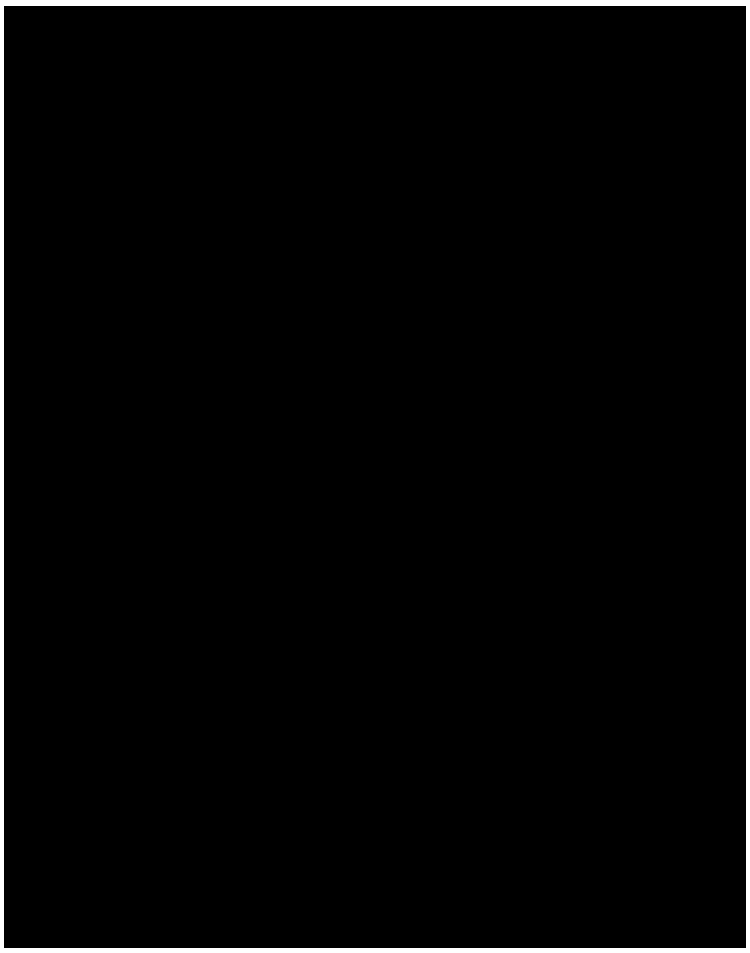
An Archaeological Survey of Jasper County: Enhancement of a Data Deficient Region

Grant # 18-14-FFY-02



By: Colin L. Macleod, Christine Thompson, Shelbi Long, Erin Steinwachs, and Kevin C. Nolan

Principal Investigators: Christine Thompson and Kevin C. Nolan

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Applied Anthropology Laboratories, Department of Anthropology
Ball State University, Muncie, IN 47306-0439
Phone: 765-285-5328 Fax: 765-285-2163
Web Address: http://www.bsu.edu/aal

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Colin Macleod

Abstract

The Applied Anthropology Laboratories (AAL) at Ball State University conducted a data enhancement project for archaeological resources in Jasper County, Indiana for a FY2014 Historic Preservation Fund Grant (Grant #18-14-FFY-02). This Historic Preservation Fund grant project investigated the archaeological resources of Jasper County, Indiana with a focus on major waterways such as the Iroquois and Kankakee Rivers in the southern half of the county. Approximately 900 acres (364.22 hectares) of agricultural land were surveyed and 112 new archaeological sites were recorded. The survey recovered 209 prehistoric artifacts and 307 historic artifacts from seven parcels of land within Jasper County. No human remains were discovered as a result of this grant project. Cultural periods that are represented in the artifact assemblage include Middle Archaic, Late Archaic, and Late Woodland/Late Prehistoric components that were documented from the precontact era, in addition to Historic components. The average site density recorded for the project area for precontact sites was one site per 15 acres and for Historic sites was one site per 13.85 acres.

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Introduction

The Applied Anthropology Laboratories (AAL) at Ball State University was awarded a FY2014 Historic Preservation Fund Grant to survey portions of Jasper County, Indiana. The project involved a pedestrian survey of approximately 900 acres of agricultural land. The main goals of the project were to increase the site database, refine the cultural chronology for the county, build on the FY2012 HPF grant survey conducted by Indiana University-Purdue University Fort Wayne Archaeological Survey (IPFW-AS), and examine evidence for the settlement of Yeoman and Nowles and the interaction of the Euro-American settlers and Native Americans along the Iroquois River. Specifically we hoped to add to the understanding of the Early Woodland and Late Archaic periods of the county based on the low number of previously documented sites for these cultural periods in comparison to the surrounding counties. Jasper County had 196 archaeological sites recorded in the State Historic Architecture and Archaeological Research Database (Division of Historic Preservation and Archaeology 2014) database prior to this survey, 137 of which were added as a result of a FY2013 HPF Grant conducted by IPFW-AS which focused efforts on the well-drained soils and wetland resources surrounding the Kankakee and Iroquois rivers (Smith and Sanchez 2013). The investigations in this report focus on the southern portion of the county, especially areas adjacent to the aforementioned Kankakee and Iroquois waterways. The southern half of the county is primarily comprised of till plain and moraine landforms. Due to landowner permissions and visibility of specific parcels, the majority of the survey also consisted of these landforms with some alternative landforms also being surveyed such as floodplains.

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

1. What is the cultural chronology for Jasper County?
2. What are the densities and distributions of archaeological sites along the Iroquois River and the Iroquois Till Plain within the county?
3. What is the settlement pattern for Euro-American people along the Iroquois 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?
6. Can the location of the Yeoman/Nowles settlement or other settlements in the area be discovered?
7. Can the location of selected school houses and churches on the 1876 historic atlas of Japer County be found archaeologically?

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 Jasper County, Indiana.

Location

The project area is located in Jasper County (Figure 1) which has an area of 359,321 acres (145,412 hectares) (Smallwood and Osterholz 1990:1). For this project, we targeted areas surrounding the Iroquois River in the southern half of the county, as well as locations that were noted in the IPFW-AS FY2013 HPF Grant report (Smith and Sanchez 2013) to include historical churches or schoolhouses. Due to limitation of landowner permissions we were unable to survey any land parcels that included or were adjacent to churches or historic school houses in Jasper County.

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). Jasper County is located within the broad region of uplift known as the Cincinnati Arch (Gutshick 1966:17).

The Cincinnati Arch can then be divided further into smaller bedrock physiographic units. The project area is enveloped by one of those units known as the Rensselaer Plateau (Schneider 1966:54). The Rensselaer Plateau is described as being physiographically distinct from other physiographic belts found in more southern parts of Indiana.

Attica chert, Liston Creek chert and Kenneth chert are the bedrock cherts in the region of Indiana around Jasper County (Figure 2).

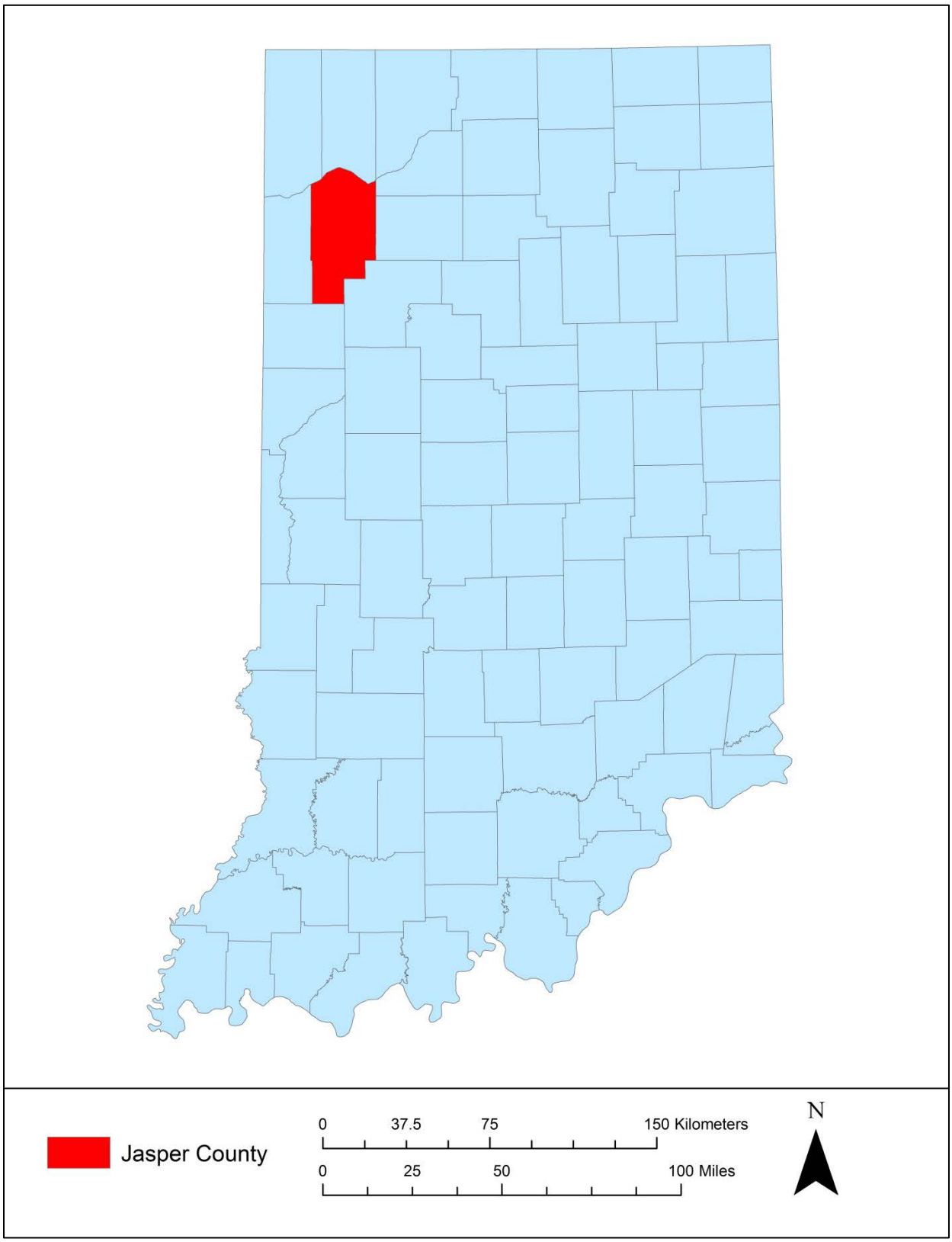


Figure 1: Jasper County within the state of Indiana (based on Indiana Maps Data 2013).

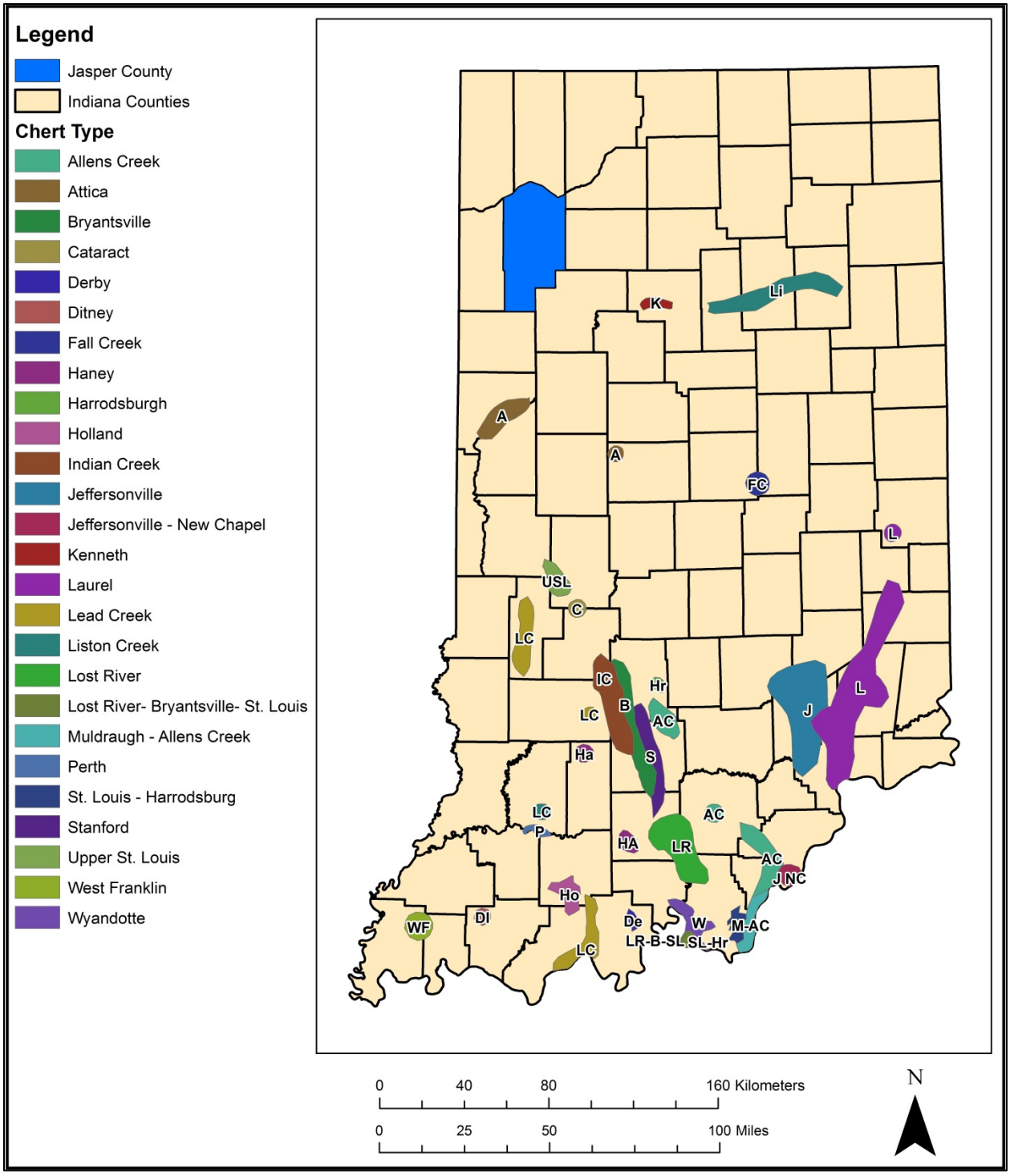


Figure 2: Indiana chert outcrop locations (digitized by Brad Painter from Cantin 2008).

Stratigraphically, Attica chert (Figure 3) is a member of the Muldraugh Formation of the Borden Group of the Mississippian Period. Also known as “Wabash Green” and “Independence”, Attica chert is described as being blue-green in color with blue-grey streaks,

bands and mottles. When heat treated, Attica chert takes on a purple color with pinkish bands and streaks. 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. 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 3: Example of Attica Chert from the Ball State University AAL Chert Collection (photo by Ball State University).

Liston Creek chert (Figure 4) is both a nodular and bedded chert found in Liston Creek limestone which is a member of the Wabash Formation, Niagara Series, in the Silurian System (Cantin 2008:54). Liston Creek chert is light to medium grey with patches of tan or brown also being commonly found within samples. The texture of this chert can vary from coarse to medium fine. Small fossils are occasionally found within Liston Creek chert. Small calcitic and/or siliceous are often observed within the chert, however they are so small that they cannot be positively determined to be fossils (Cantin 2008:55).

Figure 4: Example of Liston Creek Chert from the Ball State University AAL Chert Collection (photo by Ball State University).

Kenneth chert (Figure 5) is a bedded chert found in Kenneth limestone which is a member of the Salina Formation, in the Silurian System (Cantin 2008:46). The base color of this chert is white to a light grey. Patches of deeper grey or brown-grey can also be seen within a sample. Fossils are common within this type of chert, however they are small “siliceous blobs” (Cantin 2008:47). Kenneth chert was used by Native Americans more within the Tipton Till Plain and in areas where qualities of chert were limited and of low quality (Cantin 2008:48).

Figure 5: Example of Kenneth Chert from the Ball State University AAL Chert Collection (photo by Ball State University).

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 the Illinoian Age and 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. A small portion near the center and another portion of the most southern part of Jasper County are a part of the Cartersburg Till Member, which is part of the larger 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 extra-glacially as the Atherton Formation (Wayne 1963:31; Wayne 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. Most of the Atherton Formation sediments in the project area would belong to the lacustrine facies (Wayne 1966:26). This facies consists of stratified coarse-grained sediments which were deposited in sheets by glacial meltwater current in valley fill (Wayne 1963:32). The remaining sections within Jasper County are a part of outwash and dune facies. This includes some of the Martinsville Formation of which only part belongs to the Atherton Formation (Wayne 1966:26).

