-336, and 12-N-340 was manufactured between the 1860s to present (Horn 2005:1). Clear glass recovered from sites 12-N-324, 12-N-327, 12-N-336, 12-N-337, and 12-N-338 was manufactured between 1875 to present (IMACS 1992:473). A UMC Co. shotgun shell recovered from site 12-N-327 was manufactured from 1876 to 1911 (Cartridge Corner 2015). Amethyst glass recovered from sites 12-N-324 and 12-N-327 was manufactured between 1885 to 1920 (Horn 2005:1). Semi-Porcelain recovered from sites 12-N-327 and 12-N-341 was manufactured between 1890 to present (ODOT 1991:177). Cobalt glass recovered from site 12-N-324 was manufactured between the 1890s to present (Horn 2005:1). Milk glass recovered from sites 12-N-324, 12-N-327, and 12-N-337 was manufactured between the 1890s to present (Horn 2005:1). Stoneware with a light brown glaze and impressed with “Vitreous Stone Bo... J. Bourne &... Denby Pott... Near Derby” recovered from site 12-N-327 was manufactured post 1850 (Godden 1964:50). Stoneware with Albany glaze interior and exterior recovered from site 12-N-327 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I). Stoneware with Albany

glaze interior and salt glaze exterior recovered from site 12-N-327 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I).

Table 18: Artifacts from Survey Area 7.

Prehistoric	No.	Historic	No.
Biface, Hafted, Brewerton Side-Notched	1	Ceramic, Ironstone	10
Biface, Hafted, Bottleneck Stemmed	1	Ceramic, Semi-Porcelain	3
Biface, Hafted, Matanzas Cluster	1	Ceramic, Stoneware	30
Biface, Hafted, Triangular Cluster Drill	1	Ceramic, Whiteware	57
Biface, Unhafted, Unidentified	3	Glass, Amber	9
Core	2	Glass, Amethyst	32
Core, Fragment	3	Glass, Aqua	78
Flake, Blade-Like	1	Glass, Clear	10
Flake, Tool	5	Glass, Cobalt	1
Flake	14	Glass, Milk	5
Flake, Heat Treated	1	Metal, Brass, Bullet Casing	1
Flake, Retouched	2	Metal, Brass, Shotgun Shell	1
Flake, Proximal	10	Metal, Iron, Hubcap	1
Flake, Proximal Tool, Heat Treated	1	Metal, Iron, Nail Head	1
Flake, Medial	4	Metal, Iron, Partial Ring	1
Flake, Medial, Retouched	1	Metal, Iron, Rail Spike	1
Flake, Distal	8	Metal, Iron, Squared Wire	1
Flake, Shatter	7	Metal, Iron, Washer	1
Flake, Shatter Heat Damaged	1	Metal, Iron Ore Concretions	6
Ground Stone Pestle	1	Metal, Iron, Unidentified	11
		Metal, Lead, Buck Shot	1
		Metal, Zinc, Unidentified	2
		Wood Post	1
		Faunal, Deer Bones	9
		Faunal, Cow Bones	2
Total	68	Total	275



Figure 66: A Brewerton Side-Notched diagnostic point from 12-N-325 (photo by Kiya Mullins, Ball State University).



Figure 67: A Triangular Cluster Drill diagnostic point from 12-N-327 (photo by Kiya Mullins, Ball State University).



Figure 68: A Bottleneck Stemmed diagnostic point from 12-N-327 (photo by Kiya Mullins, Ball State University).

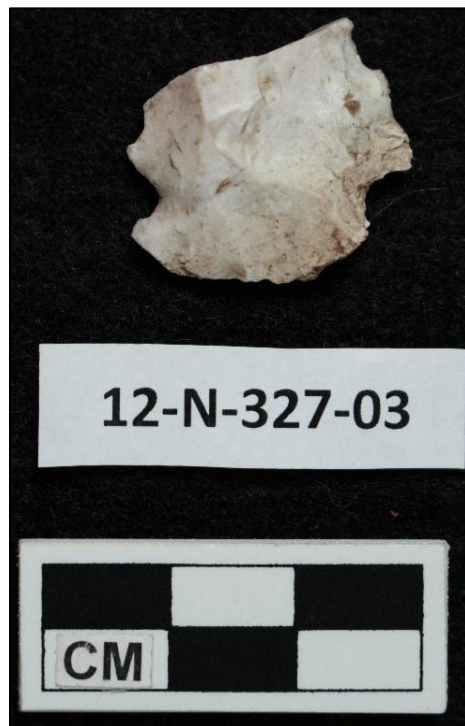


Figure 69: A Matanzas Cluster diagnostic point from 12-N-327 (photo by Kiya Mullins, Ball State University).



Figure 70: Representative prehistoric artifacts from Survey Area 7 (photo by Kiya Mullins, Ball State University).

Table 19: Historic Diagnostics from Survey Area 7

Artifact Type	Site	Date Range	Citation
Aqua glass	12-N-324, 12-N-327, 12-N-333, 12-N-340, and 12-N-343	1800-1920s	Horn 2005:1
Plain whiteware	12-N-327, 12-N-340	1820 to present	Stelle 2001:Chapter I
Light blue transferprint whiteware	12-N-327	1826-1831	Stelle 2001:Chapter I
Red transferprint	12-N-327	1829-1850	Stelle 2001:Chapter I
Stoneware with Bristol glaze interior and exterior	12-N-324	1835 to present	Stelle 2001:Chapter I
Plain ironstone	12-N-327	1842-1930	Miller 2000; Stelle 2001:Chapter I
Amber glass	12-N-324, 12-N-327, 12-N-336, and 12-N-340	1860s to present	Horn 2005:1
Clear glass	12-N-324, 12-N-327, 12-N-336, 12-N-337, and 12-N-338	1875 to present	IMACS 1992:473
UMC Co. shotgun shell	12-N-327	1879-1911	Catridge Corner 2015
Amethyst glass	12-N-324, 12-N-327	1885-1920	Horn 2005:1
Semi-Porcelain	12-N-327, 12-N-341	1890 to present	ODOT 1991:177
Cobalt glass	12-N-324	1890s to present	Horn 2005:1
Milk glass	12-No-324, 12-N-327, and 12-N- 337	1890s to present	Horn 2005:1
Stoneware with a light brown glaze and impressed with “Vitreous Stone Bo...J. Bourne &...Denby Pott... Near Derby”	12-N-327	Post 1850	Godden 1964:50
Stoneware with Albany glaze interior and exterior	12-N-327	Termination date of 1940	Stelle 2001:Chapter I
Stoneware with Albany glaze interior and salt glaze exterior	12-N-327	Termination date of 1940	Stelle 2001:Chapter I



Figure 71: Representative ceramic historic artifacts from Survey Area 7 (photo by Kiya Mullins, Ball State University).



Figure 72: Representative historic glass artifacts from Survey Area 7 (photo by Kiya Mullins, Ball State University).



Figure 73: Representative historic metal artifacts from Survey Area 7 (photo by Kiya Mullins, Ball State University).



Figure 74: Representative historic metal and wood artifacts from Survey Area 7 (photo by Kiya Mullins, Ball State University).

Sites

Twenty-one archaeological sites (12-N-324 to 12-N-344) were recorded in Survey Area 7 (Figure 75 to Figure 82). Summaries for the individual sites are contained in Volume 2, Appendix F. Ten sites (12-N-324, 12-N-325, 12-N-327, 12-N-333, 12-N-336, 12-N-337, 12-N-338, 12-N-340, 12-N-341, and 12-N-343) had diagnostic artifacts. Four sites (12-N-325, 12-N-326, 12-N-332, and 12-N-334) were prehistoric isolated finds and one site (12-N-339) was a lithic scatter. Seven sites (12-N-328, 12-N-331, 12-N-333, 12-N-335, 12-N-341, 12-N-343, and 12-N-344) were historic isolated finds, eight sites (12-N-324, 12-N-329, 12-N-330, 12-N-336, 337, 12-N-338, 12-N-340, and 12-N-342) were historic scatters, and one site (12-N-327) was a multicomponent site consisting of a lithic and historic scatter.

Nineteen sites (12-N-324, 12-N-325, 12-N-326, 12-N-327, 12-N-328, 12-N-330, 12-N-332, 12-N-333, 12-N-334, 12-N-335, 12-N-336, 12-N-337, 12-N-338, 12-N-339, 12-N-340, 12-N-341, 12-N-342, 12-N-343, and 12-N-344) were discovered on outwash and lake plains and

two sites (12-N-329 and 12-N-331) were discovered on floodplains. Five sites (12-N-325, 12-N-326, 12-N-332, 12-N-333, and 12-N-334) were located on Brems loamy sand (BmB) soil, three sites (12-N-328, 12-N-329, and 12-N-331) were located on Craigmile sandy loam (Cv) soils, two sites (12-N-330 and 12-N-335) were located on Maumee mucky loamy fine sand (Mk) soil, and nine sites (12-N-336 to 12-N-344) were located on Zadog-Granby complex (Zg) soil. Two sites were located on multiple soil types. One site (12-N-324) was located on Brems loamy sand (BmB) and Zadog-Granby complex (Zg) soils and one site (12-N-327) was located on Brems loamy sand (BmB) and Craigmile sandy loam (Cv) soils.

Site 12-N-327 is located in the western half of Parcel A in Survey Area 7. The site was located on a small ridge approximately 1.2 kilometers southeast of the Kankakee River. The assemblage from 12-N-327 includes 288 artifacts, 62 of which are prehistoric lithics and the remaining 226 consisting of historic glass, ceramics, metal, and bone with a general date range of about 1850 to 1950. Three diagnostic project points were recovered, dating to the Late Archaic and Late Prehistoric period. The majority of the remaining 59 prehistoric artifacts recovered are non-diagnostic flakes and bifacial tools, with one groundstone pestle. Almost half of the chert sources identified within the lithic assemblage include Blanding, Burlington, and Elwood-Joliet cherts from northwestern, southern, and northeastern Illinois respectively. The amount of formal tools (n=6) and expedient tools (n=5) located within the site could be an indication of faunal exploitation within the marsh region. Surface-Evans (2015) and White (2007) have found similar patterns among Paleoindian and Archaic peoples in the Kankakee marsh region, which is supported by the presence of two Late Archaic projectile points within 12-N-327. The size of site 12-N-327 is approximately 7,278.3 square meters, or 1.8 acres, which results in an artifact density of 160 artifacts per acre. The prehistoric artifact density is approximately 34.4 prehistoric artifacts per acre. A historic map from an 1876 atlas show the entire Survey Area was a swamp with a proposed railroad running through (Andreas 1968). There were no structures located on any historic maps, but the maps show a Chicago Indiana and Southern railroad that was constructed near the site (Drury 1955; Geo. A. Ogle & Co. 1916). Based on archaeological research, the density and diversity of prehistoric artifacts, the exotic chert types identified, and the diversity of activities represented in the artifact assemblage on an rise in the topography could indicate the potential to yield additional important information on the prehistoric settlement and land use patterns of Newton County beyond the Phase I level and therefore site 12-N-327 is considered potentially eligible for the National Register of Historic Places.

The rest of the site types (12-N-324 to 12-N-326 and 12-N-328 to 12-N-344) found in Survey Area 2 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 7 consisted of approximately 215.7 acres of outwash and lake plains, and floodplains. Within Survey Area 7, a density of one site per 17.98 acres occurred and sites covered 2.62 percent of the surface area.

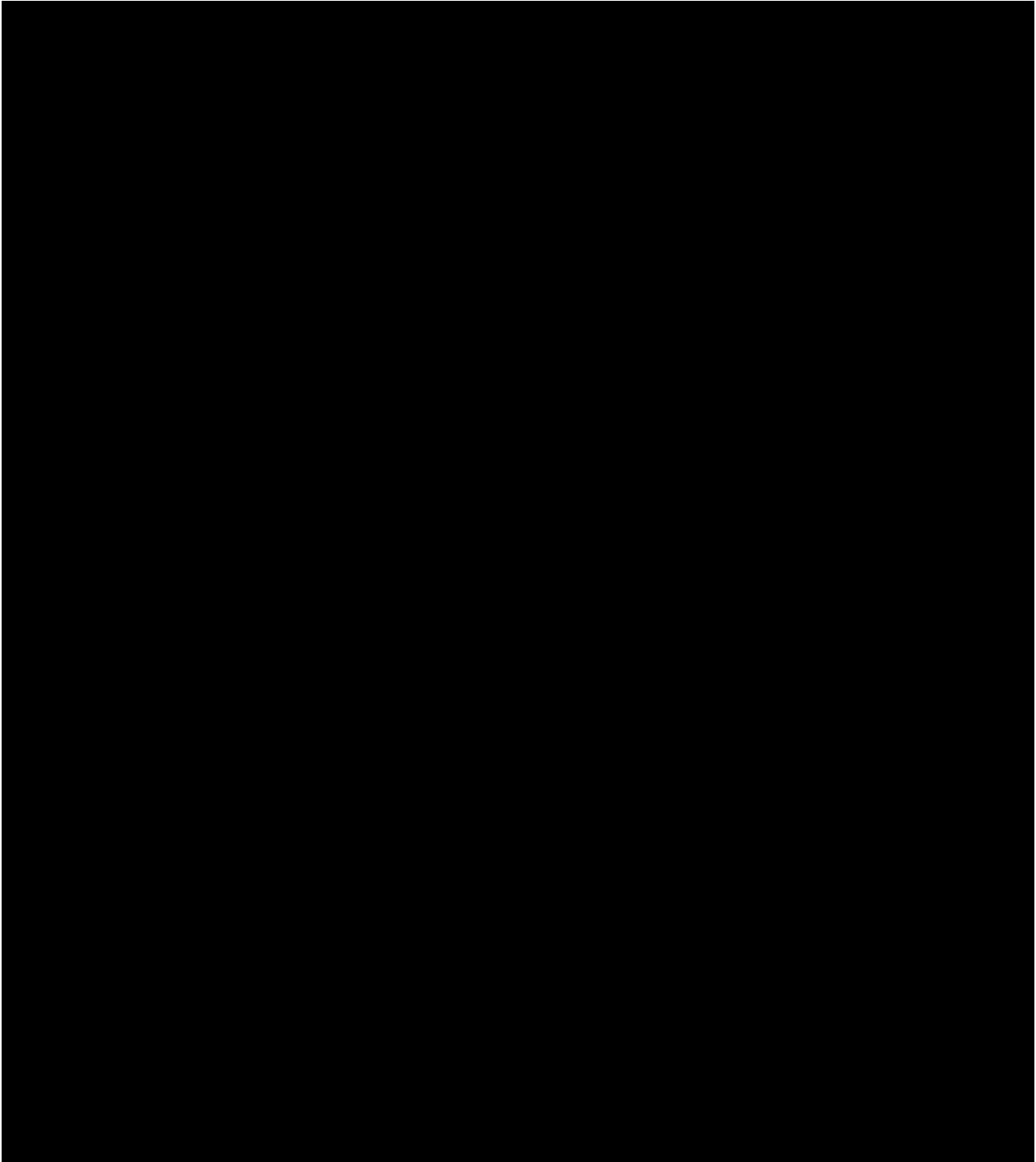


Figure 75: A portion of the USGS 7.5' Shelby, Indiana Quadrangle showing the location of Survey Area 7, Parcel A and sites 12-N-324 to 12-N-329 and 12-N-331.

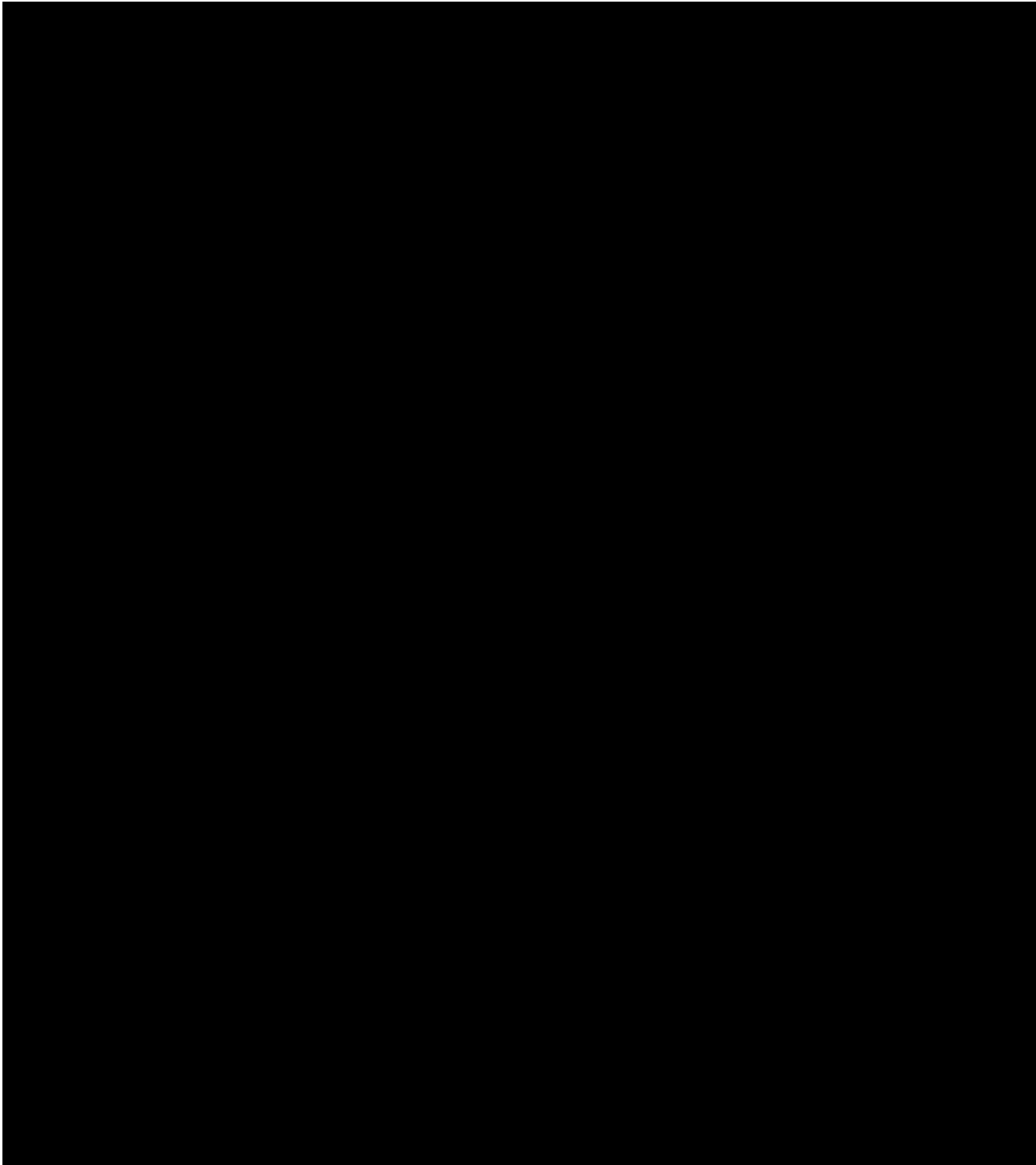


Figure 76: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of Survey Area 7, Parcel A and sites 12-N-324 to 12-N-329 and 12-N-331.

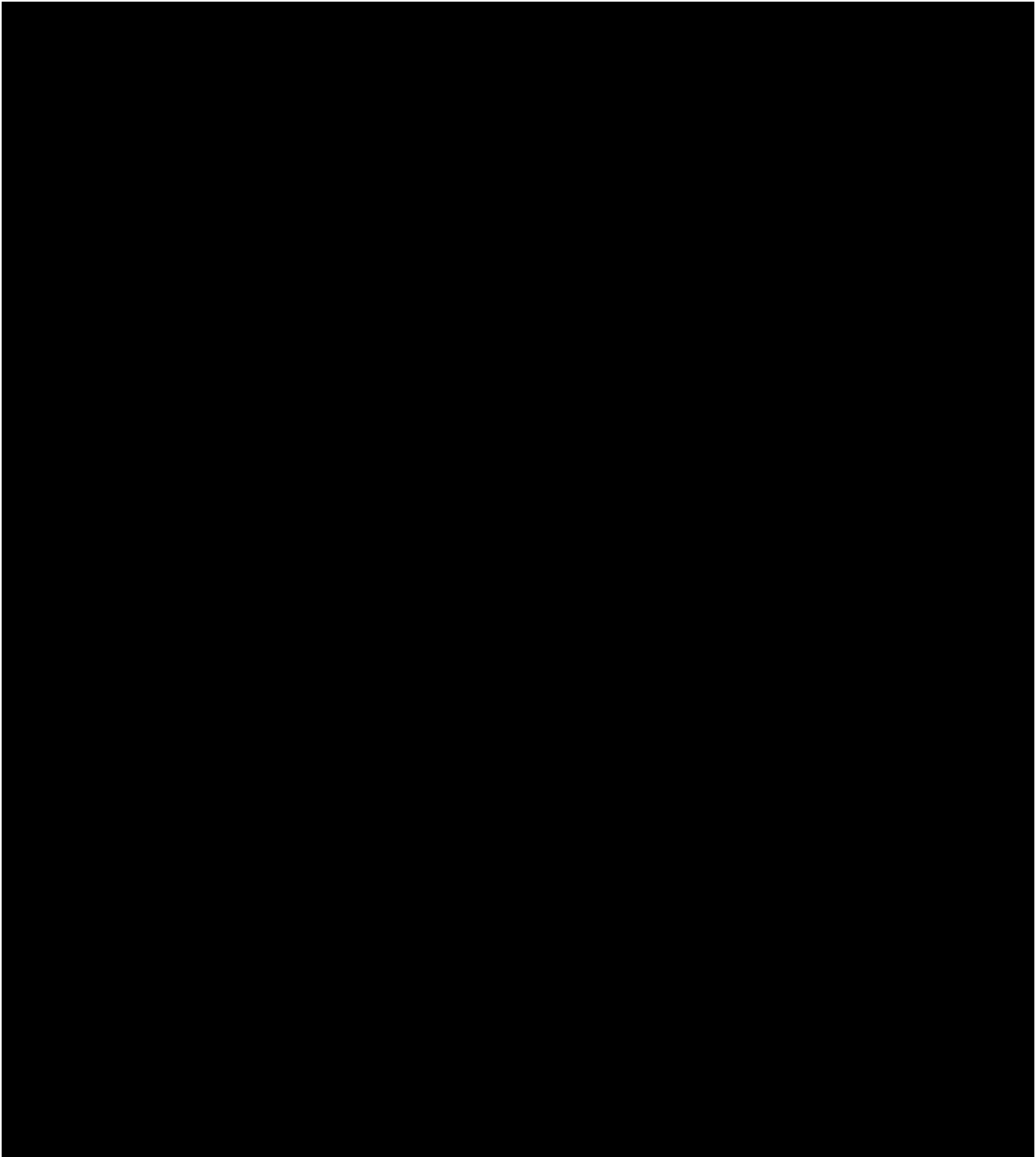


Figure 77: A portion of the USGS 7.5' Shelby, Indiana Quadrangle showing the location of Survey Area 7, Parcel B and sites 12-N-330 and 12-N-332 to 12-N-338.

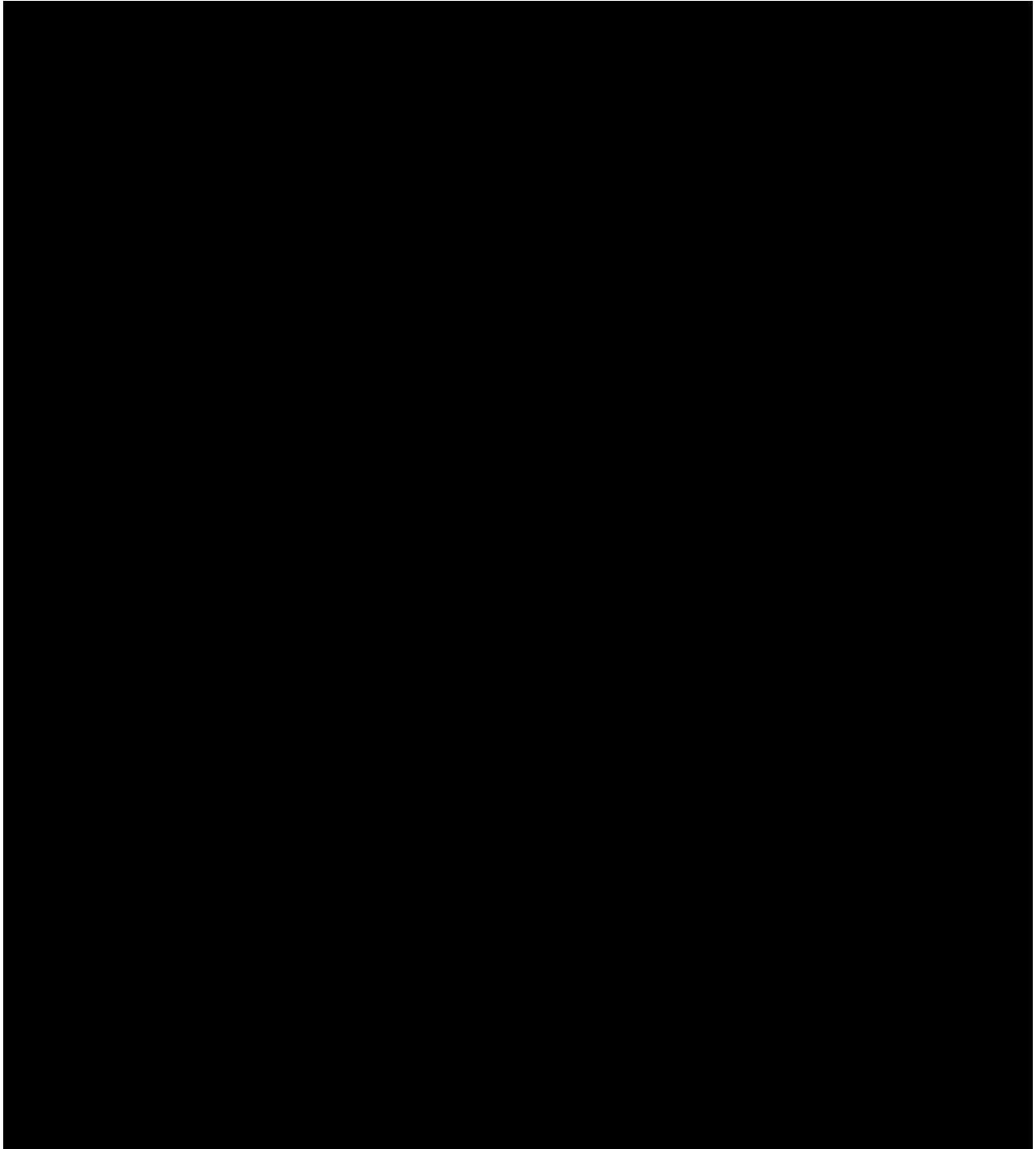


Figure 78: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of Survey Area 7, Parcel B and sites 12-N-330 and 12-N-332 to 12-N-338.

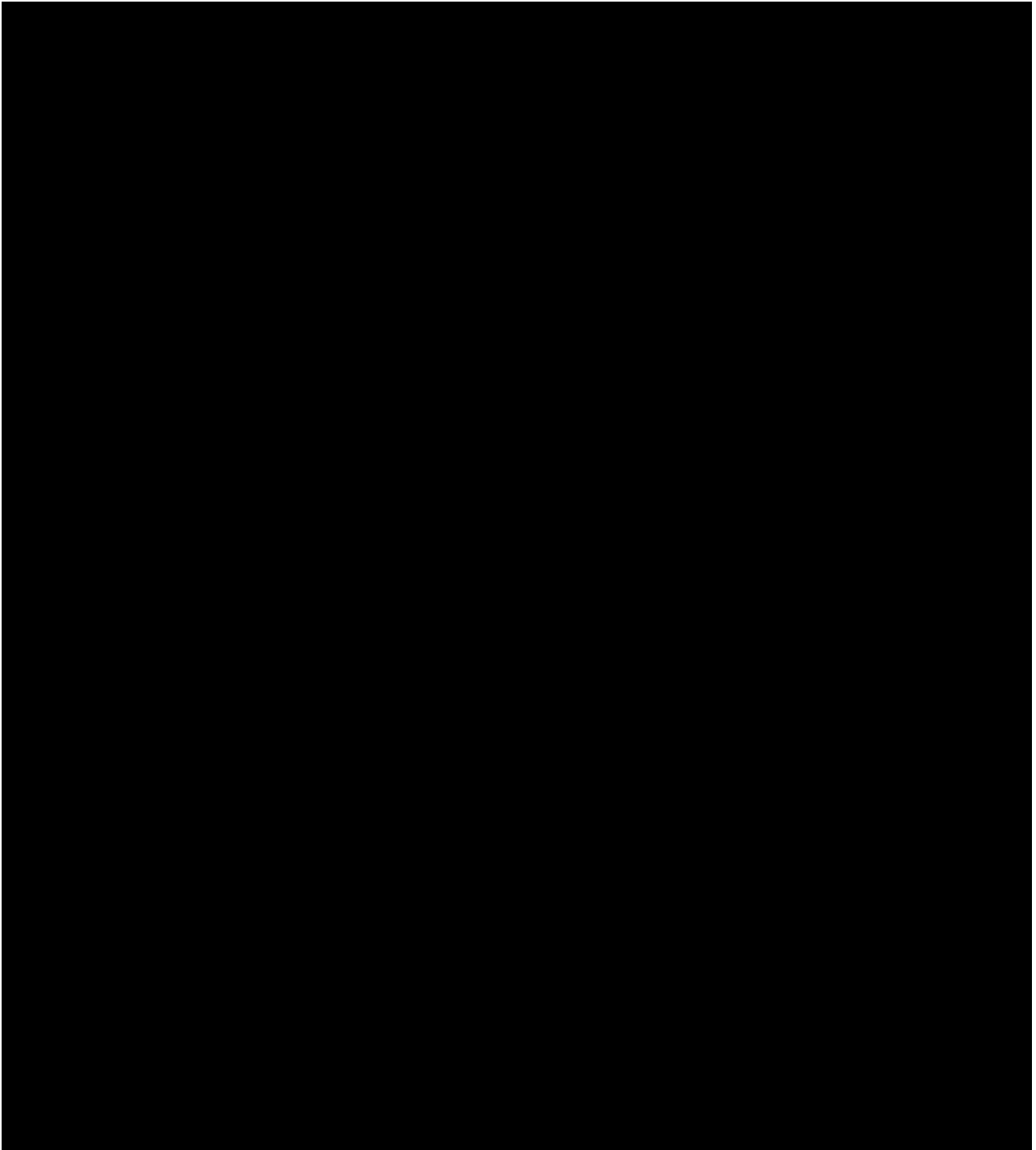


Figure 79: A portion of the USGS 7.5' Shelby, Indiana Quadrangle showing the location of Survey Area 7, Parcel C and sites 12-N-339 to 12-N-343.

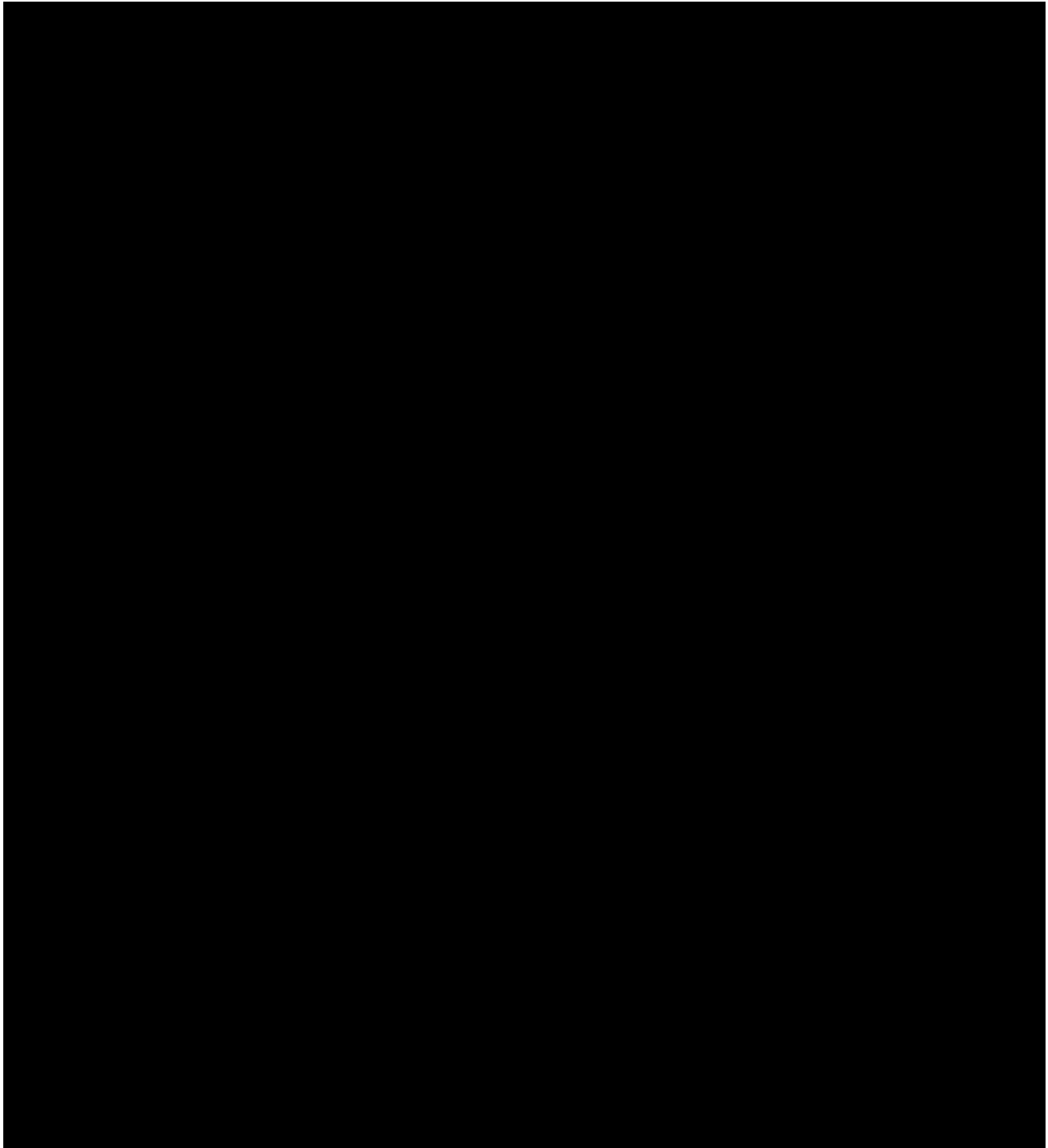


Figure 80: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of Survey Area 7, Parcel C and sites 12-N-339 to 12-N-343.