Physiography

Jasper County is within the general physiographic units known as the Northern Moraine and Lake Region and the Tipton Till Plain (Schneider 1966; cf. Smith and Sanchez 2013:3). Gray (2000) places the county within the Kankakee Drainageways (northern third) and the

Iroquois Till Plains (southern two thirds). The Northern Moraine and Lake Region, Kankakee Outwash and Lacustrine Plain is characterized as poorly drained lowland around the Iroquois, Tippecanoe, and Kankakee Rivers (Schneider 1966:52). As well, it can be characterized as "a structural plain or stripped surface on the rather resistant westward-dipping Silurian and Devonian carbonate rocks that lie beneath" (Schneider 1966:43-44). 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 Jasper County (Schneider 1966:41). The portion of Jasper 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 (Schneider 1966:52). These poorly drained soils, combined with the low lying topography, contributed to the formation of the Kankakee Marsh and other wetlands which covered much of this area until its draining (Figure 6, see also Figure 9), in the mid-19th thru early 20th, centuries for agricultural purposes (Smallwood and Osterholz 1990:1). The Tipton Till Plain is characterized as having flat and, or gently rolling topography and is considered to be the landscape that is most commonly associated with Indiana. The Tipton Till Plain displays few notable geomorphic features. The few features that do punctuate the landscape are almost exclusively glacial in origin, namely glacial moraines. These moraines do afford small changes in relief in the landscape (Schneider 1966:49-50).

The Tipton Till Plain is then divided into bedrock physiographic divisions with Jasper County lying within the Rensselaer Plateau (Schneider 1966:54). The Rensselaer Plateau is described as unique as compared to the more southern physiographic belts within Indiana. The most southern portion of the Rensselaer Plateau falls within the most northern portion of the Tipton Till Plain. Much of the remaining northern portions of the Rensselaer Plateau fall within the boundaries of the Muscatatuck Regional Slope (Schneider 1966:55).

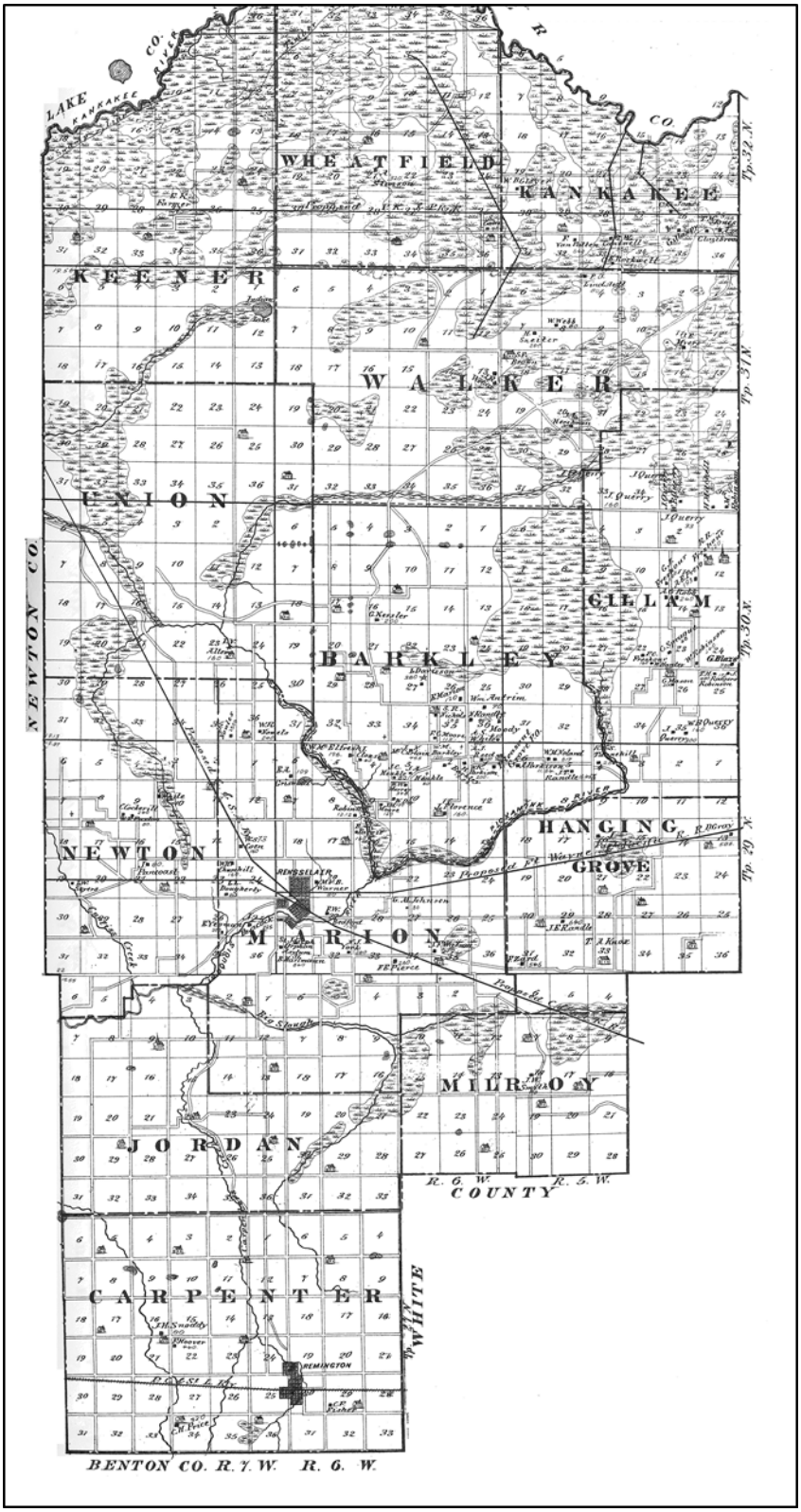


Figure 6: Jasper County from Maps of Indiana Counties 1876 (Andreas 1876) showing the state of the Kankakee Marsh ca. 1876.

Soils

The majority of soils found in Jasper County are a product of either glacial or fluvial parent materials. Glacially deposited sediments of the ground moraines typically have clayey to silty textures while kames and eskers consist of sands and gravels. Glacio-fluvial deposits in outwash plains and terraces range from silty to gravelly textures. The more recent fluvial deposits found on floodplains and river terraces are dominated by loamy textures. Lacustrine plains tend to have clayey textures (Smallwood and Osterholz 1990).

There are 13 soil associations within Jasper County (Table 1). The bulk of soil associations within Jasper County (Oakville-Morocco-Brems, Maumee-Zadof-Watseka, Gilford-Morocco, Parr-Ayr-Wawasee, Rockton-Faxon, Rensselaer till substratum-Markton-Aubbeenaubbee, Rensselaer till substratum-Darroch till substratum-Wolcott, Reddick-Andres-Corwin, Montgomery-Strole-Nesius, Rensselaer-Darroch-Neslus and Iroquios-Papineau-Simonin) form in uplands. These 11 soil associations related to upland features that account for around 89% of the soils within the county. The remaining two soil associations, (Suman-Craigmile-Prochaska and Houghton-Muskego-Adrian), constitute the lowland features in Jasper. Houghton-Muskego-Adrian association also constitutes the upland landscape (Smallwood and Osterholz 1990).

Table 1: Soil Associations in Jasper County (Smallwood and Osterholz 1990:7-15)

Association	Description	Landforms	% of County
Suman-Craigmile-Prochaska	Deep, nearly level, very poorly drained, medium textured soils formed in silty and loamy alluvium over sandy deposits or in sandy alluvium	Bottom land	7%
Oakville-Morocco-Brems	Deep, nearly level to strongly sloping, well drained to somewhat poorly drained, coarse textured soils formed in sandy outwash	Uplands	19%
Houghton-Muskego-Adrian	Deep, nearly level, very poorly drained soils formed in organic deposits or in organic over coprogenous earth or sandy outwash	Bottom lands and Uplands	3%
Maumee-Zadof-Watseka	Deep, nearly level, very poorly drained and somewhat poorly drained, coarse textured soils formed in sandy and loamy outwash	Uplands	23%
Gilford-Morocco	Deep nearly level, very poorly drained and somewhat poorly drained, moderately coarse textured and coarse textured soils formed in loamy sediments over sandy outwash or in sandy outwash	Uplands	8%
Parr-Ayr-Wawasee	Deep, nearly level and gently sloping, well drained, medium textured to coarse textured soils formed in loamy or sandy outwash over till	Uplands	4%
Rockton-Faxon	Moderately deep, nearly level and gently sloping, well drained and very poorly drained, moderately coarse textured and medium textured soils formed in loamy outwash over limestone bedrock	Uplands	1%
Rensselaer, till substratum-Markton-Aubbeenaubbee	Deep, nearly level and gently sloping, very poorly drained and somewhat poorly drained, moderately coarse textured and coarse textured soils formed in loamy and sandy outwash over loamy till	Uplands	7%
Rensselaer, till substratum-Darroch, till substratum-Wolcott	Deep, nearly level, very poorly drained and somewhat poorly drained, medium textured and moderately fine texture soils formed in loamy outwash over loamy till	Uplands	8%
Reddick-Andres-Corwin	Deep, nearly level and gently sloping, poorly drained to moderately well drained, moderately fine textured and medium textured souls formed in silty and loamy outwash over silty loamy till	Uplands	5%
Montgomery-Strole-Nesius	Deep, nearly level and gently sloping, very poorly drained, somewhat poorly drained, and moderately well drained, moderately fine textured and coarse textured soils formed in silty and clayey lacustrine sediments or in sandy eolian deposits	Uplands	4%
Rensselaer-Darroch-Neslus	Deep, nearly level and gently sloping, very poorly drained, somewhat poorly drained, and moderately well drained, medium textured and coarse textured soils formed in loamy and silty outwash or in sandy eolian deposits	Uplands	7%
Iroquios-Papineau-Simonin	Deep, nearly level, very poorly drained, somewhat poorly drained, and moderately well drained, moderately coarse textured and coarse textured soils formed in sandy and loamy outwash over silty and clayey lacustrine sediments	Uplands	4%

Water Resources

Precipitation is the primary source of surface water for Indiana (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). Jasper County has two large rivers that run through it, the Iroquois River which is a tributary of the larger Kankakee River. The Kankakee River lies in the north and forms the northern boundary of the county. It flows westward through 13 counties, including Jasper, until it leaves Indiana and flows into Illinois where it eventually meets the Iroquois River. The Kankakee River was a major supply of resources for both Native Americans and early colonial settlers populating the Jasper County (Sandy et al. 2002:xii). The Kankakee River is surrounded by the Kankakee outwash plain which is described as being nearly level land with "low, meandering sand dunes or ridges are in scattered area" (Smallwood and Osterholz 1990:2). As it is a tributary of the Kankakee River, the Iroquois River is notably smaller than the Kankakee River and also flows westward into Illinois where it ultimately meets the Kankakee. This river is surrounded by a lacustrine plain which is characterized as "nearly level. Low sand ridges rise a few feet above the general ground level". Throughout Jasper County, there are many other tributaries of these two rivers and some small manmade ponds (Smallwood and Osterholz 1990:2).

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 Jasper 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). Water resources are extremely important to both prehistoric and historic human habitation patterns. Jasper County's multiple water, and especially wetland, resources would have been a valuable resource to prehistoric and historic populations.

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. 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. Jasper 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. As with all of the Midwest, Jasper County, being located in north-central Indiana, experiences daily and seasonal variability in climate, with cold winters and hot and humid summers (Sandy et al. 2002; Smallwood and Osterholz 1990:2).

Average rainfall for Jasper County is 36.6 inches a year while snowfall averages 26 inches a year (Smallwood and Osterholz 1990:2; see also Woods et al. 2003). The mean minimum January temperature varies between 18 to 20 degrees Fahrenheit while the mean maximum January temperature stays within 34 to 38 degrees Fahrenheit. 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 88 degrees Fahrenheit (Schaal 1966:162; see also Eichenlaub 1979).

Southern Jasper County is primarily within Level IV Ecoregion 54a (Figure 7), the Illinois/Indiana Prairies (IIP) (Woods et al. 2003). This ecoregion is within the Central Corn Belt Plains (CCBP). All of the survey areas for this project are with ecoregion 54a. Most of Smith and Sanchez' (2013) survey areas were within the Level IV ecoregion 54c, the Kankakee Marsh, of 54d, the Kankakee Sand Area. Mollisols dominate the CCPB, and the IIP is mostly prairies with aquolls more abundant. The IIP gets approximately as much precipitation as the Kankakee Marsh (54c) and the Kankakee Sand Area (54c). Ecoregion 54a experiences 160-170 frost free days, up to 23 more days than the Kankakee ecoregions (Woods et al. 2003).

Minor climatic properties may be influenced by natural features within the landscapes; 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.

Unfortunately for those that would otherwise investigate the past through the present, the modern climate of Indiana is not an accurate reflection of the climate over the last 12,000 years. As many 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 over the last 12,000 years, especially in this region, has been well documented and can be discussed in generally accepted terms. This change has had a direct and important effect on local biota which in turn affects the habitability of the region by people.

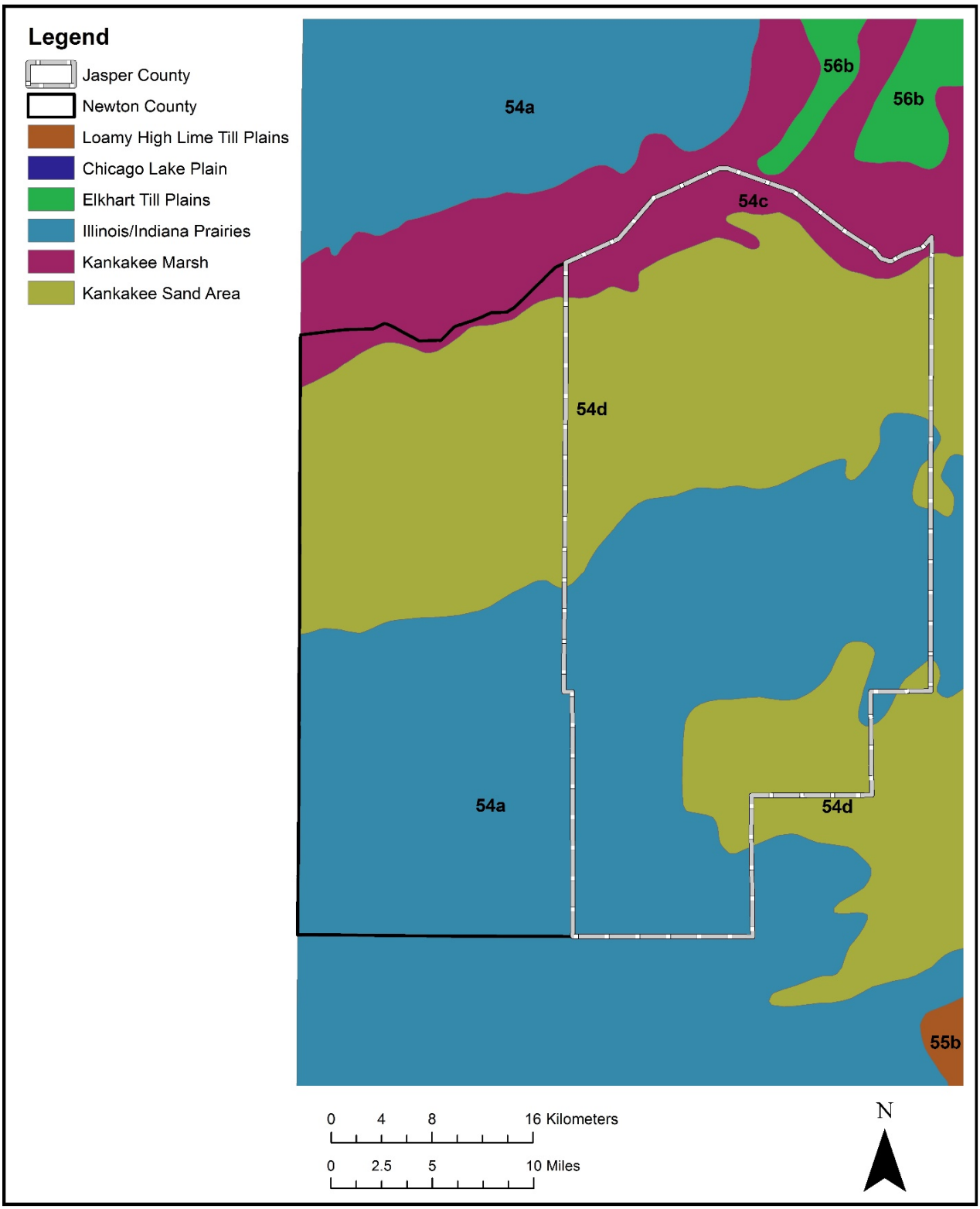


Figure 7: Level IV Ecoregions (Woods et al. 2003) for Northwest Indiana.

Biotic Communities

Flora

As the climate shifted in Indiana after the end of the Pleistocene, so did the plant species. Figure 8 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, 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 8 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 conclusion of species across Indiana produced a forest with mixed vegetation (Whitehead 1997:105). Vegetative responses have not been recorded in sediments for the Great Lakes Region (Holloway and Bryant 1985:237).