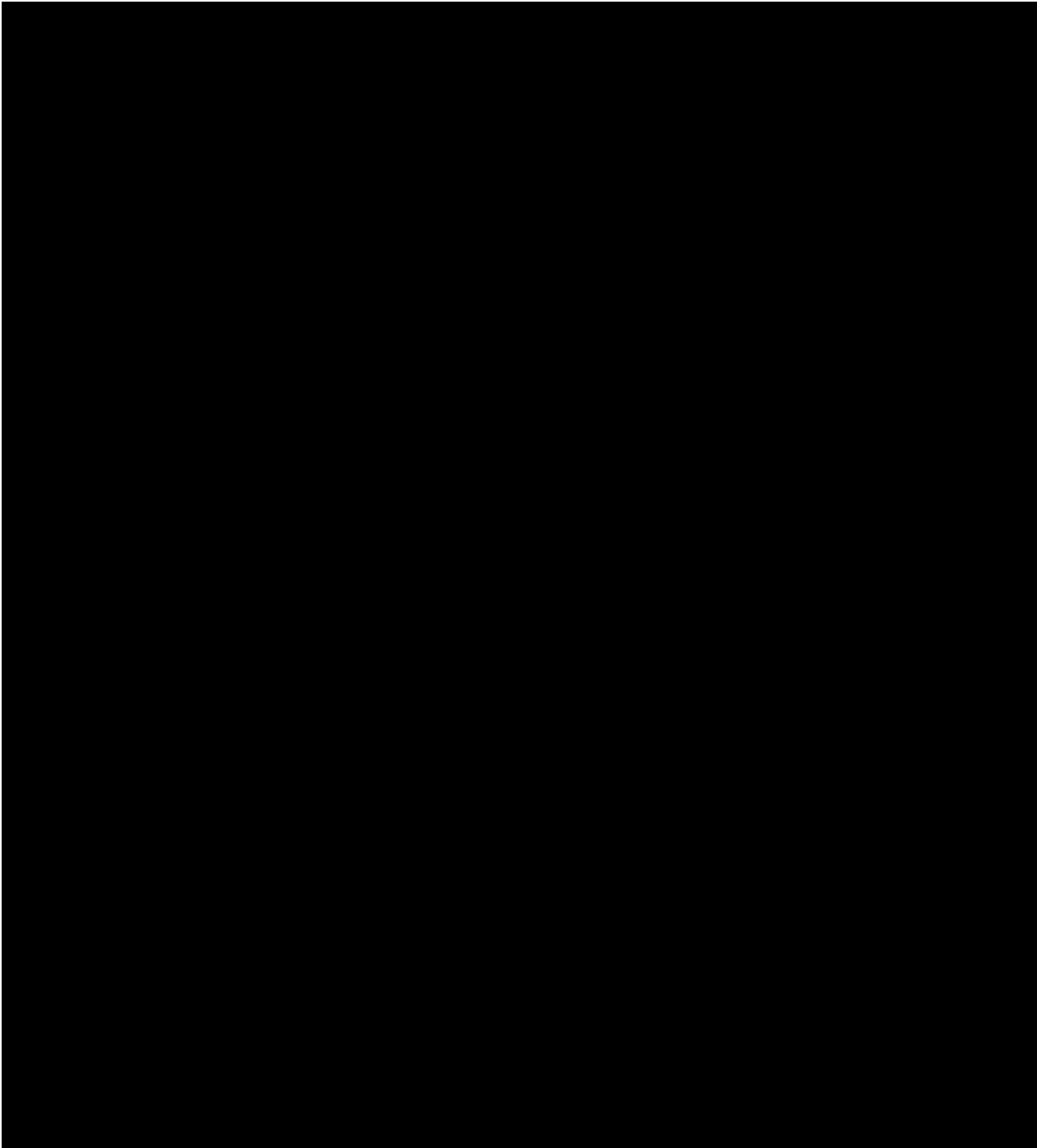


Figure 81: A portion of the USGS 7.5' Shelby, Indiana Quadrangle showing the location of Survey Area 7, Parcel D and site 12-N-344.

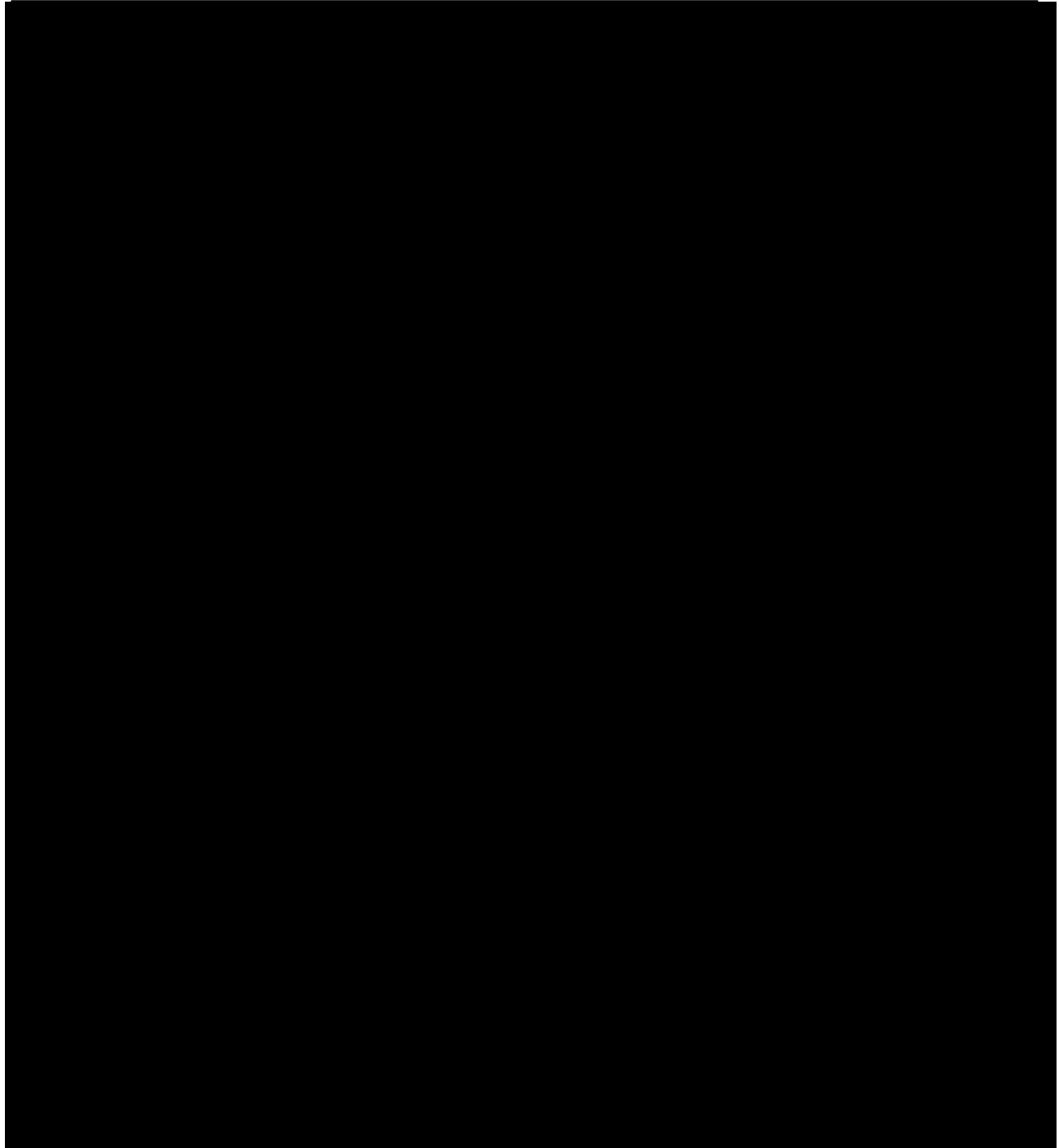


Figure 82: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of Survey Area 7, Parcel D and site 12-N-344.

Survey Area 8

Survey Area 8 was located in McClellan Township in [REDACTED] Township 30 North, Range 9 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Enos, Indiana Quadrangle (Figure 83 and Figure 84). The property is separated into three parcels: A, B, and C. Parcel A was surveyed on October 13 and 17, 2015, Parcel B on October 17 and 25, 2015, and Parcel C on October 25, 2015. Ground surface visibility was approximately 30 to 80 percent with agricultural debris obscuring visibility. Parcels A and B were planted in unharvested soybeans and Parcel C was planted in corn that had been harvested. There were a great deal of weeds in Parcel C which further obscured visibility to about 30 to 70 percent. Approximately 219.3 acres in total were surveyed consisting of lake beds or lake plains. The area contained Barry-Gilford complex (Bh), Barce-Corwin complex (BbA), and Barce-Montmorenci complex (BfB2) soils. Twenty new sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a lithic scatter of 865.54 square meters (0.21 acres) and a multicomponent scatter of 11,869.52 square meters (2.93 acres).

All parcels within Survey Area 8 are located in the [REDACTED], which is owned and managed by [REDACTED]. Existing site 12-N-124 was located within Parcel A and existing sites 12-N-218 and 12-N-219 were located within Parcel B (Figure 83 and Figure 84). A previous survey had been conducted by Archaeological Research, Inc. (ARI) in 2005 over a 505 acre parcel located in proximity to Survey Area 8 (see Figure 85) and containing sites 12-N-218 and 12-N-219 (Keene and Hayes 2005). Over the course of their survey, ARI conducted both pedestrian surveys and shovel test units in the targeted parcels. They encountered no prehistoric or historic archaeological sites or materials in any of their surveyed areas (Keene and Hayes 2005:25).

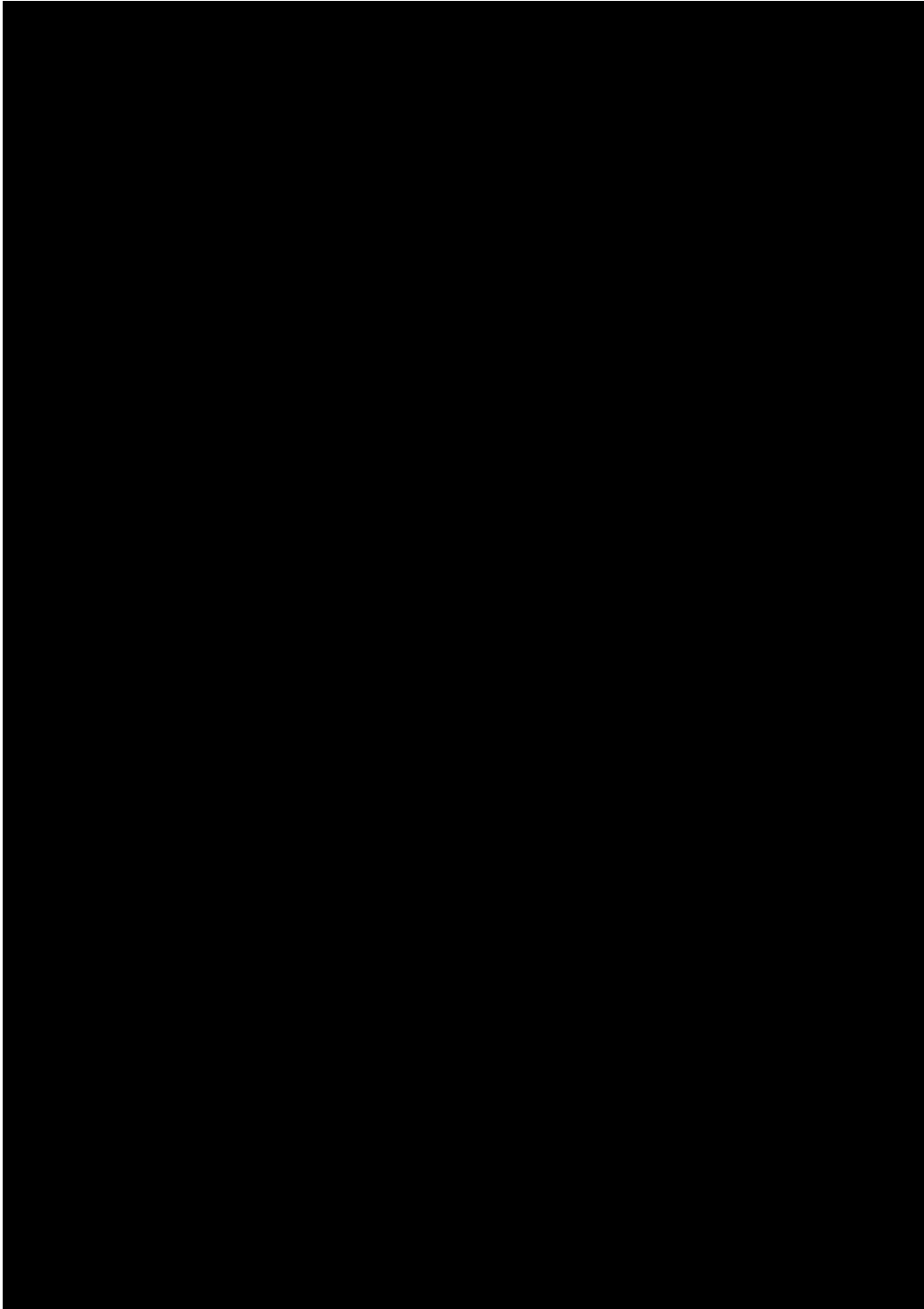


Figure 83: A portion of the map of McClellan Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Parcels A, B, and C in Survey Area 8.

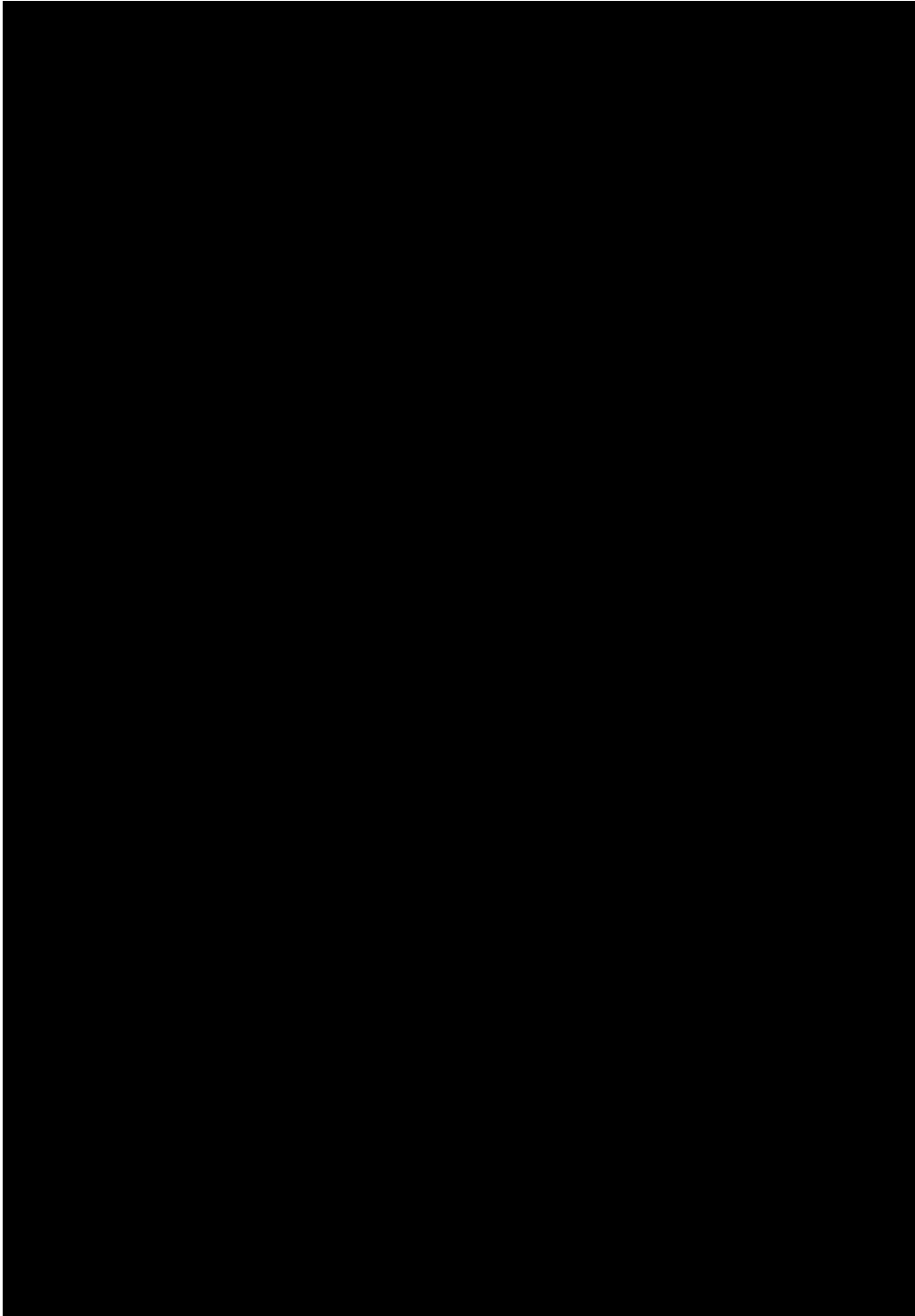


Figure 84: A portion of the USGS 7.5' Enos, Indiana Quadrangle showing the location of Parcels A, B, and C in Survey Area 8.

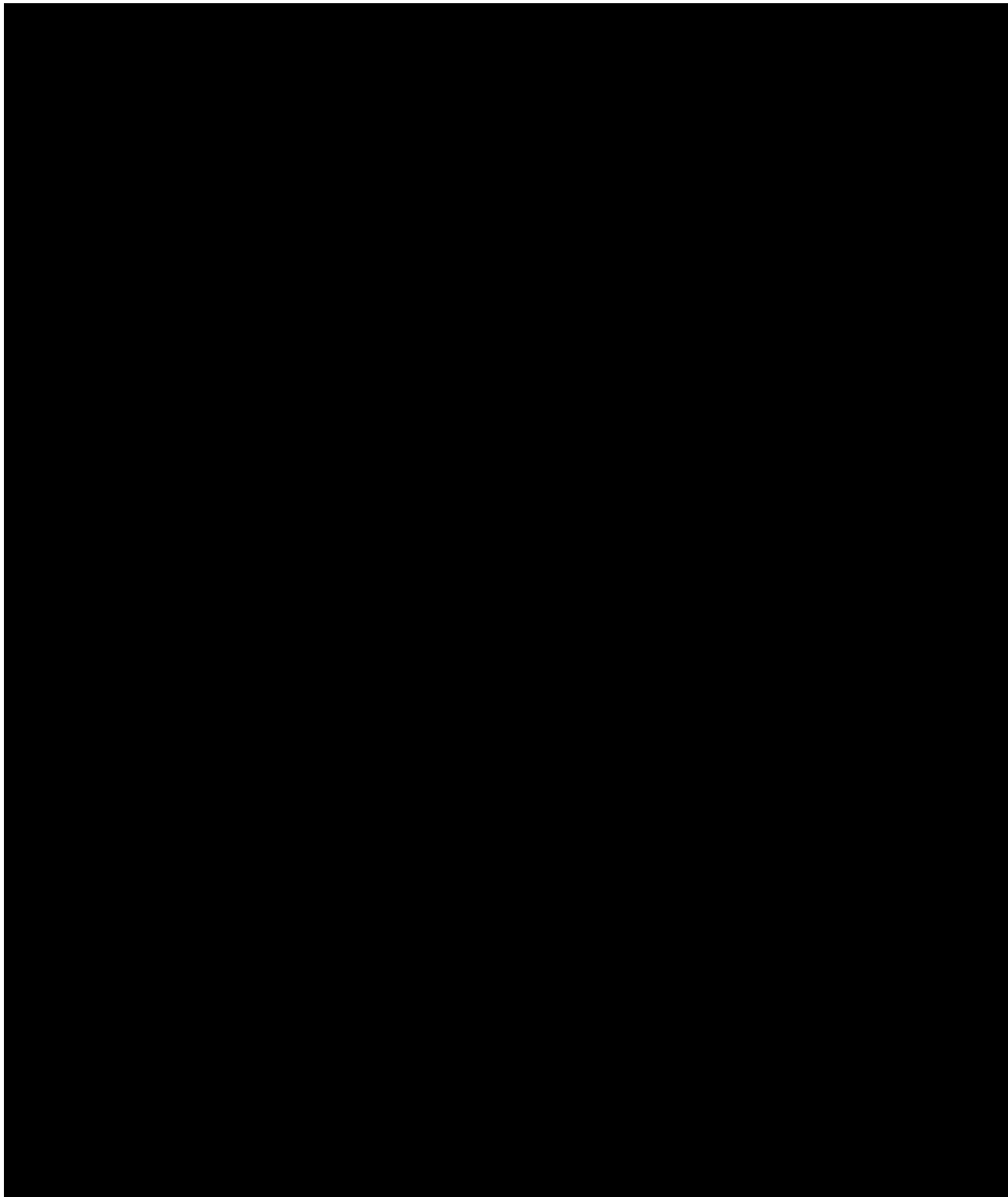


Figure 85: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of the 2005 survey areas targeted by Archaeological Research, Inc. and Survey Area 8.

Artifacts

A total of 563 artifacts were encountered in Survey Area 8. Table 20 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 86 to Figure 92. Artifacts are listed by individual site in Volume 2, Appendix E.

One hundred and eighty-one prehistoric artifacts were recovered. One diagnostic artifact was recovered from Survey Area 8. A hafted Adena Stemmed biface (Figure 86) dating to the Late Archaic/Early Woodland period was recovered from site 12-N-354 in Parcel A (Justice 1987:192).

Three hundred and eighty-two historic artifacts were recovered from Survey Area 8 (Figure 88, Figure 89, Figure 90, Figure 91, and Figure 92) and of those, three hundred and thirty-one are diagnostic (Table 21). Chronologically expressed these items include glazed redware recovered from site 12-N-345 which was manufactured from 1725 to present (Stelle 2001:Chapter I). Plain creamware recovered from site 12-N-350 was manufactured between 1762 to 1820 (Lofstrom et al 1982:14; ODOT 1991:178). Aqua glass recovered from sites 12-N-345, 12-N-347, 12-N-349, 12-N-350, and 12-N-364 was manufactured from 1800 to the 1920s (Horn 2005:1). Black/Green glass recovered from site 12-N-354 was manufactured from 1815 to 1885 (Newman 1970:70-75). Plain whiteware recovered from site 12-N-345 was manufactured from 1820 to present (Stelle 2001:Chapter I). Blue annular banded whiteware recovered from site 12-N-345 was manufactured from 1830 to 1870 (Stelle 2001:Chapter I). Plain yellowware recovered from site 12-N-345 was manufactured from the 1830s to present (Stelle 2001:Chapter I). Stoneware with an Albany glaze interior and Bristol glaze exterior recovered from site 12-N-345 was manufactured from 1835 to 1940 (Stelle 2001:Chapter I). Stoneware with a Bristol glaze interior and exterior recovered from site 12-N-345 was manufactured from 1835 to present (Stelle 2001:Chapter I). Blue transferprint ironstone recovered from site 12-N-345 was manufactured from 1842 to 1930 (Trussel 2010; Stelle 2001:Chapter I). Ironstone with a brown floral decal recovered from site 12-N-345 was manufactured from 1842 to 1930 (Stelle 2001:Chapter I). Plain ironstone recovered from site 12-N-345 was manufactured from 1842 to 1930 (Miller 2000; Stelle 2001:Chapter I). Bisque porcelain recovered from site 12-N-345 was manufactured from 1860 to 1916 (Coleman et al. 1968:74-78). Amber glass recovered from sites 12-N-345, 12-N-352, 12-N-354, 12-N-362, and 12-N-363 was manufactured from the 1860s to present (Horn 2005:1). Clear glass recovered from sites 12-N-345, 12-N-348, 12-N-350, and 12-N-359 was manufactured from 1875 to present (IMACS 1992:473). A clear glass vessel base with a Blake (Variant 2) base design recovered from site 12-N-345 was manufactured from 1875 to present (IMACS 1992:472-473). Amethyst glass recovered from sites 12-N-345 and 12-N-351 was manufactured from 1885 to 1920 (Horn 2005:1). Cobalt glass recovered from site 12-N-345 was manufactured from the 1890s to present (Horn 2005:1). Green glass recovered from site 12-N-345 was manufactured from the 1890s to present (Horn 2005:1). Milk glass recovered from

sites 12-N-345 and 12-N-359 was manufactured from the 1890s to present (Horn 2005:1). Industrial porcelain recovered from site 12-N-345 was manufactured from 1892 to an unknown termination date (Berge 1980:156). Pink and orange carnival glass recovered from site 12-N-345 was manufactured from 1900 to 1940 (Stelle 2001:Chapter I). Asbestos cement roofing tiles recovered from site 12-N-350 which were manufactures from 1905 to the 1970s (U.S. Forest Service 2008:4-6). Clear glass with a Pepsi Cola logo recovered from site 12-N-345 was manufactured from 1906 to 1940 (Kel 2014). An American Ammunition Co. Red Devil No. 12 shotgun shell recovered from site 12-N-359 was manufactured from 1910 to 1922 (Cartridge Corner 2015). Yellow glass recovered from site 12-N-345 was manufactured from 1918 to the 1920s (Horn 2005:1). A US penny with a wheat design on the back recovered from site 12-N-345 which dates to 1944. Stoneware with an Albany glaze interior and a salt glaze exterior recovered from site 12-N-345 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I). Stoneware with an Albany glaze interior exterior recovered from sites 12-N-345 and 12-N-361 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I).

Table 20: Artifacts from Survey Area 8.

Prehistoric	No.	Historic	No.
Biface, Hafted, Adena Stemmed	1	Ceramic, Bisque Porcelain	2
Biface, Unhafted, Unidentified	4	Ceramic, Creamware	1
Biface Fragment, Unidentified	1	Ceramic, Industrial Porcelain	3
Core	1	Ceramic, Ironstone	4
Flake, Tool	10	Ceramic, Redware	2
Flake, Tool, Scraper	1	Ceramic, Semi-Porcelain	2
Flake, Tool, Heat Treated	2	Ceramic, Stoneware	17
Flake	48	Ceramic Whiteware	51
Flake, Heat Treated	10	Ceramic, Yellowware	2
Flake, Burnt	2	Glass, Amber	20
Flake, Bipolar	2	Glass, Amethyst	23
Flake, Proximal	24	Glass, Aqua	50
Flake, Proximal Tool	1	Glass, Black/Green	1
Flake, Proximal, Heat Treated	8	Glass, Clear	77
Flake, Proximal, Burnt	1	Glass, Cobalt	6
Flake, Medial	13	Glass, Green	4
Flake, Medial, Heat Treated	3	Glass, Milk	56
Flake, Medial, Burnt	2	Glass, Yellow	2
Flake, Distal	29	Metal, Brass, Shotgun Shell	1
Flake, Distal, Heat Treated	3	Metal, Brass, Unidentified	1
Flake, Distal, Burnt	3	Metal, Iron, possible portion of a Blacksmith's Tuyere	1
Flake, Shatter	5	Metal, Iron, Hook	1
Flake, Shatter, Heat Treated	3	Metal, Iron, Nail	2
Flake, Shatter, Burnt	3	Metal, Iron, Wheel	1
Prehistoric Pottery, Grit Temper	1	Metal, Iron, Unidentified	3
		Metal, Steel/Copper, Penny	1
		Metal, Zinc, Lid Fragments	3
		Metal, Zinc, Unidentified	1
		Faunal, Bone, Vertebrae	1
		Asbestos, Cement Roofing Tile	11
		Brick Fragment	1
		Coal/Clinker	31
Total	181	Total	382



Figure 86: An Adena Stemmed diagnostic point from 12-N-354 (photo by Kiya Mullins, Ball State University).



Figure 87: Representative prehistoric artifacts from Survey Area 8 (photo by Kiya Mullins, Ball State University).

Table 21: Historic Diagnostics from Survey Area 8

Artifact Type	Site	Date Range	Citation
Glazed redware	12-N-345	1725 to present	Stelle 2001:Chapter I
Plain creamware	12-N-350	1762-1820	Lofstrom et al. 1982:14; ODOT 1991:178
Aqua glass	12-N-345, 12-N-347, 12-N-349, 12-N-350, and 12-N-364	1800-1920s	Horn 2005:1
Black/Green glass	12-N-354	1815-1885	Newman 1970:70-75
Plain whiteware	12-N-345	1820 to present	Stelle 2001:Chapter I
Blue annular banded whiteware	12-N-345	1830-1870	Stelle 2001:Chapter I
Plain yellowware	12-N-345	1830s to present	Stelle 2001:Chapter I
Stoneware with an Albany glaze interior and Bristol glaze exterior	12-N-345	1835-1940	Stelle 2001:Chapter I
Stoneware with a Bristol glaze interior and exterior	12-N-345	1835 to present	Stelle 2001:Chapter I
Blue transferprint ironstone	12-N-345	1842-1930	Trussel 2010: Stelle 2001:Chapter I
Ironstone with a brown floral decal	12-N-345	1842-1930	Stelle 2001:Chapter I
Plain ironstone	12-N-345	1842-1930	Miller 2000; Stelle 2001:Chapter I
Bisque porcelain	12-N-345	1860-1916	Coleman et al. 1968:74-78
Amber glass	12-N-345, 12-N-352, 12-N-354, 12-N-362, and 12-N-363	1860s to present	Horn 2005:1
Clear glass	12-N-345, 12-N-348, 12-N-350, and 12-N-359	1875 to present	IMACS 1992:473
Clear glass vessel base with a Black (Variant 2) base design	12-N-345	1875 to present	IMACS 1992:472-473
Amethyst glass	12-N-345, 12-N-351	1885-1920	Horn 2005:1
Cobalt glass	12-N-345	1890s to present	Horn 2005:1
Green glass	12-N-345	1890s to present	Horn 2005:1
Milk glass	12-N-345, 12-N-359	1890s to present	Horn 2005:1
Industrial porcelain	12-N-345	1892 to unknown termination date	Berge 1980:156
Pink and orange carnival glass	12-N-345	1900-1940	Stelle 2001:Chapter I
Asbestos cement roofing tiles	12-N-350	1905-1970s	U.S. Forest Service 2008:4-6
Clear glass with a Pepsi Cola logo	12-N-345	1906-1940	Kel 2014
American Ammunition Co. Red Devil No. 12 shotgun shell	12-N-359	1910-1922	Cartridge Corner 2015
Yellow glass	12-N-345	1918-1920s	Horn 2005:1
US penny with a wheat design on the back	12-N-345	1944	

Stoneware with an Albany glaze interior and a salt glaze exterior	12-N-345	Termination date of 1940	Stelle 2001:Chapter I
Stoneware with an Albany glaze interior exterior	12-N-345, 12-N-361	Termination date of 1940	Stelle 2001:Chapter I



Figure 88: Representative historic ceramic artifacts from Survey Area 8 (photo by Kiya Mullins, Ball State University).



Figure 89: Representative historic glass artifacts from Survey Area 8 (photo by Kiya Mullins, Ball State University).



Figure 90: Representative historic glass artifacts from Survey Area 8 (photo by Kiya Mullins, Ball State University).



Figure 91: Representative historic metal and faunal artifacts from Survey Area 8 (photo by Kiya Mullins, Ball State University).



Figure 92: A possible portion of a blacksmith's tuyere recovered from site 12-N-345 (photo by Kiya Mullins, Ball State University).

Sites

Twenty archaeological sites, 12-N-345 to 12-N-364, were recorded in Survey Area 8 (Figure 93 to Figure 98). Summaries for the individual sites are contained in Volume 2, Appendix F. Thirteen sites (12-N-345, 12-N-347, 12-N-348, 12-N-349, 12-N-350, 12-N-351, 12-N-352, 12-N-354, 12-N-359, 12-N-361, 12-N-362, 12-N-363 and 12-N-364) had diagnostic artifacts. Three sites (12-N-355, 12-N-356, and 12-N-357) were prehistoric isolated finds and one site (12-N-346) was a lithic scatter. Ten sites (12-N-347, 12-N-348, 12-N-349, 12-N-351, 12-N-352, 12-N-353, 12-N-358, 12-N-360, 12-N-361, and 12-N-364) were historic isolated finds, and two sites (12-N-362 and 12-N-363) were historic scatters. Four sites were multicomponent sites including two sites (12-N-345 and 12-N-350) that were unidentified as

prehistoric lithic and historic scatters, one site (12-N-354) that was a Late Archaic lithic scatter and historic isolated find, and one site that was (12-N-359) an unidentified prehistoric lithic scatter and historic isolated find.

All twenty sites (12-N-345 to 12-N-364) were discovered on lake beds or lake plains. Seven sites (12-N-347, 12-N-348, 12-N-353, 12-N-355, 12-N-361, 12-N-362, and 12-N-363) were located on Granby loamy fine sand (Gt) soil, four sites (12-N-349, 12-N-356, 12-N-357, and 12-N-358) were located on Oakville fine sand (OaB) soil, two sites (12-N-351 and 12-N-352) were located on Kentland mucky fine sand (Ke) soil. One site (12-N-354) was located on Oakville fine sand (OaC) soil, one site (12-N-360) was located on Tedrow loamy fine sand (TaA) soil, and one site (12-N-364) was located on Conrad loamy fine sand (Cr) soil. Four sites were located on multiple soil types. One site (12-N-345) was located on Zaborosky fine sand (ZaA), Oakville fine sand (OaB), and Granby loamy fine sand (Gt) soils. One (12-N-346) site was located on Tederow loamy fine sand (TaA) and Granby loamy fine sand (Gt) soils, one site (12-N-350) was located on Oakville fine sand (OaC) and Granby loamy fine sand (Gt) soils, and one site (12-N-359) was located on Oakville fine sand (OaB) and Grandy loamy fine sand (Gt) soils.