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. Petty and Jackson's (1966) study of the natural vegetation of Indiana in 1816 shows Jasper County within the oak-hickory, dry prairie and wetland associations (Figure 9). Oak-hickory forests generally are the dominate community wherever it grows. However, within Indiana, oak-hickory is found to next to various other plant communities, like the beech-maple and western mesophytic groups. When European immigration was beginning to the Americas, oak-hickory forests were being moved out by other plant species. White oak in particular had special importance to the forest, but also the European settlers who sought white oak because they grew in ideal agricultural soils. This can also be seen from early settler's lumber records (Petty and Jackson 1966:285-287). The area investigated during this project is entirely within the area characterized by wetlands (see Figure 9).

The understories (layer of vegetation beneath the canopy) within oak-hickory forests are generally less developed in comparison to other forest communities. However, maple and beech reproduction forests have shown that within their understory can be found mature oaks (Petty and Jackson 1966:287). Along with maple reproduction it is found that within oak-hickory understories, only one or two other species will be found. 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 are most prominent in the late summer and fall (Petty and Jackson 1966:287-288).

<table>
<tr><td>A.D. 2000</td><td rowspan="2">Historic</td><td rowspan="8">Deciduous Forest</td></tr>
<tr><td rowspan="2">A.D. 1000</td></tr>
<tr><td rowspan="2">Late Woodland</td></tr>
<tr><td rowspan="2">0</td></tr>
<tr><td>Middle Woodland</td></tr>
<tr><td>1000 B.C.</td><td>Early Woodland</td></tr>
<tr><td>2000 B.C.</td><td rowspan="2">Late Archaic</td></tr>
<tr><td>3000 B.C.</td></tr>
<tr><td>4000 B.C.</td><td rowspan="3">Middle Archaic</td><td rowspan="3">Prairies and Open Vegetation</td></tr>
<tr><td>5000 B.C.</td></tr>
<tr><td>6000 B.C.</td></tr>
<tr><td>7000 B.C.</td><td rowspan="3">Early Archaic / Late Paleoindian</td><td rowspan="2">Deciduous Forest</td></tr>
<tr><td>8000 B.C.</td></tr>
<tr><td>9000 B.C.</td><td rowspan="2">Pine Maximum</td></tr>
<tr><td>10000 B.C.</td><td rowspan="9">Early Paleoindian</td><td rowspan="2">Conifer-Deciduous Woodland</td></tr>
<tr><td>11000 B.C.</td></tr>
<tr><td>12000 B.C.</td><td rowspan="2">Boreal Forest</td></tr>
<tr><td rowspan="2">13000 B.C.</td><td>Park Tundra</td></tr>
<tr><td>Tundra or Open Areas</td></tr>
<tr><td>14000 B.C.</td><td>Periglacial Zone</td></tr>
<tr><td>15000 B.C.</td><td>Wisconsin Ice</td></tr>
</table>

Figure 8: Vegetation Sequence of Central Indiana (Cochran and Buehrig 1985:9, after Shane 1976)

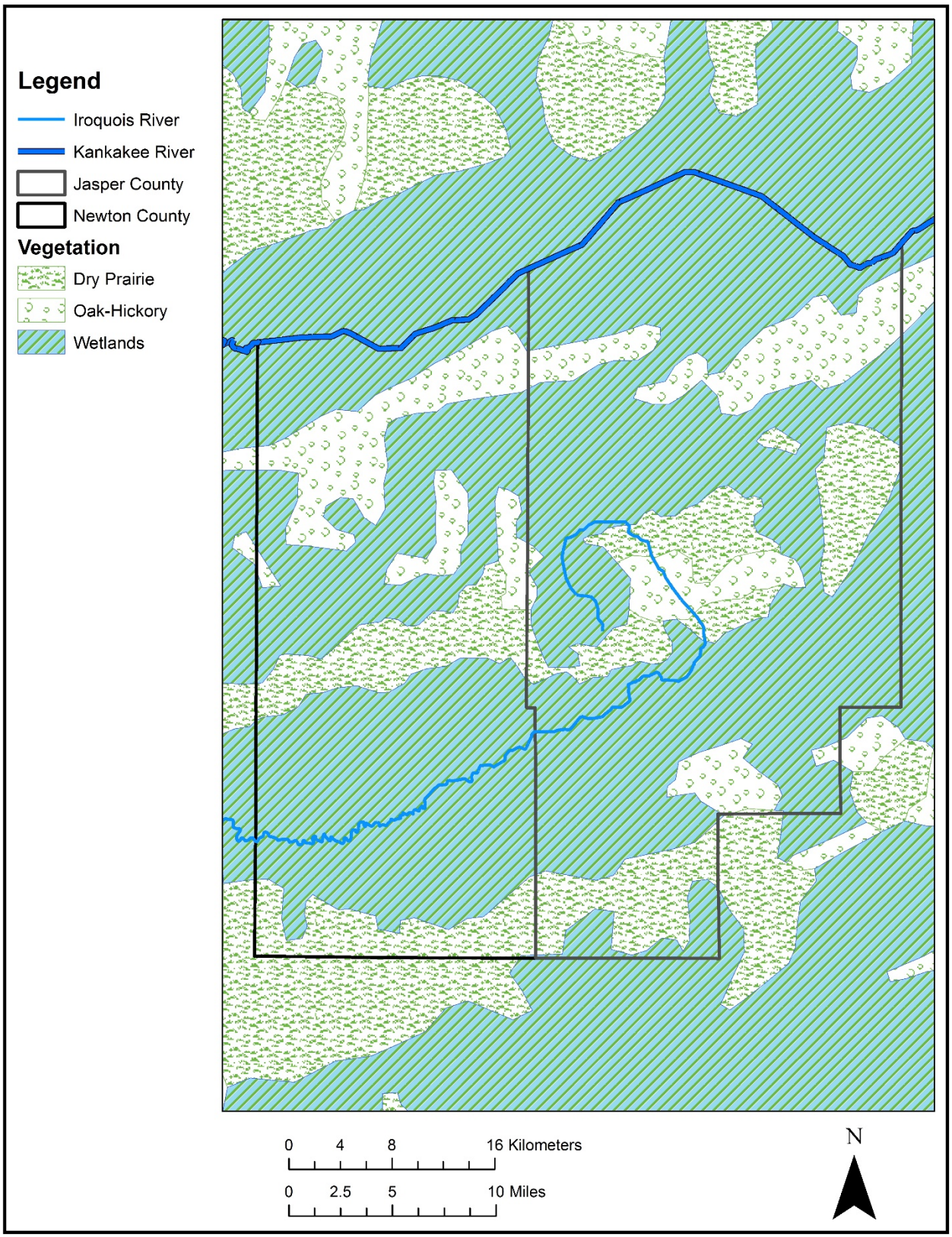


Figure 9: Pre-Euro-American Settlement Vegetation after Petty and Jackson (1966).

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 Jasper County, both in the vicinity of our survey areas (see Figure 9). 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 Jasper County (Meyers 1997:67). 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.

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 Jr. 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, saber-tooth 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 fauna in Indiana. This includes 366 species of birds (Webster 1966:455-473), 177 fish species (Gammon and Gerking 1966:401-425), as well as approximately 200 species of mollusks and 400 species of crustaceans live in Indiana waters. Additionally, approximately 82 species of amphibians and snakes have been identified (Milton 1966:426-451). These 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).

Summary

As the ecological and natural setting of the project area changed and evolved over the last several thousand years, human settlement and activity distribution would also have changed. Settlement and use of resources within the project area would have first been influenced by potential plant and animal resources and then, 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 had differential effects on the attraction of prehistoric populations for the varying abundance of natural resources accompanying environments such as deciduous forest, arboreal forests and expansive wetland. This fluctuation in the environment would have affected the availability of food as well as raw materials used in the production of tools, clothing, adornments and shelter.

Archaeological Background

In this section, the archaeological background of Jasper 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 May 30, 2014. 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 10. The Positive column indicates the number of surveys that encountered artifacts and reported any

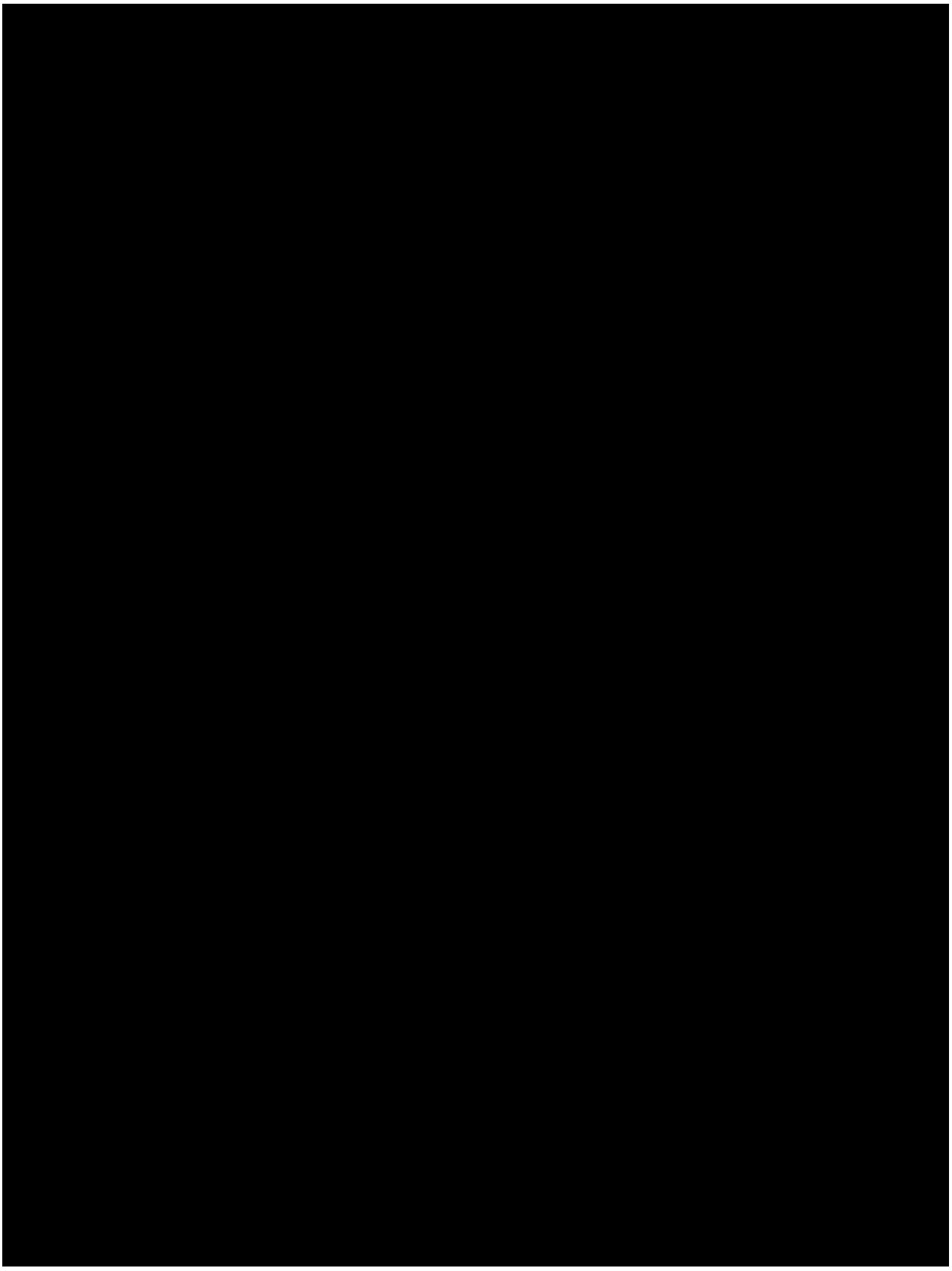
sites. The S/P column is a ratio of the number of surveys conducted by the number of surveys that were positive. The P/S column is a ratio of the number of positive surveys to total surveys. These ratios give an approximate index of the average density of the archaeological record in the county and in each civil township. This tabulation shows that sites are encountered in about one in every 2.8 surveys in Jasper County with an average positive density of 0.35. Prior to the current survey, 196 sites (Appendix A) had been recorded in Jasper County. 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 that the townships with the least amount of surveys as well as the least amount of sites are located in the eastern and southeastern portions of the county (see Figure 10). This is to be expected as this area is characterized by the lowest level of urban expansion, and as such will incur fewer mandatory archaeological surveys. However, Gillam Township has the highest density of positives with 100 percent of surveys (n = 3) encountering sites. With such low numbers of surveys in these areas (especially Milroy Township) it is very difficult to say how dense the archaeological record really is in the eastern portion of the county.

Conversely the townships with the greatest amount of surveys conducted and positive surveys tend to be those in the [redacted] of the county. The highest positive densities are in [redacted]. This is also to be expected as townships in the north such as [redacted] which likely influenced greater archaeological occupation density, as well as industrial potential, providing survey potential. Townships in the [redacted] have seen large surveys as a result of the construction of [redacted] as well as the expansion of towns such as [redacted]. Other townships have seen a moderate amount of surveys by Jasper County standards; however, more expansive and comprehensive surveys such as this project may be able to offer greater insights into overall Jasper County culture history. However, the proximity to flowing water does not explain the density of positives completely. [redacted]. The strange spatial patterns may be due to sampling bias and the consequences of the Law of Large Numbers. Much more survey is needed in Jasper County to begin to fill in these gaps.

Table 2: Summary of Previous Surveys in Jasper County

Civil Township	# of Surveys	Positive	S/P	P/S	References
Barkley	3	1	3.0	0.33	(Munson 1983; Helmkamp and Kanne 2001a; Smith and Sanchez 2013)
Carpenter	13	2	6.5	0.15	(Bellis 1987; Bennett 2000; Carmany 2004; Conover 1984a; Cox 2007; Dietrich 1985; Greenhouse et al. 2000a; Greenhouse et al. 2000b; King 2008; Snyder 2011; Stillwell 1989a; Suthers and Pope 2002; Wappenstein 1998a)
Gilliam	3	3	1.0	1.00	(Helmkamp and Kanne 2001b; Mangold 1986; Smith and Sanchez 2013)
Hanging Grove	1	0		0.00	(Helmkamp 1993a)
Jordan	4	0		0.00	(Adderley 1996; Cox, Kelly, and Donald Cochran 1977; Underwood 1980; Wepler 1979)
Kankakee	4	2	2.0	0.50	(Helmkamp 1993b; Jackson 1998; Smith and Sanchez 2013; White et al. 2007)
Keener	14	5	2.8	0.36	(Abbaduska 1990; Beard 1987; Beard 1989; Bellis 1977; Bellis 1985; Bubb 2005; Deregnaucourt 1979; James 1986; Martin 2000; Maust 1987; Smith and Sanchez 2013; Snell 2010; Tomak 1982; White et al. 2007)
Marion	20	5	4.0	0.25	(Bellis 1984; Cochran 1987; Coon 2012; Jackson 2013; King 2010; Klabacka 2008; Klabacka 2007; Laswell 2010; McAlpine and McCord 2004; Monroe 1986a; Munson 1987; Smith 1999a; Smith 1999b; Smith and Sanchez 2013; Stillwell 2007; Stillwell 2013a; Stillwell 2013b; Stillwell 2003a; Wells 1986; Zoll 1988)
Milroy	0	0			
Newton	7	5	1.4	0.71	(Helmkamp 1991; Conover 1984b; Greenhouse et al. 2000c; Smith and Sanchez 2013; Stillwell 2004; Stillwell 2003b)
Union	8	3	2.7	0.38	(Arthur 2001; Cochran 1999; Greenhouse et al. 2000d; Smith and Sanchez 2013; Stillwell 2006a; Stillwell 2004; Tomak 1988; White et al. 2007)
Walker	5	4	1.3	0.80	(Mangold 1986; Smith and Sanchez 2013; Stillwell 2011; Stillwell 2006b; White et al. 2007)
Wheatfield	17	5	3.4	0.29	(Pace 1987a; Pace 1987b; Pace 1984; Adderley 2001; Bellis 1990; Cochran 1986; Coon 2007; Jackson 1998; Johnson 1987; Mangold 1991; Mayronne 2000; Monroe 1986b; Monroe 1986c; Schurr 2005; Stillwell 1989b; Wappenstein 1998b; White et al. 2007)
Total	99	35	2.8	0.35	
Average	7.62	2.7	2.8	0.35	



Surveys by Township prior to this survey (Indiana Spatial Data Service 2011).