Site 12-N-345 is located within Parcel A of Survey Area 8 just north of the location of [REDACTED] (Division of Historic Preservation and Archaeology 2015; Heistand 1951). The 334 artifacts collected included 6 lithic flakes and the remaining 328 included historic glass, ceramics, and meal with an approximate date range of about 1860 to 1980. No subsurface features were encountered during the course of the survey. Site 12-N-345 was approximately 11,869.5 square meters, or 2.9 acres, and the artifact density for the site was about 115.2 artifacts per acre. One of the historic artifacts that stands out is a possible portion of a blacksmith's tuyere as identified by local blacksmiths (The Blacksmith & Wheelwright 1902:118). A tuyere is a nozzle through which air is forced into a furnace or smelter during the process of forging of metal. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Based on archaeological and historical research, the proximity of the site to [REDACTED], and the presence of a possible portion of a blacksmith's tuyere could indicate the potential for site 12-N-345 to yield additional important information on the early settlement and economic/criminal activity of 19th Century Newton County beyond the Phase I level and therefore considered potentially eligible for the National Register of Historic Places.

Site 12-N-359 is also located within Parcel A within Survey Area 8 west of the location of an unnamed sand island within the former Beaver Lake bed. The artifacts collected from the

site consisted of 158 pieces of lithic debitage with no diagnostic artifacts and one shotgun shell dating to about 1915. No subsurface features were encountered during the course of the survey. Site 12-N-359 was approximately 2,695.4 square meters, or 0.7 acres. The artifact density for the site was approximately 118.7 artifacts per half acre. This island was part of existing site 12-N-123, which is a sand island still standing to the west (Division of Historic Preservation and Archaeology 2015; Heistand 1951). Site 12-N-359 appeared to be a portion of the island that had been flattened by plowing and potential sand mining used for the expansion of State Road 41, as mentioned by the Nature Conservancy's site manager Ted Anchor (personal communication October 2015). A drainage ditch was also constructed, which further separated 12-N-359 from site 12-N-123. Based on the archaeological and historic research, the high density of prehistoric artifacts within the site, and the proximity of the site to a sand island within Beaver Lake, site 12-N-359 may have the potential to yield additional information beyond the Phase I level of prehistoric use of the upland features within Beaver Lake. However, due to the severe disturbance and partial destruction of the sand island, site 12-N-359 lacks integrity and therefore it is not considered eligible for the National Register of Historic Places.

The remainder of the site types (12-N-346 to 12-N-358 and 12-N-360 to 12-N-364) found in Survey Area 8 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 8 consisted of approximately 219.3 acres till plains and moraines. Within Survey Area 8, a density of one site per 10.97 acres occurred and sites covered 5.1 percent of the surface area.

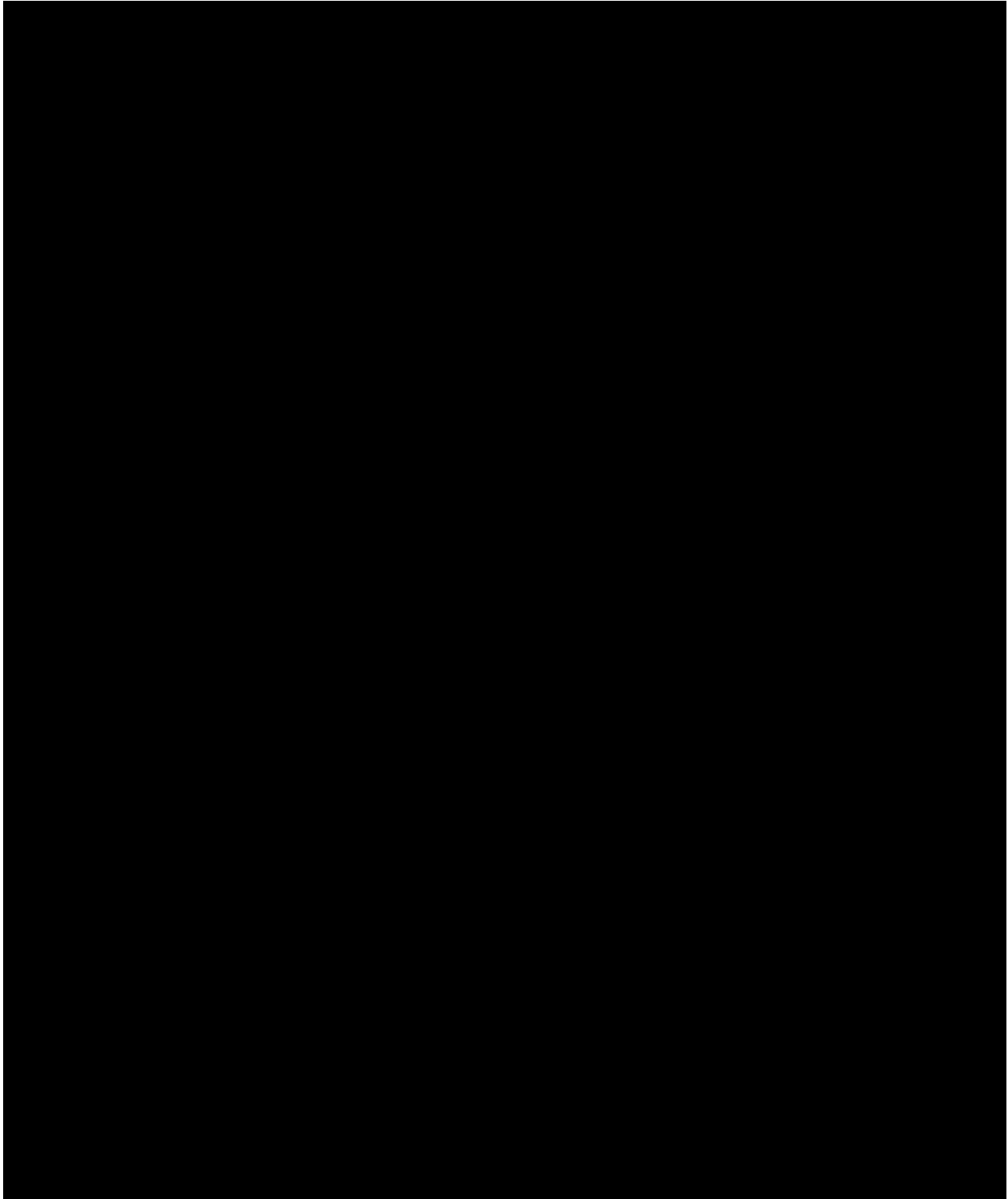


Figure 93: A portion of the USGS 7.5' Enos, Indiana Quadrangle showing the location of Survey Area 8, Parcel A and sites 12-N-124, 12-N-345 to 12-N-361.

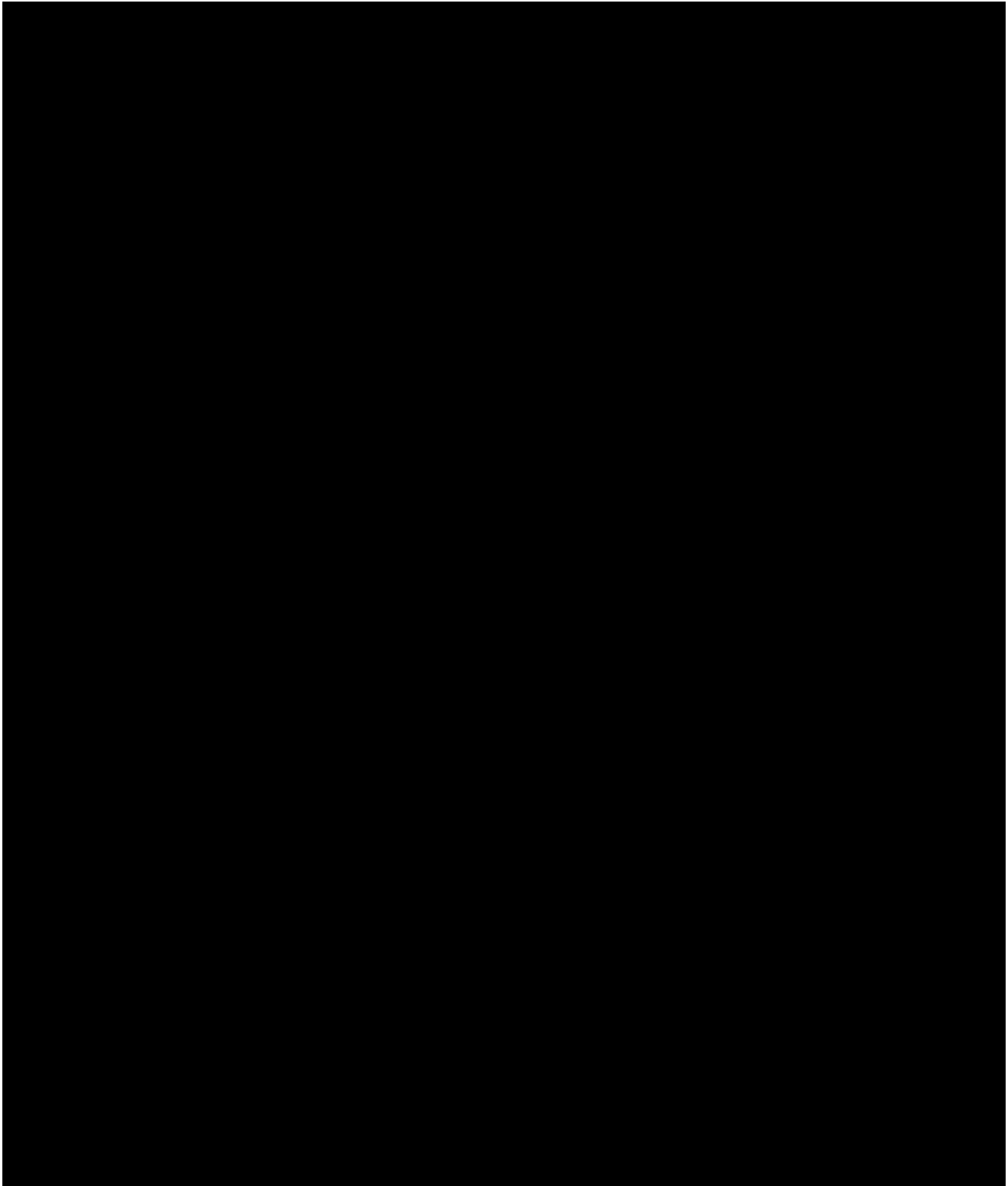


Figure 94: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of Survey Area 8, Parcel A, and sites 12-N-123, 12-N-124, and 12-N-345 to 12-N-361.

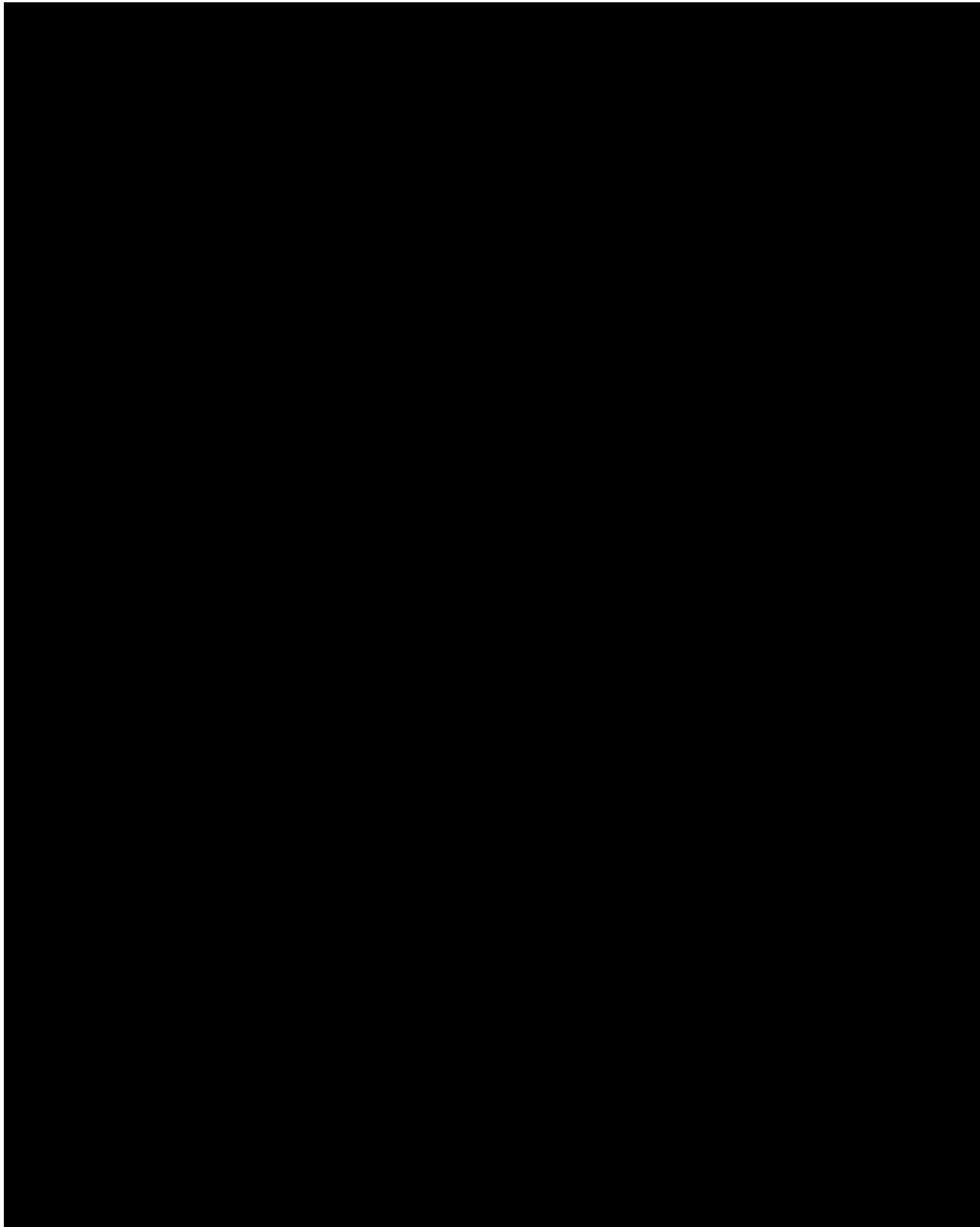


Figure 95: A portion of the USGS 7.5' Enos, Indiana Quadrangle showing the location of Survey Area 8, Parcel B and sites 12-N-218, 12-N-219, 12-N-362, and 12-N-363.

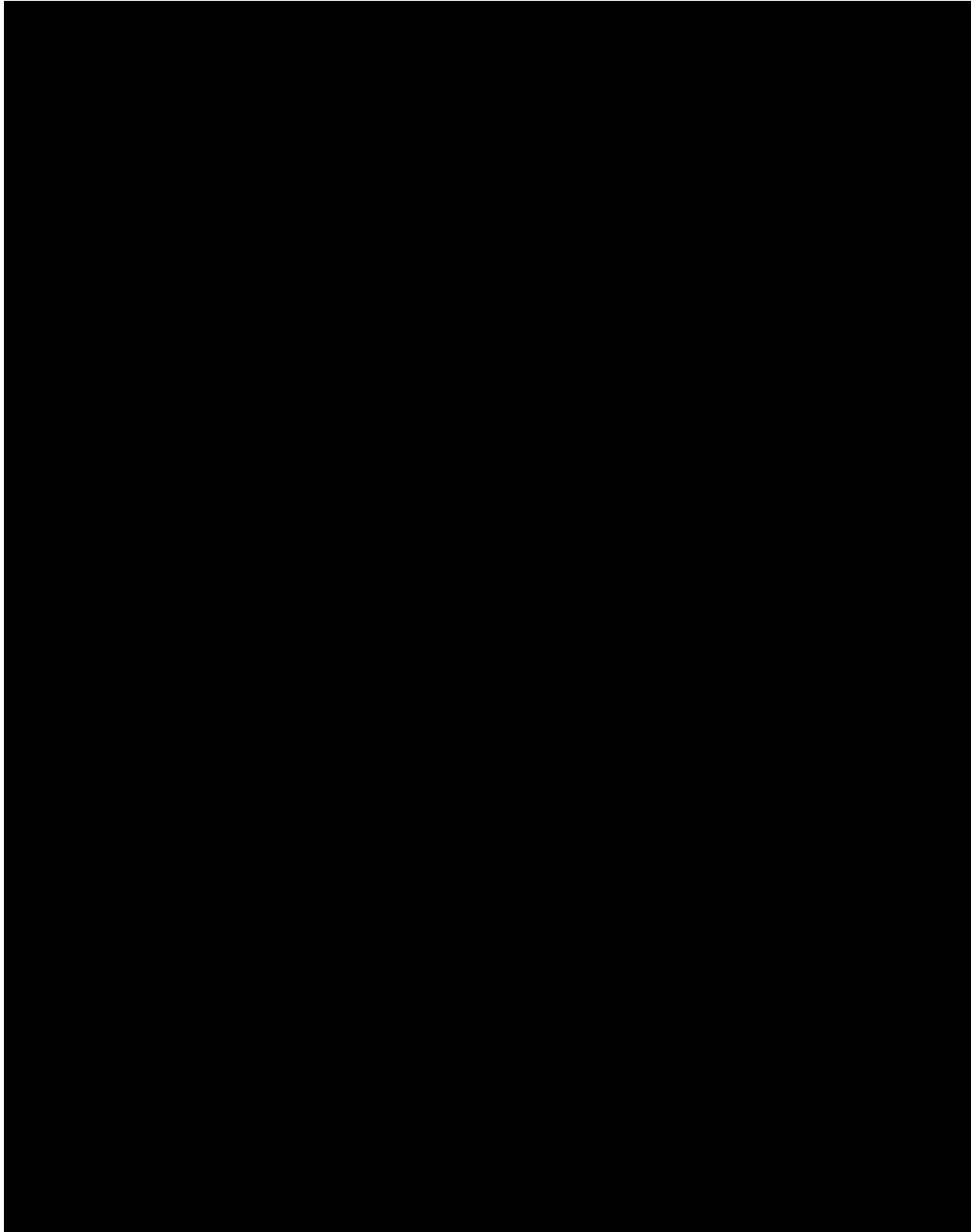


Figure 96: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of Survey Area 8, Parcel B and sites 12-N-218, 12-N-219, 12-N-362, and 12-N-363.

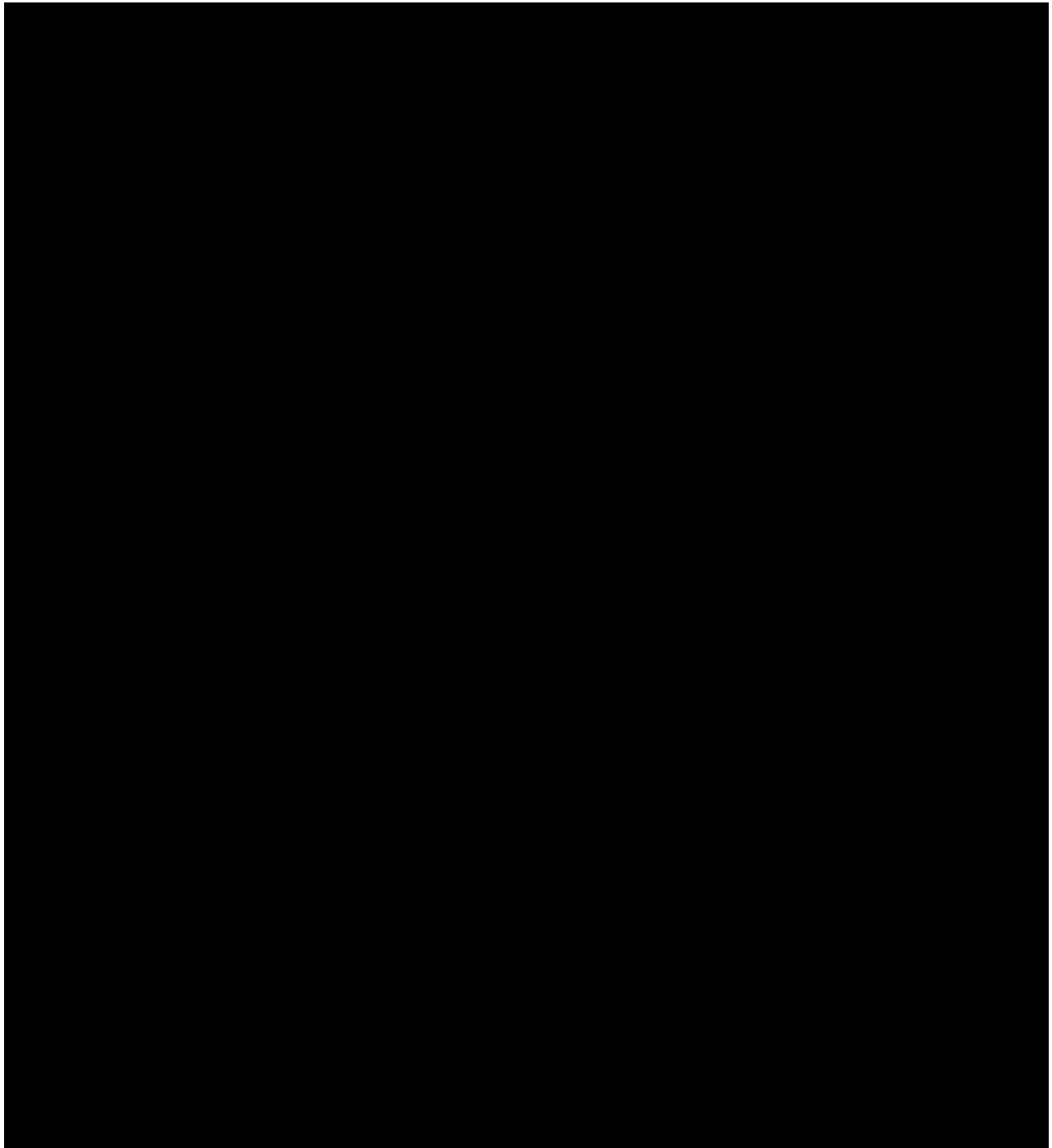


Figure 97: A portion of the USGS 7.5' Enos, Indiana Quadrangle showing the location of Survey Area 8, Parcel C and sites 12-N-364.

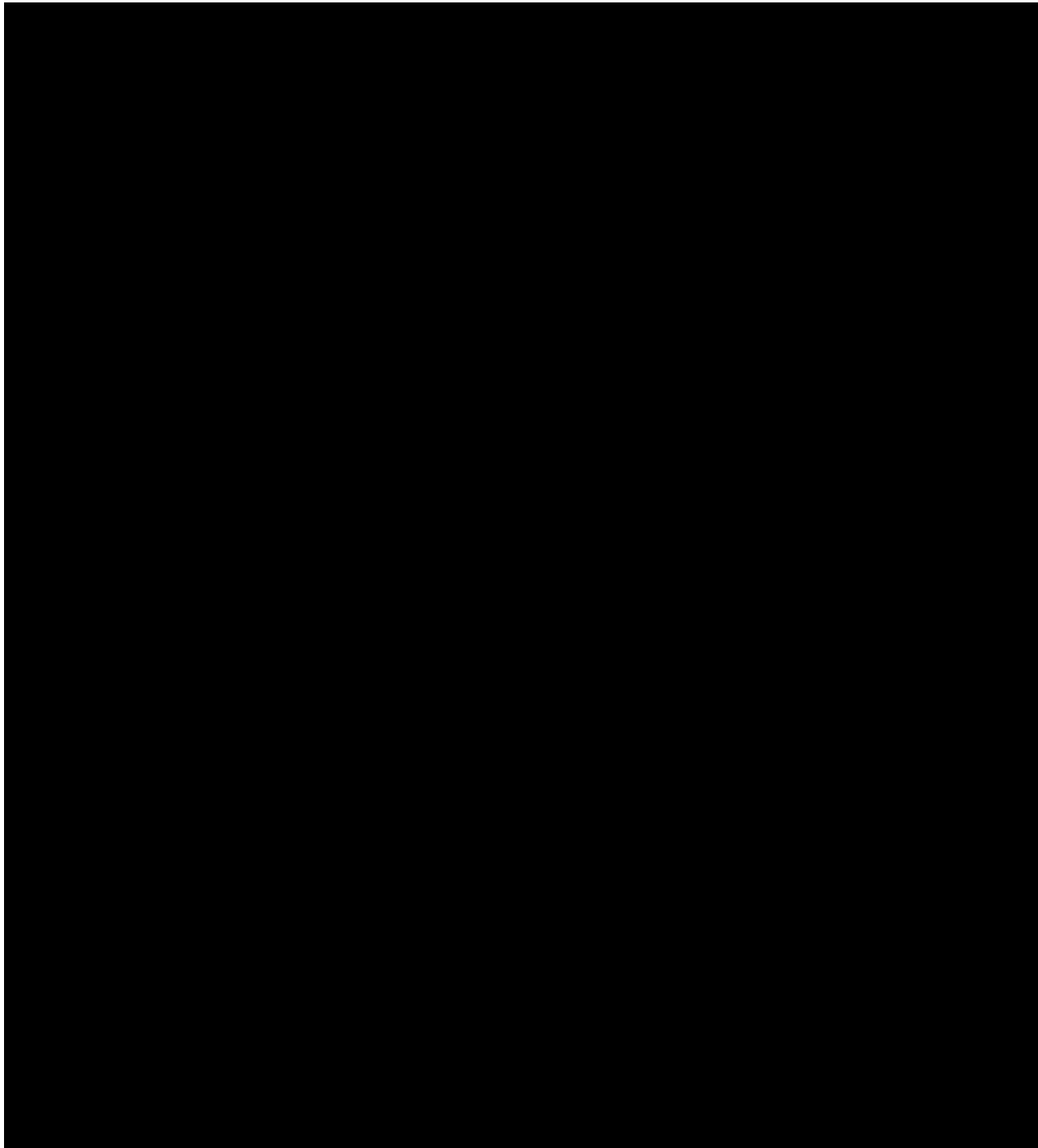


Figure 98: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of Survey Area 8, Parcel C and sites 12-N-364.

Resurvey of the presumed locations of 12-N-218 and 12-N-219 [REDACTED]

A resurvey of two sand islands (12-N-218 and 12-N-219) in an area that was formerly part of Beaver Lake was conducted. Sites 12-N-218 and 12-N-219 were within Parcel B of Survey Area 8 (Figure 83 and Figure 84). The sand island containing site 12-N-218 is believed to have been part of an upland dune called [REDACTED]. Both sites were initially recorded in SHAARD as collector reported lithic scatters. The information about the sites was collected from Joseph Heistand's (1951) archaeological report of known prehistoric sites. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] The artifacts reported from site 12-N-218 include "flint chips" and from site 12-N-219 include "flint chips and buffalo bones". The artifacts from both sites are nondiagnostic and of an unidentified prehistoric culture period. (Division of Historic Preservation and Archaeology 2015).

The area containing sites 12-N-218 and 12-N-219 was included in the Phase Ia project conducted by Archaeological Research, Inc. surveying 505 acres (Figure 85). In their investigation, the two sand islands were included as their own distinct unit with shovel test units conducted at irregular intervals over 12-N-218 and within the boundaries of 12-N-219 (Keene and Hayes 2005:24). During their investigation no archaeological materials were encountered at sites 12-N-218 and 12-N-219. The investigators made an uncited claim of heavy ground disturbance due to "sand mining" and other related collector activities, which caused there to be almost no intact ground surface at site 12-N-218 (Keene and Hayes 2005:24).

On October 25, 2015 the AAL conducted pedestrian surveys on the edges of the presumed location of site 12-N-218 and the entirety of 12-N-219 as part of the FY2015 grant project. [REDACTED]

[REDACTED]. Around the boundary of 12-N-218, transects followed the curve of the island while keeping ten meter pacing between transects. Transects closest to the island were shortened to five meter intervals. Site 12-N-219 was surveyed with transects five meter intervals and followed the shape of the sand feature rather than the direction of the rows of beans. Site 12-N-219 was planted in beans that had been recently harvested. Visibility for both sites was approximately 80 to 95 percent with small amounts of bean debris being the greatest visual obstacles.

Artifacts

A total of 611 artifacts were encountered in sites 12-N-218 and 12-N-219. Table 22 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 99 to Figure 103. Artifacts are listed by individual site in Volume 2, Appendix E. Site 12-N-218 accounts for 81 artifacts within the assemblage, including 10 prehistoric artifacts and 71 historic artifacts. The remaining 530 artifacts were encountered within site 12-N-219 and include 257 prehistoric artifacts and 273 historic artifacts.

Two hundred and sixty-seven prehistoric artifacts were recovered (Figure 99 and Figure 100). No diagnostic artifacts were recovered from sites 12-N-218 and 12-N-219.

Three hundred and forty-four historic artifacts were recovered from sites 12-N-218 and 12-N-219 (Figure 101, Figure 102, and Figure 103) and of those, three hundred and seventeen are diagnostic (Table 23). Chronologically expressed these items include blue transferprint creamware recovered from site 12-N-219 which was manufactured between 1762 to 1800 (Lofstrom et al 1982:14). Aqua glass recovered from sites 12-N-218 and 12-N-219 was manufactured from 1800 to the 1920s (Horn 2005:1). Blue transferprint whiteware recovered from sites 12-N-218 and 12-N-219 was manufactured from 1820 to 1860 (Stelle 2001:Chapter I). Plain whiteware recovered from sites 12-N-218 and 12-N-219 was manufactured from 1820 to present (Stelle 2001:Chapter I). Brown decorated whiteware recovered from site 12-N-219 was manufactured from 1829 to 1850 (Stelle 2001:Chapter I). A machine head nail recovered from site 12-N-219 was manufactured from the 1830s to present (Nelson 1964). Plain yellowware recovered from site 12-N-219 was manufactured from the 1830s to present (Stelle 2001:Chapter I). Stoneware with an Albany glaze interior and Bristol glaze exterior recovered from site 12-N-218 was manufactured from 1835 to 1940 (Stelle 2001:Chapter I). Stoneware with a Bristol glaze interior and exterior recovered from sites 12-N-218 and 12-N-219 was manufactured from 1835 to present (Stelle 2001:Chapter I). Plain ironstone recovered from sites 12-N-218 and 12-N-219 was manufactured from 1842 to 1930 (Miller 2000; Stelle 2001:Chapter I). Stoneware with a salt glaze interior and exterior recovered from site 12-N-219 was manufactured from 1850 to 1925 (Stelle 2001:Chapter I). Bisque porcelain recovered from site 12-N-219 was manufactured from 1860 to 1916 (Coleman et al. 1968:74-78). Amber glass recovered from sites 12-N-218 and 12-N-219 was manufactured from the 1860s to present (Horn 2005:1). Clear glass recovered from sites 12-N-218 and 12-N-219 was manufactured from 1875 to present (IMACS 1992:473). Wire cut nails recovered from site 12-N-219 which were manufactured from the 1880s to the present (Nelson 1964). Amethyst glass recovered from sites 12-N-218 and 12-N-219 was manufactured from 1885 to 1920 (Horn 2005:1). Plain semi-porcelain recovered from site 12-N-219 was manufactured from 1890 to present (ODOT 1991). Whiteware with a pink and green floral decal recovered from site 12-N-219 was manufactured from 1890 to present (Stelle 2001:Chapter I). Cobalt glass recovered from site 12-N-218 was manufactured from the 1890s to

present (Horn 2005:1). Milk glass recovered from sites 12-N-218 and 12-N-219 was manufactured from the 1890s to present (Horn 2005:1). Semi-porcelain with a floral decal recovered from site 12-N-218 was manufactured from 1905 to 1950 (Adams 1980:357). Stoneware with an Albany glaze interior exterior recovered from site 12-N-219 was manufactured with a termination date of 1940 (Stelle 2001:Chapter I).

Table 22: Artifacts from 12-N-218 and 12-N-219.

Prehistoric	No.	Historic	No.
Biface Fragment, Unidentified	2	Ceramic, Bisque Porcelain	1
Flake, Tool	2	Ceramic, Creamware	4
Flake	56	Ceramic, Ironstone	9
Flake, Heat Treated	2	Ceramic, Semi-Porcelain	2
Flake, Burnt	1	Ceramic, Stoneware	12
Flake, Proximal	47	Ceramic Whiteware	64
Flake, Proximal, Heat Treated	1	Ceramic, Yellowware	1
Flake, Proximal, Heat Damaged	1	Glass, Amber	21
Flake, Proximal, Burnt	1	Glass, Amethyst	67
Flake, Medial	44	Glass, Aqua	94
Flake, Medial, Blade-Like	4	Glass, Clear	26
Flake, Medial, Heat Damaged	1	Glass, Cobalt	1
Flake, Medial, Burnt	1	Glass, Milk	9
Flake, Distal	70	Metal, Brass, .22 Caliber Casing	1
Flake, Distal Tool	1	Metal, Iron, Small Buckle	1
Flake, Distal, Blade-Like, Heat Treated	1	Metal, Brass, Rivet	1
Flake, Distal, Heat Treated	2	Metal, Iron, Wire Cut Nail	5
Flake, Distal, Retouched	1	Metal, Iron, Machine Head Nail	1
Flake, Distal, Burnt	3	Metal, Iron, Large Nut Half	1
Flake, Shatter	19	Metal, Iron, Staple	1
Flake, Shatter, Burnt	1	Metal, Iron, Square Bolt and Washer	1
Prehistoric Pottery, Cordmarked, Grit Temper	1	Metal, Iron, Tube Piece	1
Prehistoric Pottery, Grit Temper	1	Metal, Iron, Pipe Elbow	1
Fire Cracked Rock	4	Metal, Iron, Wire Pieces	2
		Metal, Zinc, Unidentified	1
		Metal, Iron, Unidentified	7
		Metal, Zinc, Unidentified	2
		Faunal, Bone, Fragment	1
		Coal/Clinker	6
Total	267	Total	344

Table 23: Historic Diagnostics from Resurvey of 12N218 and 12N219

Artifact Type	Site	Date Range	Citation
Blue transferprint creamware	12-N-219	1762-1800	Lofstrom et al. 1982:14
Aqua glass	12-N-218, 12-N-219	1800-1920s	Horn 2005:1
Blue transferprint whiteware	12-N-218, 12-N-219	1820-1860	Stelle 2001:Chapter I
Plain whiteware	12-N-218, 12-N-219	1820 to present	Stelle 2001:Chapter I
Brown decorated whiteware	12-N-219	1829-1850	Stelle 2001:Chapter I
Macine head nail	12-N0219	1830s to present	Nelson 1964
Plain yellowware	12-N-219	1830s to present	Stelle 2001:Chapter I
Stoneware with an Albany glaze interior and Bristol glaze exterior	12-N-218	1835-1940	Stelle 2001:Chapter I
Stoneware with a Bristol glaze interior and exterior	12-N-218, 12-N-219	1835 to present	Stelle 2001:Chapter I
Plain ironstone	12-N-218, 12-N-219	1842-1930	Miller 2000; Stelle 2001:Chapter I
Stoneware with a salt glaze interior and exterior	12-N-219	1850-1925	Stelle 2001:Chapter I
Bisque porcelain	12-N-219	1860-1916	Coleman et al. 1968:74-78
Amber glass	12-N-218, 12-N-219	1860s to present	Horn 2005:1
Clear glass	12-N-218, 12-N-219	1875 to present	IMACS 1992:473
Wire cut nails	12-N-219	1880s to present	Nelson 1964
Amethyst glass	12-N-218, 12-N-219	1885-1920	Horn 2005:1
Plain semi-porcelain	12-N-219	1890 to present	ODOT 1991
Whiteware with a pink and green floral decal	12-N-219	1890 to present	Stelle 2001:Chapter I
Cobalt glass	12-N-218	1890s to present	Horn 2005:1
Milk glass	12-N-218, 12-N-219	1890s to present	Horn 2005:1
Semi-porcelain with a floral decal	12-N-218	1905-1950	Adams 1980:357
Stoneware with an Albany glaze interior exterior	12-N-219	Termination date of 1940	Stelle 2001:Chapter I



Figure 99: Representative prehistoric artifacts from sites 12-N-218 and 12-N-219 (photo by Kiya Mullins, Ball State University).