Table 3: Site Components Recorded Within Jasper County (DHPA 2014, Table 2)
***bold period headings include all sub-periods**

Component	No.	Comments
Unidentified Prehistoric	**145**	**17 multicomponent**
Paleoindian	**1**	**1 multicomponent**
Archaic	**20**	**7 multicomponent**
Unidentified Archaic	1	1 multicomponent
Early Archaic	7	2 multicomponent
Middle Archaic	1	
Late Archaic	10	3 multicomponent
Terminal Late Archaic	1	1 multicomponent
Woodland	**28**	**17 multicomponent**
Unidentified Woodland	12	7 multicomponent
Early Woodland	3	1 multicomponent
Middle Woodland	5	5 multicomponent
Late Woodland/Late Prehistoric	8	4 multicomponent
Mississippian	**4**	**4 multicomponent**
Unidentified Mississippian	1	1 multicomponent
Upper Mississippian	3	3 multicomponent
Protohistoric/Contact	**2**	**2 multicomponent**
Historic	**30**	**13 multicomponent**

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

Cultural Period	Projectile Point Types
Paleoindian	
Early Archaic	Kirk Corner Notched, Hardin Barbed, Stanley Stemmed, Thebes
Middle Archaic	Raddatz Side Notched
Late Archaic	Matanzas, Brewerton, Karnak, Matanzas Side Notched, Brewerton Side Notched
Early Woodland	Adena Stemmed
Middle Woodland	
Late Woodland	Jack's Reef Pentagonal
Late Woodland/ Late Prehistoric/Mississippian	Madison, Late Woodland/Mississippian Triangular Cluster

Table 5: Site types within Jasper County (Data from SHAARD, CRM and previous research reports)

Prehistoric Types	No.	Historic Types	No.
Lithic Scatter	98	Historic Scatter	15
Prehistoric isolated finds	49	House/ Cabin/ Farmstead/ Foundation	1
Mound	1	Cemetery	2
Village	1	Town/ Village	3
Burial	1	Artifact Scatter	1
Camp	3	Wigwam	3
Ceramic	1	Agricultural Field	2
Debris	6		
Dump	1		
Habitation	3		
Unknown	5		

Archaeological investigations in Jasper County have been predominantly oriented toward surface surveys and only a small percentage of sites have been tested or excavated. Several large surveys have been conducted within Jasper County and have been successful in discovering cultural materials. In 1989, Thomas Beard conducted a survey on areas for bridge replacements and road improvements along [redacted] in which 90.3 acres were surveyed and three previously unrecorded prehistoric sites were discovered (Beard 1989). In 2003, a field reconnaissance was conducted on approximately 110.19 acres of land by Archaeological Consultants of Ossian. The area being surveyed was the proposed site of an interchange of [redacted]. Two previously unrecorded sites were discovered as a result and these sites contained lithic materials (Stillwell 2003b). One of the most recent surveys conducted in the county was completed by Indiana University-Purdue University Fort Wayne (IPFW). In 2013, IPFW conducted a survey of 1,344 acres of Jasper County through a phase Ia survey documenting 137 previously unrecorded sites. The sites discovered in this survey contained a variety of cultural material. Historic materials such as ceramics, metals, glass and bones, as well as prehistoric lithic materials were found among the various sites (Smith and Sanchez 2013).

Culture History

The natural setting of Jasper County demonstrates an area with interrupted habitable areas, characterized by long periods when the area is minimally occupied mixed with temporally and geographically scattered habitation, after the retreat of the glaciers and following the fluctuations of the local surface water (both rivers and wetlands). These different occupation patterns track the fluctuating moisture levels (natural and anthropogenically modified) in the area that modify the availability and location of habitable land. Sites and site components that have been documented in the county illustrate that Native Americans inhabited the region from the Paleoindian period through the Historic period (see Table 3, Table 4, and Dorwin 1966). Most sites within Jasper County are of an unknown Prehistoric cultural affiliation. Of the cultural affiliations known in the area, Historic sites are most frequent with 30 sites being documented, followed by Late Woodland and Late Archaic sites of which there are 10 documented sites each (Division of Historic Preservation and Archaeology 2014). Dorwin (1966:Figure 1) reports three Paleoindian points from local collections, more than documented in SHAARD. The prevalence of historic sites is expected as historic occupations typically display a larger footprint and better preservation than prehistoric materials, and after artificial drainage during the 19th Century, more of the landscape was more consistently available for settlement. The most dominant prehistoric sites being Late Archaic and Late Woodland cultural affiliation with 10 components each. This pattern is distinct from neighboring counties (e.g., Leeuwrik et al. 2015) and may not be representative of the true archaeological record due to low numbers of observations and limited extent of investigation. The low level of Paleoindian period sites in SHAARD (DHPA 2014) and documented by Dorwin (1966) is also consistent with the low frequency of sites from this period generally within the Midwest region (Shott 2004:208).

Paleoindian cultures entered Indiana around 10,000-8,000 B.C., with the recession of the Wisconsin glaciers (Jones and Johnson 2008:2; Smith et al. 2009:21; Swartz 1981:4). Paleoindian sites generally occur in small surface scatters due to the fact that most these groups were small family bands following herds and hunting large game, such as Pleistocene the mega fauna, although also likely subsisting on smaller game and forage (Grayson and Meltzer 2003:588; Waguespack and Surovell:348). Artifacts from this time include fluted Clovis points, un-fluted Agate Basin, Hi-Lo, Holcombe, Plainview and Dalton points (Justice 1987). One Paleoindian (12-Js-66) site has been located in Jasper County (Division of Historic Preservation and Archaeology 2014).

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). Within Jasper County, seven Early Archaic sites (12-Js-66, 111, 112, 199, 207, 220, and 230) have been documented (Division of Historic Preservation and Archaeology 2014).

During the Middle Archaic (ca. 6,000-3,000 B.C.), climate continued to become increasingly warmer and drier associated with the Hypisthermal or Holocene Climatic Optimum (e.g., Robertson 2011:183), bringing more variety and stability for food resources. Stone tools became more diversified in this era and side notched points appear along with ground stone tools (Stafford and Cantin 2009:299). Only one Middle Archaic site (12-Js-161) has been documented within Jasper County (Division of Historic Preservation and Archaeology 2014), a situation mirrored in other data-deficient counties (see Miller et al. 2012).

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 exact nature of the Late Archaic sites is unclear, but seasonal occupation is assumed. 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). Within the county, ten Late Archaic sites (12-Js-66, 119, 139, 162, 174, 185, 188, 193, 206 and 228) have been discovered and reported (Division of Historic Preservation and Archaeology 2014).

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 Jasper 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 Terminal Late Archaic era peoples practiced both ceremonial rituals and mortuary practices (Jones and Johnson 2008:7; Mensforth 2001:123; Pedde and Prufer 2001). One Terminal Late Archaic site (12-Js-80) has been recorded in Jasper County (Division of Historic Preservation and Archaeology 2014).

Woodland sites are the second most commonly discovered site component within Jasper, accounting for 28 of the 230 total site components. The Early Woodland period (ca. 1,000-200 B.C.) is when pottery was introduced in North America (Montet-White 1968:5). Hunting, gathering and some horticulture continued during this period (Black 1936:298-299). The Adena culture is the most prominent cultural stage during this period and encompassed a region including Indiana and Ohio. As this period saw the inception of ceramics, pottery can be one of the most indicative features of Early Woodland cultures (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 southwestern Indiana, at characteristically Adena sites (Black 1936). Three Early Woodland components (12-Js-66, 118, and 240) have been documented in Jasper County (Division of Historic Preservation and Archaeology 2014).

Middle Woodland period subsistence and settlement patterns (ca. 200 B.C.-600 A.D.) are roughly consistent with those 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 (Montet-White 1968:18-19). Horticulture during the Middle Woodland period mainly consisted of plants such as sunflower, goosefoot, and marshelder. This period saw the rise of the Hopewell culture and extensive trade networks (Mangold 2009).Maize was introduced around this time in the Midwest though predominantly as a supplemental crop as opposed to 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 blades (Justice 1987; Montet-White 1968:179). In Jasper County, five Middle Woodland sites (12-Js-3, 7, 66, 80, and 162) have been recorded (Division of Historic Preservation and Archaeology 2014). However, Smith and Sanchez (2013:Figure 28) recovered an artifact from their SA4 that appears to be a Middle Woodland blade (12Js131, item #1944/01) made of heat-treated chert (possibly Burlington). The site is

recorded as an Unidentified Prehistoric isolated find, but would appear to date to the Middle Woodland period.

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 AD (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 AD; see Redmond and McCullough 2000:652-662). While no Albee sites have been reported in Jasper 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. The Late Woodland period is represented in Jasper County by eight documented sites (12-Js-3, 06, 66, 77, 79, 164, 182, and 239) (Division of Historic Preservation and Archaeology 2014).

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). Only one site (12-Js-6) of this period has been documented in Jasper County (Division of Historic Preservation and Archaeology 2014).

The Mississippian period (ca. 1000-1650 A.D.) 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 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). Within Jasper County one site is documented as being Mississippian site (12-Js-6) and three are documented as Upper Mississippian site (12-Js-6, 8, and 66) (Division of Historic Preservation and Archaeology 2014). The Upper Mississippian was the name given to Mississippian period cultures, such as Fishers and Huber that lived to the north and east of

classic Mississippian cultures. These cultures had many, though fewer, of the same "classic" characteristics, they lived near marshes and wetlands and lived in nucleated villages (Faulkner 1972:16-17; Jones and Johnson 2008:15).

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 not by the development of written history but be being in direct or indirect contact with those who do. As such these types of sites often include both prehistoric and historic materials. Though often not in direct contact, material goods, in addition to knowledge of Euro-American settlers had an influence, more or less, 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 Jasper County. The Potawatomi, Kickapoo, and Miami, groups were recorded to live in the north and northwest of the state, near Jasper County (Heistand 1951:8). Two Protohistoric sites (12-Js-3 and 31) have been discovered and documented within Jasper County (Division of Historic Preservation and Archaeology 2014).

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.

Historic

Before European settlers made their way to Jasper County, multiple Native American groups, like the Miami, Kickapoo, and Potawatomi, populated the area. These groups, particularly the Kickapoo moved considerably up to and during contact times. 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 its aquatic sources. However, a series of events such as westward expansion and the Kickapoo siding with the British in the War of 1812 against the United States, solidified bad relations and broken treaties with the Americans, most of the tribes in the area were forcibly moved from Indiana. Many, if not most of these individuals were

moved to Kansas in 1838 in a federal government action known as the Potawatomi Trail of Death (Carmony 1998; Clifton 1978:725; Heistand 1951:8; Sandy et al. 2002:xii).

The first Europeans to come to the Jasper County area were French explorers from the expedition of Rene-Robert Cavalier de LaSalle in 1679. The harshness of the Grand Kankakee Marsh, which characterized most of this area at the time, kept permanent colonial settlements from being established for approximately another 200 years. Once Indiana was declared an official state in 1816, more and more settlers began to slowly move into the state ultimately making their way to Jasper County beginning in the 1830's (Sandy et al. 2002).

The General Land Office notes (1795-1840) and its maps illustrate many of the cultural resources that were once within Jasper County. Five wigwams, one Native American field, two Indian towns, one Indian village, one Indian field, and one burying are recorded on the General Land Office maps of Jasper County (General Land Office Surveys 1795-1840; Maust and Cochran 1987). Other historic landmarks that are illustrated on Maps of Indiana Counties in 1876 (Andreas 1968) are 62 school houses, two churches, five cemeteries, two mills, and 103 farm houses. Guernsey (1932) shows an "Old Kickapoo Village" in the southern part of the county. Jasper County also still currently has 1,107 historic structures throughout the county (Sandy et. al 2002).

Around this same time Jasper County was officially recognized as a county, however its boundaries with modern day Benton, Newton and Porter Counties were ill-defined. Settlement in the area did not increase in the following years and due to small populations, Jasper and Newton County were combined into one county in 1839. Jasper, Newton and Benton counties were intertwined until 1840 when Benton County was organized separately and finally in 1859 Jasper and Newton County were formed as separate counties (Sandy et al. 2002:xii).

With the recognition of Jasper as its own county more settlers began to gradually inhabit all the areas of the county. Even into the 1880's the population of Jasper would be considered sparse at best. Most of the land in Jasper County was used for large scale agriculture until the late 1800's when more settlers arrived and smaller agriculture began to take place. As rail travel became a more popular form of movement throughout the country, the railroads began projects in northwestern Indiana including Jasper County. These rail lines assisted in the growth and development of small towns in the county. With more people populating the area there grew a greater need for open agricultural plots. This came by way of the Kankakee Ditch which was started in the late 1800's and was completed in 1907. This project drained much of the Kankakee Marsh and straightened the Kankakee River in order to make the surrounding land more manageable and useful to the residents of the county. Accompanying the advent of the automobile and the large scale shift in infrastructure associated with its inception such as highways, the residents of Jasper County gained access to goods, services and markets that they were previously isolated from (Sandy et al. 2002:xii).

Archaeological Survey

Introduction

Approximately 900 acres (364.22 hectares) of agricultural land were surveyed by pedestrian transects during this project, all of which were till plains/moraines and floodplains. The survey documented 112 new archaeological sites and recovered 209 prehistoric artifacts and 307 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, 900 acres of pedestrian survey were initially proposed. It was anticipated that by surveying 900 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 floodplain, moraines, and till plain would be systematically surveyed. Areas were selected for survey using topographic maps, aerial maps, soil information, historic sources and reconnaissance information. The survey was constructed to sample different 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 900 acres of till plain/moraines and floodplains.

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 12, 2014 and September 13, 2014. The field survey was executed using pedestrian transects spaced at 10 meter intervals. The survey interval was reduced to 5 meters when artifacts were encountered. The areas surveyed by pedestrian transects had between 70 and 95 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 2006). 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 (Feldhues 1995; IMACS 2009; Lindsey 2014; Lofstrom et al. 1982; Newman 1970; ODOT 1991; 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 2005:41-59). 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 possible 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:Figure 2) 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-locational 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 Fluorescence, or other methods are required (Andrefsky 2005; Kooyman 2000). However, using the criteria and procedures detailed above, our identifications (and all visual identifications) should be taken as an assessment of the geological age and context of the raw material. Rocks of the same age and context have known distributions outside of Indiana and may well find their way into Indiana from another deposit of the same geological formation through natural or cultural processes. Our identifications do not presume mechanism of transport.

All materials generated by this project were accessioned under AAL Accession number 14.28. 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). In this survey all landowners opted to have their artifacts retained by Ball State University to be used for educational purposes. Therefore all artifacts were identified, analyzed, measured, labeled and curated per DHPA guidelines. A DVD is attached to this report that contains artifact photos, catalog sheets for all sites and Volume 2 of the report.

Collector Visit

In addition to field and laboratory investigations, AAL archaeologists were contacted by [redacted] a prehistoric artifact collector from Jasper County, and we arranged a meeting in order to document and investigate his collection. The collection was examined initially in order to assess general artifact classes and material association. Once this was roughly determined, the

predominantly lithic 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. The collector also provided information regarding the location of certain fields that produced many of the artifacts. These were recorded predominantly using a combination of two hard copies of Jasper County plat books (Jasper County Abstract Company 1984; Town & Country 1978), which were generously donate by [redacted]. Several other areas with high artifact densities were recorded digitally with the use of the online GIS tool IndianaMAP.org (Indiana Geographic Information Council 2015). Artifact photographs and scans, as well as scans of the relevant plat book pages and GIS printouts are available in Volume 2, Appendices G and H. The resources afforded by [redacted] and other collectors will be essential to developing a fuller understanding of the content and location of Jasper County's cultural resources.

Archaeological Survey Results

A total of seven survey areas were investigated as part of this grant project and are shown in Figure 11.

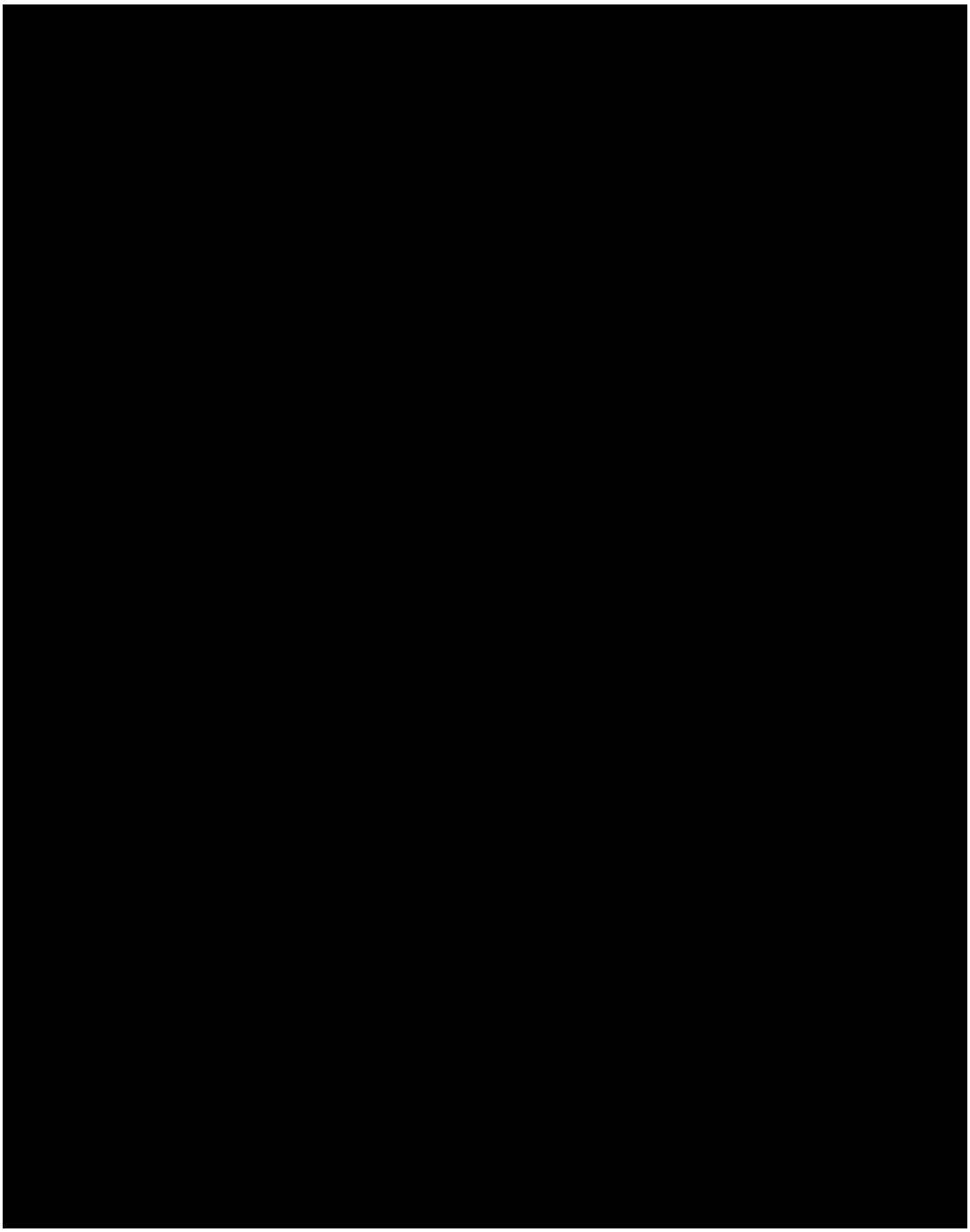


Figure 11: 2011 Aerial map (Indiana Data Spatial Service) showing the location of the seven Survey Areas.