Figure 100: Representative prehistoric ceramic artifacts from site 12-N-219 (photo by Kiya Mullins, Ball State University).



Figure 101: Representative historic ceramic artifacts from sites 12-N-218 and 12-N-219 (photo by Kiya Mullins, Ball State University).



Figure 102: Representative historic glass artifacts from sites 12-N-218 and 12-N-219 (photo by Kiya Mullins, Ball State University).



Figure 103: Representative historic metal and faunal artifacts from sites 12-N-218 and 12-N-219 (photo by Kiya Mullins, Ball State University).

Sites

Summaries for sites 12-N-218 and 12-N-219 are contained in Volume 2, Appendix F. Both sites contained diagnostic artifacts and were multicomponent scatters.

Both sites were located on lake beds or lake plains and were encountered on multiple soils. Site 12-N-218 was located on Oakville fine sand (OaC), Tedrow loamy fine sand (TaA), and Granby loamy fine sand (Gt) soils and site 12-N-219 was located on Brems loamy sand (BmB) and Granby loamy fine sand (Gt) soils.

Sites 12-N-218 and 12-N-219 were both located within Parcel B of Survey 8, and were on the northern boundary of the parcel. The 611 artifacts collected from both sites included 267 non-diagnostic flakes and two prehistoric pottery sherds, and 344 historic glass, ceramic, and metal artifacts with an approximate date range of 1850 to 1960. The prehistoric artifacts

collected included non-diagnostic flakes and bifacial tools. The chert sources identified for the lithic artifacts included exotic cherts such as Flint Ridge flint from east central Ohio and Burlington chert from southern Illinois, which can be indicative of Middle Woodland Hopewell influence and trade. A possible Hopewell influence and trade artifact of note is a heat treated blade-like flake consistent with Flint Ridge flint from site 12-N-219, although several other flakes of Flint Ridge flint were recovered from both sites. No subsurface features were encountered during the course of the survey. The area of 12-N-218 resurveyed was approximately 2.1 acres and the area of 12-N-219 resurveyed was approximately 2.5 acres. The artifact density for 12-N-218 was about 38.6 artifacts per acre and for site 12-N-219, the density was 212 artifacts per acre. Combined this creates an artifact density of about 132.8 artifacts per acre. The sites were first encountered by collectors and reported by Heistand based on knowledge that they were at one time hunting camps used by prehistoric people (Heistand 1951:43). Since the sites were known to collectors, they have been heavily disturbed by collector related activities and possible sand mining for the expansion of State Road 41 (Keene and Hayes 2005:24).

The artifact density of site 12-N-218 is far lower than that of 12-N-219, however, only the edges of this sand island were surveyed rather than the entire surface, which was the case with site 12-N-219. The assemblage is made up primarily of historic artifacts, but of the prehistoric artifacts (n=10) the most commonly identified chert type is Ditney from southwest Indiana (n=3), followed by Indian Creek chert from (n=1), and Flint Ridge flint from east central Ohio (n=1). The assemblage recovered from site 12-N-219 is far more extensive, which could be due to a larger area being more thoroughly surveyed than 12-N-218. The split between historic (n=273) and prehistoric (n=257) artifacts is close to even. The prehistoric assemblage is predominantly made up of lithic flakes and flake tools, but also includes two pottery sherds, one biface fragment, and four pieces of fire cracked rock. The presence of this fire cracked rock fits with the habitation model proposed by White (2007) pertaining to dune islands being used as more permanent habitation or settlement locations as well as temporary camps. Previous research by Surface-Evans (2015; Surface-Evans et al. 2005) has found consistent evidence of these settlement patterns within the Kankakee marsh region, and the upland dunes that existed throughout the marsh. Though there are no diagnostic artifacts, the assemblage recovered from site 12-N-219 has similarities to the Middle Woodland presence within Lake County's Kankakee marsh region including fire cracked rock and cordmarked ceramic sherds and a blade-like flake of Flint Ridge flint. Based on archaeological and historical research, artifact density, the possible Illinois and Ohio Middle Woodland Hopewell influence and trade networks, sites 12-N-218 and 219 have the potential to yield additional information about prehistoric settlement, mobility, and interaction patterns and land use past the Phase I level. Both sites are reported to have been heavily disturbed by "sand mining" and other related collector activity, however, only site 12-N-219 shows any evidence of disturbance (Keene and Hayes 2005:24). Site 12-N-218 is cut into two sections by County Road 500 N, but is otherwise intact as an island. Due to the severe

disturbance to site 12-N-219 more testing may be necessary in order to determine site integrity, though the presence of FCR indicates probable features. Sites 12-N-218 and 12-N-219 are still considered potentially eligible for the National Register of Historic Places.

Partial resurvey of presumed location of 12-N-123 and resurvey of presumed location of 12-N-124

A Phase Ia survey consisting of shovel test pits at 15 meter intervals was conducted on two vegetation-covered sand islands, the presumed locations of existing collector reported sites 12-N-123 and 12-N-124, within Survey Area 8, Parcel A (Figure 83 and Figure 84). As reported by Joseph Heistand (1951) and documented in SHAARD, artifacts previously recovered from site 12-N-123 include two or three pieces of Woodland period grit tempered pottery sherds, flint chips, worked flint, and fire cracked rock. Artifacts recovered from site 12-N-124 include Woodland period grit tempered pottery sherds, flint chips, worked flint, and fire cracked rocks (Division of Historic Preservation and Archaeology 2015). Heistand reported having visited the sites after it was first plowed and collected the listed artifacts. He describes them as, “60 perfect arrow points, many broken ones, large pieces of pottery, hammerstones, one celt, and a broken plummet made of slate” (Heistand 1951:39). [REDACTED]

The entirety of the sand island presumed to be 12-N-124 was resurveyed with STPs (n=36) at 15 m intervals over an area of about 2.14 acres. Six of the STPs were positive. Due to time constraints, two transects of STPs (n=10) were conducted over an approximately 0.37 acre area on the east side of the sand island presumed to be site 12-N-123. There were a total of 46 STPs. No positive STPs were located within the bounds of site 12-N-123.

Artifacts

A total of nine artifacts were recovered during the resurvey of 12-N-124 and no artifacts were recovered from site 12-N-123. Table 20 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 104 and Figure 105 Artifacts are listed by individual site in Volume 2, Appendix E.

Two prehistoric artifacts were recovered (Figure 104). No diagnostic prehistoric artifacts were recovered from site 12-N-124.

Six historic artifacts were recovered from site 12-N-124 (Figure 105). No diagnostic historic artifacts were recovered.

Table 24: Artifacts from 12-N-124.

Prehistoric	No.	Historic	No.
Flake	2	Coal	1
		Slag	5
Total	2	Total	6



Figure 104: Representative prehistoric artifacts from site 12-N-124 (photo by Kiya Mullins, Ball State University).



Figure 105: Representative historic artifacts from site 12-N-124 (photo by Kiya Mullins, Ball State University).

Sites

A summary for the resurvey sites 12-N-123 and 12-N-124 is contained in Volume 2, Appendix F. Site 12-N-124 was a multicomponent scatter with no diagnostic artifacts.

Both sites (12-N-123 and 12-N-124) were located on lake beds or lake plains and were encountered on Oakville fine sand (OaB) and Granby loamy fine sand (Gt) soils.

Located in proximity to sites 12-N-123 and 12-N-124 are several new sites encountered during the pedestrian survey of Parcel A within Survey Area 8. Bordering 12-N-123 are sites 12-N-355, 12-N-356, 12-N-357, 12-N-358, and 12-N-359. Sites 12-N-355 to 12-N-358 are isolates prehistoric finds containing lithic flakes and one prehistoric grit-tempered pottery sherd. Site 12-N-359 is a large multicomponent lithic scatter located within Parcel A within Survey Area 8 west of the location of an unnamed sand island within the former Beaver Lake bed. The artifacts collected from the site consisted of 158 pieces of lithic debitage with no diagnostic artifacts and one shotgun shell dating to about 1915. No subsurface features were encountered during the course of the survey. Site 12-N-359 was approximately 2,695.4 square meters, or 0.7 acres. The

artifact density for the site was approximately 118.7 artifacts per half acre. This island was part of existing site 12-N-123, which is a sand island still standing to the west. Site 12-N-359 appeared to be a portion of the island that had been flattened by plowing and potential sand mining used for the expansion of State Road 41, as mentioned by the Nature Conservancy's site manager Ted Anchor (Division of Historic Preservation and Archaeology 2015; Heistand 1951:39). A drainage ditch was also constructed, which further separated the island portions from each other. Surrounding site 12-N-124 are sites 12-N-347 and 12-N-349, which are both isolated historic finds containing aqua glass. These sites were given new site designations rather than included with the previous sites because they were encountered and documented prior to the resurveys. Only after contacting the Division of Historic Preservation and Archaeology and Ted Anchor of the Nature Conservancy was permission given to conduct a resurvey of sites 12-N-123 and 12-N-124 using the methods described previously.

Though no archaeological artifacts were encountered during the resurvey of site 12-N-123, historic and archaeological research supports that there could still be cultural materials present. Many of the smaller upland features within marsh environments were used prehistorically as temporary settlements, which can be small in size and not uncovered on a 15 meter shovel test pit grid (Surface-Evans 2015:179). The entirety of the island was also not tested due to time constraints, so assumptions cannot be made about the lack of artifacts encountered during the resurvey. The sites surrounding 12-N-123 were located in areas under cultivation and contained lithic flakes and a grit-tempered pottery sherd, which is consistent with the reported artifacts from the area listed in Heistand's archaeological report and SHAARD (Division of Historic Preservation and Archaeology 2015; Heistand 1951:39). Based on the archaeological and historic research, collector reports, proximity to the lithic scatter within site 12-N-359, and the integrity of the sand island, site 12-N-123 may have the potential to yield additional information beyond the Phase I level. Site 12-N-123 could be considered eligible for the National Register of Historic Places.

Site 12-N-124 contained eight artifact in total, two of which were flakes, five pieces of slag, and one piece of charcoal. Similarly with site 12-N-123, site 12-N-124 is a small upland sand dune within a region that was previously marshland, which have been shown to be used as temporary settlements and faunal resource exploitation areas prehistorically in the Kankakee marsh region (Surface-Evans 2015:179). Evidence of this type of prehistoric use was not encountered on site 12-N-124 outside of the two flakes, but collectors have reported Woodland period pottery sherds worked flint chips that were exposed when there was no vegetation present on the island. Based on the archaeological and historic research, collector reports, and the integrity of the sand island, site 12-N-124 may have the potential to yield additional information beyond the Phase I level. Site 12-N-124 could be considered eligible for the National Register of Historic Places.

Survey Area 9

Survey Area 9 was located in McClellan Township in ██████████ Township 30 North, Range 9 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Enos, Indiana Quadrangle (Figure 106 and Figure 107). The property was surveyed on October 25, 2015. Ground surface visibility was approximately 30 to 40 percent with agricultural debris obscuring visibility. The field was planted in soybeans and had recently been harvested. Approximately 44.9 acres were surveyed consisting of outwash and lake plains. The area contained Ayrmount loamy fine sand (AzA) and Barce-Corwin complex (BbA) soils. Eight sites were encountered during the survey. The sites ranged in size from historic isolated finds to a historic scatter of 1,397.79 square meters (0.35 acres).

The farmer of the survey area, ██████████ came by the property during our survey. Landowner ██████████ also stopped by with his grandchildren. ██████████ informed the survey crew of an upland ridge called ██████████ that runs from Roselawn to Morocco in Newton County. This ridge was used by native people and pioneers as a route upland from the marshes in the region and also as a location for campgrounds. ██████████ brought out a potential artifact that he had recovered from the survey area prior to survey. ██████████ grandchildren assisted the field crew with pedestrian survey for several transects.

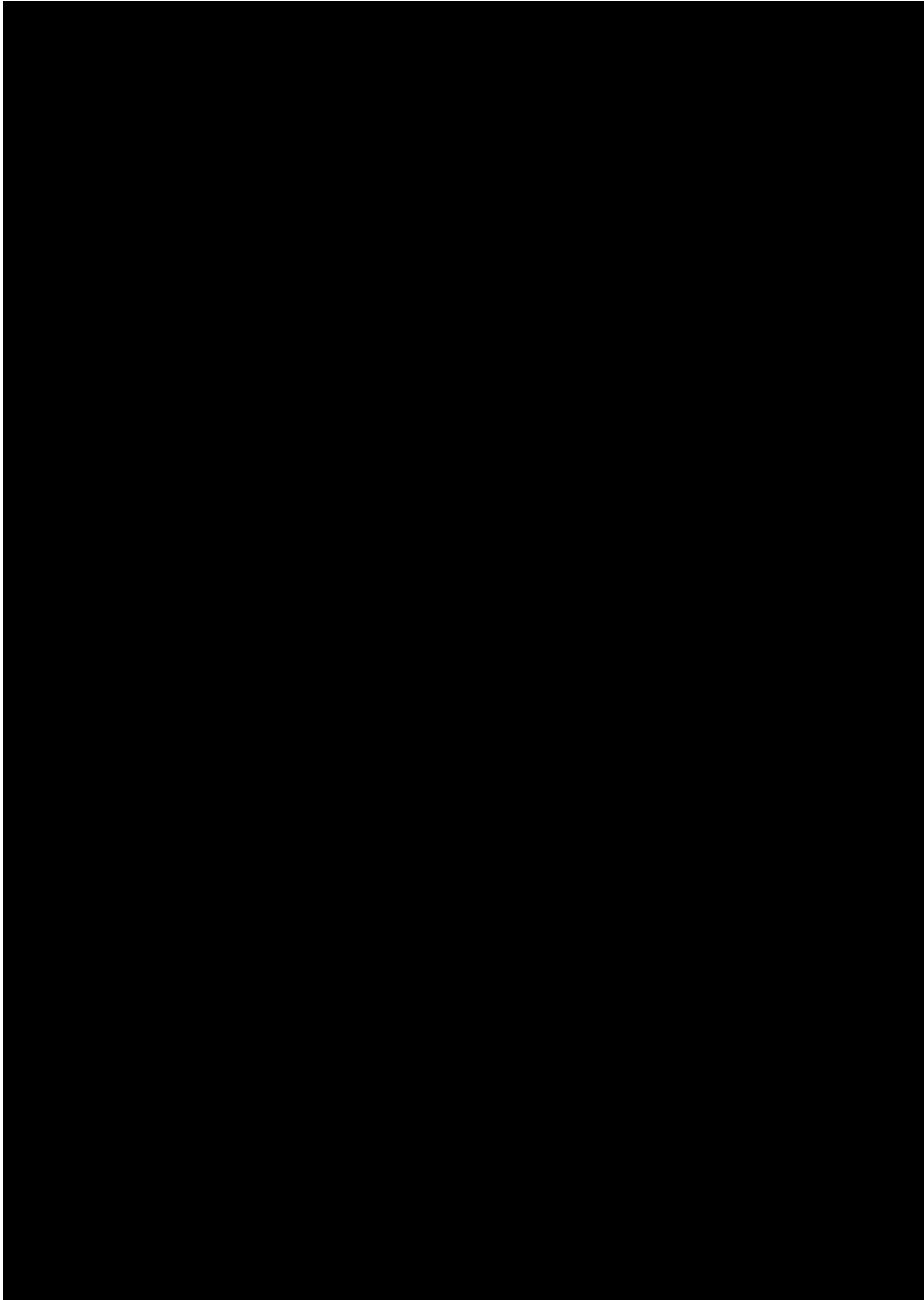


Figure 106: A portion of the map of McClellan Township, Newton County in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) showing Survey Area 9.

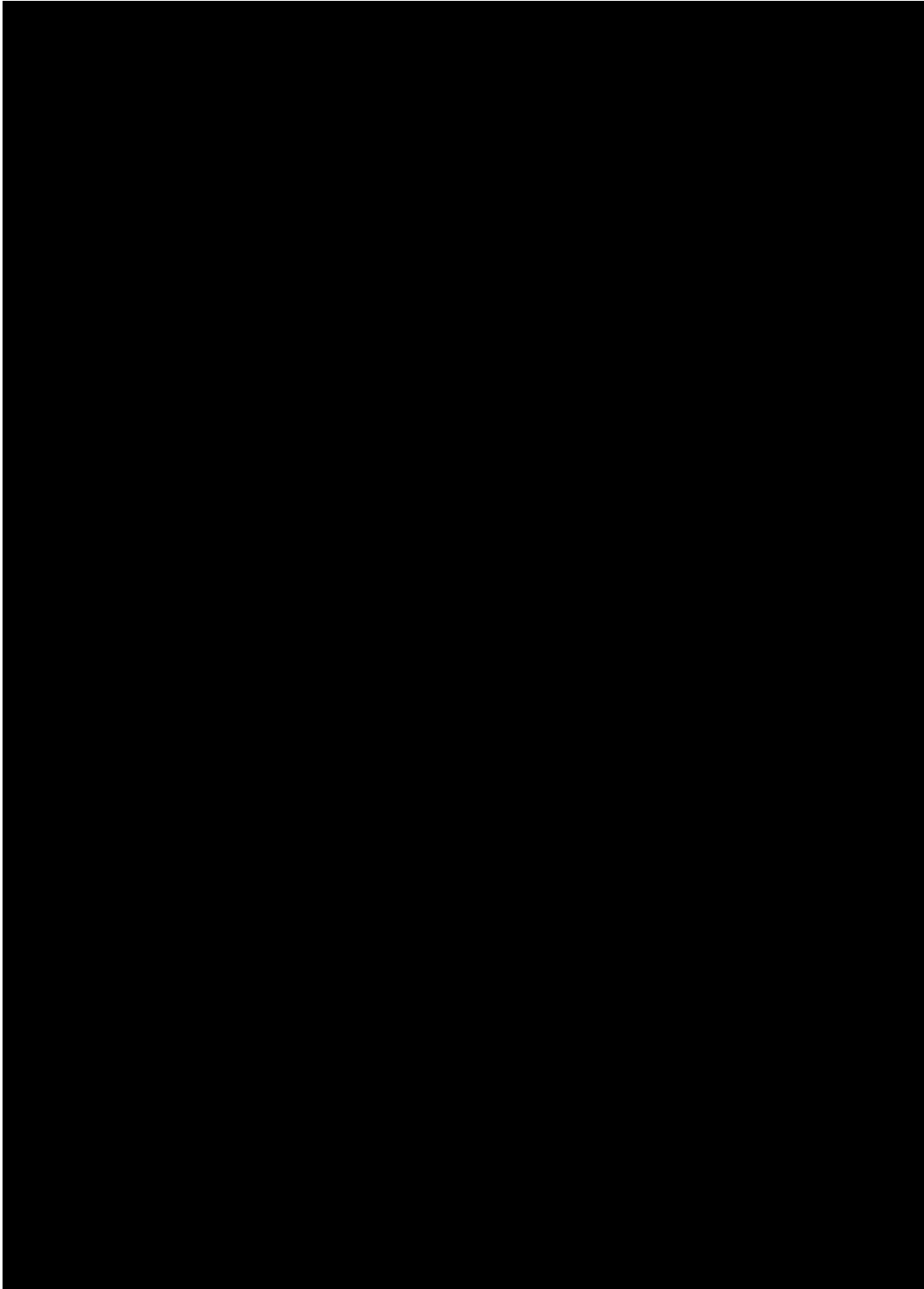


Figure 107: A portion of the USGS 7.5' Enos, Indiana Quadrangle showing the location of Survey Area 9.

Artifacts

A total of 18 artifacts were encountered in Survey Area 9. Table 20 provides a list of the artifacts recovered by category. Sample artifacts are shown in Figure 108 Artifacts are listed by individual site in Volume 2, Appendix E.

No prehistoric artifacts were recovered from the survey area.

Eighteen historic artifacts were recovered from Survey Area 9 (Figure 108) and of those, all are diagnostic (Table 26). Chronologically expressed these items include aqua glass recovered from 12-N-368, 12-N-370, 12-N-371, and 12-N-372 which was manufactured from 1800 to the 1920s (Horn 2005:1). Plain whiteware recovered from sites 12-N-366, 12-N-367, and 12-N-371 was manufactured from 1820 to present (Stelle 2001:Chapter I). Stoneware with Bristol glaze on the interior and exterior with a cobalt handpainted design recovered from site 12-N-365 was manufactured from 1835 to present (Stelle 2001:Chapter I). Stoneware with Bristol glaze on the interior and exterior recovered from site 12-N-365 was manufactured from 1835 to present (Stelle 2001:Chapter I). Clear glass recovered from sites 12-N-365, 12-N-366, and 12-N-368 was manufactured from 1875 to present (IMACS 1992:473). Amethyst glass recovered from site 12-N-369 was manufactured from 1885 to 1920 (Horn 2005:1).

Table 25: Artifacts from Survey Area 9.

Prehistoric	No.	Historic	No.
		Ceramic, Stoneware	2
		Ceramic, Whiteware	3
		Glass, Amethyst	1
		Glass, Aqua	6
		Glass, Clear	6
Total	0	Total	18



Figure 108: Representative historic artifacts from Survey Area 9 (photo by Kiya Mullins, Ball State University).

Table 26: Historic Diagnostics from Survey Area 9

Artifact Type	Site	Date Range	Citation
Aqua glass	12-N-368, 12-N-370, 12-N-371, and 12-N-372	1800-1920s	Horn 2005:1
Plain whiteware	12-N-366, 12-N-367, and 12-N-371	1820 to present	Stelle 2001:Chapter I
Stoneware with Bristol glaze on the interior and exterior with a cobalt handpainted design	12-N-365	1835 to present	Stelle 2001:Chapter I
Stoneware with Bristol glaze on the interior and exterior	12-N-365	1835 to present	Stelle 2001:Chapter I
Clear glass	12-N-365, 12-N-366, and 12-N-368	1875 to present	IMACS 1992:473
Amethyst glass	12-N-369	1885-1920	Horn 2005:1

Sites

Eight archaeological sites, 12-N-365 to 12-N-372, were recorded in Survey Area 9 (Figure 109 and Figure 110). Summaries for the individual sites are contained in Volume 2, Appendix F. All eight sites had diagnostic artifacts (12-N-365 to 12-N-372). Four sites were historic isolated finds (12-N-367, 12-N-369, 12-N-370, and 12-N-372) and four sites were historic scatters (12-N-365, 12-N-366, 12-N-368, and 12-N-371).

All eight sites (12-N-365 to 12-N-372) were discovered on outwash and lake plains. Three sites (12-N-366, 12-N-367, and 12-N-368) were located on Brems loamy sand (BmB) soil and four sites (12-N-369, 12-N-370, 12-N-371, and 12-N-372) were located on Zadog-Granby complex (Zg) soil. One site (12-N-365) was located on multiple soils, which included Brems loamy sand (BmB) and Oakville fine sand (OaC) soils.

The site types found in Survey Area 9 are typically considered to not have the potential to yield additional information beyond the Phase I level and are therefore not considered eligible for the National Register of Historic Places.

Density

Survey Area 9 consisted of approximately 44.9 acres till plains and moraines. Within Survey Area 9, a density of one site per 5.61 acres occurred and sites covered 3.76 percent of the surface area.

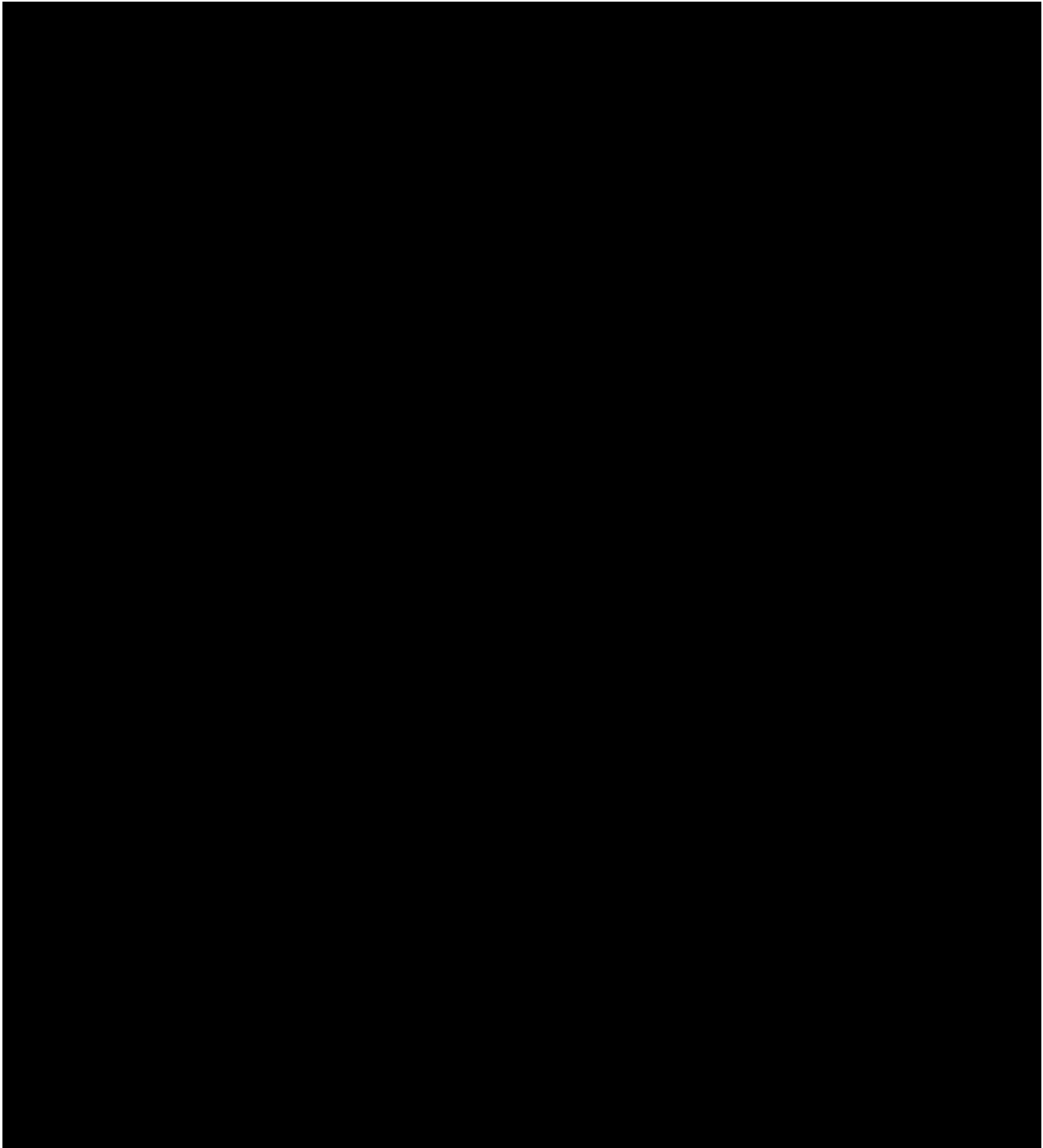


Figure 109: A portion of the USGS 7.5' Enos, Indiana Quadrangle showing the location of sites 12-N-365 to 12-N-372.

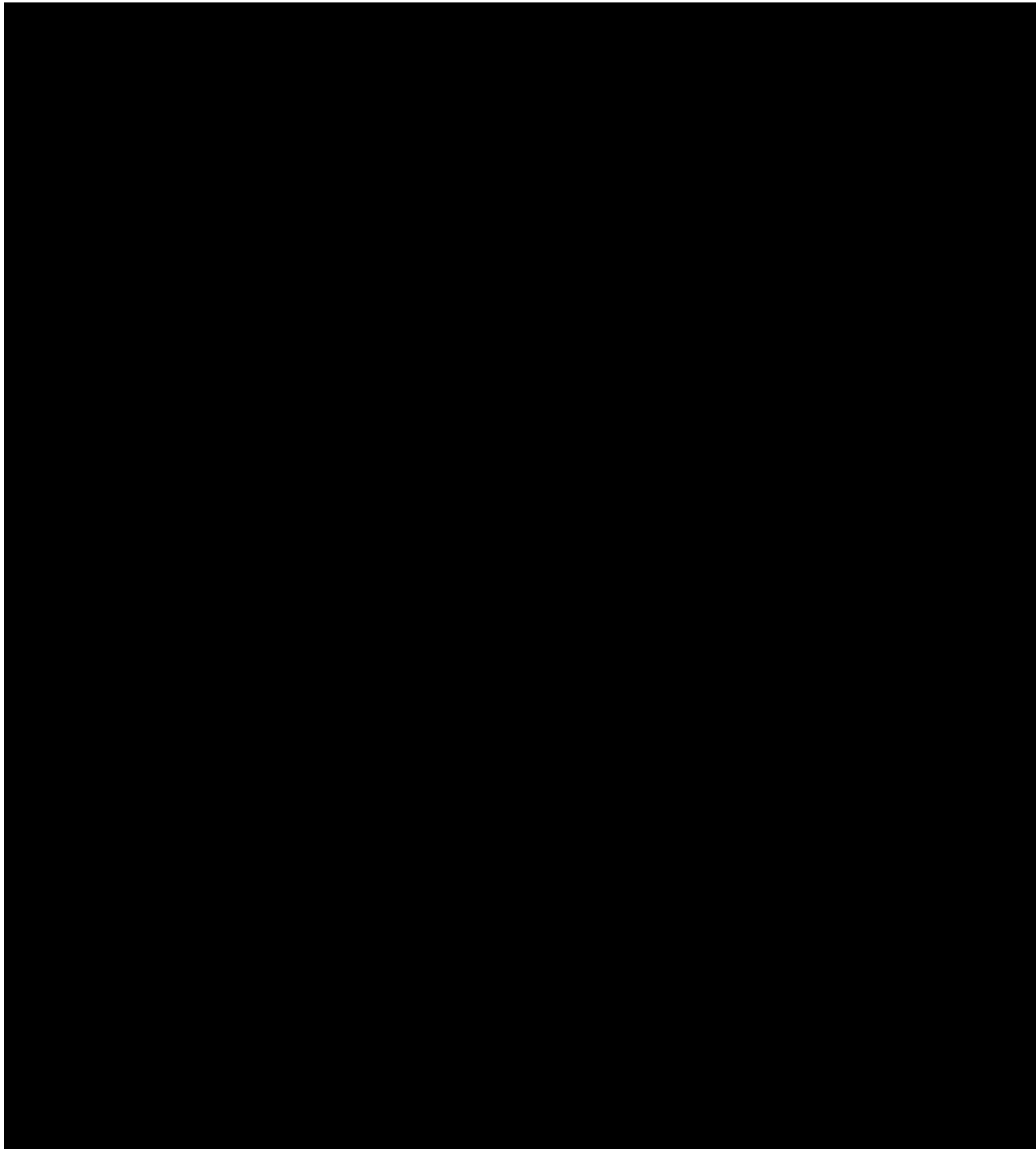


Figure 110: 2013 Aerial (Indiana Spatial Data Portal 2015) showing the location of sites 12-N-365 to 12-N-372.

Collector Visit

The [REDACTED] Collection

On December 4, 2015, AAL archaeologist Kevin C. Nolan and graduate student Jamie Leeuwrik visited [REDACTED] in Demotte, Indiana to examine his private artifact collection. According to [REDACTED] his collection came from fields and wooded areas on his property, some of which was investigated as Survey Area 7. His property is located in Lincoln Township in [REDACTED], Township 32 North, Range 8 West as shown on the Newton County map in the “Illustrated Historical Atlas of the State of Indiana” (Andreas 1968) and the USGS 7.5’ Shelby, Indiana Quadrangle (Figure 64 and Figure 65). The [REDACTED] Collection consists of 157 artifacts, of which 95 are diagnostic points with intact bases, 55 are nondiagnostic bifaces and flake tools, and 7 are groundstone tools.

Following the procedure established by Macleod et al. (2015), Nolan and Leeuwrik organized the lithic tools by base shape. We counted totals for each base type and identified raw materials based on macroscopic examination (Table 27). All specimens were scanned with a Cannon LiDE 110 scanner on both sides except for the groundstone tools (Figure 111, Figure 112, Figure 113, Figure 114, and Figure 115). The specimens too large for 2D scanning were photographed on both sides. Several specimens were selected for 3D scanning using a NextEngine Desktop 3D Scanner.

As part of the FY2014 HPF grant project (Grant #18-14-FFY-03) in Newton County, two private collections ([REDACTED] and [REDACTED]) were examined. These two private collections are used for comparison to the [REDACTED] collection. The [REDACTED] collection, housed at the Newton County Public Library, consists of over 300 artifacts, which include 265 diagnostic tools or points with intact bases and 41 ceramic sherds. The [REDACTED] collection contained 427 artifacts that were collected predominantly from Jasper County, but a few were located within Newton County. The artifact classes included projectile points and biface tools, groundstone tools, prehistoric ceramics, and some historic artifacts (Leeuwrik et al. 2015).