Survey Area 1

Survey Area 1 was located in [redacted] as shown in the "Maps of Indiana Counties in 1876" (Andreas 1876) and the USGS 7.5' [redacted] (Figure 12 and Figure 13). The property was surveyed on August 12, 2014. Ground surface visibility was approximately 70 to 80 percent with small amounts of corn debris and the corn stalks themselves being the only visual obstacle. The field had been rain-washed the day before. The field was still planted in corn, which ranged from approximately five to ten feet tall. Approximately 31.30 acres were surveyed consisting of till plain and moraines. The area contained Darroch (Dc), Iroquois (Ir) and Rensselaer (Re) soils. Three sites were encountered during the survey. The sites ranged in size from a historic isolated finds to a historic scatter of 4651.0 square meters (1.15 acres).

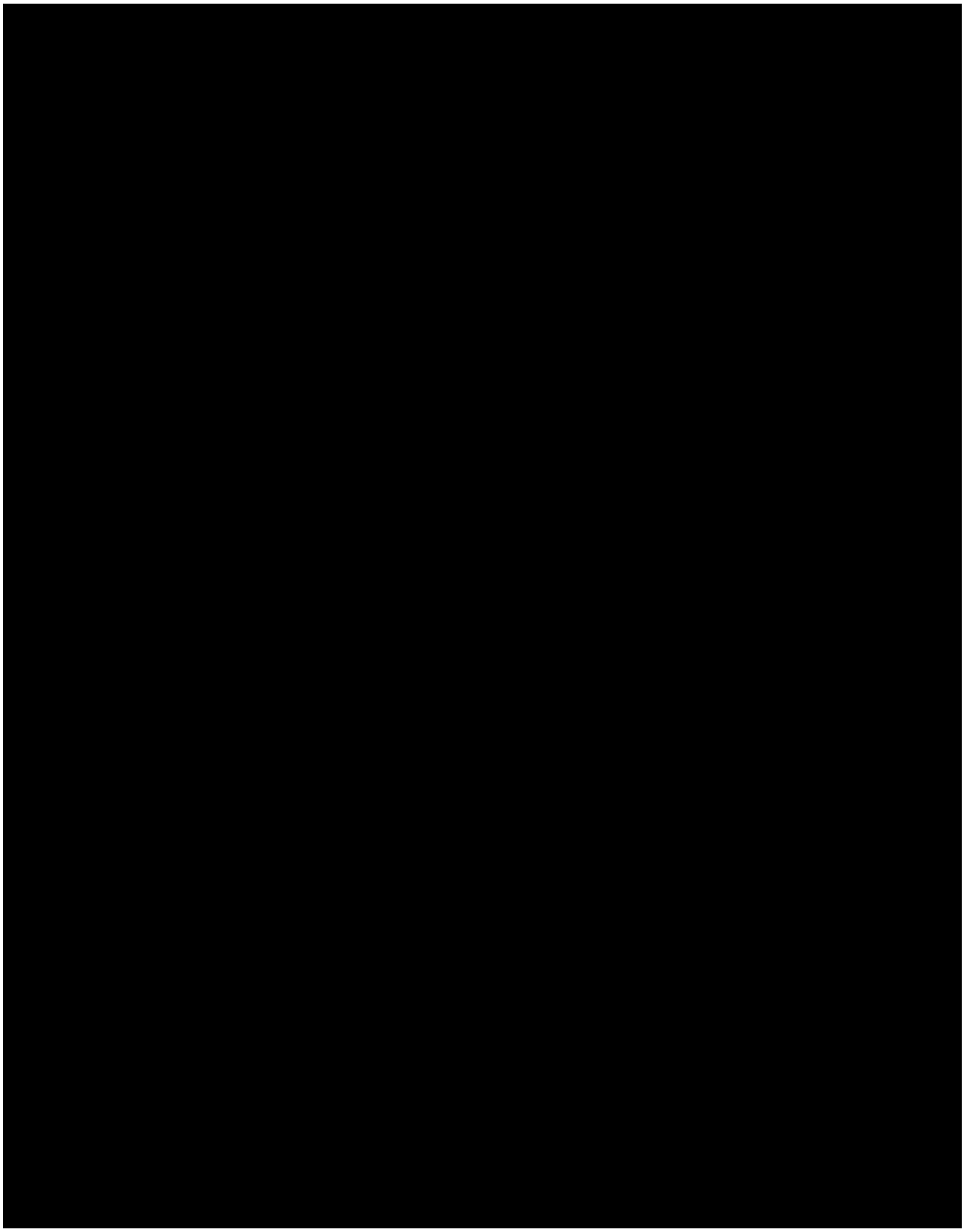


Figure 12: A portion of the [redacted] map of Jasper County in the "Maps of Indiana Counties in 1876" (Andreas 1876) showing Survey Area 1.

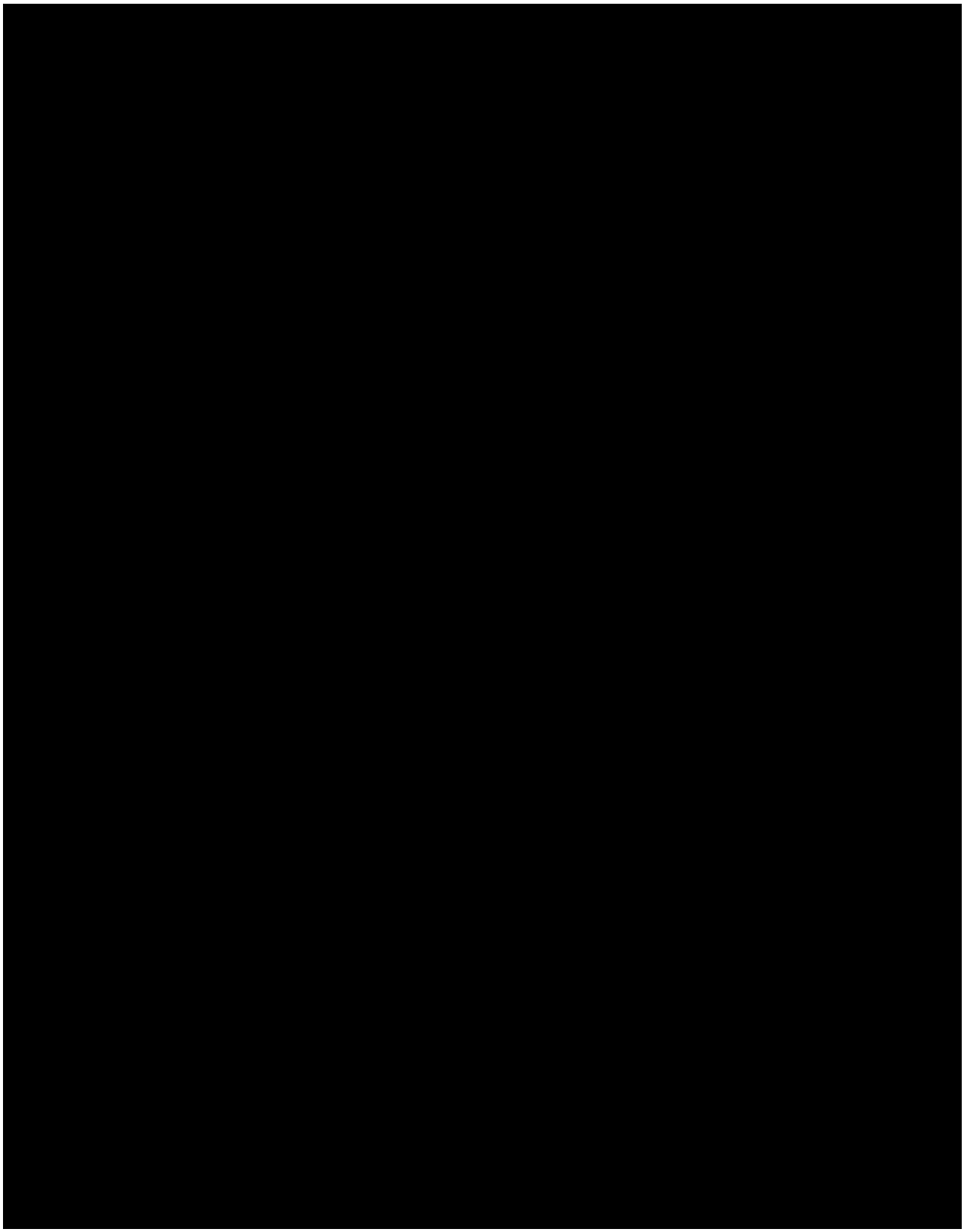


Figure 13: A portion of the USGS 7.5’ [redacted] showing the location of Survey Area 1.

Artifacts

A total of 77 artifacts were encountered in Survey Area 1. Table 6 provides a list of the artifacts recovered by category. Artifacts are listed by individual site in Volume 2, Appendix E. Representative artifacts are shown in Figure 14.No prehistoric artifacts were recovered from Survey Area 1.

Seventy-two historic artifacts were recovered from Survey Area 1. Chronologically expressed these items include aqua glass recovered from site 12-Js-245 which was manufactured between 1800 and 1910 (IMACS 2009:18). Plain whiteware recovered from sites 12-Js-245 and 246 was manufactured from 1820 to present (Stelle 2001:Chapter 1). Whiteware with green transfer print recovered from site 12-Js-245 was manufactured from 1830 to 1845 (Lofstrom et al. 1982:14). Stoneware with Bristol glaze recovered from site 12-Js-245 was manufactured from 1835 to present (Stelle 2001:Chapter 1). Porcelain sprigware recovered from site 12-Js-245 was manufactured from 1840 to 1860 (Lofstrom et al. 1982:72). Salt glazed stoneware recovered from site 12-Js-246 was manufactured before 1860 (Stelle 2001:Chapter 1). Plain ironstone recovered from site 12-Js-245 was manufactured from 1842 to 1930 (Stelle 2001:Chapter 1). Amber glass recovered from sites 12-Js-244 and 245 was manufactured from 1860 to present (IMACS 2009:19). Clear glass recovered from site 12-Js-244 was manufactured from 1875 to present (IMACS 2009:19), sun colored amethyst glass recovered from site 12-Js-245 was manufactured from 1880 to 1920 (Newman 1970:74), and milk glass recovered from site 12-Js-245 was manufactured from 1890 to 1960 (IMACS 2009:18).

Table 6: Artifacts from Survey Area 1.

Prehistoric	No.	Historic	No.
		Ceramic, Porcelain, Doll Fragment	1
		Ceramic, Porcelain, Sprigware	3
		Ceramic, Porcelain, Gilding	2
		Ceramic, Porcelain, Plain	3
		Ceramic, Ironstone	2
		Ceramic, Whiteware, Plain	18
		Ceramic, Whiteware, Green Transferprint	2
		Ceramic, Stoneware, Bristol Glaze (int./ext.)	6
		Ceramic, Stoneware, Salt Glaze (int./ext.)	1
		Glass, Sun Colored Amethyst, Curved	11
		Glass, Milk, Curved	5
		Glass, Amber, Curved	2
		Glass, Aqua, Curved	17
		Glass, Aqua, Flat	2
		Glass, Clear, Curved	2
Total	**0**	**Total**	**77**

Figure 14: Representative historic artifacts from site 12-Js-245 (photo by Felicia Konrad Ball State University).

Sites

Three archaeological sites, 12-Js-244 to 246, were recorded in Survey Area 1 (Figure 15 and Figure 16). Summaries for the individual sites are contained in Volume 2, Appendix F. All three sites were historic scatters.

All three sites were discovered on till plain and moraines (12-Js-244 to 246). One site was on Iroquois fine sandy loam (Ir) soil (12-Js-245). One site was on Rensselaer loam (Re) (12-Js-246), and one site was on both Iroquois fine sandy loam and Rensselaer loam (12-Js-244).

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 31.3 acres of till plain and moraines. Within Survey Area 1, a density of one site per 10.4 acres occurred and sites covered 5.68 percent of the surface area.

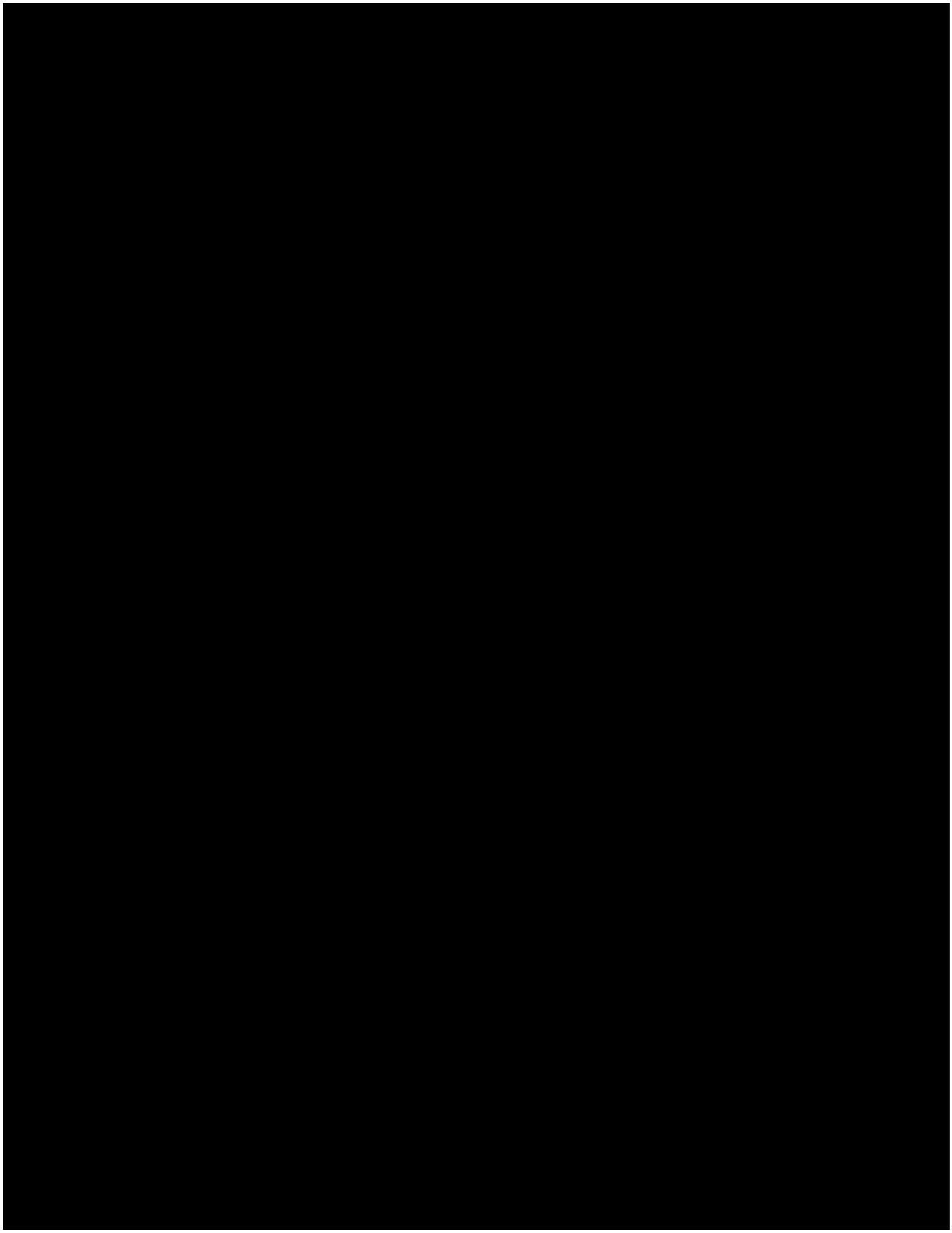


Figure 15: A portion of the USGS 7.5' [redacted] showing the location of sites 12-Js-244 to 246.

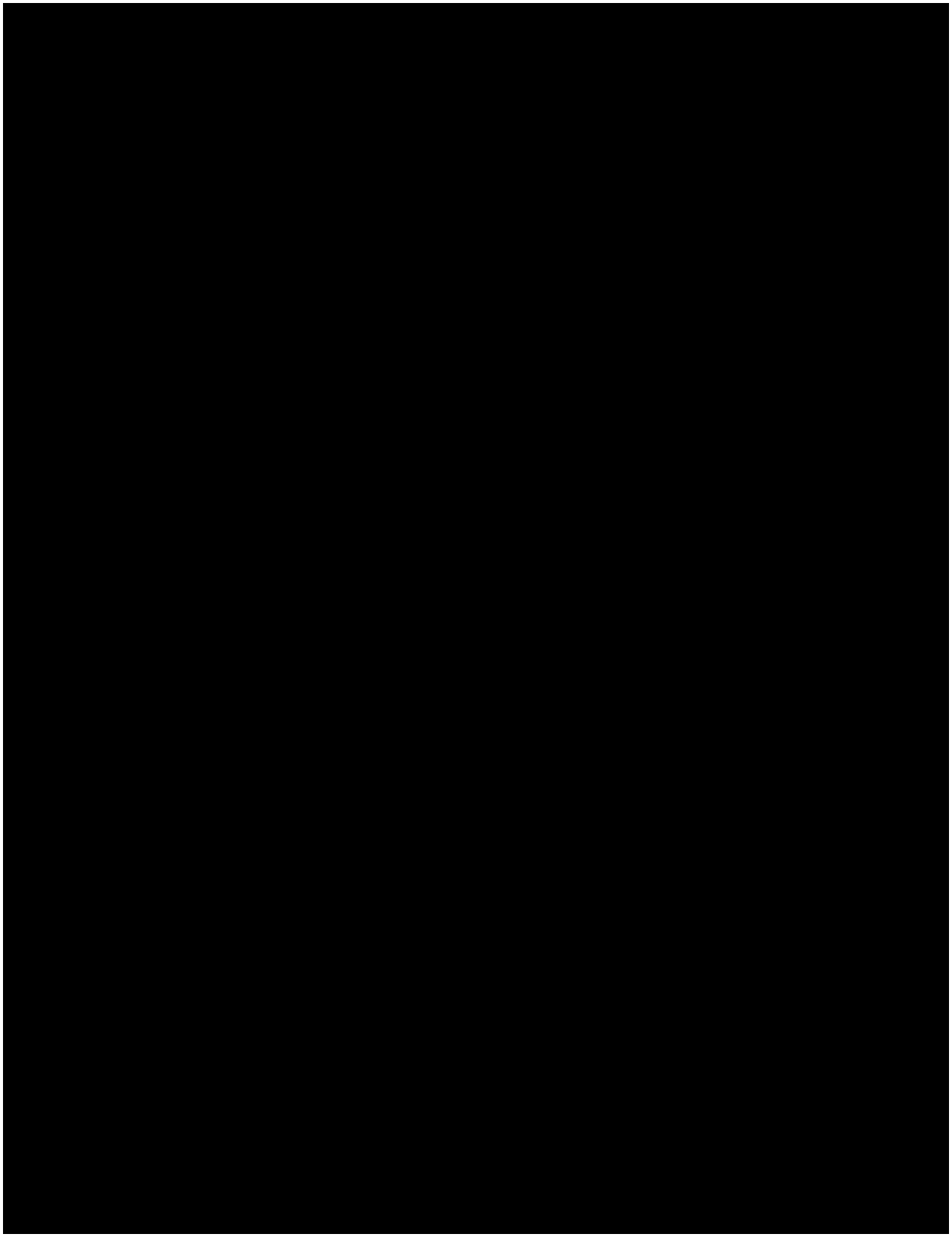


Figure 16: 2011 Aerial (Indiana Data Spatial Service) showing the location of sites 12-Js-244 to 246.

Survey Area 2

Survey Area 2 was located in [redacted] as shown in the "Maps of Indiana Counties in 1876" (Andreas 1876) and the USGS 7.5' [redacted] (Figure 17 and Figure 18). The property was surveyed on August 13, 2014. 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. This field operates as a seed plot and as such had every fourth row of corn (male plants) removed mid-season. The row removal was coupled with the removal of the top of the remaining standing corn leaving it approximately four to five feet high. These two factors led to excellent visibility and field conditions. Approximately 155.55 acres were surveyed consisting of till plains/moraines and floodplains. The area contained Darroch (Dc), Iroquois (Ir), Martinsville (McB), Montgomery (Mp), Oakville (ObB), Papineau (Pa), Rensselaer (Re), Simonin (SmA) and Strole (St) soils. Five sites were encountered during the survey. Four of the sites were historic and prehistoric isolated finds, and one site was a small historic scatter of 706.9 square meters (0.18 acres).

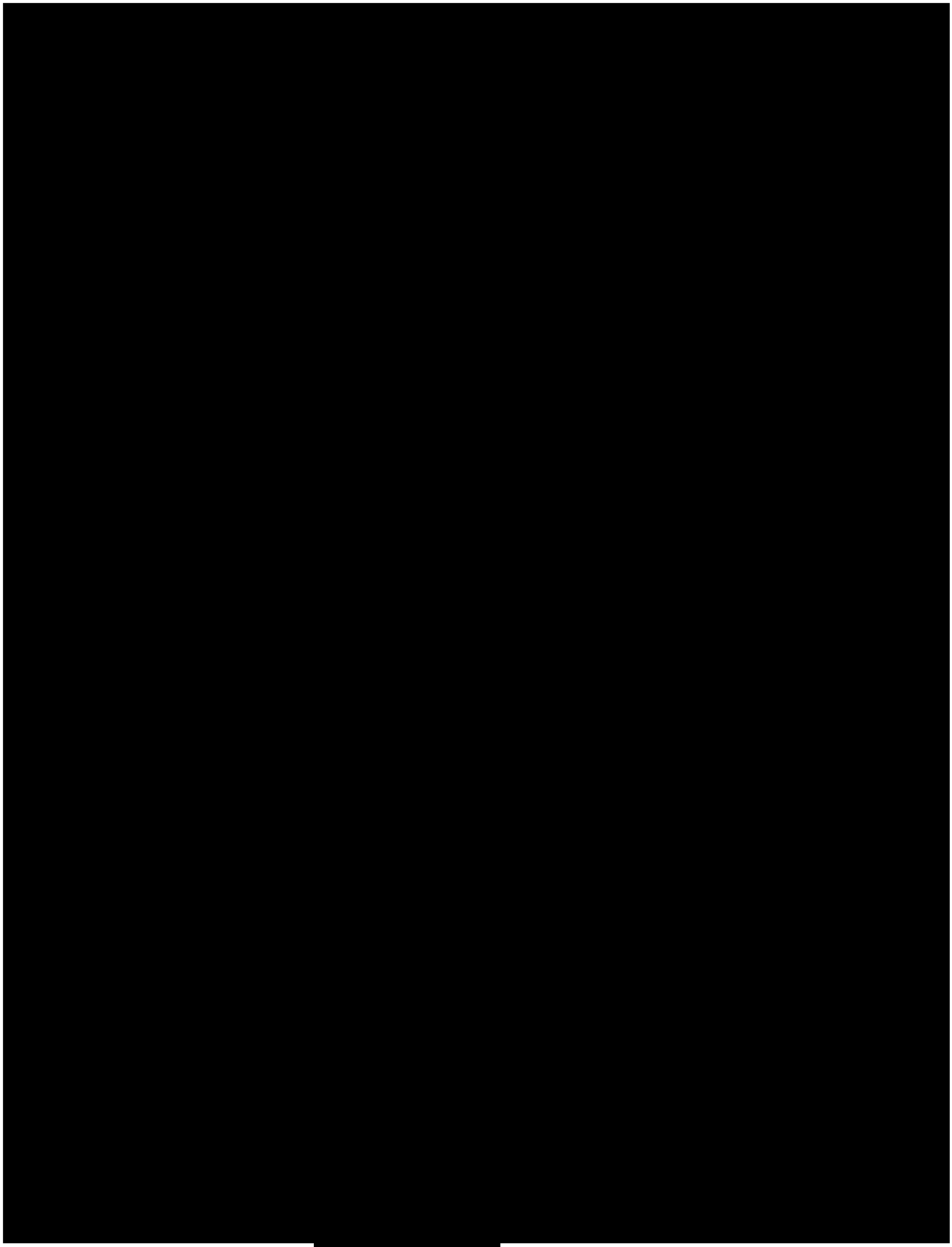


Figure 17: A portion of the [redacted] map of Jasper County in the "Maps of Indiana Counties in 1876" (Andreas 1876) showing Survey Area 2.

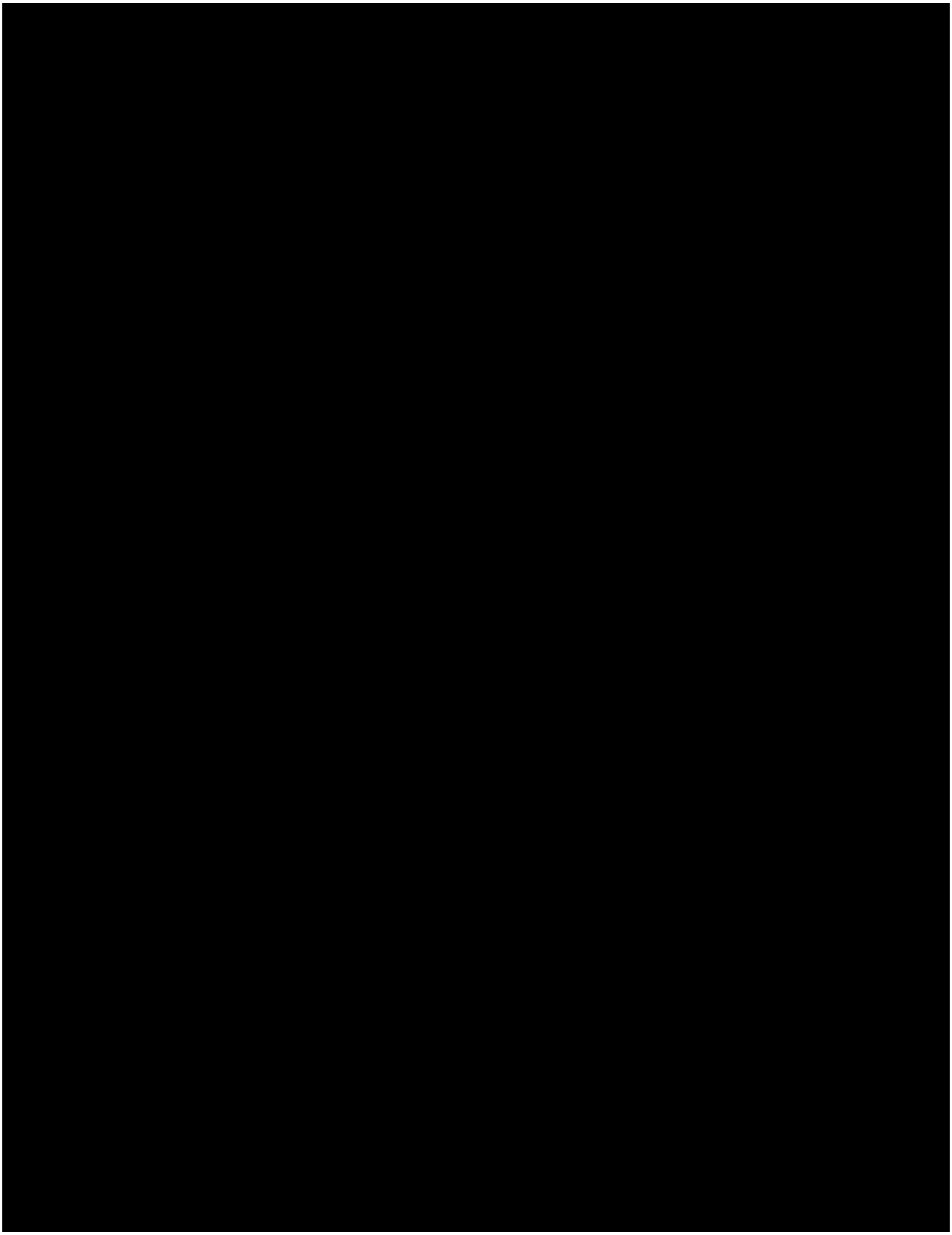


Figure 18: A portion of the USGS 7.5’ [redacted] showing the location of Survey Area 2.

Artifacts

A total of six artifacts were encountered in Survey Area 2. Table 7 provides a list of the artifacts recovered by category and representative artifacts are shown in Figure 19. Artifacts are listed by individual site in Volume 2, Appendix E.

One prehistoric artifact was recovered from Survey Area 2. No diagnostic prehistoric artifacts were recovered from Survey Area 2.

Five diagnostic historic artifacts were recovered. Historic artifacts consist of clear glass recovered from sites 12-Js-247 to 249, and 251 which was manufactured from 1875 to present (IMACS 2009:19).

Table 7: Artifacts from Survey Area 2.

Prehistoric	**No.**	**Historic**	**No.**
Flake, Proximal	1	Glass, Clear	5
Total	**1**	**Total**	**5**

Figure 19: Representative prehistoric artifacts from Survey Area 2 (photo by Felicia Konrad, Ball State University).

Sites

Five archaeological sites, 12-Js-247 to 251, were recorded in Survey Area 2 (Figure 20 and Figure 21). Summaries for the individual sites are contained in Volume 2, Appendix F. Four sites had diagnostic artifacts (12-Js-247 to 249 and 251). Three of the sites were historic isolated

finds (12-Js-247, 248 and 251), one site was a historic scatter (12-Js-249), and one site was a prehistoric isolated find (12-Js-250).

Two of the five sites were discovered on till plain and moraines (12-Js-249 and 250). One of these (12-Js-249) was on both Montgomery silty clay loam (Mp) and Strole clay loam (St) soils, the other site (12-Js-250) was located on Iroquois fine sandy loam (Ir) soil. Three of the five sites were located on floodplains (12-Js-247, 248, and 251). All of these sites were discovered on Strole clay loam (St) soil.

The 1909 Jasper County Outline Map (Geo. A. Ogle & Co. 1909) indicated the presence of a schoolhouse in the [redacted] near Survey Area 2. Survey Area 2 contained no structural materials and no increase in artifact recovery in the northwestern portion of the survey area indicating that this schoolhouse has little to no impact on the surrounding area. It appears this structure was either completely removed from the landscape or had such a narrow scope of material influence that no evidence of it was recovered in Survey Area 2.

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 155.55 acres of till plain, moraines and floodplains. Within Survey Area 2, a density of one site per 31.1 acres occurred and sites covered 0.56 percent of the surface area.

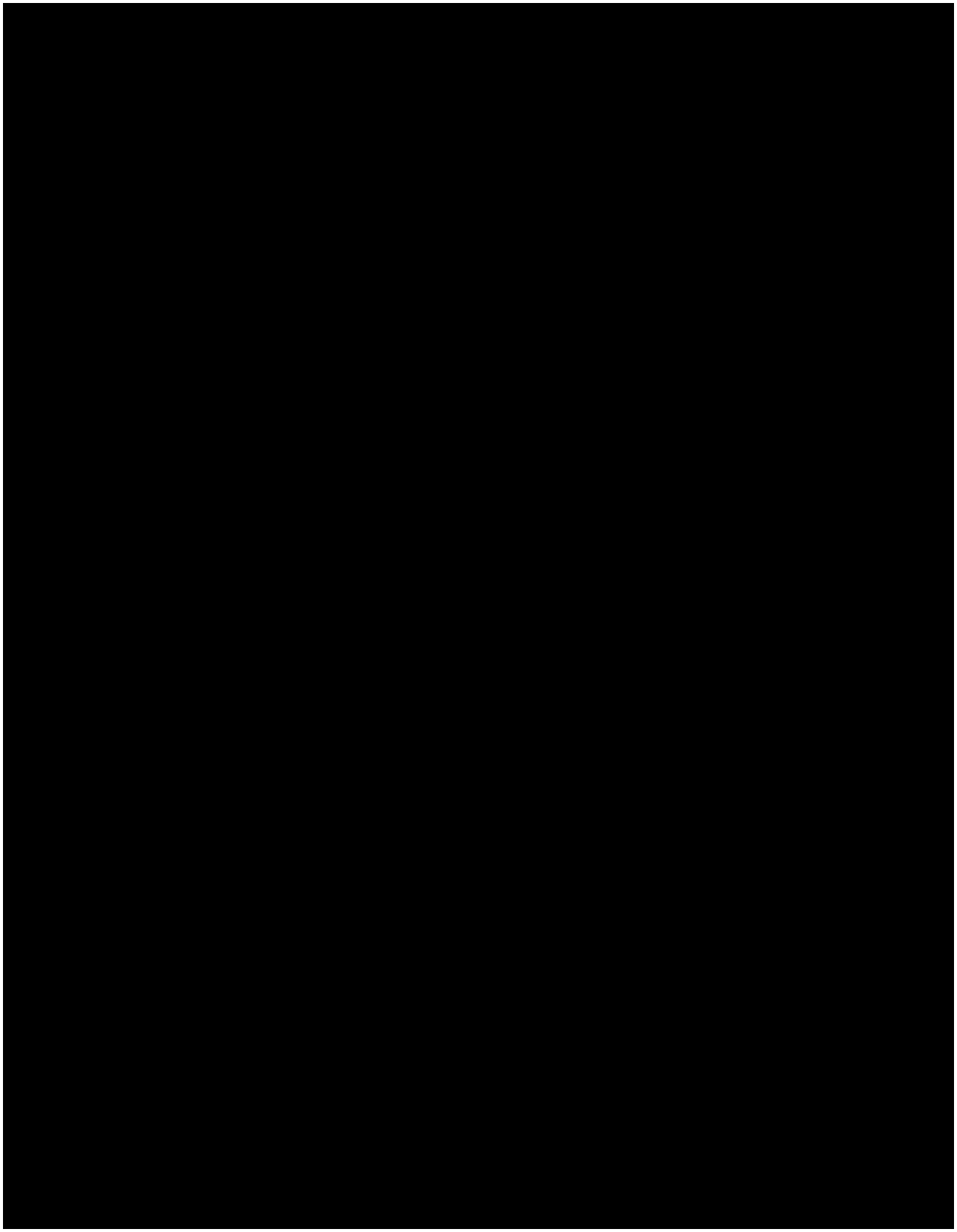


Figure 20: A portion of the USGS 7.5' [redacted] showing the location of sites 12-Js-247 to 251.