Figure 111: Scan of Side Notched Points from the [REDACTED] Collection.

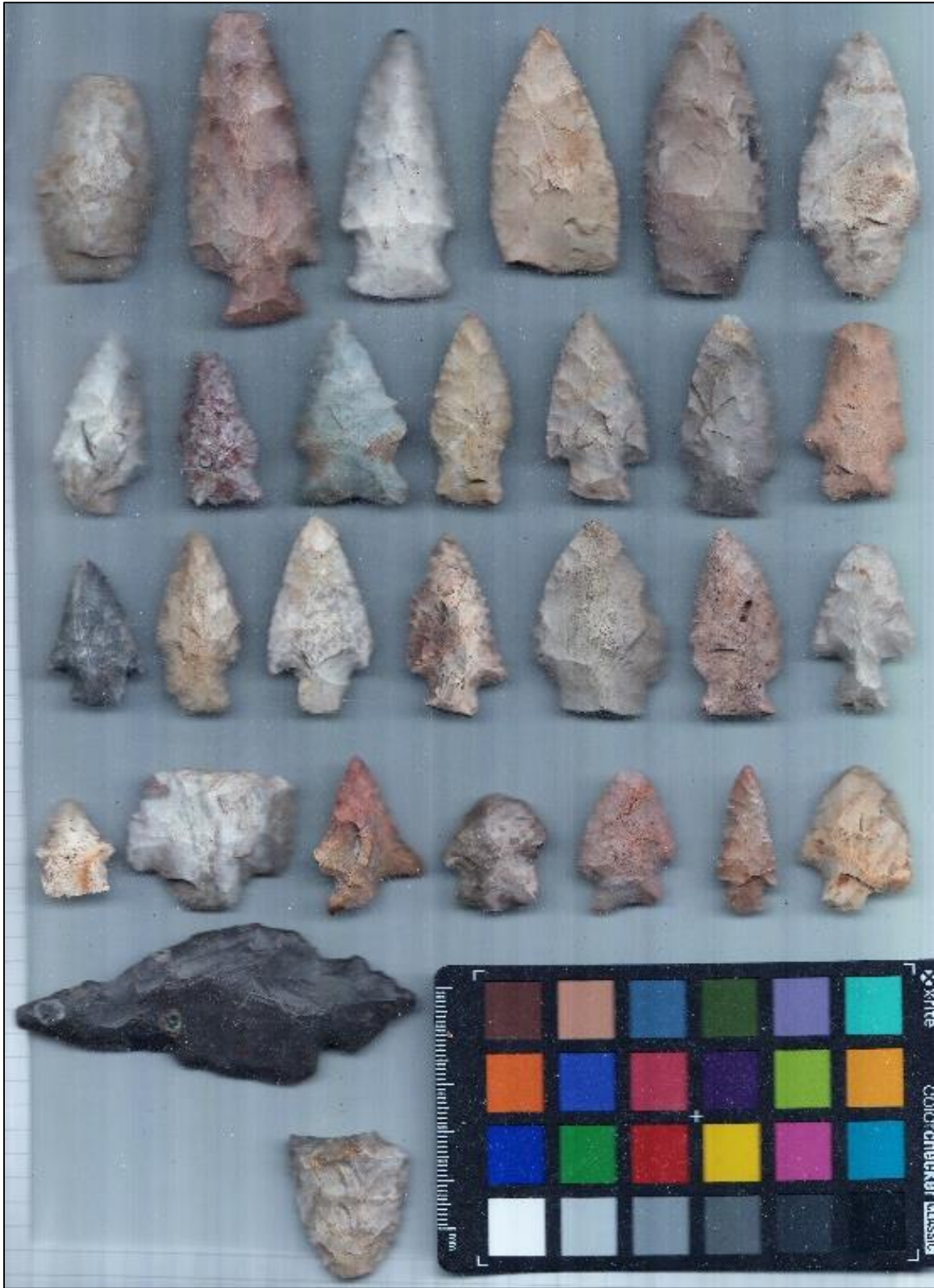


Figure 112: Scan of Stemmed points from the [REDACTED] Collection.



Figure 113: Scan of Triangular Points from the [REDACTED] Collection.

There are 95 diagnostic points with intact bases; additionally 62 non-diagnostic tools were analyzed. Non-diagnostic bifaces and flake tools were the most common type within the entire collection (28%). The diagnostic collection was relatively evenly split with side notched (29.47%), stemmed points (29.47%), and triangular (21.05%) making up a large proportion of points in the collection. This high proportion of side notched and stemmed points is consistent with the two private collections examined during the FY2014 HPF Grant in Newton County (Leeuwirk et al. 2015). However, the private collection examined from Jasper County also included a high proportion of corner notched points, which differs from both the [REDACTED] and [REDACTED] Collections in Newton County. The side notched points (Figure 111) indicate a possible strong Middle Archaic signal and a possible Middle Woodland signal in Newton County. Triangular points (Figure 113), many of which fall into the Late Woodland/Late Prehistoric period, are a surprising occurrence, though not inconsistent with some other studies from the region (e.g., Surface-Evans 2015; Surface-Evans et al. 2005). A Jack's Reef pentagonal blank within the [REDACTED] Collection shows a Late Woodland cultural presence in Newton County. This indicates a fairly even cultural distribution and utilization of the area near the Kankakee River with the possible exception of the Middle Woodland cultural period.



Figure 114: Scan of Paleoindian and Bifurcate/Basal Notched Points from the [REDACTED] Collection.

Late Archaic and Early Woodland Stemmed points are also well represented (Figure 112). There is only one Paleoindian point (Figure 114) in the diagnostic collection (1.05%). this is similar to the [REDACTED] Collection which contained two points (0.75%) identified as Paleoindian (Leeuwrik et al. 2015). However, this is distinct from the predominately Jasper County collection of [REDACTED] which contained 15 (6.7%) Paleoindian points (Macleod et al. 2015). Paleoindian projectile point types accounting for less than two percent of the collection is consistent with the artifacts in the [REDACTED] Collection. Both the [REDACTED] and [REDACTED] collections indicate a definite Paleoindian presence in northwestern Indiana, more than quadrupling the officially recorded presence in the area (c.f. Dorwin 1966:Figure 1; Division of Historic Preservation and Archaeology 2015). The presence of bifurcate points (5.26%) within the [REDACTED] diagnostic collection also indicates Late Archaic cultural period within Newton County (Figure 114).



Figure 115: Scan of Corner Notched points from the [REDACTED] Collection.

The lower proportion of corner notched points (13.68%) (Figure 115) also indicates an agreement with the points from the [REDACTED] Collection. While this base type is not limited in temporal distribution, it may indicate a lessened use during the Middle and early Late Woodland periods. This impression is somewhat contradicted by the pottery from the [REDACTED] Collection which was collected “at various sites in Newton County, Indiana” according to the label on the back of the display case, but was collected from locations in Washington and Beaver Townships.

The distribution of raw material types among the base types in the [REDACTED] Collection (Table 27) consisted of predominately Unknown chert types (33.68%), as was the same with the [REDACTED] Collection (55.09%) (Leeuwrik et al. 2015:117). This could be attributed to solely macroscopic methods conducted expediently. Of the known chert types Blanding (15.57%) and Liston Creek (12.63%) cherts were the two most common types utilized followed closely by Burlington (10.53%) and Attica (9.47%) cherts. Within the [REDACTED] Collection the two most common chert types were Blanding/Elwood-Joliet (14.34%) and Attica (6.79%) cherts with Liston Creek (2.26%) and Burlington (0.76%) chert not as abundant in the collection (Leeuwrik et al. 2015:117). Blanding and Elwood-Joliet are two Illinois cherts that are commonly grouped together due to many morphological and compositional similarities. The [REDACTED] and [REDACTED] Collections are similar in their preference for Mississippian cherts, but the [REDACTED] collection differed with the stronger overall Silurian chert representation.

These collector results agree in certain respects with the previously archaeological record. The Unidentified Woodland and Late Woodland predominance among prehistoric sites (see Table 3) may match up with the presence of triangular points and Middle Woodland and Late Prehistoric ceramics. However, the most prolific periods of use indicated by the Boezeman Collection do not match the official records from SHAARD, particularly the abundance of side-notched and stemmed points (i.e., Middle Archaic and Terminal Archaic/Early Woodland). While it is not likely that [REDACTED] collection is representative of the entire county, it is a strong reminder that professional investigations only net a small proportion of the local archaeological record, and a more comprehensive and extensive record is contained within private collections that professional archaeologists ignore at the peril of misrepresenting the past (LaBelle 2003; Pitblado 2014; Peebles and Shott 1981; Shott 2008).

Table 27: Distribution of Base Types and Chert Types for the [REDACTED] Collection

Chert Type	Side Notched	Triangular	Paleo	Stemmed	Corner Notched	Preform	Bifurcate	Non-Diagnostic	Total	%
Attica	4	1	--	1	2	1	1	4	14	9.33
Blanding	4	4	--	6	1	--	--	3	18	12.00
Blanding/Elwood-Joliet	1	--	--	--	--	--	--	--	1	0.67
Burlington	6	--	--	2	2	2	--	4	16	10.67
Flint Ridge	--	--	--	--	1	--	--	1	2	1.33
Harmilda	1	--	--	--	1	--	--	--	2	1.33
Harmilda/Kenneth	--	--	--	1	--	--	2	1	4	2.67
Harmilda/Liston Creek	--	--	--	--	1	1	--	1	3	2.00
Holland	--	1	--	--	--	--	--	1	2	1.33
Jeffersonville	--	--	--	--	--	--	--	2	2	1.33
Kenneth	1	1	--	4	--	1	--	--	7	4.67
Liston Creek	5	2	1	2	1	1	1	8	21	14.00
Mississippian	--	--	--	--	1	--	--	--	1	0.67
Wyandotte	--	--	--	1	--	--	--	--	1	0.67
Unknown	5	11	--	10	2	6	1	16	51	34.00
Unknown (HT)	1	--	--	1	1	1	--	1	5	3.33
Total	28	20	1	28	13	13	5	42	150	
%	18.67	13.33	0.67	18.67	8.67	8.67	3.33	28.00		

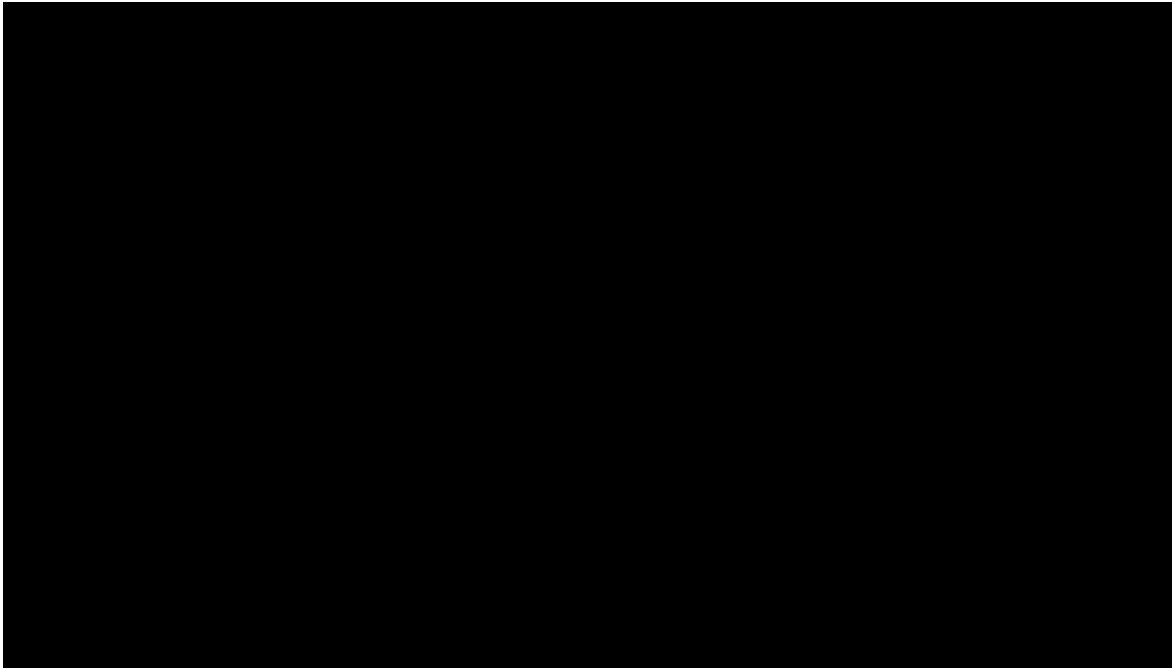


Figure 116: Graduate student Jamie Leeuwrik and Mr. Boezeman scanning projectile points from the collection.

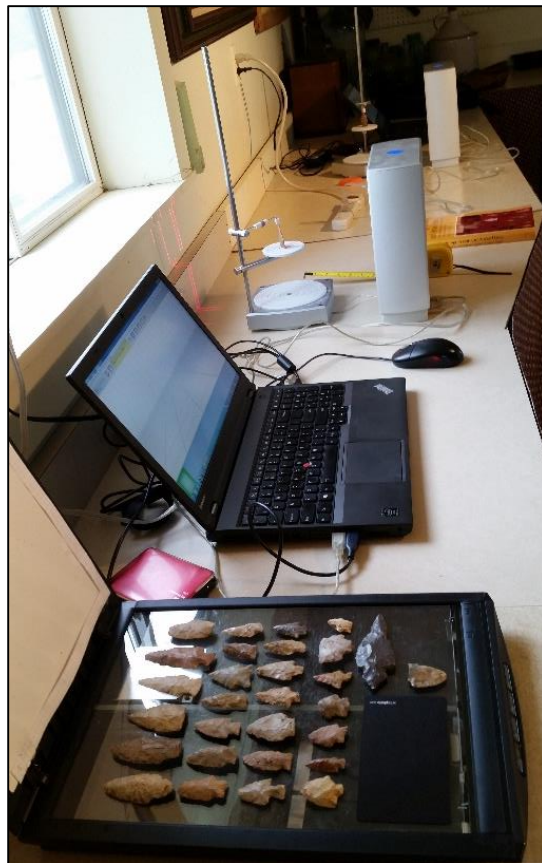


Figure 117: Scanning equipment used to document [REDACTED] collection.

Summary/Discussion

A total of 849 acres were surveyed during this project, which includes 7.1 acres of resurveyed area, and 76 new archaeological sites were recorded. No human remains were discovered as a result of this grant project. Nine parcels in northern Newton County were surveyed. The survey documented the human occupation of Newton County with the strongest presence during the Late Archaic period. This is followed by the Early Archaic, Late Archaic/Early Woodland, Late Woodland/Late Prehistoric, Late Prehistoric periods with a possible Middle Woodland component, and other unidentifiable Prehistoric periods. The Historic period is the most strongly represented in the assemblages recovered during our survey (Table 31). Considering the limitations of Phase I surveys, it is presumptuous to assign functionality to sites identified during this survey. Site types were therefore not defined beyond isolates and scatters. However, it appears likely based upon the variation in artifact classes discovered at some sites that multiple sites types were represented. Indeed, this seems likely when compared to other regional surveys and more intensive investigations (e.g., Surface-Evans et al. 2005). In addition to the field survey, a collector visit was conducted on December 4, 2015 which yielded information concerning the presence of unrepresented artifact classes as well as probable site locations in Newton County.

Artifacts

The field survey recovered 525 prehistoric artifacts and 1,761 historic artifacts were encountered during the survey, which included the resurveys of sites 12-N-124, 12-N-218, and 12-N-219 (Table 28). Excluding those sites, 255 prehistoric artifacts and 1,411 historic artifacts were encountered during survey. The majority of prehistoric artifacts consist of lithic debitage. The edge modification of approximately 20 flakes indicates the debitage could have functioned as expedient tools, and recent use-wear analyses of similar sites in Hamilton County indicate that many, if not most, of these were used in processing meat, hide, bone, and occasionally plant resources (see Swihart and Nolan 2013). Of the 16 formal lithic tools seven were diagnostic (Table 29). These diagnostics include three projectile points dating to the Late Archaic period (Justice 1987:115, 119, 124-125), one projectile point dating to the Early Archaic period (Justice 1987:71), one projectile point dating to the Late Archaic/Early Woodland period, one projectile point dating to the Late Woodland/Late Prehistoric period (Justice 1987:224), one bifacial drill dating to the Late Prehistoric period (Justice 1987:224), and blade-like flakes which may represent Middle Woodland period activity (Greber et al. 1981; Montet-White 1968). Other stone tools consisted of a groundstone pestle, and utilized and retouched flake tools. Historic artifacts included various types of ceramics, various colors and types of glass, metal objects, and brick fragments.

Table 28: Artifacts Recovered.

Prehistoric	No.	Historic	No.
Biface, Hafted, Kirk Corner-Notched	1	Glass, Amber	79
Biface, Hafted, Brewerton Side-Notched	1	Glass, Amethyst	148
Biface, Hafted, Bottleneck Stemmed	1	Glass, Aqua	368
Biface, Hafted, Matanzas Cluster	1	Glass, Black/Green	1
Biface, Hafted, Adena Stemmed	1	Glass, Clear	342
Biface, Hafted, Triangular Cluster Drill	1	Glass, Cobalt	15
Biface, Hafted, Madison	1	Glass, Green	12
Biface, Fractured Base	1	Glass, Green Milk	1
Biface, Unhafted	8	Glass, Marble	1
Biface, Unhafted, Fragment	2	Glass, Milk	147
Core	3	Glass, Olive Green	1
Core Tool	1	Glass, Pink	2
Core Fragment	3	Glass, Yellow	4
Flake	121	Ceramic, Bisque Porcelain	3
Flake, Heat Treated	13	Ceramic, Creamware	11
Flake, Burnt	3	Ceramic, Earthenware	3
Flake, Retouched	2	Ceramic, Industrial Porcelain	5
Flake, Blade-Like	1	Ceramic, Ironstone	33
Flake, Tool	18	Ceramic, Porcelain	5
Flake, Tool, Heat Treated	1	Ceramic, Redware	4
Flake, Bipolar	2	Ceramic, Semi-Porcelain	7
Flake, Proximal	83	Ceramic, Stoneware	103
Flake, Proximal Tool	1	Ceramic, Whiteware	261
Flake, Proximal Tool, Heat Treated	1	Ceramic, Yellowware	4
Flake, Proximal, Heat Treated	9	Metal, Aluminum Tube	1
Flake, Proximal, Heat Damaged	1	Metal, Brass Hubcap	1
Flake, Proximal, Burnt	2	Metal, Brass, Bullet Casing	2
Flake, Proximal, Retouched	1	Metal, Brass, Shotshell	2
Flake, Medial	61	Metal, Brass, Rivet	1
Flake, Medial, Blade-Like	4	Metal, Brass, Unidentified	1
Flake, Medial, Heat Treated	3	Metal, Iron, Bar	1
Flake, Medial, Heat Damaged	1	Metal, Iron, Bracket	1
Flake, Medial, Burnt	3	Metal, Iron, Hook	1
Flake, Medial, Retouched	1	Metal, Iron, Hubcap	1
Flake, Distal	107	Metal, Iron, Lock Hasp	1
Flake, Distal Tool	1	Metal, Iron, Mechanical Part	1
Flake, Distal, Blade-Like	1	Metal, Iron, Nail	9
Flake, Distal, Heat Treated	5	Metal, Iron, Nut	2
Flake, Distal, Burnt	6	Metal, Iron, Ore Concretions	6
Flake, Distal, Retouched	1	Metal, Iron, Partial Ring	1
Flake, Shatter	31	Metal, Iron, Rail Spike	1
Flake, Shatter, Heat Treated	3	Metal, Iron, Screw	1
Flake, Shatter, Heat Damaged	1	Metal, Iron, Wire	3
Flake, Shatter, Burnt	4	Metal, Iron, Staple	2
Ground Stone Pestle	1	Metal, Iron, Small Buckle	1
Pottery, Grit Temper, 1 cord marked	3	Metal, Iron, possible portion of a Blacksmith's Tuyere	1
Fire Cracked Rock	4	Metal, Iron, Wheel	1
		Metal, Iron, Square Bolt	1
		Metal, Iron, Washer	2
		Metal, Iron, Unidentified	30
		Metal, Lead, Buck Shot	1
		Metal, Steel Band	1

		Metal, Steel/Copper Penny	1
		Metal, Zinc, Shoe Eyelet	1
		Metal, Zinc, Lid Fragments	11
		Metal, Zinc, Unidentified	5
		Faunal, Bone	14
		Asbestos Roofing Tile	11
		Brick Fragment	1
		Hard Rubber	2
		Plastic, Button	1
		Wood, Post	2
		Wood, Fragments	15
		Coal/Clinker	52
		Slag	6
Total	525	Total	1761

Table 29: Diagnostic Prehistoric Artifacts by Cultural Time Period.

Cultural Period	Projectile Point Styles
Early Archaic	Kirk Corner-Notched (1)
Late Archaic	Brewerton Side-Notched (1), Bottleneck Stemmed (1), Matanzas Cluster (1)
Late Archaic/Early Woodland	Adena Stemmed (1)
Late Woodland/ Late Prehistoric	Madison (1)
Late Prehistoric	Triangular Cluster (1)

Chert

Lithic artifact chert types are shown in Table 30. The chert identification is listed by geologic time period as this is the most accurate and consistent means of identification. Chert was then listed by which type it is most consistent with as described in Cantin (2005, 2008), Stelle and Duggan (2003), and in comparison with specimens in the AAL comparative collection at 10x – 40 x magnification (see identification method description on page 61 above). If the artifact material displayed characteristics that were consistent with multiple chert types, all applicable types were listed in the identification. If the artifact material could not be determined using those methods, then it was listed either as an unidentified type of the geological age or as an unknown chert. The locations of chert outcrops in Indiana are shown in Figure 4 and approximate Illinois chert outcrop locations are shown in Figure 8.

The lithic artifacts for this survey were dominated by Unidentified cherts (38.3 %) followed by Silurian cherts (30.17%) as the most abundant identified chert type. Of the Silurian assemblage the majority was consistent with Liston Creek chert (9.86%). No natural chert outcrops exist within Newton County. However, outcrops of Liston Creek exist in Miami, Wabash, and Huntington counties, the closest of which being approximately 116 km to the east of Newton County (Cantin 2005). Specimens consistent with Harmilda chert appear in 2.90

percent of the assemblage recovered from the survey areas. The closest outcrop of this chert exists in DuPage County, Illinois approximately 105 km to the northwest of Newton County. Six non-diagnostic bifacial points and tools recovered were made from Silurian chert, which were consistent with Harmilda, Kenneth, and Liston Creek (12-N-219, 12-N-356, and 12-N-359).

Mississippian chert had the second greatest representation of identified cherts in this survey (25.34 %). Of the Mississippian material recovered, those consistent with Blanding comprised the most frequently identified Mississippian chert of the collection (11.61 %). Blanding is also the strongest chert type preference within the entire assemblage. As mentioned in the introduction, no natural chert outcrops exist in Newton County. However, outcrops of Blanding exist in Jo Daviess County, Illinois approximately 266 km from Newton County. Six of the hafted projectile points and three unhafted bifacial tools recovered were made from Mississippian chert, which were consistent with Blanding, Burlington, Elwood-Joliet, Attica, and Stanford chert (from sites 12-N-295, 12-N-312, 12-N-325, 12-N-327, and 12-N-354). Three of the identifiable points date to the Late Archaic period (from sites 12-N-325, 12-N-327, and 12-N-354) were made of chert consistent with Burlington, Attica, and Stanford cherts. Blanding (11.61%), Elwood-Joliet chert (0.39 %) and Burlington chert (2.51 %) come from central and western Illinois and are typically higher quality material than what is found in northwest Indiana. Burlington chert in particular can be an exceptional material and would have been highly prized in prehistoric times, and in fact was widely traded during various periods in prehistory. The distance to these materials indicates that trade would likely have been active at least at some point between the areas that are now northwest Indiana and central/southwest Illinois.

Pennsylvanian chert constitutes a small, but potentially important, portion of the survey collection (4.84 %) with specimens most consistent with Holland, Flint Ridge, and Ditney cherts. 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. Holland outcrops approximately 300 km to the south in Dubois County. The presence of Flint Ridge chert from Licking County, Ohio, which is located approximately 440 km from Newton County, in the assemblage could indicate extensive trade routes and potential Middle Woodland Hopewell Influence within Newton County (Greber et al. 1981:525). One of the non-diagnostic unhafted bifacial tools recovered during field survey is consistent with Holland chert (12-N-327).

Devonian chert is the least represented chert in abundance (1.35%) with specimens consistent with Jeffersonville being the highest identified chert (0.39%). Jeffersonville chert is the only Devonian Age chert within Indiana with two outcrops located in the southeastern part of the state. The closest outcrop of Jeffersonville is located approximately 250 km southeast of Newton County. None of the bifacial points or tools are consistent with Jeffersonville or unidentified Devonian chert.

The breakdown of the chert types is slightly skewed by the large percentage of unknown chert (38.3%) and even within geologic ages, large percentages of unidentified cherts (12.37%). What the identified chert breakdown tells us is that prehistoric people living in Newton County were likely relying primarily on the closest chert sources (Liston Creek, Harmilda, Attica, and Kenneth to the east, northwest, south, and southeast of Newton County) for approximately 21.13 percent of the total assemblage. This is followed closely by a reliance on more exotic chert types from central and southern Illinois and eastern central Ohio (Blanding, Burlington, and Flint Ridge to the northwest, southwest, and southeast of Newton County), which make up approximately 16.25 percent of the total lithic assemblage (Table 30). This breakdown of the lithic assemblage could indicate that the peoples that inhabited Newton County during prehistoric times migrated from south and southwest of the county, bringing chert materials with them. Northern Newton County was known to be a highly utilized area due to the vast floral and faunal resources available within the Kankakee marsh and Beaver Lake regions. The diagnostic lithic artifacts recovered by the FY2015 HPF surveys support that upland features within the marsh region would have been preferred area for hunting camps during the Late Archaic period (Surface-Evan 2015:180).

Flint Ridge flint bladelets and blade-like flakes along with Burlington chert being present in Newton County also show possible Middle Woodland influence from both the Ohio and Illinois Hopewell industries. The presence of these chert types shows potential direct or indirect contact with these Middle Woodland cultures through trade, which is a hallmark of Hopewell peoples (Seeman 1979:291; Greber et al. 1981:525). These chert sources would have been considered exotic and consistent with Hopewell phenomenon and extra-regional trade routes (Seeman 1979:291; Nolan et al. 2007:321). The lack of Flint Ridge flakes in Newton County would have supported the theory of trade routes between Ohio and Illinois because it has been suggested that Flint Ridge bladelets would have been brought to the region in finished form rather than as a raw material (Snyder et al. 2008:46).

Table 30: Chert Raw Materials.

Chert	No.	Percent of the Whole Assemblage
Silurian Chert	156	30.17
Consistent with Harmilda	15	2.90
Consistent with Harmilda Heat Treated	7	1.35
Consistent with Harmilda Burnt	5	0.97
Consistent with Harmilda/ Kenneth	8	1.55
Consistent with Harmilda/ Liston Creek	4	0.77
Consistent with Harmilda/Liston Creek Heat Treated	3	0.58
Consistent with Kenneth	3	0.58
Consistent with Laurel	5	0.97
Consistent with Laurel Burnt	3	0.58
Consistent with Liston Creek	51	9.86
Consistent with Liston Creek Heat Treated	1	0.19
Unidentified Silurian	45	8.70
Unidentified Silurian Heat Treated	3	0.58
Unidentified Silurian Burnt	3	0.58
Devonian Chert	7	1.35
Consistent with Jeffersonville	2	0.39
Unidentified Devonian	2	0.58
Unidentified Devonian Heat Treated	3	0.39
Mississippian Chert	131	25.34
Consistent with Allen's Creek	1	0.19
Consistent with Attica	10	1.93
Consistent with Blanding	60	11.61
Consistent with Blanding Heat Treated	2	0.39
Consistent with Blanding Heat Damaged	1	0.19
Consistent with Blanding/Elwood-Joliet	1	0.19
Consistent with Burlington	13	2.51
Consistent with Burlington Heat Treated	5	0.97
Consistent with Cataract	1	0.19
Consistent with Cataract Heat Treated	1	0.19
Consistent with Elwood-Joliet	2	0.39
Consistent with Indian Creek	6	1.16
Consistent with Kaolin	1	0.19
Consistent with Muldragh	1	0.19
Consistent with Stanford	1	0.19
Consistent with Upper St. Louis	21	4.06
Unidentified Mississippian	4	0.77
Pennsylvanian Chert	25	4.84
Consistent with Ditney	4	0.77
Consistent with Flint Ridge	2	0.39
Consistent with Flint Ridge Heat Treated	1	0.19
Consistent with Holland	11	2.13
Consistent with Holland Burnt	2	0.39
Consistent with Holland/Ditney	1	0.19
Unidentified Pennsylvanian	4	0.77
Unidentified Chert	198	38.30
Unidentified Chert	180	34.82
Unidentified Chert Heat Treated	11	2.13
Unidentified Chert Heat Damaged	2	0.39
Unidentified Chert Burnt	5	0.97
Total	517	100

Sites

Of the 76 archaeological sites, 14 had unidentified Prehistoric components (Table 31). The identified precontact components consisted of one Early Archaic site, three Late Archaic sites, one Late Prehistoric site, and one Late Woodland/Late Prehistoric site. Sixty-three sites had Historic components, dating from the early 19th century to present. Previously recorded sites for northwestern Indiana support the trend of encountering low frequencies of Paleoindian, Early Woodland and Middle Woodland component sites.

Table 31: Site Components Recorded as a Result of Survey.

Component	No.	Comment
Unidentified Prehistoric	14	4 Multicomponent (4 Historic)
Early Archaic	1	
Late Archaic	2	1 Multicomponent (1 Late Prehistoric and Historic)
Late Archaic/Early Woodland	1	1 Multicomponent (1 Historic)
Late Prehistoric	1	1 Multicomponent (1 Late Archaic and Historic)
Late Woodland/Late Prehistoric	1	
Historic	63	6 Multicomponent (1 Late Archaic, 1 Late Archaic/Early Woodland, 1 Late Archaic and Late Prehistoric, 4 Unidentified Prehistoric)
Total	83	

Various results of the collector visit were both consistent and inconsistent with the results of our survey. The high number of Paleoindian artifacts from the [REDACTED] and, to a lesser extent, the [REDACTED] and [REDACTED] collections has helped inform a previously under-documented time period and hinted at potentially different cultural representation within the county than the results of our survey and previous investigations (Leeuwrik et al. 2015; Macleod et al. 2015). The large percentage of Side-Notched points in the [REDACTED] collection was somewhat consistent with one of the three Late Archaic points recovered from Newton County during the FY2015 survey. This is also distinct from what was previously know about the county. The relatively large number of Stemmed points as well as Early Woodland ceramics from the [REDACTED] collection stood in contrast to the total absence of Early Woodland components were recovered from our survey and only four had been previously documented in SHAARD (Leeuwrik et al. 2015). Further the large number of triangular points in the [REDACTED] and [REDACTED] collections combined with Middle Woodland period and Mississippian ceramics from the [REDACTED] collection indicate a potentially large gap in the existing professional records for Newton County. Particularly interesting are the Hopewell ceramics and a partial effigy made from shell tempered clay (Leeuwrik et al. 2015).

The interest expressed in our survey by the librarians and director, [REDACTED] and others has helped tremendously in developing the culture history of Newton County. Future investigations, particularly in areas with more finite artifact locales such as Newton County,

would do well to use the previously acquired knowledge and materials accrued by local collectors. Our experience with these private collections illustrates patterns found in many other places: collectors hold the vast majority (>90%) of the archaeological record and any examination of the past that ignores this resource is woefully incomplete (LaBelle 2003; Pitblado 2014; Shott 2008).

Historic Settlement

Sixty-three sites with Historic components were discovered. These sites ranged from small isolated finds to extensive historic scatters and were occasionally multicomponent with prehistoric isolates or scatters. The historic component sites yielded the vast majority of artifacts recovered during the project.

Survey Areas 3, 7, and 8 contained sites with relatively substantial historic assemblages that had early historic dates, from ceramic artifacts such as creamware, between the mid-1700s and 1850, but also artifacts dating into the mid to late nineteenth century and early twentieth century (12-N-124, 12-N-218, 12-N-219, 12-N-309, and 12-N-345). Based on historic and archaeological research, the majority of these sites appear to be historic dump sites, or secondary deposits from relatively recent to modern activity, rather than primary deposits and locations of structures or activity areas possibly associated with early occupation of the county. Site 12-N-309 was the location of a historic barn on the property as indicated by the landowner in Survey Area 3. After consulting several historic sources (Andreas 1968; Drury 1955; Geo. A. Ogle & Co. 1916), the structure referenced by the landowner was potentially located on a 1941 General Highway map of Jackson Township (Drury 1955). Based on the types of artifacts collected and the lack of historic documentation of a structure before 1941, site 12-N-309 could be a secondary deposit and does not appear to have the potential to yield additional important information beyond the Phase I level.

[REDACTED]

Density

The project documented an average of one site per 10.7 acres and an average artifact density of one artifact per 0.37 acres surveyed. The project documented an average density of one historic artifact per 0.49 acres surveyed and an average density of one prehistoric artifact per 1.63 acres surveyed. Artifact densities by survey area are presented in Table 32.

Four orders were represented within the nine Survey Areas, which include Mollisols (78.6%), Entisols (14.3%), Alfisols (5.8%), and Inceptisols (1.3%), which is fairly representative of the percentages within the entire county. Sites were located on Mollisols, Entisols, and Alfisols. Several larger sites were located on multiple soil types, which resulted in more soil components represented (n=96) than sites added from the survey (n=76). From the number of site soil components represented (n=96) the percentages are representative of those throughout the entire county with 60.4 percent of sites located on Mollisols (n=58), 32.3 percent of sites located on Entisols (n=31), and 7.3 percent of sites located on Alfisols (n=7). Within the order of Mollisols, the percentages are further broken down into 19.8 percent of the sites on Typic/Udolic Mollisols (n=19) and 40.6 percent of sites on Aquic Mollisols (n=39). The distribution of sites among the soil orders shows similarities with both the percentages of soil orders surveyed as well as the percentages for the entirety of Newton County. Several potentially significant sites, including 12-N-123, 12-N-124, and 12-N-327, were located on Entisols, which are consistent with upland dune features within the topography. This pattern could indicate a preference among soil orders and landforms within Newton County for intensive activity areas.

Table 32: Artifact Densities.

Survey Area	No. Acres	No. Sites	Sites per Acre	No. Artifacts	Artifacts per Acre
SA 1 (Outwash Plains/Lake Plains)	78.9	2	0.02	7	0.08
SA 2 (Moraines)	78.4	5	0.06	73	0.93
SA 3 (Outwash Plains)	51.9	10	0.19	608	11.71
SA 4 (Moraines)	39.9	4	0.10	32	0.80
SA 5 (Outwash Plains/Lake Plains)	80.3	2	0.02	2	0.02
SA 6 (Moraines)	39.7	4	0.10	19	0.48
SA 7 (Outwash Plains/Lake Plains, Floodplains)	215.7	21	0.10	343	1.59
SA 8 (Lake Beds/Lake Plains)	219.3	20	0.09	563	2.57
SA 9 (Outwash Plains/Lake Plains)	44.9	8	0.18	18	0.40
Total	849	76	0.09	1665	1.96

Recommendations

Of the 76 archaeological sites discovered by this project and the four known sites that were resurveyed, 73 are not considered eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places (Table 33). Most of these ineligible sites were isolated finds or small scatters of artifacts. Seven multicomponent lithic and

historic scatters (12-N-123, 12-N-124, 12-N-218, 12-N-219, 12-N-345, and 12-N-359) were determined to be potentially eligible for listing on the Indiana Register of Historic Sites and Structures and the National Register of Historic Places based on historic and archaeological research conducted to evaluate each site’s potential to yield information relevant to the archaeological research potential beyond the Phase I level.

Table 33: Site Recommendations.

Recommendation	Site No.
No further archaeological investigations recommended; n=73	12-N-293 to 12-N-326, 12-N-328 to 12-N-344, 12-N-346 to 12-N-358, 12-N-360 to 12-N-372.
Further archaeological investigations recommended (high density, large historic/prehistoric scatters); n=7	12-N-123, 12-N-124, 12-N-218, 12-N-219, 12-N-327, 12-N-345, and 12-N-359

Though there were a limited number of recommended sites in this survey, the sites that were recommended (12-N-123, 12-N-124, 12-N-218, 12-N-219, 12-N-327, 12-N-345, and 12-N-359) could be significant in their contribution to the understanding of Newton County prehistoric and historic settlement.

Though no archaeological artifacts were encountered during the resurvey of site 12-N-123, historic and archaeological research supports that there could still be cultural materials present. Many of the smaller upland features within marsh environments were used prehistorically as temporary settlements, which can be small in size and not uncovered on a 15 meter shovel test pit grid (Surface-Evans 2015:179; see also chapters in Reith 2008, especially Hasenstab 2008 on the limits of shovel testing for identifying small sites and small activity areas). The entirety of the island was also not tested due to time constraints, so assumptions cannot be made about the lack of artifacts encountered during the resurvey. The sites surrounding 12-N-123 were located in areas under cultivation and contained lithic flakes and a grit-tempered pottery sherd, which is consistent with the reported artifacts from the area listed in Heistand’s archaeological report and SHAARD (Division of Historic Preservation and Archaeology 2015; Heistand 1951:39). Based on the archaeological and historic research, collector reports, proximity to the lithic scatter within site 12-N-359, and the integrity of the sand island, site 12-N-123 may have the potential to yield additional information beyond the Phase I level. Site 12-N-123 could be considered eligible for the National Register of Historic Places.

Site 12-N-124 contained eight artifact in total, two of which were flakes, five pieces of slag, and one piece of charcoal. Similarly with site 12-N-123, site 12-N-124 is a small upland sand dune within a region that was previously marshland, which have been shown to be used as temporary settlements and faunal resource exploitation areas prehistorically in the Kankakee marsh region (Surface-Evans 2015:179). Evidence of this type of prehistoric use was not encountered on site 12-N-124 outside of the two flakes, but collectors have reported Woodland

period pottery sherds worked flint chips that were exposed when there was no vegetation present on the island. Based on the archaeological and historic research, collector reports, and the integrity of the sand island, site 12-N-124 may have the potential to yield additional information beyond the Phase I level. Site 12-N-124 could be considered eligible for the National Register of Historic Places.

Sites 12-N-218 and 12-N-219 were both located within Parcel B of Survey 8, and were on the northern boundary of the parcel. The 611 artifacts collected from both included 267 non-diagnostic flakes and two prehistoric pottery sherds, and 344 historic glass, ceramic, and metal artifacts with an approximate date range of 1850 to 1960. The prehistoric artifacts collected included non-diagnostic flakes and bifacial tools. The chert sources identified for the lithic artifacts included exotic cherts such as Flint Ridge flint from east central Ohio and Burlington chert from southern Illinois, which can be indicative of Middle Woodland Hopewell influence and trade. A possible Hopewell influence and trade artifact of note is a heat treated blade-like flake consistent with Flint Ridge flint from site 12-N-219, although several other flakes of Flint Ridge flint were recovered from both sites. No subsurface features were encountered during the course of the survey. The area of 12-N-218 resurveyed was approximately 2.1 acres and the area of 12-N-219 resurveyed was approximately 2.5 acres. The artifact density for 12-N-218 was about 38.6 artifacts per acre and for site 12-N-219, the density was 212 artifacts per acre. Combined this creates an artifact density of about 132.8 artifacts per acre. The sites were first encountered by collectors and reported by Heistand based on knowledge that they were at one time hunting camps used by prehistoric people (Heistand 1951:43). Since the sites were known to collectors, they have been heavily disturbed by collector related activities and possible sand mining for the expansion of State Road 41 (Keene and Hayes 2005:24).

The artifact density of site 12-N-218 is far lower than that of 12-N-219, however, only the edges of this sand island were surveyed rather than the entire surface, which was the case with site 12-N-219. The assemblage is made up primarily of historic artifacts, but of the prehistoric artifacts (n=10) the most commonly identified chert type is Ditney from southwest Indiana (n=3), followed by Indian Creek chert from (n=1), and Flint Ridge flint from east central Ohio (n=1). The assemblage recovered from site 12-N-219 is far more extensive, which could be due to a larger area being more thoroughly surveyed than 12-N-218. The split between historic (n=273) and prehistoric (n=257) artifacts is close to even. The prehistoric assemblage is predominantly made up of lithic flakes and flake tools, but also includes two pottery sherds, one biface fragment, and four pieces of fire cracked rock. The presence of this fire cracked rock fits with the habitation model proposed by White (2007) pertaining to dune islands being used as more permanent habitation or settlement locations as well as temporary camps. Previous research by Surface-Evans (2015; Surface-Evans et al. 2005) has found consistent evidence of these settlement patterns within the Kankakee marsh region, and the upland dunes that existed throughout the marsh. Though there are no diagnostic artifacts, the assemblage recovered from

site 12-N-219 has similarities to the Middle Woodland presence within Lake County's Kankakee marsh region including fire cracked rock and cordmarked ceramic sherds and a blade-like flake of Flint Ridge flint. Based on archaeological and historical research, artifact density, the possible Illinois and Ohio Middle Woodland Hopewell influence and trade networks, sites 12-N-218 and 219 have the potential to yield additional information about prehistoric settlement, mobility, and interaction patterns and land use past the Phase I level. Both sites are reported to have been heavily disturbed by "sand mining" and other related collector activity, however, only site 12-N-219 shows any evidence of disturbance (Keene and Hayes 2005:24). Site 12-N-218 is cut into two sections by County Road 500 N, but is otherwise intact as an island. Due to the severe disturbance to site 12-N-219 more testing may be necessary in order to determine site integrity, though the presence of FCR indicates probable features. Sites 12-N-218 and 12-N-219 are still considered potentially eligible for the National Register of Historic Places.

Site 12-N-327 is located in the western half of Parcel A in Survey Area 7. The site was located on a small ridge approximately 1.2 kilometers southeast of the Kankakee River. The assemblage from 12-N-327 includes 288 artifacts, 62 of which are prehistoric lithics and the remaining 226 consisting of historic glass, ceramics, metal, and bone with a general date range of about 1850 to 1950. Three diagnostic project points were recovered, dating to the Late Archaic and Late Prehistoric period. The majority of the remaining 59 prehistoric artifacts recovered are non-diagnostic flakes and bifacial tools, with one groundstone pestle. Almost half of the chert sources identified within the lithic assemblage include Blanding, Burlington, and Elwood-Joliet cherts from northwestern, southern, and northeastern Illinois respectively. The amount of formal tools (n=6) and expedient tools (n=5) located within the site could be an indication of faunal exploitation within the marsh region. Surface-Evans (2015) and White (2007) have found similar patterns among Paleoindian and Archaic peoples in the Kankakee marsh region, which is supported by the presence of two Late Archaic projectile points within 12-N-327. The size of site 12-N-327 is approximately 7,278.3 square meters, or 1.8 acres, which results in an artifact density of 160 artifacts per acre. The prehistoric artifact density is approximately 34.4 prehistoric artifacts per acre. A historic map from an 1876 atlas show the entire Survey Area was a swamp with a proposed railroad running through (Andreas 1968). There were no structures located on any historic maps, but the maps show a Chicago Indiana and Southern railroad that was constructed near the site (Drury 1955; Geo. A. Ogle & Co. 1916). Based on archaeological research, the density and diversity of prehistoric artifacts, the exotic chert types identified, and the diversity of activities represented in the artifact assemblage on an rise in the topography could indicate the potential to yield additional important information on the prehistoric settlement and land use patterns of Newton County beyond the Phase I level and therefore site 12-N-327 is considered potentially eligible for the National Register of Historic Places.

Site 12-N-345 is located within Parcel A of Survey Area 8 just north of the location of

██████████ The 334 artifacts collected included 6 lithic flakes and the remaining 328 included historic glass, ceramics, and metal with an approximate date range of about 1860 to 1980. No subsurface features were encountered during the course of the survey. Site 12-N-345 was approximately 11,869.5 square meters, or 2.9 acres, and the artifact density for the site was about 115.2 artifacts per acre. One of the historic artifacts that stands out is a possible portion of a blacksmith's tuyere. A tuyere is a nozzle through which air is forced into a furnace or smelter during the process of forging of metal. ██████████

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██████████
██████████
██████████
Based on archaeological and historical research, the proximity of the site to ██████████ and the presence of a possible portion of a blacksmith's tuyere could indicate the potential for site 12-N-345 to yield additional important information on the early settlement and economic/criminal activity of 19th Century Newton County beyond the Phase I level and therefore considered potentially eligible for the National Register of Historic Places.

Site 12-N-359 is also located within Parcel A within Survey Area 8 west of the location of an unnamed sand island within the former Beaver Lake bed. The artifacts collected from the site consisted of 158 pieces of lithic debitage with no diagnostic artifacts and one shotgun shell dating to about 1915. No subsurface features were encountered during the course of the survey. Site 12-N-359 was approximately 2,695.4 square meters, or 0.7 acres. The artifact density for the site was approximately 118.7 artifacts per half acre. This island was part of existing site 12-N-123, which is a sand island still standing to the west (Division of Historic Preservation and Archaeology 2015; Heistand 1951). Site 12-N-359 appeared to be a portion of the island that had been flattened by plowing and potential sand mining used for the expansion of State Road 41, as mentioned by the Nature Conservancy's site manager Ted Anchor (personal communication October 2015). A drainage ditch was also constructed, which further separated 12-N-359 from site 12-N-123. Based on the archaeological and historic research, the high density of prehistoric artifacts within the site, and the proximity of the site to a sand island within Beaver Lake, site 12-N-359 may have the potential to yield additional information beyond the Phase I level of prehistoric use of the upland features within Beaver Lake. However, due to the severe disturbance and partial destruction of the sand island, site 12-N-359 lacks integrity and therefore it is not considered eligible for the National Register of Historic Places.

Public Outreach and Student Involvement

On September 26, 2015, Ball State University's Applied Anthropology Laboratories took part in Mound State Park's annual Indiana Archaeology Month activities. There were numerous hands-on demonstrations and participant activities for visitors. A poster explaining the methodology and goals of the FY2015 Grant surveys in Benton and Newton counties was presented to visitors. Ball State archaeologists and students used this public event to speak with numerous local individuals fostering public interest and awareness in this HPF Grant survey. Approximately 150 members of the public attended this event at Mounds State Park in Anderson, Indiana.

On November 16, 2015, an Open House was held in the Applied Anthropology Laboratories. 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 Newton and Benton County FY2015 Historic Preservation Fund Grant exhibit (Figure 118) was threefold. Historic and prehistoric artifacts were displayed and explained to the public in order to demonstrate the diversity of knowledge necessary for archaeological investigations such as this. A student created video was also shown that described and illustrated our methodology, field techniques, artifact processing, and identification. In addition, chert and lithic identification with hands-on demonstrations of the identification and cataloging processes were given to Open House attendees.

On April 25, 2016, a public presentation was given at the Newton County Government Center in Morocco, Indiana, by AAL archaeologist Christine Thompson and Department of Anthropology graduate student Jamie Leeuwrik (Figure 119 and Figure 120). The presentation was sponsored by the Newton County Historical Society. 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. Over 60 people attended the presentation which included a question and answer session, and a short discussion of Indiana archaeology laws. Coverage of this presentation and project proceedings in general were also posted to the AAL's Facebook page and various other social media sites. [REDACTED], a local collector and landowner of a surveyed parcel, brought artifacts found in Newton County to be used as part of the presentation. The crowd was enthusiastic and very interested in the research results. An attendee emailed after the presentation: "I think projects like this illustrate the need for archaeology and the public to become a lot more familiar with one another. Amateur collectors, for instance, are already aware of things in most settings that the 'science' of archaeology may take years to discover and document, or miss entirely. Archaeologists know

about the relative significance of those things discovered—things that amateur collectors and the public would like to know. Your presentations go a long way toward promoting that interplay.”

Throughout this project there was broad support for the pedestrian surveys from the residents of Newton County. Fourteen landowners gave permission to survey their properties totaling 2,219.5 acres of agricultural land available for survey. Landowners who granted permission to survey their property were very enthusiastic and eager to have their fields surveyed. Landowners were deeply interested in the types of artifacts that were found and how their property was used in prehistory and during Euro-American contact. Most landowners requested that the artifacts discovered be returned to them (see Volume 2, Appendix D). Numerous personal phone calls were made with various landowners who expressed great interest in participating in the survey and shared with the author the types of artifacts that had been surface collected on their property in the past. It became apparent that Newton County has an active and involved public that displays a great interest in their county’s history, both historic and prehistoric.

In addition to public presentations and demonstrations, the results of the Newton County HPF grant are being published in various ways. An article on the overall results of this FY2015 Grant will be published in the *Indiana Archaeology* journal, compiled and distributed by DHPA.

Throughout this project, there has been a very large amount of Ball State University Department of Anthropology student involvement and participation. All students were supervised and mentored by co-PIs Thompson and Nolan. Twenty students were involved with the fieldwork and participated in field surveys. Two students were involved in washing and labeling of artifacts. One student was responsible for artifact photography. Two students compiled and checked all data entered into the SHAARD database. One student assisted with the presentation at the Newton County Government Center on April 25, 2016. One student from the 2012 Blackford County HPF project created the methodology video that was shown during that this year’s HPF Grant presentation.



Figure 118: Students discussing the Benton and Newton County HPF grants at the AAL Open House in October 2015 (Photo by Christine Thompson, Ball State University).



Figure 119: Crowd gathering for the FY2015 HPF grant presentation for Newton and Benton Counties held at the Newton County Government Center (photo by Christine Thompson, Ball State University).

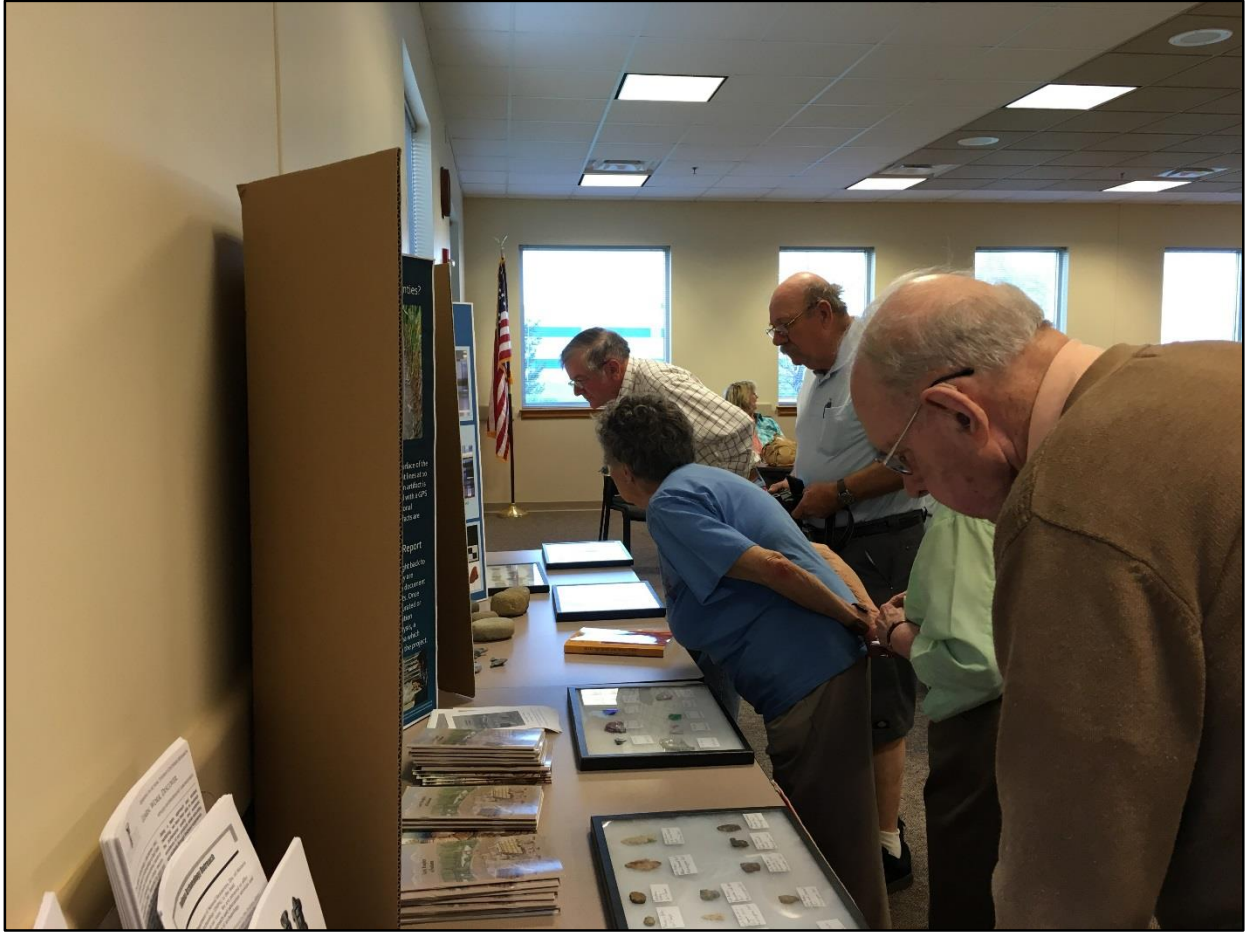


Figure 120: Attendees viewing the posters and exhibits at the FY2015 HPF grant presentation for Newton and Benton Counties held at the Newton County Government Center (photo by Christine Thompson, Ball State University).

Alignment with Cultural Resources Management Plan for Indiana

This FY2015 HPF Grant addressed various goals and objectives in Indiana's Cultural Resource Management Plan for 2013-2019 (Division of Historic Preservation and Archaeology 2012) by increasing and fostering public awareness and interest in the archaeological resources of Newton County. This grant project enhanced understanding and relationships in Newton County from curious citizens, to landowners, to collectors.

The first goal of Indiana's Cultural Resource Management Plan 2013-2019 (Division of Historic Preservation and Archaeology 2012:33) is to increase public awareness, public understanding, and public support for preservation archaeology. Through numerous waves of letters mailed to 49 landowners in Newton County, through public events such as the annual Archaeology Month Activities at Mound State Park, and with the public presentation held in Newton County in April 2016, AAL has been able to make the public aware of both our HPF grant surveys and the importance of archaeology. The AAL has received broad support, interest, and enthusiasm from the people of Newton County. They have shown a great interest in the history and prehistory of their county, and are excited to be a part of the surveys to learn more about their own property. They also realize the importance of protecting these archaeological resources as evidenced by the attendance and interest at the presentation at the Newton County Historical Society in Newton County. These activities have helped meet Indiana's objectives of increasing public awareness through varied efforts, media, and programs aimed at all Hoosiers; increasing public understanding of Indiana's cultural resources and our statewide heritage; and increasing the public support for heritage preservation by marketing its benefits.

The second goal of Indiana's Cultural Resource Management Plan 2013-2019 (Division of Historic Preservation and Archaeology 2012:34) is to broaden the preservation and archaeology communities and promote archaeology preservation communities. As stated in the first goal, numerous public events and presentations have taken place as part of the FY2015 Newton County HPF Grant. Contact with a local collector and an examination of his collections in December 2015 has served to both increase the ability of this survey to make archaeological interpretations of this county as well as cement ties with and foster more responsible practices within the collecting community. In addition, several articles have been or are being submitted to the Indiana Archaeology journal and may be submitted to other publications or presented at conferences. Redacted versions of both grant reports will be available for public review on AAL's web site. The activities listed in Goal 1 and the publications listed here have helped and will help meet Indiana's objectives of building relationships among people and groups with similar or complementary purposes and to identify new partners and develop opportunities for collaboration.

The third goal of Indiana's Cultural Resource Management Plan 2013-2019 (Division of Historic Preservation and Archaeology 2012:35) is to advocate for preservation opportunities

and options for all community, cultural, and heritage resources. Although AAL's FY2015 HPF Grant did not have a direct impact on this goal, it is hoped that our grant projects could be the foundation for future preservation opportunities and options for Newton County.

The final goal of Indiana's Cultural Resource Management Plan 2013-2019 (Division of Historic Preservation and Archaeology 2012:37) is to advance preservation as economic development. Again, AAL's FY2015 HPF Grant did not have a direct impact on this goal. However, it is hoped that through the presentations, online journal articles, and the online redacted versions of the two grant reports the public may start to think of ways to protect, promote, and capitalize on their cultural and archaeological resources.

Research Questions

The following research questions, while not exhaustive, guided this project.

1. What is the cultural chronology for Newton County?
2. What are the densities and distributions of archaeological sites along the Kankakee River and on Northern Moraine and Lake Region within the county?
3. What is the settlement pattern for Euro-American people along the Kankakee River?
4. What is the average site density within the county?
5. Is there evidence for interaction between Euro-American settlers and Native American tribes at and after the time of settlement?

We will address our findings of each of these questions, in order, below.

1. What is the cultural chronology for Newton County?

Prior to this year's survey, Newton County had 138 Unidentified Prehistoric sites, no Paleoindian sites, eight Archaic sites (two Early Archaic, one Middle Archaic and four Late Archaic), 43 Woodland sites (four Early Woodland, four Middle Woodland, and eight Late Woodland), two Mississippian sites, five Protohistoric sites, and 92 Historic sites (Table 3).

This project has added to the cultural chronology of the county with 76 sites including 14 Unidentified Prehistoric site components, one Early Archaic site component, three Late Archaic site components (one Late Archaic/Early Woodland), one Late Woodland site component, one Late Prehistoric site component, and 63 historic site components (Table 34).

In addition, seven previously undocumented projectile point types were added to the knowledge of Newton County's prehistory (Table 35). The one diagnostic Early Archaic point added was a Kirk Corner-Notched point. The three diagnostic Late Archaic projectile points recovered were one Matanzas Cluster point, one Brewerton Side Notched point, and one Bottleneck Stemmed point. The one diagnostic Late Archaic/Early Woodland point recovered was an Adena Stemmed point. The one diagnostic Late Woodland/Late Prehistoric point recovered was a Madison point, and the one diagnostic Late Prehistoric point recovered was a Triangular Cluster drill. We also discovered several blade-like flakes, hinting at the possibility of this artifact category at other places within Newton County.

Table 34: Number of Site Components Added.

Cultural Period	Added	Previous	Total
Unidentified Prehistoric	14	138	152
Paleoindian (ca. 10,000 – 7500 B.C.)	0	0	0
Archaic	4	8	12
Early Archaic (ca. 8000 – 6000 B.C.)	1	2	3
Middle Archaic (ca. 6000 – 3500 B.C.)	0	1	1
Late Archaic (ca. 4000 – 700 B.C.)	3	4	7
Unidentified Archaic	0	1	1
Woodland	2	43	45
Early Woodland (ca. 1000 – 200 B.C.)	0	4	4
Middle Woodland (ca. 200 B.C. – A.D. 600)	0	4	4
Late Woodland/ Late Prehistoric (ca. A.D. 500 – 1650)	2	8	10
Unidentified Woodland	0	27	27
Mississippian	0	2	2
Protohistoric/Contact	0	5	5
Historic (post A.D. 1650)	63	92	155
Unknown	0	25	25
Total	83	313	396

Table 35: Documented Points Within Newton County.

(* indicates point added from this survey).

Cultural Period	Projectile Point Types
Paleoindian	
Early Archaic	Palmer, Charleston Corner Notched, Rice Lobed, MacCorkle Stemmed, Kirk, Kanauha Stemmed, St. Albans Side Notched, Thebes, Kirk Corner-Notched*
Middle Archaic	Graham Cave side-notched
Late Archaic	Matanzas, Table Rock Stemmed, Riverton, Merom cluster, Brewerton eared-notched, Matanzas side notched, Brewerton Side-Notched*, Matanzas Cluster*, Bottleneck Stemmed*
Terminal Late Archaic	Genesee cluster
Early Woodland	Adena Stemmed*, Motley
Middle Woodland	Affinis Snyder, Snyders
Late Woodland	Madison*, Unclassified Side Notched, Unclassified Corner Notched, Unclassified Flared Stem, Triangular Cluster*

Precontact settlement within Newton County is dominated by Archaic and Woodland cultural periods, and of those two culture periods the most commonly encountered are the Late Archaic and Late Woodland periods. Very little information has been recovered for the Early and Middle Archaic, Early and Middle Woodland, and Paleoindian cultural phases. The cultural phase representations may be skewed is due to development. Newton County is primarily farm land, and as such remains largely within the private sector. Compared to other counties, Newton County has had less archaeology conducted as a result of federal requirements or state regulations. These archaeological surveys have helped build the cultural chronology in other counties by requiring investigations in areas that would not have otherwise been targeted by researchers. Another reason that the cultural phase representations is due to sampling bias. Many

of the surveys conducted have been on till plain and moraine landforms rather than an adequate sample of all landforms within Newton County. The underrepresentation of sites within the Kankakee marsh region has resulted in a lack of understanding about prehistoric use of the area within Newton County that is noted more prominently in Lake County. As a result it is likely that the surveys conducted in Newton County have not been extensive enough or have not sampled enough landforms within the county to locate underrepresented cultural time periods. With these surveys, especially in those areas not typically surveyed, we will begin to reconstruct the history of use, and the differential spatial patterns of exploitation associated with fluctuations of the marsh regions.

2. What are the densities and distributions of archaeological sites along the Kankakee River and on Northern Moraine and Lake Region within the county?

The densities and distributions of sites are important for modeling and prediction. In the current study not only was site distribution tracked by landform and cultural period, but the amount of the surface that was covered by individual sites was used to calculate the percentage of utilized surface by landform (Table 37 and Table 38). For example, five small lithic scatters on a given landform may utilize a smaller portion of the landscape than one large lithic scatter on another landform. The percentage of utilized landscape may provide a further refined perspective of how settlement occurred within the research universe.

The northern portion of Newton County consists of more diverse landforms compared to the southern half of the county. This can be attributed to the marshlands that existed prior to draining in order to create more agricultural lands. The major waterways in Newton County are the Kankakee River and the Iroquois River. Smaller waterways, exposed more formally with the draining of the Beaver Lake marsh area, feed these larger bodies by crisscrossing the county leading to a high proportion of floodplain features in the area (Barnes and Osterholz 1998:2-6). Of the two large waterways, the Kankakee River is the dominant in the northern half of Newton County and as such was the one more frequently encountered, but there were several survey areas which still fell into the Iroquois River watershed. Much of the previous smaller waterways have also been drained to access more agricultural land and are now referred to as ditches.

Although very limited, the results from the 856.1 acres of the FY2015 HPF Grant survey show Early Archaic, Late Archaic, Late Archaic/Early Woodland, Late Woodland/Late Prehistoric, and Late Prehistoric presence in the northern portion of the county across several landform types (Table 36). This distribution among landforms shows differential use by landform among the culture periods. No evidence of the Paleoindian presence was recovered in this survey. Aside from the periods mentioned previously, the settlement patterns for different prehistoric cultural contexts are impossible to analyze due to the lack of recovered diagnostic

materials during our surveys in the northern portion of the county. The previous year's FY2014 HPF Grant surveys were fairly restricted to upland landforms, which constrained the land use and settlement pattern analysis of southern Newton County to only till plains and moraines. The diversity of landforms surveyed within the northern portion of the county as part of this FY2015 HPF Grant project, as compared to the previous year, allows for a broader understanding of land use and settlement patterns among prehistoric peoples better than in previous surveys.

Table 36: Projectile Point Site Numbers and Cultural Periods Per Landform.

Landform	Sites and Cultural Periods
Moraines	12-N-295 (Late Woodland/Late Prehistoric) 12-N-312 (Early Archaic)
Outwash Plains and Lake Plains	12-N-325 (Late Archaic) 12-N-327 (Late Archaic and Late Prehistoric)
Lake Beds or Lake Plains	12-N-354 (Late Archaic)

Table 37: Site Densities and Distributions By Landform.

Landform	# of acres	# of sites	Density	Distribution
Outwash Plains and Lake Plains	374.2	31	1 site per 12.07 acres	Sites cover 2.41% of surface area
Lake Plains or Lake Beds	219.3	20	1 site per 10.97 acres	Sites cover 5.10% of surface area
Moraines	158	13	1 site per 12.15 acres	Sites cover 1.89% of surface area
Outwash Plains	51.9	10	1 site per 5.19 acres	Sites cover 6.09% of surface area
Floodplains	45.56	2	1 site per 22.78 acres	Sites cover 0.75% of surface area

Table 38: Number of Artifacts per Landform.

Landform	# of artifacts	% of artifacts recovered
Outwash Plains and Lake Plains	361	15.8%
Lake Plains or Lake Beds	1184	51.8%
Moraines	124	5.4%
Outwash Plains	608	26.6%
Floodplains	9	0.4%

The sites within the northern portion of Newton County were located on 20 different soil types, some of which were also located on more than one. These different soil types have characteristics that may have made them favorable for habitation during the prehistoric period. Accounting for sites that were larger scatters and were located on multiple soil types, the majority of soil components (n=96) were discovered on loamy sand and loamy fine sand texture soils. In predominance order, 31.3 percent of sites were located on loamy sands (n=30), 22.9 percent of sites were located on loamy fine sand (n=22), 15.6 percent of sites were located on fine sandy loam (n=15), 13.5 percent of sites were on fine sand (n=13), 8.3 percent of sites were on loam (n=8), 4.2 percent of sites were on sandy loam (n=4), 2.1 percent of sites were on mucky fine sand (n=2), and 2.1 percent of sites were located on mucky loamy fine sand (n=2).

Poorly drained soils (n=41) were the predominant drainage class with 42.7 percent of the soil components associated with the sites occurring on these types of soils. A total of 25 percent of sites were found on moderately well drained soils (n=24), 13.5 percent of sites were found on well drained soils (n=13), 12.5 percent of the sites occurring on somewhat poorly drained soils (n=12), and 6.3 percent of sites were found on very poorly drained soils (n=6).

The five soil orders present within Newton County are Mollisols (72.1%), Entisols (18.4%), Alfisols (6%), Inceptisols (2%), and Histosols (1.1%). Four orders were represented within the nine Survey Areas, which include Mollisols (78.6%), Entisols (14.3%), Alfisols (5.8%), and Inceptisols (1.3%), which is fairly representative of the percentages within the entire county. Sites were located on three of those soil orders: Mollisols, Entisols, and Alfisols. From the number of soil components represented (n=96) the percentages are representative of those throughout the entire county with 60.4 percent of sites located on Mollisols (n=58), 32.3 percent of sites located on Entisols (n=31), and 7.3 percent of sites located on Alfisols (n=7). Within the order of Mollisols, the percentages are further broken down into 19.8 percent of the sites on Typic/Udolic Mollisols (n=19) and 40.6 percent of sites on Aquic Mollisols (n=39). The distribution of sites among the soil orders shows similarities with both the percentages of soil orders surveyed as well as the percentages for the entirety of Newton County.

The sites encountered with diagnostic prehistoric artifacts were located on fairly evenly distributed soil textures and drainage classes. Of the five sites with an identified prehistoric culture periods one Late Woodland/Late Prehistoric site was located on somewhat poorly drained fine sandy loam (12-N-295), one Early Archaic site was located on moderately well drained loam (12-N-312), one Late Archaic site was located on moderately well drained loamy sand (12-N-325), and one Late Archaic/Early Woodland site was located on well drained fine sand (12-N-354). The last site was a large Late Archaic and Late Prehistoric site located on both very poorly drained sandy loam and moderately well drained loamy sand (12-N-327). The five sites were located on two soil orders, which included Mollisols and Entisols, with one large site (12-N-327) located on both soil orders. Three sites (12-N-295, 12-N-312, and 12-N-327) containing

diagnostic prehistoric artifacts were located on Mollisols and three sites (12-N-325, 12-N-327, and 12-N-354) were located on Entisols. The location of diagnostic artifacts within site 12-N-327 on Entisols is consistent with the site being located on an upland feature within the survey area. Of the three sites located on Mollisols, one site (12-N-327) was located on Aquic Mollisols and the remaining two were on Typic/Udolic Mollisols (12-N-295 and 12-N-312).