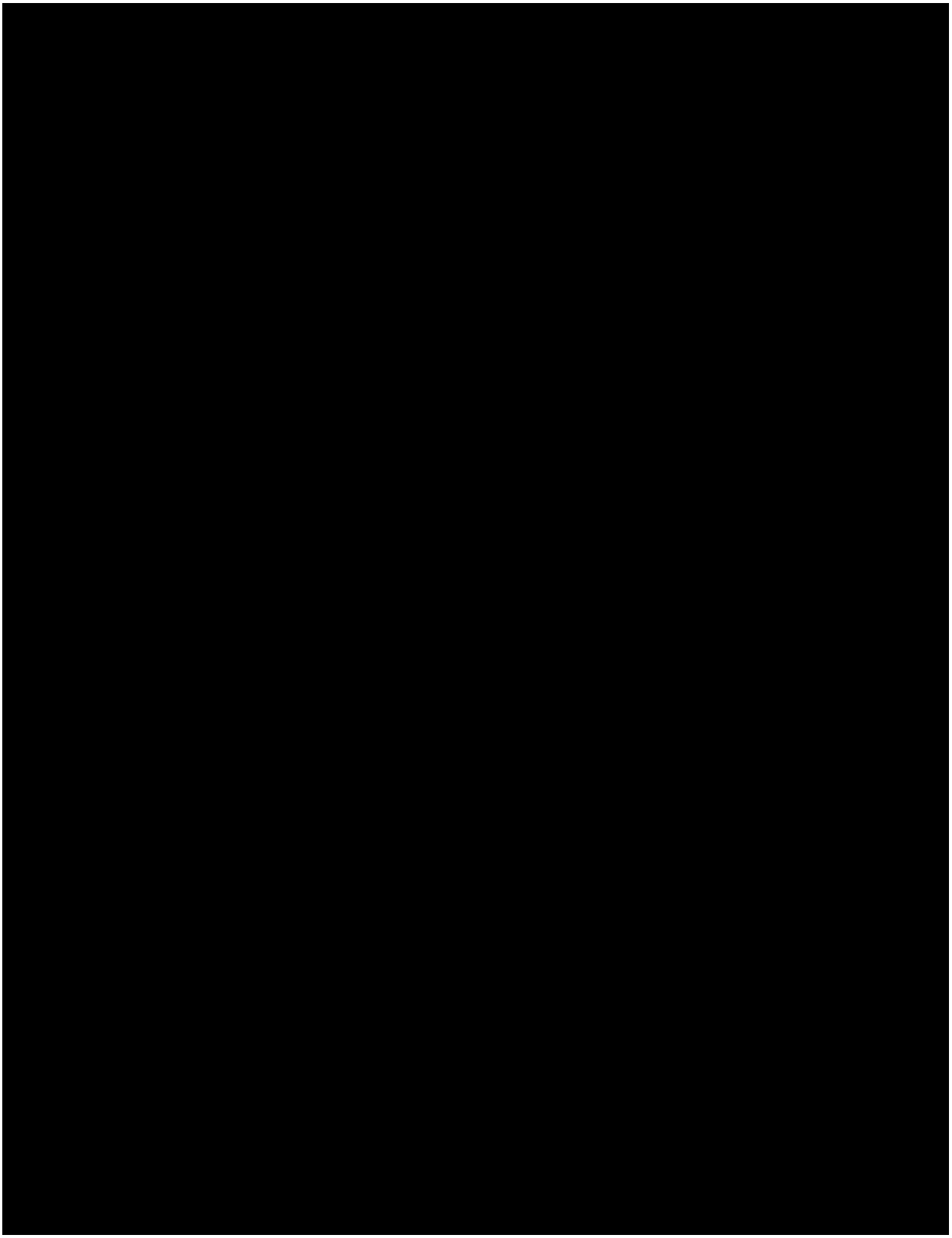


Figure 21: 2011 Aerial (Indiana Data Spatial Service) showing the location of sites 12-Js-247 to 251.

Survey Area 3

Survey Area 3 was located in [redacted] as shown in the "Maps of Indiana Counties in 1876" (Andreas 1876) and the USGS 7.5' [redacted] (Figure 22 and Figure 23). The property was surveyed on August 23 and 24, 2014, and consisted of two separate fields separated into a northern field and a southern field by a drainage ditch. 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. This field operates as a seed plot and as such had every fourth row of corn (male plants) removed mid-season. The row removal was coupled with the removal of the top of the remaining standing corn leaving it approximately four to five feet high. These two factors led to excellent visibility and field conditions. Approximately 162.89 acres were surveyed consisting of till plains/moraines. The area contained Corwin (CoB), Darroch (Dg), Grovecity (GzB), and Rensselaer (Rw) soils. Forty seven sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a large multicomponent scatter of 3468.8 square meters (0.86 acres).

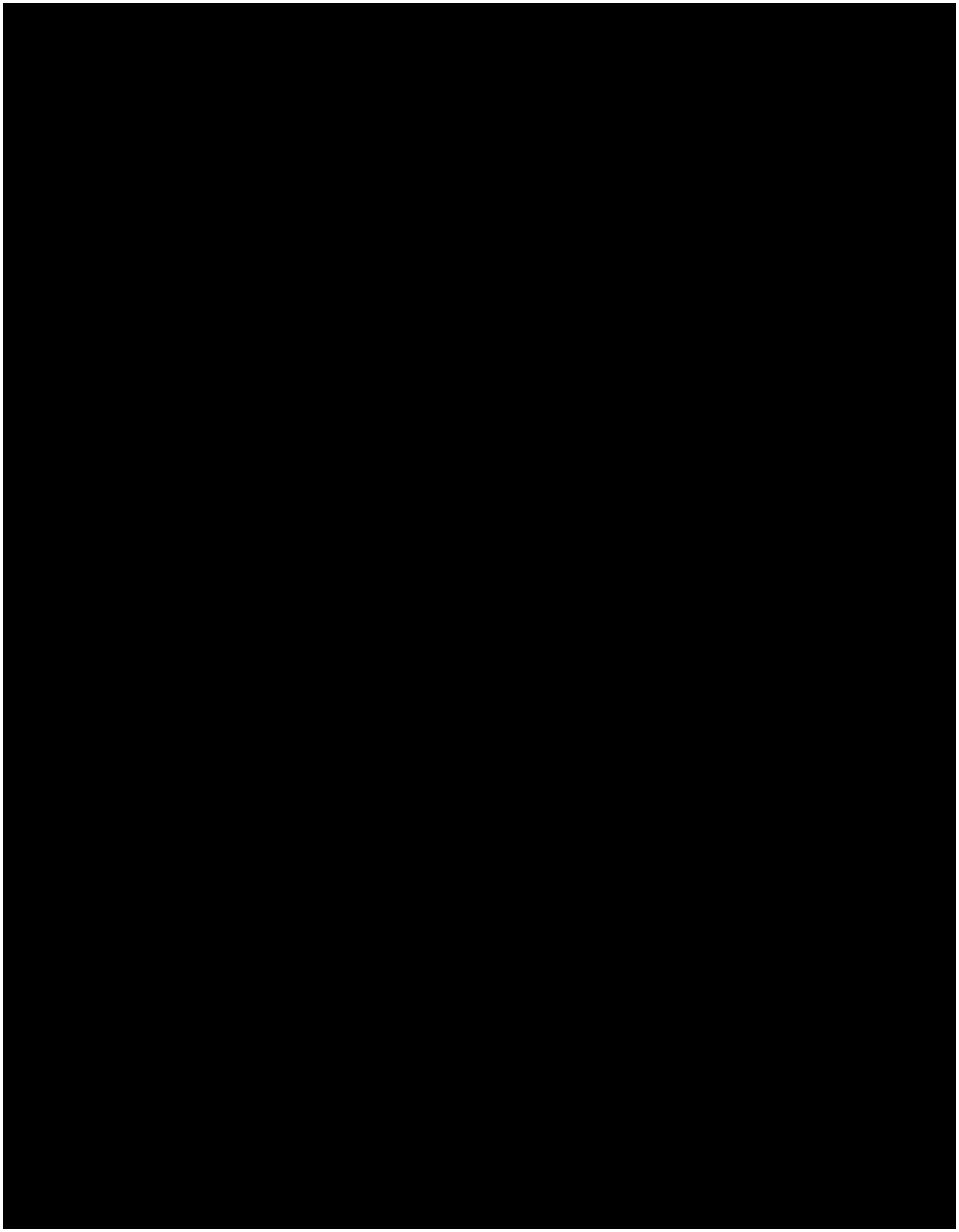


Figure 22: A portion of the [redacted] map of Jasper County in the "Maps of Indiana Counties in 1876" (Andreas 1876) showing Survey Area 3.

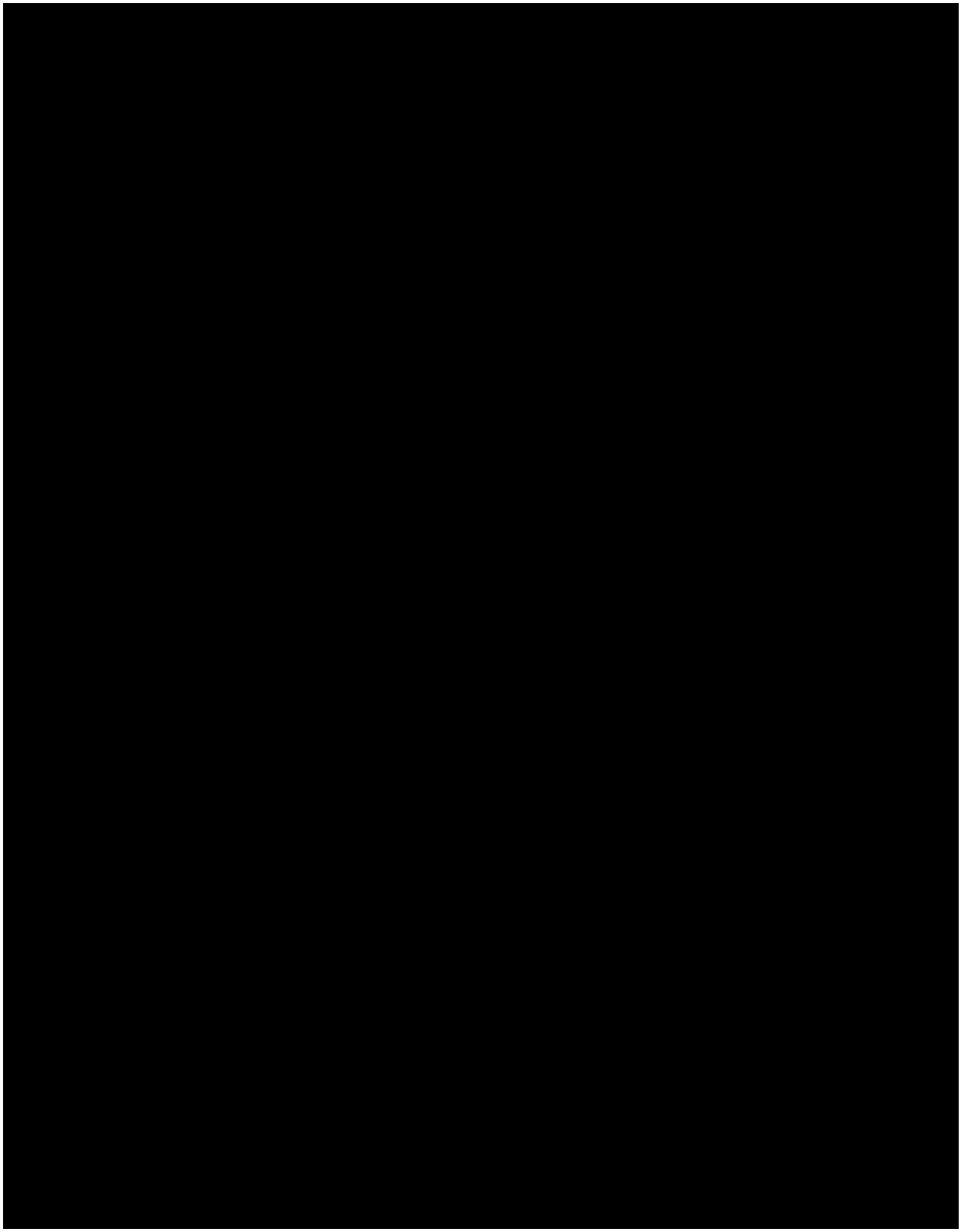


Figure 23: A portion of the USGS 7.5' [redacted] showing the location of Survey Area 3.

Artifacts

A total of 114 artifacts were encountered in Survey Area 3. Table 8 provides a list of the artifacts recovered by category. Representative artifacts are shown in Figure 24, Figure 25, Figure 26, Figure 27, and Figure 28. Artifacts are listed by individual site in Volume 2, Appendix E.

Fifty prehistoric artifacts were recovered from Survey Area 3. Two diagnostic artifacts were recovered from the Prehistoric period in Survey Area 3, a Late Woodland Triangular Cluster point from site 12-Js-279 (Figure 24), and a Late Archaic Brewerton Side Notched point from site 12-Js-286 (Figure 25).

Fifty eight diagnostic historic artifacts were recovered in Survey Area 3. Chronologically expressed these items include aqua glass recovered from site 12-Js-259 and 298 which was manufactured between 1800 and 1910 (IMACS 2009:18). Plain whiteware recovered from sites 12-Js-259, 267, 277, 294, 298 and 246 was manufactured from 1820 to present (Stelle 2001:Chapter 1). Stoneware with Albany interior and Bristol exterior recovered from sites 12-Js-259, 262 and 280 was manufactured from 1835 to 1940 (Stelle 2001:Chapter 1). Stoneware with Bristol glaze recovered from site 12-Js-295 was manufactured from 1835 to present (Stelle 2001:Chapter 1). Amber glass recovered from sites 12-Js-259, 270, 281, and 289, as well as green glass recovered from site 12-Js-259 which were both manufactured from 1860-present (IMACS 2009:18). Clear glass recovered from sites 12-Js-254, 259, 263, 269, 274, 275, 279, 282, and 289 was manufactured from 1875-present (IMACS 2009:19). Sun colored amethyst glass recovered from site 12-Js-259 was manufactured from 1880-1920 (Newman 1970:74). Milk glass recovered from site 12-Js-297 was manufactured from 1890 to 1960 (IMACS 2009:18). Stoneware with Albany slip recovered from sites 12-Js-278 and 298 was manufactured before 1940 (Stelle 2001:Chapter 1) and a ceramic insulator recovered from site 12-Js-290 was manufactured after 1940 (Meier 2015).

Table 8: Artifacts from Survey Area 3.