3. What is the settlement pattern for Euro-American people along the Kankakee River?

Shown in Figure 121 are the locations of the nine Survey Areas in relation to the Kankakee and Iroquois Rivers. Four surveys areas were located in an area closer to the Kankakee River, four were closer in relation to the Iroquois river, and the last survey area was located directly within the former Beaver Lake basin. The historic cultural context was present in Survey Areas 1-9 and was representative of the initial mid-19th century settlement of the county through modern times. Mean dates were taken for each survey area by using artifacts that displayed a date range (Table 39). This excluded non-diagnostics and anything with unanchored parameters (i.e. pre-1940). Results indicate that the majority of survey areas were most likely active during the late 19th and early 20th centuries. This is corroborated by the mean historic date of the whole survey which was 1907. Both of these pieces of information are in keeping with the literature narrative concerning the draining of Beaver Lake beginning in the 1850s and completed by 1880 (Barnes and Osterholz 1998:2). This draining progressively opened up the county for farming during this period and as such makes sense that most historic artifacts would date to this time.

Table 39: Survey Area Mean Dates for Historic Artifacts

Survey Area	Mean Date
Survey Area 1	1908
Survey Area 2	1905
Survey Area 3	1919
Survey Area 4	1928
Survey Area 5	1903
Survey Area 6	1893
Survey Area 7	1895
Survey Area 8	1904
Survey Area 9	1908
All Survey	1907

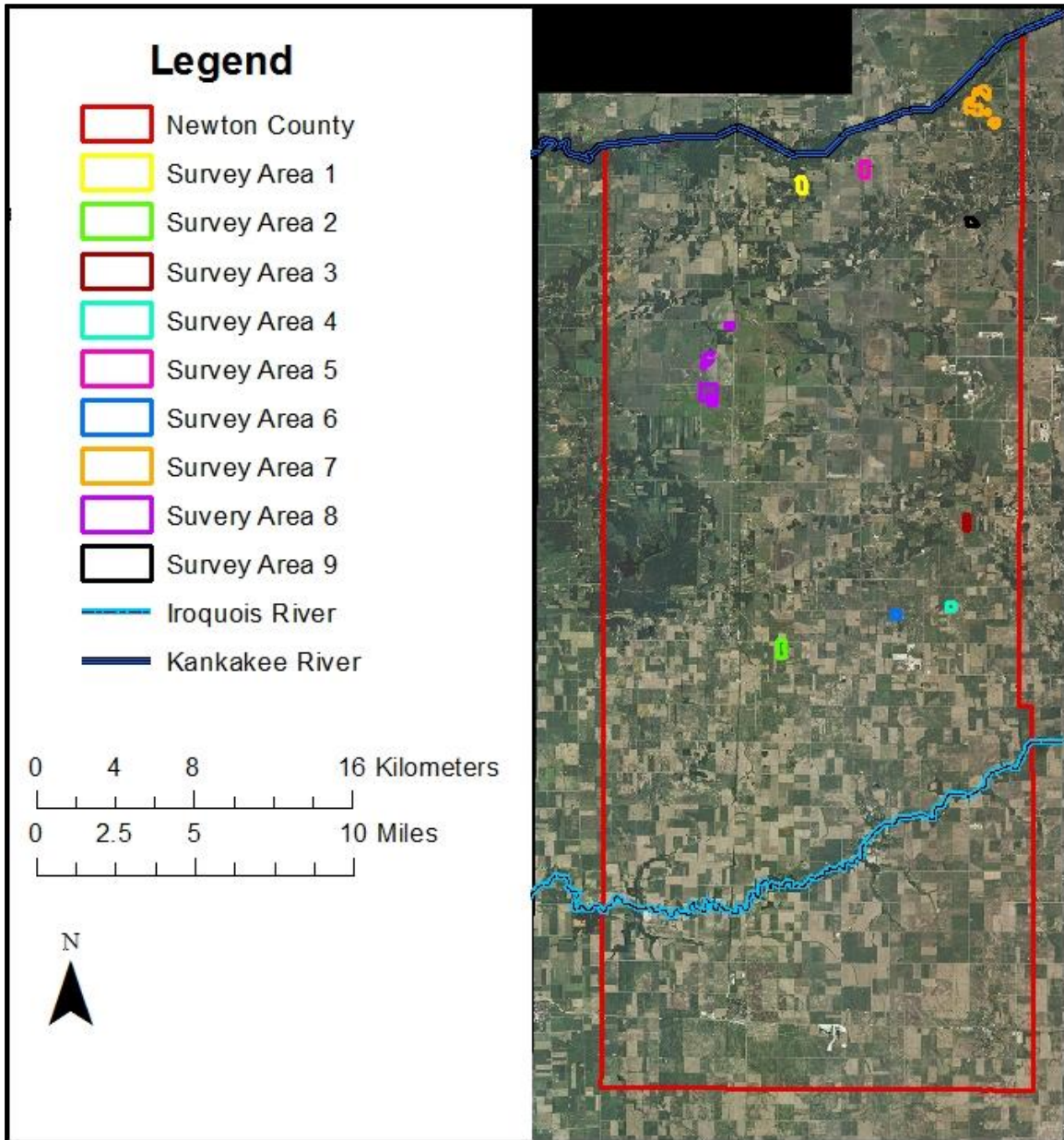


Figure 121: Distribution of Survey Areas from the FY2014 survey on an aerial (Indiana Spatial Data Portal 2015) of Newton County.

4. What is the average site density within the county?

Before this survey there were 267 documented sites in the county (Volume 2, Appendix A). Upon completion of the survey, 76 sites were added to the site database making the total 343 sites in Newton County. For this survey, the average positive survey site density encountered was one site per 10.7 acres with survey area densities ranging from one site per 39.45 acres (SA1) to one site per 5.19 acres (SA3). Although previous indications of density vary, prior

surveys have indicated a positive ratio survey of one positive survey per 2.9 surveys conducted. If we evaluate our survey areas as individual surveys, our ratio of successful surveys for this study is one positive survey per one survey conducted. This density is comparable to the FY2014 HPF Grant survey in northern Newton County, which was one site per 10.41 acres surveyed and the ratio of positive surveys was one positive survey per 1.14 surveys conducted due to one negative survey area of the eight total (Leeuwrik et al. 2015). Though the ratio of successful surveys for this FY2015 HPF Grant project and the previous FY2014 HPF Grant is high, this could be due to the large amount of land and high visibility. Conversely the lower ratio shown by the previous surveys may be influenced by low survey acreage, different methodologies, or poor field conditions.

5. Is there evidence for interaction between Euro-American settlers and Native American tribes at and after the time of settlement?

Six sites discovered (3.9 %) in this survey displayed multiple components. Two of these multicomponent sites contained any diagnostic prehistoric artifacts, and all contained both prehistoric and historic components. One of the sites has a diagnostic projectile point dating to the Late Archaic period and the other has two projectile points dating to the Late Archaic period and one dating to the Late Prehistoric period. The small amount of dateable prehistoric artifacts dating later than the Late Archaic period and the very rare presence of artifacts dating to the early to mid-1700s shows very little evidence of Euro-American and Native American interaction outside of what is already documented in the historical record. Much of the native Potawatomi population was removed by 1838 and Newton County was not widely populated by Euro-Americans until the 1860s. This survey did not recover any material that conclusively indicated interaction between Euro-American and Native American peoples.

Conclusions and Recommendations

This project targeted areas near the Kankakee River, and the former location of Beaver Lake, as well as adjacent areas in the northern half of Newton County, Indiana. The project area was selected due to the lack of known archaeological sites in the SHAARD database and the identification of Newton County as a data deficient county and was a supplement to the FY2014 HPF Grant surveys of the southern half of Newton County. The goals of the project were to increase the site database, construct a more complete cultural chronology for the county, understand and refine both the settlement patterns, as well as the patterns of interaction between and among early Euro-American settlers and Native Americans.

Newton County displayed a lack of artifacts as compared to similar county surveys in Indiana. This is similar to the results of previous surveys conducted in and around Newton County (Angst 1994; Cree 1991b; Cree et al. 1994; James and Cochran 1985; Leeuwrik et al. 2015; Macleod et al. 2015; McCord 2007; Miller et al. 2012; Miller 2013; Murray et al. 2011; Surface-Evans et al. 2005). It is very likely that the presence of Beaver Lake wetland and the Kankakee Marsh during prehistoric times and into the mid-1800s heavily influenced the habitability of the area. The wetlands were a great source of resources for the prehistoric people of the area, who tended to settle along the Kankakee River and near Beaver Lake (Heistand 1951:8-10). The marshes and wetlands were more highly used by prehistoric people and fur trappers because of their large amounts of flora and fauna available for exploitation (Meyer 1935:367-369). However, the variably extensive wetlands would have dramatically restricted both livable land and resources in the area for the incoming Euro-American settlers during the historic period. This constraint would have concentrated those individuals who were there to select upland and well drained features in order to avoid the marshlands that were so prevalent throughout the county. Survey Areas 7 and 8 were located closest to areas that would have been marsh before large scale draining efforts commenced. Both Survey Areas contained large prehistoric scatters (12-N-327 and 12-N-359) with high density and diversity of artifacts, which were located on or adjacent to upland dunes or features. These sites were found to uphold the concept that upland features were areas of high use prehistorically, especially 12-N-327, which contained artifacts that date to the Late Archaic and Late Prehistoric periods.

The large scale changes to the environment brought about by the historic draining of Beaver Lake brought in a relatively late Euro-American settlement pushing the majority of the historic settlement dates to much later in the 19th century. Before the draining, many of the Euro-American settlements were located along streams in the southern portions of the county (Heistand 1951:10-11). This draining also allowed for investigation into areas that may have been exposed prehistorically and therefore offer insights into the habitation preferences of prehistoric peoples as well as the dynamic nature of the extent and location of the wetlands through time (Figure 122).

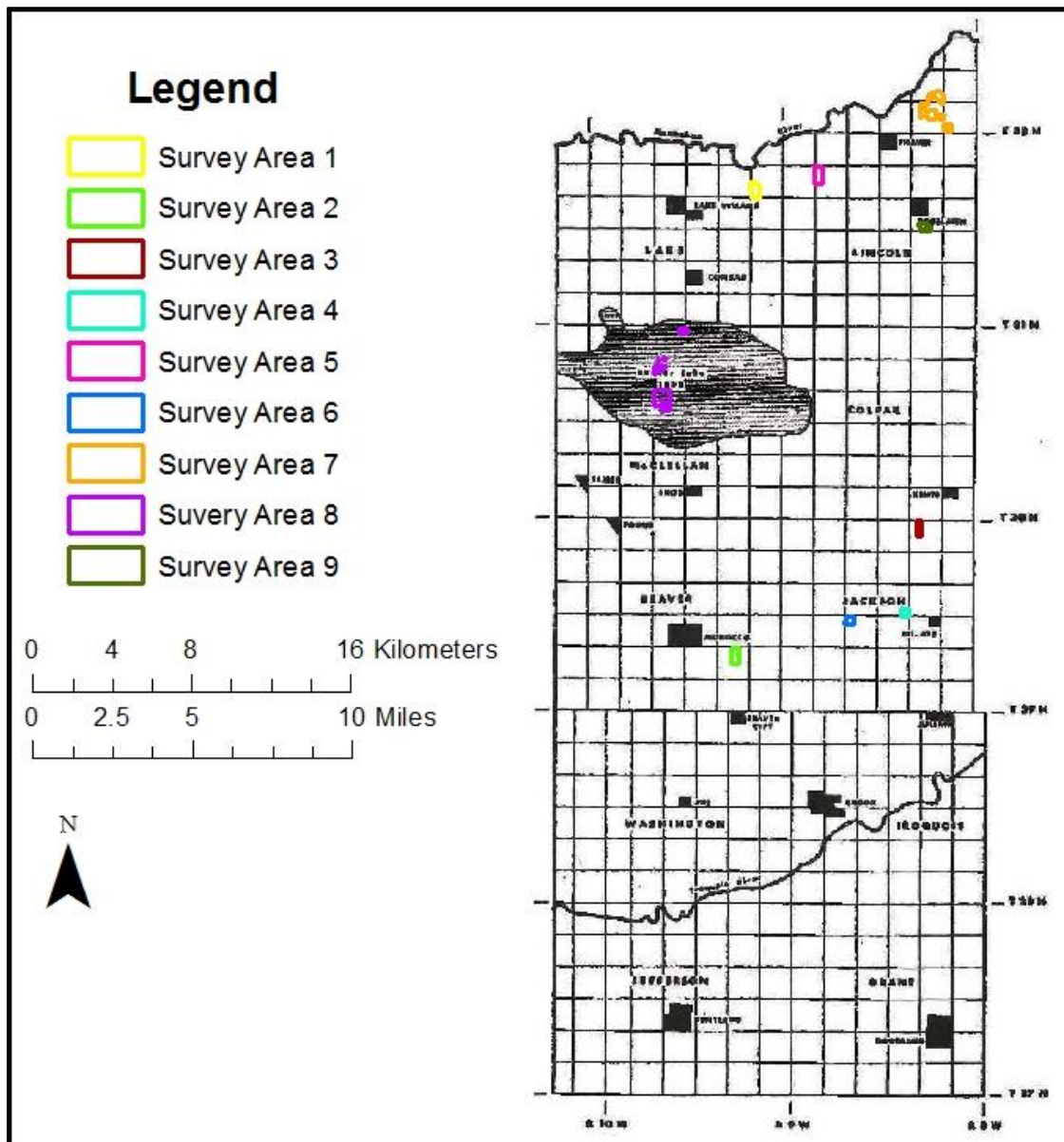


Figure 122: 1832 location of Beaver Lake in Newton County in relation to the Survey Areas (Heistand 1951).

The five diagnostic prehistoric artifacts recovered from the survey areas date to the Early Archaic, Late Archaic, Late Archaic/Early Woodland, Late Woodland/Late Prehistoric, and Late Prehistoric periods. Though the amount of recovered prehistoric diagnostics from the survey is not enough to make generalizations regarding occupation habits, we may be able to use this information in order to identify the use of the land during these periods. Four projectile point were encountered in a survey area within the former bounds of the Kankakee Marsh, another was encountered in an area within the former Beaver Lake area, and two were encountered further south closer to the middle of Newton County on more upland features (Figure 123). The

majority of landforms which the projectile points were located on where moraines and outwash plains with one located on a lake bed landform, and these landforms all are upland features.

Not much is known about Early Archaic settlement and land use within northwestern Indiana and Newton County. With only two previously documented sites within the county and only one more added during this survey, there is not sufficient evidence to make any statements pertaining to the relationship between Early Archaic culture and upland landform preference. Neither the [REDACTED] nor the [REDACTED] Collections had any supplemental information or artifacts pertaining to the Early Archaic Period. While tentative, the relationship between the Late Archaic in Newton County is similar to the preponderance of Late Archaic occupancy along the Kankakee Marsh in Lake County (Surface-Evans 2015; Surface-Evans et al. 2005). This relationship shows utilization of upland features for settlement areas and the lowlands as hunting camps and resource extraction points along the marsh region and floodplains (Surface-Evans 2015:180; White et al. 2007). This assumption is based on the recovery of mostly formal lithic tools from the Late Archaic period and somewhat matches the [REDACTED] and [REDACTED] collections relatively large number of stemmed points.

Late Woodland/Late Prehistoric and Late Prehistoric presence in Newton County has been well documented in previous sites and by Triangular Points within the [REDACTED] and [REDACTED] Collections. The evidence of Late Woodland/Late Prehistoric and Late Prehistoric presence in Newton County is not substantial enough to establish settlement patterns, but it does give some insight into land use (Surface-Evans 2015:184). The Late Prehistoric point from Survey Area 7 (12-N-327) and was part of a larger lithic scatter. Within that scatter is also a groundstone pestle, which could indicate the processing of food sources. The common assumption about Late Woodland and Late Prehistoric peoples in this region, it that they practiced mixed subsistence patterns with an emphasis on farming over foraging (Surface-Evans 2015:184). However, an opposing viewpoint, upheld by Surface-Evans (2005; 2015) and by the artifact assemblage within site 12-N-327, is that Late Woodland and Late Prehistoric people practice more mixed resource extraction strategies from a wide varieties of environments. This evidence of resource extraction and processing is not shown in site 12-N-295, which was an isolated Late Woodland/Late Prehistoric Madison projectile point.

The [REDACTED] and [REDACTED] Collections highlight several other important areas of information pertaining to cultural periods and land use that is sparse or entirely absent in the official records. Without incorporating the knowledge contained in private collections, we can never hope to fully reconstruct the prehistory and history of the regions we target to understand.

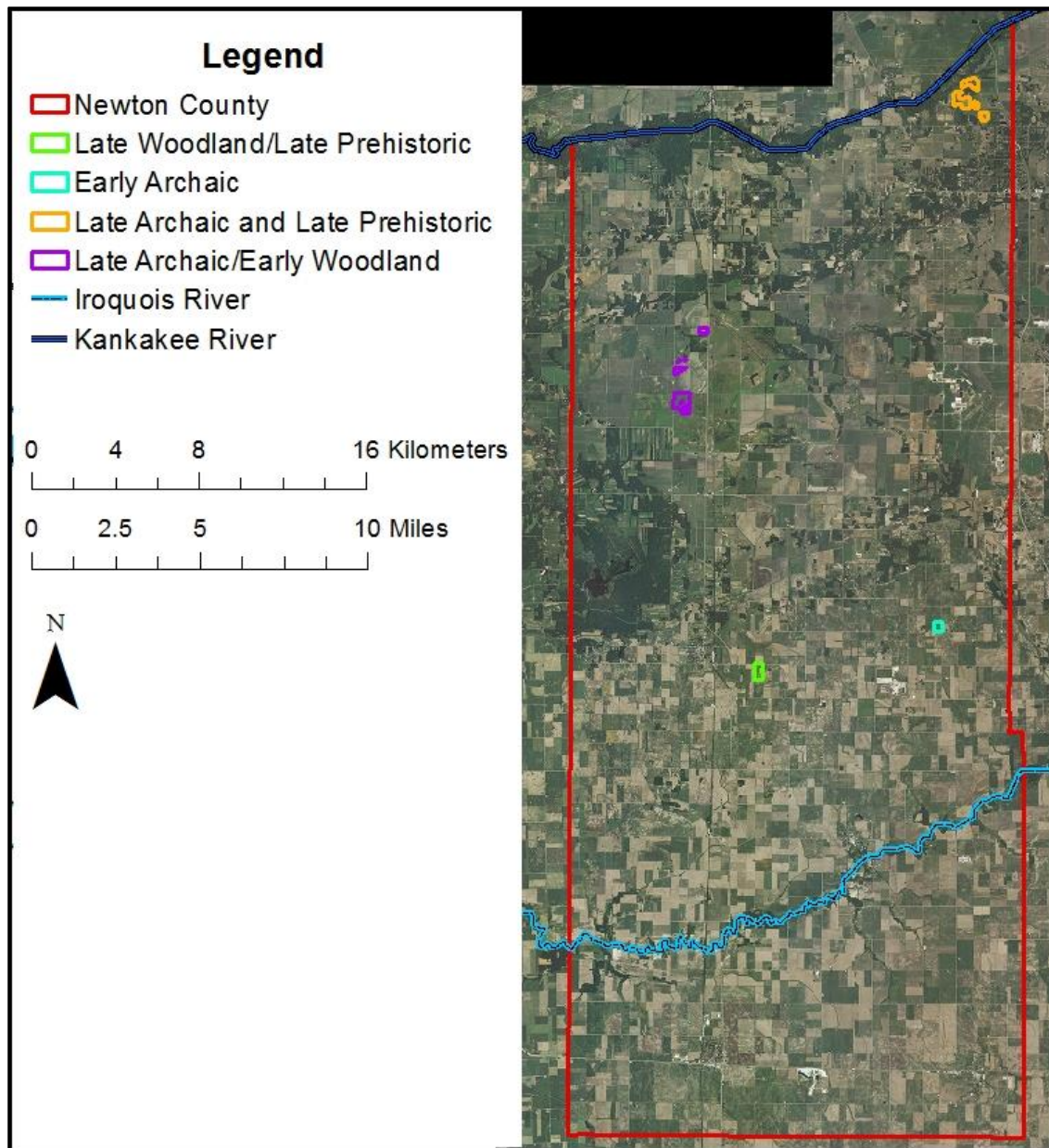


Figure 123: Diagnostic Projectile Point Culture Periods in relation to the Iroquois and Kankakee Rivers (Indiana Spatial Data Portal 2015).

The majority of the precontact sites were unable to be identified by cultural period; however several prehistoric cultural periods – the Early Archaic, Late Archaic, Late Archaic/Early Woodland, Late Woodland/Late Prehistoric, and Late Prehistoric – were documented. Four multicomponent sites were recommended for further investigation and 76 sites were recommended as not eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places. A multicomponent lithic and historic scatter in Survey Area 7 (12-N-327) contained several diagnostic Late Archaic and Late Prehistoric projectile points indicates that further research could yield important information

about prehistoric settlement patterns and land use in Newton County. The remaining sites (12-N-123, 12-N-124, 12-N-218, 12-N-219, 12-N-345, and 12-N-359) are in the former Beaver Lake in McClellan Township. Further investigation into these sites could yield information that would be beneficial towards a more complete understanding of prehistoric and historic utilization of a region that was once considered to be inhospitable to settlers (Heistand 1951:36).

The surveys conducted in Newton County are unable to be compared to those of other Indiana counties whose results show a greater evidence of land use in upland areas because of the disproportionate survey of upland features in Newton County (Leeuwrik et al. 2015; Macleod et al. 2015; Swihart and Nolan 2014). Much of the evidence of land use discovered on the floodplain areas consisted of historic artifacts with very little prehistoric artifacts recovered and no diagnostic prehistoric artifacts recovered. Due to the vast majority of surveys being located on upland landforms it is difficult to make a comparison to the occupation patterns as found on other varieties of landforms. For the future, survey of a greater variety of landforms would be beneficial in expanding the knowledge of occupation patterns across the county and making inferences about upland feature occupation preferences.

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. Further research into prehistoric landform usage is recommended within Newton County.

Newton County would benefit from further archaeological investigations, especially those focusing on the procurement of diagnostic prehistoric materials and systematization of landform use prehistorically. Included in this should be further large scale pedestrian surveys to complement the findings in this report as well as identify potentially new areas of interest. Particularly surveys that attempt to capture representative samples of the topographic, geomorphic, hydric, and texture properties of landforms and soils given the peculiar hydrological history of this area and the already documented peculiar distribution of archaeological materials in this portion of the state (Leeuwrik et al. 2015; Macleod et al. 2015; Surface-Evans 2015; and this report). Surveys designed in this way could add not only to our understanding of shifting resource procurement and settlement strategies throughout prehistory, but could also be used to hypothesize changes in overall drainage properties of the region related to the formation of the various marshes, and marsh-like environments that predominated in this region.

References Cited

- Abrams, Elliot
2009 Hopewell Archaeology: A View from the Northern Woodlands. *Journal of Archaeological Research* 17:169-204.
- Adams, William H.
1980 *Waverly Plantation: Ethnoarchaeology of a Tenant Farming Community*. Resource Analysts, Inc., Bloomington, Indiana.
- Adderly, Anthony W.
1996 *Archaeological Records Search, Reconnaissance and Recommendations, Construction of a Recreational Pond in Central Newton County, Indiana*. Indiana State University, Terre Haute, Indiana.
2002 *Archaeological Records Review and Phase 1a Field Reconnaissance for Curtis Creek Site County Road 550 East Newton County, Indiana*. Sagamore Environmental Services, Inc., Indianapolis, Indiana.
- Ade, John
1911 *Newton County: A Collection of Historical Facts and Personal Recollections Concerning Newton County, Indiana, From 1853-1911*. The Bobs-Merrill Company, Indianapolis, Indiana.
- Andreas, A.T.
1968 *Maps of Indiana Counties in 1876*. Baskin, Forester & Co., Chicago, Illinois.
- Andrefsky, William J.
2005 *Lithics: Macroscopic Approaches to Analysis*. Second Edition ed. Cambridge University Press, United Kingdom.
- Angst, Michael
1994 *An Archaeological Survey of Fayette County*. Reports of Investigation 40. Archaeological Resources Management Service, Ball State University, Muncie, Indiana. Management Service, Ball State University, Muncie, Indiana.
1998 *Newton County Community Center Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Anslinger, Michael C.
1993 *Archaeological Records Review and Recommendation, INDOT Project ST-019-1(), Des. 29805, Replacement of Structures Carrying U.S. 41 over Bogus Island Ditch, Newton County, Indiana*. Indiana State University, Terre Haute, Indiana.
- Barnes, James R., and Larry C. Osterholz
1998 *Soil Survey of Newton County, Indiana*. United States Department of Agriculture, Washington, D.C.
- Beard, Thomas C.
1991 *Archaeological Field Reconnaissance INDOT Project ST-1441-1 (D) Replacement of Two Small Structures on U.S. 24 East of U.S. 41 in Newton County, Indiana*. Lebanon, Indiana.
1994 *Archaeological Field Reconnaissance INDOT Project BRS-5356(004)/BRS-3745(003) Proposed Wetland Replacement Area Along SR 55 South of the Kankakee River in Newton County, Indiana*. Landmark Archaeological and Environmental Services, Inc., Lebanon, Indiana.

- Beazley, Matthew, and Dina M. Bazzill
 2013 *Archaeological Assessment TCNS ID #91020 Proposed 260-Foot (Overall Height) Self-Supporting Lattice Telecommunications Structure within an Approximate 90-foot by 90-foot (27m by 27m) Lease Area SBA-IN20054-A (Enos Tower #1)*. Environmental Corporation of America, Alpharetta, Georgia.
- Bechert, Charles H., and John M. Heckard
 1966 Ground Water. In, *Natural Features of Indiana*. Edited by Alton A. Lindsey. Indiana Academy of Science, Indianapolis, Indiana.
- Bellis, James O.
 1979 *Report of the Archaeological Reconnaissance of Project No. ST-674 "WW" LaSalle State Fish & Wildlife Area in Newton County, Indiana*. Notre Dame University, Notre Dame, Indiana.
 1984 *Report of the Archaeological Reconnaissance for the Newton County Bridge No. 57 on County Road 700 North Over Beaver Lake Ditch*. Department of Anthropology, Notre Dame University, Notre Dame, Indiana.
- Bennett, Stacy N.
 2000 *Phase 1a Archaeological Field Reconnaissance: INDOT Project Stp-9956(), Des. #9506860: Rehabilitation of CR 600E from SR 10 to CR 1200N, Newton County, Indiana*. Landmark Archaeological and Environmental Services, Inc., Sheridan, Indiana.
- Benson, L., T. R. Pauketat, and E. Cook
 2009 Cahokia's Boom and Bust in the Context of Climate Change. *American Antiquity* 74: 467–483
- Berge, Dale L.
 1980 Simpson Springs Station Historical Archaeology in Western Utah 1974-1975. *Cultural Resources Series* No.6. Bureau of Land Management, Utah State Office, Salt Lake City, Utah.
- Black, Glenn A.
 1936 Excavation of the Nowlin Mound. *Indiana History Bulletin* 13(7):207-305. Indianapolis, Indiana.
- Black, Max
 2005 *Archaeological Field Reconnaissance Newton County Well Project Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Black, Max, and Shaun Miller
 2003 *County Road 700 North Newton County, Indiana Archaeological Field Reconnaissance*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Bond, Gerard, Bernd Kromer, Juerg Beer, Raimund Muscheler, Michael N. Evans, William Showers, Sharon Hoffmann, Rusty Lotti-Bond, Irka Hajdas, and Georges Bonani
 2001 Persistent Solar Influence on North Atlantic Climate Change during the Holocene. *Science* 294:2130-2136.
- Brammer, Beth N.
 1995 *Archaeological Field Reconnaissance: Proposed Wastewater Project for Morocco, Newton County, Indiana*. Landmark Archaeological and Environmental Services, Inc., Lebanon, Indiana.

- Burkett, Frank N.
1993 *Archaeological Reconnaissance for INDOT Project: STP-3856() Replacement of SR 16 Bridge over Iroquois River in Newton County*. Indiana Department of Transportation, Indianapolis, Indiana.
- Caldwell, Joseph R.
1971 Eastern North America. In *Prehistoric Agriculture*, edited by Stuart Stuever, pp. 361-382, The Natural History Press, Garden City, New York.
- Callendar, Charles
1978 Miami. In *Handbook of North American Indians*, Vol. 15 "Northeast" edited by Bruce G Trigger, the Smithsonian Institution, Washington D.C.
- Callendar, Charles, Richard K. Pope, and Susan M. Pope
1978 Kickapoo. In *Handbook of North American Indians*, Vol. 15 "Northeast" edited by Bruce G Trigger, the Smithsonian Institution, Washington D.C.
- Cantin, Mark
1995 *Archaeological Reconnaissance and Recommendations, INDOT Project ST-019-1(), Des. 9229805, Replacement of Structure Over Bogus Island Ditch on US 41, Newton County, Indiana*. Indiana State University, Terre Haute, Indiana.
2005 *Provenience, Description, and Archaeological Use of Selected Chert Types of Indiana*. Technical Report No. 05-01, Indiana State University Anthropology Laboratory, Terre Haute, Indiana.
2008 *Provenience, Description, and Archaeological Use of Selected Chert Types of Indiana*. Technical Report No. 05-01, Indiana State University Anthropology Laboratory, Terre Haute, Indiana.
2011 Chert Types of Indiana. Paper presented at the March 2011 Indiana Archaeology Council Spring Workshop. Strawtown, Indiana.
- Carmony, Donald F.
1998 *Indiana 1816 to 1850: The Pioneer Era (History of Indiana)*. Indiana Historical Society, Indianapolis, Indiana.
- Clifton, James A.
1978 Potawatomi. In *Handbook of North American Indians*, Vol. 15 "Northeast" edited by Bruce G Trigger, the Smithsonian Institution, Washington D.C.
- Cochran, Blake
2006 *Archaeological Reconnaissance Kentland Municipal Airport Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Cochran, Donald R., and Kelly Cox
1977 *Federal Aid Secondary Project No. OS099-56(2) F.A.S. Route County Road 525 E Newton Bridge #151 Over Iroquois River, Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Cochran, Donald, and Jeanette Buehrig
1985 *An Archaeological Survey on the Wabash Moraine: A Study of Prehistoric Site and Artifact Density in the Upper Wabash Drainage*. Reports of Investigation 15. Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- Coleman, Dorothy S., Elizabeth A. Coleman, and Evelyn J. Coleman
1968 *The Collector's Encyclopedia of Dolls*. Crown Publishers, New York.

Conover, Diana R.

- 1983 *Archaeological Records Review Newton County Bridge 147 Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- 1985a *Archaeological Records Review Goodland Water Utility Extension Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- 1985b *Archaeological Field Reconnaissance Willow Slough Fish Wildlife, Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- 1986a *Archaeological Records Review Newton County Road 1300 South Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- 1986b *Archaeological Records Review Roselawn Postal Building, Roselawn Gardens Subdivision Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- 1986c *Amendment to Archaeological Records Review Newton County Road 1300 South Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.

Coon, Matt

- 2008 *An Archaeological Records Check and Phase 1a Field Reconnaissance: Two Small Structure Replacements on SR 18 over Gruden Ditch (De. Nos. 0201032 and 0201033), Newton County, Indiana*. Cultural Resources Services Indiana Department of Transportation, Indianapolis, Indiana.
- 2010 *SR 10 Superstructure Replacement over Best Ditch, 3.28 miles west of SR 41*. INDOT, CRS, Indianapolis, Indiana.
- 2012a *An Archaeological Records Check and Phase 1a Reconnaissance Survey: INDOT LaPorte District Unit Permits in Carroll, Cass, Fulton, Jasper, Lake, LaPorte, Marshall, Newton, Porter, Pulaski, and St. Joseph Counties, Indiana*. Cultural Resources Office INDOT Environmental Services, Indianapolis, Indiana.
- 2012b *SR 114 Pipe Line Over Unnamed Tributary to Zabrosky Ditch, 1.47 Miles East of US 41, Newton County, Indiana*. INDOT, CRO, Indianapolis, Indiana.

Craig, Joseph

- 2015 *Proposed Schneider Telecommunications Tower in Newton County*. Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, Indianapolis Indiana.

Cree, Donald W.

- 1991a *Archaeological Field Reconnaissance Goodland Senior Citizen Apartment Project Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- 1991b *An Archaeological Database Enhancement Project: A Survey of Hamilton and Marion Counties, Indiana*. Reports of Investigation 31. Archaeological Resources Management Service, Ball State University, Muncie.

Cree, Donald W., Randy Gaw, Gerald Waite, Lisa Paylo, and Donald R. Cochran

- 1994 *Historic and Prehistoric Contexts in the Tipton Till Plain*. Reports of Investigation 36. Archaeological Resources Management Service, Ball State University, Muncie.

- Delcourt, Hazel R., and Paul A. Delcourt
1991 *Quaternary Ecology: A Paleoecological Perspective*. Chapman & Hall, London, England.v
- DeRegnaucourt, Tony
1976 *Archaeological Reconnaissance of Indiana State Highway 10 from Roselawn, Indiana to the Intersection of State Road 110, Project Number S-883(4) in Newton and Jasper Counties, Indiana*. Upper Miami Valley Archaeological Research Museum, Arcanum, Ohio.
1982 *Archaeological Reconnaissance of the Site for a New Salt Storage Building at the Kentland Maintenance Unit Center in Newton County, Indiana*. Upper Miami Valley Archaeological Research Museum, Arcanum, Ohio.
- DeRegnaucourt Tony, and Jeff Geogiady
1998 *Prehistoric Chert Types of the Midwest*. Western Ohio Podiatric Medical Center, Greenville, Ohio.
- Division of Historic Preservation and Archaeology
2012 *Indiana's Cultural Resources Management Plan For 2013 to 2019*.
<http://www.in.gov/dnr/historic/files/hp-IndianaStatePlan2013-2019.pdf>. Accessed May 15, 2014.
2015 State Historic Architectural and Archaeological Research Database (SHAARD). Electronic Database, <https://secure.in.gov/apps/dnr/shaard/welcome.html>, accessed March 2015.
- Donaldson, Joshua A.
2013 *Archaeological Records Check, Rehabilitation of Lake County Bridge No. 36, Carrying State Line Road Over the Kankakee River, Lake and Newton Counties, Indiana and Kankakee County, Illinois*. Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- Dorwin, John T.
1966 *Fluted Points and Late-Pleistocene Geochronology in Indiana*. Indiana Prehistory Series, Volume IV, Number III. Indiana Historical Society, Indianapolis, Indiana.
- Drury, John
1955 *This is Newton County: An Up-to-Date Historical Narrative with County and Township Maps and Many Unique Aerial Photographs of Cities, Towns, Villages, and Farmsteads*. The Loree Company, Chicago, Illinois.
- Eichenlaub, Val
1979 *Weather and Climate of the Great Lakes Region*. University of Notre Dame Press, South Bend, Indiana.
- Evans, Dallas
1990 *Archaeological Resources Management Services Bridge Over the Kankakee River Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- F.A. Battey & Co.
1883 *Counties of Warren, Benton, Jasper, and Newton, Indiana: Historical and Biographical*. F.A. Battey & Co. Publishers, Chicago, Illinois.
- Fabyan, E.J.
ca. 1976-1979 *Archaeological Reconnaissance of Project: RS-4256(1) Newton County*. Muncie, Indiana.

- 1979 *Archaeological Reconnaissance of Indiana State Highway Commission Project ST-5356(A) SR 55 Newton County, Indiana*. IN State Highway Commission, Muncie, Indiana.
- 1982 *Supplemental Archaeological Reconnaissance of Indiana Department of Highways Project: S-883(4) State Road 10 to State Road 110, Newton and Jasper Counties, Indiana*. IN State Highway Commission, Muncie, Indiana.
- Faulkner, Charles H.
1972 The Late Prehistoric Occupation of Northwestern Indiana: A Study of the Upper Mississippi Cultures of the Kankakee Valley. *Indiana Historical Society* 5(1):13-222. Indianapolis, Indiana.
- For Goodness Sake Productions
2012 *Everglades of the North: The Story of the Grand Kankakee Marsh*. DVD Movie, accessed November 2015.
- Gammon, James R., and Shelby D. Gerking
1966 Fishes. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 401-425. Indiana Academy of Science, Indianapolis, Indiana.
- General Land Office Surveys
1795–1840 Microfilm on file at Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- Geo. A. Ogle & Co.
1916 *Standard Atlas of Newton County, Indiana: Including a Plat Book*. Geo. A. Ogle & Co. Chicago, Illinois.
- Godden, Geoffrey
1964 *Encyclopedia of British Pottery and Porcelain Marks*. Bonanza Books, New York.
- Gray, Henry H., and Kim Sowder
2002 *Indiana_Physiographic_Regions: Physiographic regions of Indiana (Indiana Geological Survey, 1:2,150,000, Polygon Shapefile)*
Geospatial_Data_Presentation_Form: Map. Indiana Geological Survey, Bloomington, Indiana.
- Grayson, Donald K., and David J. Metzler
2003 A Requiem for North American Overkill. *Journal of Archaeological Science* 30:585-593. Oxford, United Kingdom.
- Greber, N'omi, Richard S. Davis, and Ann S. DuFresne
1981 The Micro Component of the Ohio Hopewell Lithic Technology: Bladelets. *Annals New York Academy of Science*: 489-528.
- Greenhouse, Barry D., William I. Roberts, John W. Matthews, Gerald P. Smith, Paula M. Crowley, and R. Diane Hammonds
2000 *Archaeological Survey and Testing Walstra Cellular Tower Site Demotte, Newton County, Indiana*. Greenhouse Consultants, Inc., Atlanta, Georgia.
2001a *Phase 1a Cultural Resources Reconnaissance Survey Whaley Farm Cellular Tower Site (SAC-1703A) Kentland, Newton County, Indiana*. Greenhouse Consultants, Inc., Atlanta, Georgia.
2001b *Phase 1a Cultural Resources Reconnaissance Survey Molson Farm Cellular Tower Site (SAC-1701A) Morocco, Newton County, Indiana*. Greenhouse Consultants, Inc., Atlanta, Georgia.

- 2001c *Phase 1a Cultural Resources Reconnaissance Survey Dorn Farm Cellular Tower Site (SAC-1700B) Lake Village, Newton County, Indiana*. Greenhouse Consultants, Inc., Atlanta, Georgia.
- Greenlee, Diana M.
2002 Accounting for Subsistence Variation among Maize Farmers in Ohio Valley Prehistory. Ph.D. Dissertation, Department of Anthropology, University of Washington, Seattle, Washington.
- Greenlee, Rachel J.
2007 *An Archaeological Records Check and Phase 1a Field Reconnaissance: A Proposed Bridge Replacement on SR 55 Over Moffitt Ditch (INDOT Des. No. 0301053) in Lincoln Township, Newton County, Indiana*. Cultural Resources Section, Indiana Department of Transportation, Indianapolis, Indiana.
- Guernsey, E.Y.
1932 Indiana: the Influence of the Indian upon its history... (map). Department of Conservation, Indianapolis.
- Gutshick, Raymond C.
1966 Bedrock Geology. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 1-20. Indiana Academy of Science, Indianapolis, Indiana.
- Hale, Malcolm D.
1966 Lakes and Streams. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 91-99. Indiana Academy of Science, Indianapolis, Indiana.
- Hart, John P.
1999 Maize Agriculture Evolution in the Eastern Woodlands of North America: A Darwinian Perspective. *Journal of Archaeological Method and Theory* 6(2):137-180.
- Hasenstab, Robert J.
2008 The "Lithic Scatter" as an Artifact of Field Testing. In *Current Approaches to the Analysis and Interpretation of Small Lithic Sites in the Northeast*, edited by CB Reith, pp. 11-36. New York State Museum Bulletin Series 508, New York State Education Department, Albany, New York.
- Heistand, Joseph E.
1951 *An Archaeological Report on Newton County Indiana*. Indiana Historical Bureau, Indianapolis, Indiana. Reprinted in 2005 by the Newton County Historical Society, Family History Division.
- Helmkamp, Criss R.
2000 *Archaeological Records Check: INDOT Project STP-9956, Des. No. 9506860, Rehabilitation of CR 600E from SR 10 to CR 1200N, Newton County, Indiana*. Purdue University, West Lafayette, Indiana.
- Helmkamp, Criss R., and Katherine S. Kanne
2001 *Archaeological Records Check: INDOT Project ST-3856(1), Des. No. 9704030, Small Structure Replacement on SR 16 over Unnamed Tributary of the Iroquois River, Newton County, Indiana*. Purdue University, West Lafayette, Indiana.
- Helmkamp, Criss R., and Matthew S. Coon
1999 *Archaeological Records Check Reconnaissance Survey: INDOT Project ST-144-1(), Small Structure Replacement on US 24 Over Morrison Ditch, Des. No. 8824915, Newton County, Indiana*. Cultural Resource Management Program, Purdue University, West Lafayette, Indiana.

- Holloway, Richard, and Vaughn M. Bryant, Jr.
 1985 *Late-Quaternary Pollen Records and Vegetational History of the Great Lakes Region: United States and Canada*. In *Pollen Records of Late-Quaternary: North American Sediments* edited by Vaughn M. Bryant, Jr., and Richard G. Holloway. pp. 245-280
 American Association of Stratigraphic Palynologists Foundation, Austin, Texas.
- Holycross, David N.
 1997 *Archaeological Records Review and Recommendations Project ST-5356(F), Des. 8657710, Replacement of Small Structure Over Weiss Ditch on SR 55, Iroquois Township, Newton County, Indiana*. Indiana State University, Terre Haute, Indiana.
 2001 *Archaeological Records Review, Reconnaissance, and Recommendation, Project ST-4956(), Des. 9701700, SR 55 Bridge Replacement over Burgess Ditch, 1.30km South of US 24, Newton County, Indiana*. Indiana State University, Terre Haute, Indiana.
- Horn, Johnathon C.
 2005 *Historic Artifact Handbook*. Alpine Archaeological Consultants, Inc., Montrose, Colorado.
- Hutchinson, Stacie
 1986 *Archaeological Records Review Small Structure Replacement on State Road 16 (Project# RS-3856()) Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Intermountain Antiquities Computer System (IMACS)
 1984 *Intermountain Antiquities Computer System (IMACS) User Guide*. Bureau of Land Management, Utah State Office, Salt Lake City, Utah.
 1992 *Intermountain Antiquities Computer System (IMACS) User Guide*. Bureau of Land Management, Utah State Office, Salt Lake City, Utah.
 2009 *Intermountain Antiquities Computer System (IMACS) User Guide*. Bureau of Land Management, Utah State Office, Salt Lake City, Utah.
- IndianaMAP
 2015 Watersheds_8-Digit Hydrologic Units (U.S. Geologic Survey 1:24,000, Polygon Shapefile). IndianaMAP Online Database for Indiana. Indiana Geographic Information Council, Indianapolis, Indiana < <http://maps.indiana.edu>>.
- Indiana Spatial Data Portal
 2015 *Indiana University Indiana Spatial Data Portal (ISDP)*. The Trustees of Indiana University, Indiana University, Bloomington, Indiana.
- James, Mary Lou, and Donald R. Cochran
 1985 *An Archaeological Survey of Jay County, Indiana*. Reports of Investigation 18. Archaeological Resources Management Service, Ball State University, Muncie.
- Jones, James R., and Amy L. Johnson
 2008 *Early Peoples of Indiana*. Department of Natural Resources, Division of Historic Preservation and Archaeology, Indianapolis, Indiana.
- Justice, Noel
 1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington, Indiana.
- Keene, David
 2010 *Phase 1a Archaeological Investigations CNG Fueling Station and Pipelines, Fair Oaks, Indiana*. Archaeological Research, Inc., Chicago, Illinois.

- Keene, David, and Margaret Hayes
 2005 *Phase Ia Archaeological Investigations on the Proposed Efroymson Ecosystem Restoration Project Near Enos, Newton County, Indiana*. Archaeological Research, Inc., Chicago, Illinois.
- King, R. Brad
 2007 *Archaeological Field Reconnaissance Morocco Well Field Newton County, Indiana*. Pioneer Consulting Services, Inc., Muncie, Indiana.
 2009 *Archaeological Field Reconnaissance Lake Village Fire Station Newton County, Indiana*. Pioneer Consulting Services, Inc., Muncie, Indiana.
 2010a *Archaeological Field Reconnaissance Goodland Ditch Construction Newton County, Indiana*. Pioneer Consulting Services, Inc., Muncie, Indiana.
 2010b *Archaeological Field Reconnaissance Kentland Storm Sewer Project Newton County, Indiana*. Pioneer Consulting Services, Inc., Muncie, Indiana.
- King, R. Brad, and Mitchell Zoll
 2009 *Archaeological Field Reconnaissance Brook Fire Station Newton County, Indiana*. Pioneer Consulting Services, Inc., Muncie, Indiana.
- King, Frances B.
 1993 Climate, Culture, and Oneota Subsistence in Central Illinois. In *Foraging and Farming in the Eastern Woodland*, edited by Margaret Scarry, pp. 232-254. University Press of Florida, Gainesville, Florida.
- Koldehoff, Brad
 1985 Southern Illinois Cherts: A Guide to Silicious Materials Exploited by Prehistoric Populations in Southern Illinois. Manuscript on File 1985-6, Center for Archaeological Investigations, Illinois.
- Kooyman, Brian P.
 2000 *Understanding Stone Tools and Archaeological Sites*. University of Calgary Press, Calgary, Alberta.
- Kullen, Douglas, and Matt Greby
 2003 *Phase I Archaeological Survey of the Van Kalker Property, Range Line, Lake County Indiana*. Allied Archaeology, Aurora, Illinois.
- LaBelle, Jason M.
 2003 Coffee Cans and Folsom Points: Why We Cannot Continue to Ignore the Artifact Collectors. In *Ethical Issues in Archaeology*, edited by Larry J. Zimmerman, Karen D. Vitelli, and Julie Hollowell-Zimmer, pp. 115-127. Walnut Creek, California.
- Leeuwrik, Jamie M., Shelbi Long, Christine Thompson, Kevin C. Nolan, and Erin Steinwachs
 2015 *An Archaeological Survey of Newton County: Enhancement of a Data Deficient Region*. Reports of Investigation 88, edited by Christine Thompson and Kevin C. Nolan. Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- Lofstrom, Ted, Jeffrey P. Tordoff, and Douglas C. George
 1982 A Seriation of Historic Earthenwares in the Midwest, 1780-1870. *The Minnesota Archaeologist Spring/Summer* 41(1):3-29.
- Luedtke, Barbara E.
 1992 *An Archaeologist's Guide to Chert and Flint*. Cotsen Institute of Archaeology Press, Los Angeles, CA.

- Lumbis, Barbara J.
1984 *Archaeological Records Review Newton County Bridge No. 137 Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Lyon, Marcus W.
1936 Mammals of Indiana. *The American Midland Naturalist* 17.
- Macleod, Colin L., Shelbi Long, Christine Thompson, Kevin C. Nolan, and Erin Steinwachs
2015 *An Archaeological Survey of Jasper County: Enhancement of a Data Deficient Region*. Reports of Investigation 87, edited by Christine Thompson and Kevin C. Nolan. Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- Majewski, Teresita, and Michael J. O'Brien
1987 The Use and Misuse of Nineteenth-Century English and American Ceramics in Archaeological Analysis. In *Advances in Archaeological Method and Theory Vol. 11*, edited by Michael B. Schiffer. Academic Press, Inc., San Diego, California.
- Mangold, William L.
2003 *Archaeological Investigations at Willow Slough Fish and Wildlife Area*. Indiana Division of Historic Preservation and Archaeology, Indianapolis, Indiana.
2009 The Middle Woodland Occupations of the Kankakee River Valley and Beyond. Unpublished Ph.D. dissertation, Indiana University, Bloomington, Indiana.
- Maust, Lisa, and Donald Cochran
1989 *Historic Sites from the General Land Office Surveys: An Indiana Survey*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- McAlpine, Thomas H., Jr.
2004 *Archaeological Records Review of J.C. Murphy Lake Dam, Newton County, Indiana*. Archaeological Resource Management Services, 04RC004, Muncie, Indiana.
- McCord, Beth K.
2004 *County Road 600 East and 700 North Newton County, Indiana Archaeological Field Reconnaissance*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
2007 *A Profile of the Till Plain Archaeology: A Survey of Hancock County, Indiana*. Reports of Investigation 71. Archaeological Resources Management Service, Ball State University, Muncie.
- Melhorn, Wilton. N.
1997 Indiana on Ice: The Late Tertiary and Ice Age History of Indiana Landscapes. In *The Natural Heritage of Indiana*, edited by M.T. Jackson, pp. 15-27. Indiana University Press, Bloomington, Indiana.
- Mensforth, Robert P.
2001 Warfare and Trophy Taking in the Archaic Period. In *Archaic Transitions in Ohio And Kentucky Prehistory*, edited by Olaf H. Prufer, Sara E. Pedde and Richard S. Meindl, Kent State University Press, Kent, Ohio.
- Meyer, A.H.
1935 The Kankakee "Marsh" of Northern Indiana and Illinois. *Michigan Academy of Science, Arts, and Letters Papers* 12:359-396. Ann Arbor, Michigan.
- Meyers, Eric
1997 An Endangered Natural Resource: Wetlands. In *The Natural Heritage of Indiana*, edited by M. T. Jackson, pp. 76. Indiana University Press, Bloomington, Indiana.

- Miller, George L.
2000 Comments on Bill Adams Time Lag Paper, unpublished paper,
<https://lists.asu.edu/cgi-bin/wa?INDEX>. Accessed March 2015.
- Miller, Joseph R.
2013 *A Distributional Archaeological Survey of the Southern Portion of Blackford County*. Reports of Investigation 80, edited by Christine Keller. Applied Anthropology Laboratories, Ball State University, Muncie.
- Miller, Joseph R, Victoria Kiefer, and Kristin Kjeldsen
2012 *A Survey of Blackford County: A Data Enhancement Project*. Reports of Investigation 79, edited by Christine Keller. Applied Anthropology Laboratories, Ball State University, Muncie.
- Miller, Rex K.
1941 McCain site, Dubois County, Indiana. *Indiana Historical Society* 2(1):1-60.
Indianapolis, Indiana.
- Miller, Shaun A.
2006 *An Archaeological Records Check: Proposed Small Structure Replacement on US 24 over Railroad Ditch (INDOT Des. No. 0200070) 0.66 miles west of US 41 of Kentland, Newton County, Indiana*. Cultural Resource Section, Indiana Department of Transportation, Indianapolis, Indiana.
- Milton, Sherman A.
1966 Amphibians and Reptiles. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 426-451. Indiana Academy of Science, Indianapolis, Indiana.
- Moffatt, David
2009 *An Archaeological Records Check and Reconnaissance: Two Proposed Small Structure Replacement on SR 14 (INDOT Des. No. 0400006 and 0400007) Newton County, Indiana*. Cultural Resources Section, Indiana Department of Transportation, Indianapolis Indiana.
- 2010 *Bridge Replacement on SR 10 over Beaver Lake Ditch near Lake Village in Newton County*. Cultural Resources Section Indiana Department of Transportation, Indianapolis, Indiana.
- Montet-White, Anta
1968 *The Lithic Industries of the Illinois Valley in the Early and Middle Woodland Period*. The University of Michigan, Ann Arbor, Michigan.
- Moodie, Roy L.
1929 *The Geological History of the Vertebrates of Indiana and their Position in the Ancient North American Fauna*. Publication 90, Indiana Department of Conservation, Indianapolis, Indiana.
- Mumford, Russell F.
1966 Mammals. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 474-488. Indiana Academy of Science, Indianapolis, Indiana.
- Munson, Cheryl A., Michael Strezewski, and C. Russell Stafford
2006 *Archaeological Investigations at the Prather Site, Clark County, Indiana: The 2005 Survey and Excavations*. Indiana University-Purdue University Fort Wayne, Fort Wayne, Indiana.

- Murray, Emily, Jessie Moore, and Victoria Kiefer
2011 *A Survey of Montgomery County: A Data Enhancement Project*. Reports of Investigation 77, edited by Christine Keller. Applied Anthropology Laboratories, Ball State University, Muncie.
- National Resources Conservation Service
2013 Web Soil Survey of Newton County, Indiana. United States Department of Agriculture. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed April 24, 2015.
- Nelson, Lee H.
1964 *Nail Chronology as an Aid to Dating Old Buildings*. Technical Leaflet 48. American Association for State and Local History, Nashville Tennessee.
- Newman, James E.
1966 Bioclimate. In *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 171-180. Indiana Academy of Science, Indianapolis, Indiana.
- Nolan, Kevin C., Mark F. Seeman, and James L. Theler
2007 A Quantitative Analysis of Skill and Efficiency: Hopewell Blade Production at the Turner Workshop, Hamilton County, Ohio. *Midcontinental Journal of Archaeology* 32(2):297-330.
- Ohio Department of Transportation (ODOT)
1991 *Coding System Manual for the East Liverpool, Ohio Urban Archaeology Project*. Archaeology Series No. 1, Ohio Department of Transportation, Columbus, Ohio.
- Pace, Robert E.
1984 *Additional Archaeological Reconnaissance, Borrow Pit "A", Newton County Bridge #79, Contract No. B-14196*. Indiana State University, Terre Haute, Indiana.
1987 *Archaeological Records Search and Reconnaissance, RS-4856(2), 14-56-7348(1760A), SR 14 Bridge Over Kent Ditch, Newton County*. Indiana State University, Terre Haute, Indiana.
- Parsell, Veronica
2012 *Phase Ia Archaeological Records Review and Reconnaissance for the Colfax Substation in Newton County, Indiana*. Cardno JFNew, Indianapolis, Indiana.
- Pedde, Sara E., and Olaf H. Prufer
2001 Holocene Vegetation and Climate Changes in the Ohio Region. In *Archaic Transitions in Ohio and Kentucky Prehistory*, edited by Olaf H. Prufer, Sara E. Pedde and Richard S. Meindl, Kent State University Press, Kent, Ohio.
- Peebles, Christopher S., and Michael J. Shott
1981 *The Distribution and Abundance of Archaeological Sites in the River Raisin Watershed, Michigan*. Paper presented at the 46th Annual Meeting of the Society for American Archaeology, San Diego.
- Petty, Robert O., and Marion T. Jackson
1966 Plant Communities. In *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 264-296. Indiana Academy of Science, Indianapolis, Indiana.
- Pitblado, Bonnie L.
2014 An Argument for Ethical, Proactive, Archaeologist-Artifact Collector Collaboration. *American Antiquity* 79(3):385-400.

- Prince, Hugh
 1997 *Wetlands of the American Midwest: A Historical Geography of Changing Attitudes*. The University of Chicago Press, Chicago, Illinois.
- Raycraft, Don, and Carol Raycraft
 1990 *Collector's Guide to Country Stoneware and Pottery (Second Series)*. Collector Books, Paducah, Kentucky.
- Redmond, Brian G. and James R. Jones III
 2003 *Facing the Final Millennium: Studies in the late Prehistory of Indian, A.D. 700 to 1700*. Indiana Department of Natural Resources, Division of Historic Preservation & Archaeology, Indianapolis, Indiana.
- Redmond, Brian G., and Robert G. McCullough
 2000 The Late Woodland to Late Prehistoric Occupations of Central Indiana. In, *Late Woodland Societies: Tradition and Transformation across the Midcontinent*, edited by Thomas E. Emerson, Dale L. McElrath, and Andrew C. Fortier, pp. 643-683. University of Nebraska Press, Lincoln, Nebraska.
- Reith, Christina B. (editor)
 2008 *Current Approaches to the Analysis and Interpretation of Small Lithic Sites in the Northeast*. New York State Museum Bulletin Series 508, New York State Education Department, Albany, New York.
- Richards, Ronald L., and John O. Whitaker, Jr.
 1997 Indiana's Vertebrate Fauna: Origins and Change. In, *The Natural Heritage of Indiana*, edited by M.T. Jackson. Indiana University Press, Bloomington, Indiana.
- Riley, Thomas J., Gregory R. Waltz, Charles J. Bareis, Andrew C. Fortier, and Kathryn E. Parker
 1994 Accelerator Mass Spectrometry (AMS) Dates Confirm Early *Zea mays* in the Mississippi River Valley. *American Antiquity* 59:490-97.
- Robertson, Elizabeth C.
 2011 Reassessing Hypsithermal human-Environment Interaction on the Northern Plains. In, *Human Interaction with the Geosphere: The Geoarchaeological Perspective*, edited by Lucy Wilson. The Geological Society of London, Bath, United Kingdom.
- Rosenberg, Seth A.
 2004 *Roselawn Library Newton County, Indiana Archaeological Field Reconnaissance*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Rourke-Jordan, V.A.M.
 1979 *Archaeological Records Review Bridge No. 79 Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Ruby, Bret J.
 1994 *An Archaeological Investigation of Crab Orchard Tradition Settlement Patterns in Southwestern Indiana*. Reports of Investigation 94-15. Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington, Indiana.
- Schaal, Lawrence A.
 1966 Climate. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 156-170. Indiana Academy of Science, Indianapolis, Indiana.
- Schneider, Allen F.
 1966 Physiography. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 40-56. Indiana Academy of Science, Indianapolis, Indiana.

- Seeman, Mark F.
 1979 *The Hopewell Interaction Sphere: The Evidence for Interregional Trade and Structural Complexity*. Indiana Historical Society, Indianapolis, Indiana.
 1992 *Cultural Variability in Context: Woodland Settlements of the Mid-Ohio Valley*. The Kent State University Press, Kent, Ohio.
- Shane, Linda
 1976 Late-glacial and Postglacial Palynology and Chronology of Darke County, West Central Ohio. Unpublished Ph.D. Dissertation, Kent University, Kent, Ohio.
- Shane, Linda C. K., Gordon G. Snyder, and Katherine H. Anderson
 2001 Holocene Vegetation and Climate Changes in the Ohio Region. In, *Archaic Transitions in Ohio and Kentucky Prehistory*, edited by Olaf H. Prufer, Sara E. Pedde and Richard S. Meindl, Kent State University Press, Kent, Ohio.
- Shott, Michael J.
 1993 Spears, Darts, and Arrows: Late Woodland Hunting Techniques in the Upper Ohio Valley. *American Antiquity* 58(3):425-443.
 2004 Representativity of the Midwestern Paleoindian Sample. *North American Archaeologist* 25(2): 189-212.
 2008 equal o nll roofht w ded I e vsbr cted: A Proposal for Conservation of Private Collections in American Archaeology. *Archaeological Record* 8:30-34.
- Shurig, Donald G.
 1970 *Engineering Soils Map of Wabash County, Indiana*. Purdue University, West Lafayette, Indiana.
- Smith, Andrew, Rachel Klabacka, and Beth McCord
 2009 *Archaeological Investigations in the Upper Wabash River Valley: A 2009 Survey in Huntington, Miami and Wabash Counties, Indiana*. Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- Smith, Bruce D., and Richard A. Yarnell
 2009 Initial formation of an indigenous crop complex in eastern North America at 3800 BP. *Proceedings of the National Academy of Sciences, USA* 106(16):6561-6566.
- Smith, Edward E.
 1986 The Swan's Landing Site: An Early Archaic Lithic Reduction and Tool Manufacturing Site in Harrison County, Indiana. *Current Research in the Pleistocene* 4:71-72. College Station, Texas.
- Smith, Samuel D.
 1983 Excavation of a Mid-Nineteenth Century Trash Pit, Wynnewood State Historic Site, Sumner County, Tennessee. *Tennessee Anthropologist*.
- Snyder, Daniel, Michael Powers, Paul J. Pacheco, and Jarrod Burks
 2008 Brown's Bottom #1 (33RO1104) Bladelet Assemblage: An Experimental in Use-Wear Analysis. *Pennsylvania Archaeologist* 78(1):41-60.
- Stafford, Russell C.
 1987 *Archaeological Records Search, Reconnaissance and Recommendations, Project RS-5356(), 55-56-7284, Bridge Carrying SR 55 Over Kankakee River, Newton-Lake County Line*. Indiana State University, Terre Haute, Indiana.
 1988 *Archaeological Records Search, Reconnaissance and Recommendations, Goodland Wastewater Works Project, Newton County, Indiana*. Indiana State University, Terre Haute, Indiana.

Stafford, C. Russell, and Mark Cantin

2009 Archaic Period Chronology of Southern Indiana. In, *Archaic Societies: Diversity and Complexity across the Midcontinent*, edited by Thomas E. Emerson, Dale L. McElrath, and Andrew C. Fortier, pp. 287-316. State University of New York Press, Albany, New York.

Stelle, Lenville

2001 *An Archaeological Guide to Historic Artifacts of the Upper Sangamon Basin*. Center for Social Research, Parkland College, Champaign, Illinois.

Stelle, Lenville J., and Thomas P. Duggan

2003 An Archaeological Guide to Chert Types of East-Central Illinois.

http://virtual.parkland.edu/lstelle1/len/biface_guide/chert/documents/chert_types.html

Stillwell, Larry N.

1999 *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project #SPECM-028) near Fair Oaks, Newton County, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

2000 *An Archaeological Field Reconnaissance of Two Proposed Housing Lots in Brook; Newton County, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

2001 *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project #RT-736a) near Mount Ayr, Newton County, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

2002 *An Archaeological Field Reconnaissance of a Proposed Small Structure Replacement on US 24 over Hunter Ditch (Project #NH-14-1(), Des. 98010960) in Goodland, Newton County, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

2004 *An Archaeological Field Reconnaissance of a Proposed Expanded Right-of-Way for the SR 14 and I-65 Interchange (Project #IM-65-8(151), Des. 0200346) in Jasper and Newton Counties*. Archaeological Consultants of Ossian, Muncie, Indiana.

2005 *An Archaeological Field Reconnaissance of a Proposed Alteration of Montgomery Ditch Near Goodland, Newton County, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

2006 *An Archaeological Reconnaissance of the Proposed SR 10 Improvements (Des. 01006441) in Jasper and Newton Counties, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

2010a *An Archaeological Field Reconnaissance of a Proposed Telecommunications Facility (Project #0017-647) in Goodland, Newton County, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

2010b *An Archaeological Field Reconnaissance of a Proposed Telecommunications Facility (Project #0017-558) near Fair Oaks, Newton County, Indiana*. Archaeological Consultant of Ossian, Muncie, Indiana.

2013 *An Archaeological Field Reconnaissance of the Proposed Replacement of Bridge No. 127 (Des. No. 1297542) in Newton County, Indiana*. Archaeological Consultants of Ossian, Muncie, Indiana.

Surface-Evans, Sarah

2015 Intra-Wetland Land Use in the Kankakee Marsh Region of Northwestern Indiana. *Midcontinental Journal of Archaeology* 40(2):166-189.

- Surface-Evans, Sarah L., Donald H. Gaff, and R. Brian Somers
 2005 *Phase II Subsurface Investigations of Five Multicomponent Prehistoric Archaeological Sites (12-La-84, 91, 92, 522, 526) in the Kankakee Marsh of Lake County, Indiana*. Indiana University-Purdue University Fort Wayne, Fort Wayne, Indiana.
- Swartz, Ben K., Jr.
 1981 *Indiana's Prehistoric Past*. Revised edition. Ball State University, Muncie, Indiana.
- Swihart, Matthew R., and Kevin C. Nolan
 2013 *Distributional Analysis of Archaeological Remains in the Upper White River Basin: An Archaeological Survey of Hamilton County, Indiana*. Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- 2014 *Investigation of Fort Ancient Settlement and Community Patterns: An Archaeological Survey of Dearborn County, Indiana*. Applied Anthropology Laboratories, Ball State University, Muncie, Indiana.
- Taylor, Amanda J.
 2009 *Newton County Indiana Historic Sites and Structures Inventory*. Indiana Division of Historic Preservation and Archaeology, Indianapolis, Indiana.
- The Blacksmith & Wheelwright
 1902 *The Blacksmith & Wheelwright, Volumes 45-48, March 1902*. M.T. Richardson Company, New York.
- Tomak, Curtis H.
 1984 *An Archaeological Records Check for Indiana Department of Highways Project 55-56-7284 in Newton and Lake Counties*. Indiana Department of Highways, Indianapolis, Indiana.
- Trussel, Tim
 2010 *Quick and Dirty Field Guide to Historic Artifacts*. Millersville University, Millersville, Pennsylvania.
- USDA/NRCS
 2002 SOILS_STATSGO_IN: Soil Associations in Indiana (U.S. Dept. of Agriculture, 1:250,000, Polygon Shapefile). State Soil Geographic (STATSGO) data base for Indiana, 1994. U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, Texas. <<http://igs.indiana.edu/arcims/statewide/download.html>>
- 2015 SOILS_SSURGO_IN: Soil Properties and Components in Indiana (U.S. Dept. of Agriculture, 1:250,000, Polygon Shapefile). Soil Survey Geographic (SSURGO) data base for Indiana. U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, Texas. <<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>>
- 2015 *Illustrated Soil Taxonomy Guide, version 1.1*. U.S. Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.
- Waguespack, Nicole M., and Todd A Surovell
 2003 Clovis Hunting Strategies, or How to Make Out on Plentiful Resources. *American Antiquity*, 68(2):333-352.
- Wappenstein, Rick
 1999 *Phase Ia Archaeological Field reconnaissance INDOT Project No. STP-4956(), Des. No. 9701700; Bridge Replacement on SR 55 over Durgess Ditch, Approximately 1.3km (0.81 miles) South of US 24 in Newton County, Indiana*. Landmark Archaeological and Environmental Services, Inc., Sheridan, Indiana.

- Waters, Nikki
 1999 *Bridge #57 Newton County, Indiana Archaeological Records Review*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- Wayne, William J.
 1963 *Pleistocene Formations in Indiana*. Indiana Department of Conservation, Geological Survey Bulletin No. 25, Bloomington, Indiana.
 1966 Ice and land. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 21-39. Indiana Academy of Science, Indianapolis, Indiana.
- Wayne, W.J., and J.H. Zumberge
 1983 Pleistocene Geology of Indiana and Michigan. In, *The Quaternary Geology of the United States: A Review Volume for the VII Congress of the International Association for Quaternary Research*, edited by H.E. Wright and D.G. Frey, pp. 63-84. Princeton University Press, Princeton, New Jersey.
- Webster, J. Dan
 1966 Birds. In, *Natural Features of Indiana*, edited by Alton A. Lindsey, pp. 452-473. Indiana Academy of Science, Indianapolis, Indiana.
- Wepler, William R.
 1978 *Newton County Records Review for Proposed Improvements to Kentland Airport*. Department of Anthropology, Ball State University, Muncie, Indiana.
- West, Bryan
 1988 *Archaeological Field Reconnaissance I-65 Borrow Area Newton County, Indiana*. Archaeological Resources Management Service, Ball State University, Muncie, Indiana.
- Westermeier, Scott
 1997 *Morocco Sewage Treatment Plant Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.
- White, Andrew A., Craig Arnold, and Joshua Wells
 2007 *The Late Pleistocene and early Holocene Occupation of the Kankakee Region of Northwest Indiana*. Indiana University-Purdue University, Fort Wayne, Indiana.
- Whitehead, Donald R.
 1997 In the Glacier's Wake: Patterns of Vegetation Change Following Glaciation. In, *The Natural Heritage of Indiana*, edited by M.T. Jackson, pp. 102-109. Indiana University Press, Bloomington, Indiana
- Woods, Alan J., James M. Omernik, C. Scott Brockman, Timothy D. Gerber, William D. Hosteter, and Sandra H. Azevedo
 2003 *Ecoregions of Indiana and Ohio*. United State Environmental Protection Agency, Washington, D.C.
- Yellowmap World Atlas
 2015 Indiana Blank Map. Electronic document, <http://www.yellowmaps.com/map/Indiana-blank-map-93.htm>, accessed March 2015.
- Zoll, Mitchell K.
 2010 *Archaeological Field Reconnaissance for an Open Ditch and Storm Sewer in Newton County, Indiana*. Pioneer Consulting Services, Inc., Muncie, Indiana.
- Zoll, Kevin, and R. Brad King
 2010 *Archaeological Field Reconnaissance Kessler Ditch Reconstruction Newton County, Indiana*. Pioneer Consulting Services, Inc., Muncie, Indiana.

Zunker, Kim

2001 *Newton County Library Site Newton County, Indiana*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.

Zunker, Kim, and Kimberly Nagle

2002 *Replacement at US 24 over O'Brien Ditch Newton County, Indiana, Archaeological Field Reconnaissance*. Archaeological Resources Management Services, Ball State University, Muncie, Indiana.