Prehistoric	No.	Historic	No.
Biface, Hafted (Brewerton Side Notched)	1	Ceramic Insulator	1
Biface, Hafted (Late Woodland Triangular Cluster)	1	Whiteware, Plain	8
Biface, Unhafted	1	Stoneware, Albany int. Bristol ext.	3
Core, Tool	1	Stoneware, Albany int. Salt ext.	2
Core	9	Stoneware, Albany	2
Flake, Tool	7	Stoneware, Bristol	2
Flake, Proximal	14	Glass, Green, Curved	1
Flake Shatter	12	Glass, Sun Colored Amethyst, Curved	5
Groundstone, Tool	4	Glass, Milk, Curved	1
		Glass, Amber, Curved	6
		Glass, Aqua, Curved	7
		Glass, Clear, Curved	17
		Glass, Clear, Flat	3
		Metal, Chain Pin	1
		Metal, Gear	1
		Metal, Nut	1
		Metal, Unidentified	2
		Limestone, Masonry	1
Total	**50**	**Total**	**64**

Figure 24: Late Woodland Triangular Cluster point from site 12-Js-279 (photo by Felicia Konrad, Ball State University).

Figure 25: Late Archaic Brewerton Side Notched point from site 12-Js-286 (photo by Felicia Konrad, Ball State University).

Figure 26: Flake tool recovered from site 12-Js-287 (photo by Felicia Konrad, Ball State University).

Figure 27: Ceramic insulator recovered from site 12-Js-290 (photo by Felicia Konrad, Ball State University).

Figure 28: Metal gear recovered from site 12-Js-296 (photo by Felicia Konrad, Ball State University).

Sites

Forty seven archaeological sites, 12-Js-252 to 12-Js-298, were recorded in Survey Area 3 (Figure 29 and Figure 30). Summaries for the individual sites are contained in Appendix F. Two sites had diagnostic prehistoric artifacts (12-Js-79 and 286) and twenty one had diagnostic historic components (12-Js-254, 259, 262, 263, 267, 269, 270, 274, 275, 277, 278 to 282, 289, 290, 294, 295, 297 and 298). Seventeen sites were prehistoric isolated finds (12-Js-253, 255, 256, 258, 260, 265, 268, 271 to 273, 283, 285 to 288, 291, and 292), and six sites were lithic scatters 12-Js- 252, 257, 261, 276, 284, and 289). Twelve sites were historic isolated finds (12-Js-254, 262, 267, 270, 274, 275, 277, 282, 293, 294, 296, and 297) and six sites were historic scatters (12-Js-281, 290, 295, 298, 263, and 259). Five sites were multicomponent sites consisting of historic and unidentified prehistoric sites (12-Js-264, 266, 269, 278, and 280) and one site was a multicomponent site consisting of historic, Late Woodland, and unidentified prehistoric (12-Js-279).

All 47 sites were discovered on till plain and moraines (12-Js-252 to 298). Twenty sites were on Rensselaer, till substratum-Wolcott complex (Rw) soil (12-Js- 252 to 254, 258, 263, 267, 269, 270, 272, 275, 280 to 282, 285 to 289, 291, and 293). Seven sites were on both Darroch, till substratum-Odeil complex (Dg) and Rensselaer, till substratum-Wolcott complex (Rw) soils (12-Js-264, 266, 276, 278, 279, 284, and 290). Eleven sites were on Darroch, till substratum-Odeil complex (Dg) soil (12-Js-256, 265, 268, 271, 273, 274, 277, 283, 292, 294, and 295). Three sites were on Corwin loam (CoB) soil (12-Js-296 to 298). Four sites were on Grovecity fine sandy loam (GzB) soil (12-Js-255, 257, 260 and 262). Two sites were on both Grovecity fine sandy loam (GzB) and Rensselaer, till substratum-Wolcott complex (Rw) soils (12-Js-259 and 261).

The high number of prehistoric artifacts recovered from site 12-Js-279 combined with the quality and diversity of raw material and artifact types suggests a varied use history and implies a long period of use or re-use. The array of raw material sources exploited by the prehistoric occupants of the site combined with the evidence for manufacture and use of stone tools may indicate a productive extraction point for resources, or a habitation area. Most intriguing is the inclusion of the groundstone tool, which suggests either a lengthy use, or planning for the future. Either way, this assemblage indicates we can learn about patterns of (at least) Late Woodland utilization of the resources here, and how this region fit into the broader subsistence and settlement system of the area. We were unable to identify the full extent of the site due to survey area borders; we recommend that future survey or investigation be directed at exploring the full extent of this activity area. No evidence of sub-surface features were encountered in 12-Js-279, but the intensity and probable duration of occupation indicates these would be likely encountered upon further investigation. Two historic maps (Andreas 1876; Geo. A. Ogle & Co. 1909) were consulted to assess any potential historic influence and none was found. No structures were found on either of these maps that were located inside of or immediately adjacent to Survey Area

3. Due to the potential information about settlement and subsistence systems and the absence of severe historic or modern disturbance, site 12-Js-279 likely retains both significant information potential (criteria D) and sufficient integrity to be evaluated for eligibility for the National Register of Historic Places. The rest of the site types 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 162.89 acres of till plain and moraines. Within Survey Area 3, a density of one site per 3.5 acres occurred and sites covered 6.71 percent of the surface area.

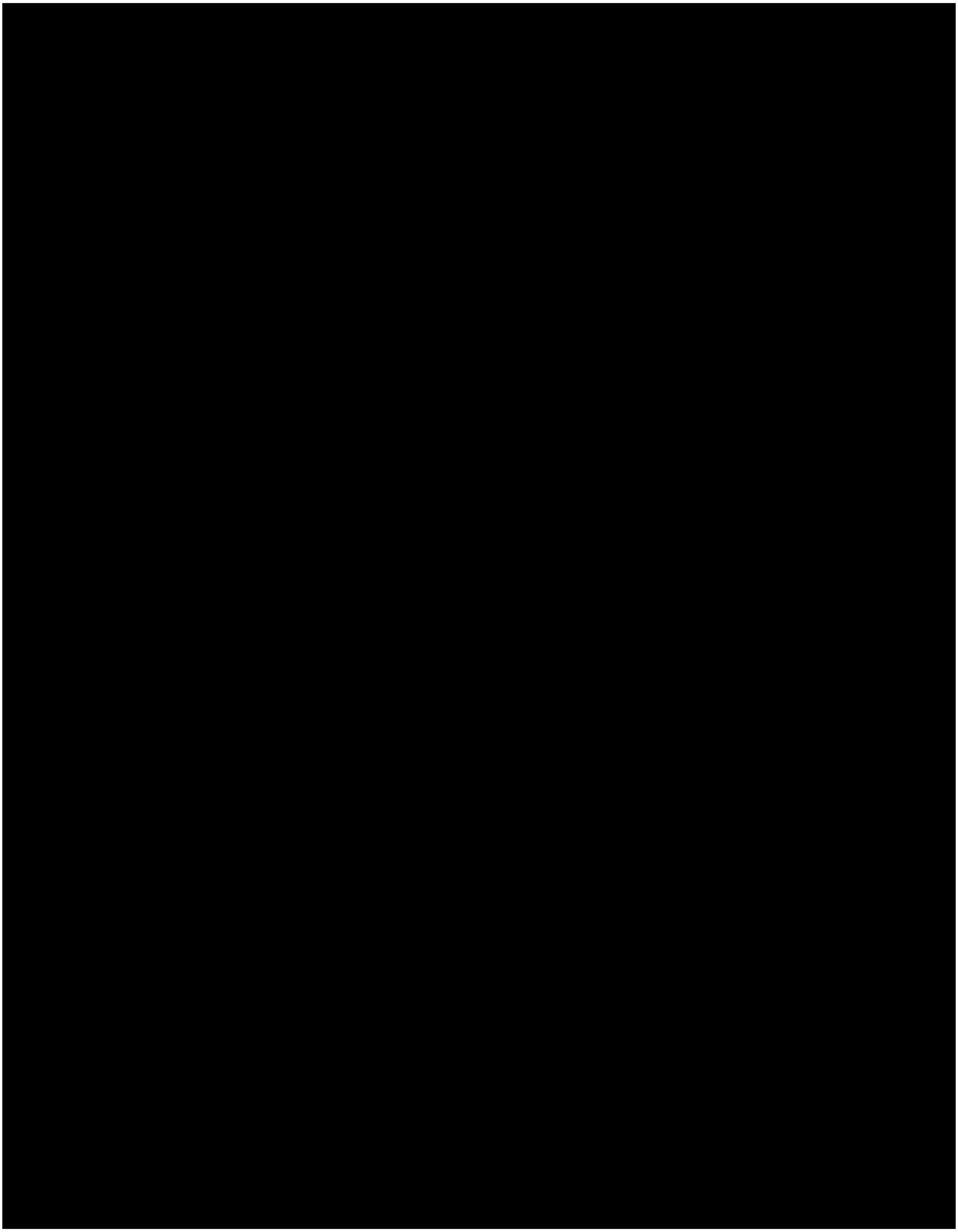


Figure 29: A portion of the USGS 7.5' [redacted] showing the location of sites 12-Js-252 to 298.

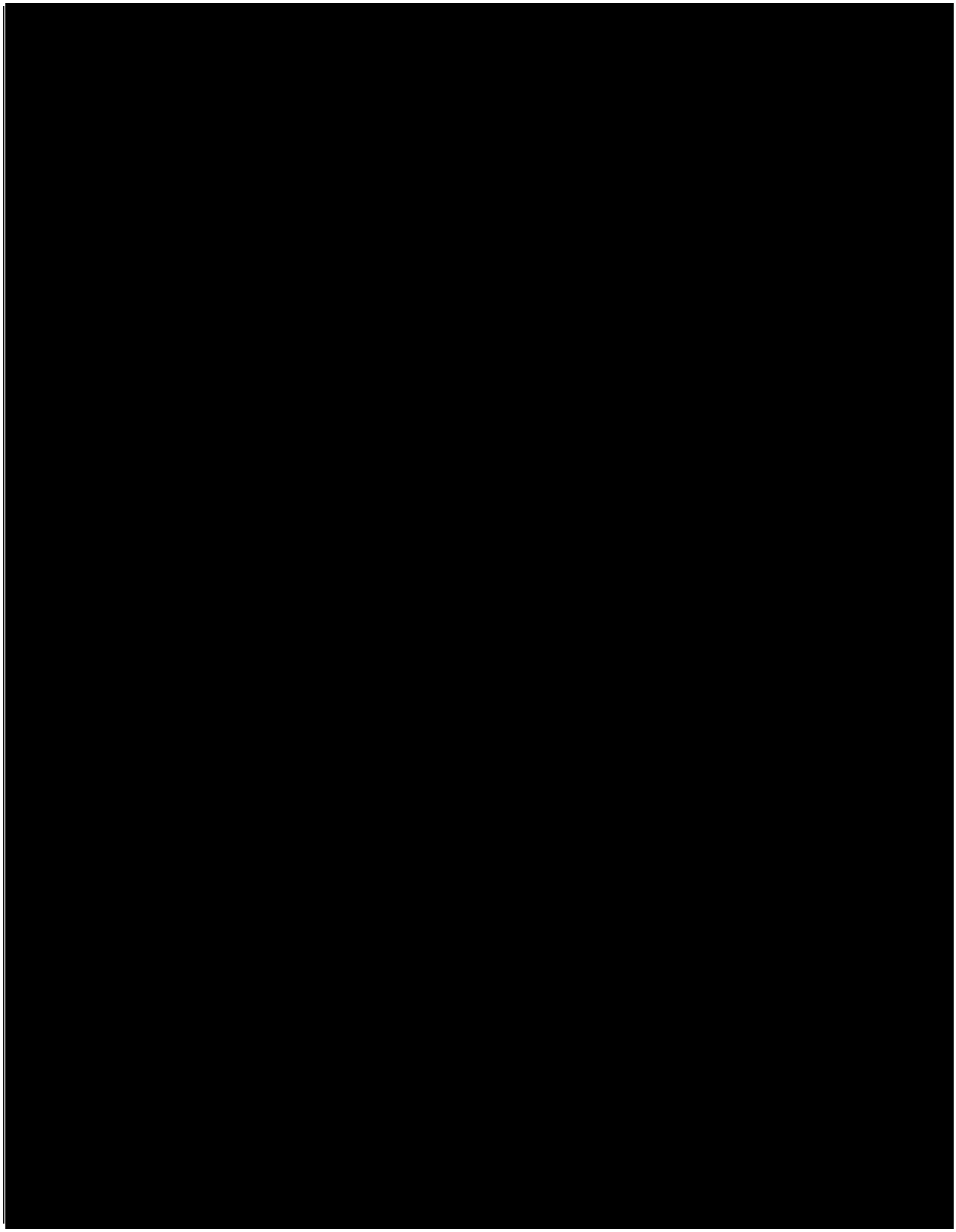


Figure 30: 2011 Aerial (Indiana Data Spatial Service) showing the location of sites 12-Js-252 to 298.

Survey Area 4

Survey Area 4 was located in [redacted] as shown in the "Maps of Indiana Counties in 1876" (Andreas 1876) and the USGS 7.5' [redacted] (Figure 31 and Figure 32). The property was surveyed on August 29, 2014. 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. This field operates as a seed plot and as such had every fourth row of corn (male plants) removed mid-season. The row removal was coupled with the removal of the top of the remaining standing corn leaving it approximately four to five feet high. These two factors led to excellent visibility and field conditions. Approximately 102.12 acres were surveyed consisting of till plain and moraines. The area consisted of Andres (AtA), Corwin (CoB), Octagon (OcC2), Parr (PaB) and Reddick (Rd) soils. Twenty four sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a lithic scatter of 1977.2 square meters (0.49 acres).

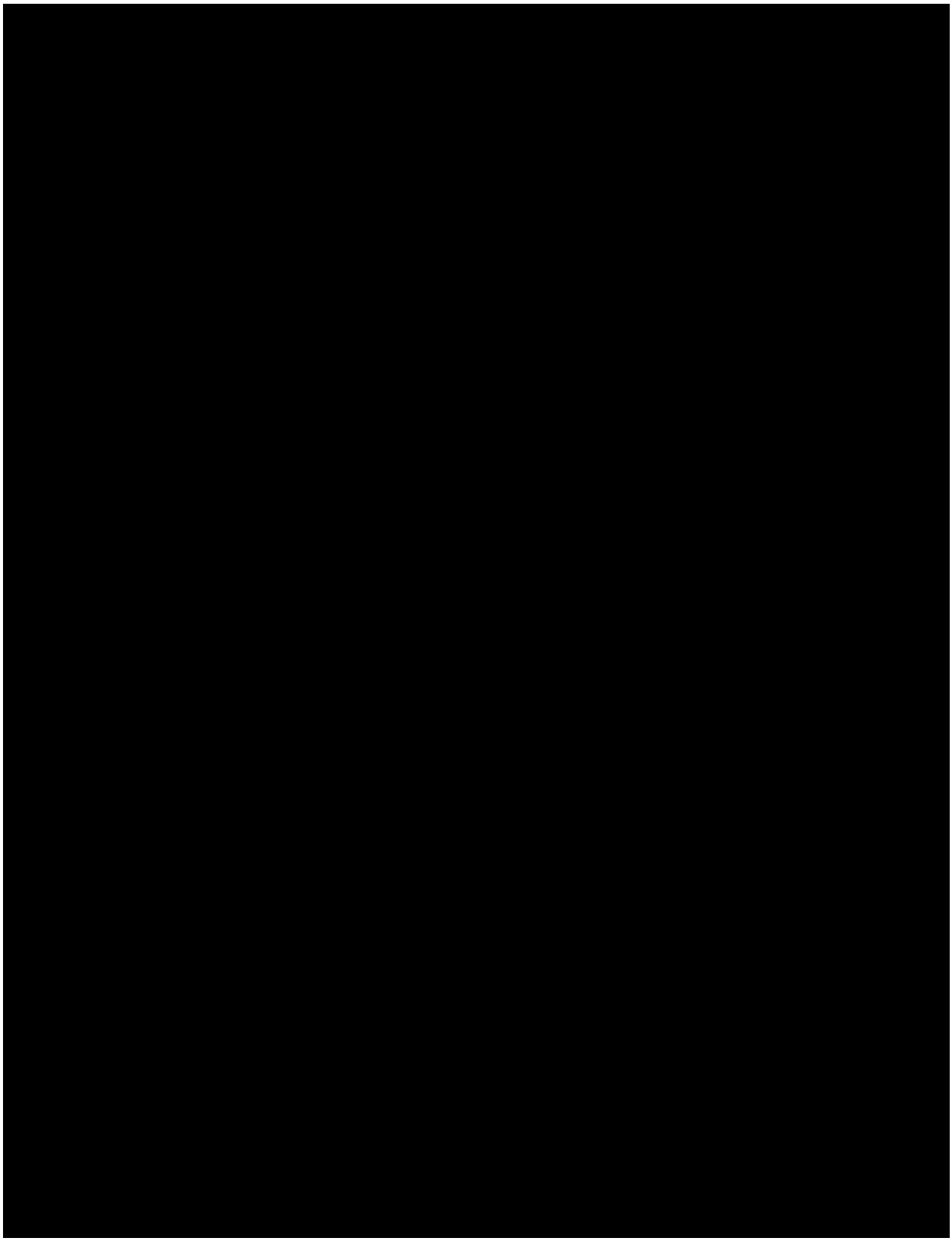


Figure 31: A portion of the [redacted] map of Jasper County in the "Maps of Indiana Counties in 1876" (Andreas 1876) showing Survey Area 4.

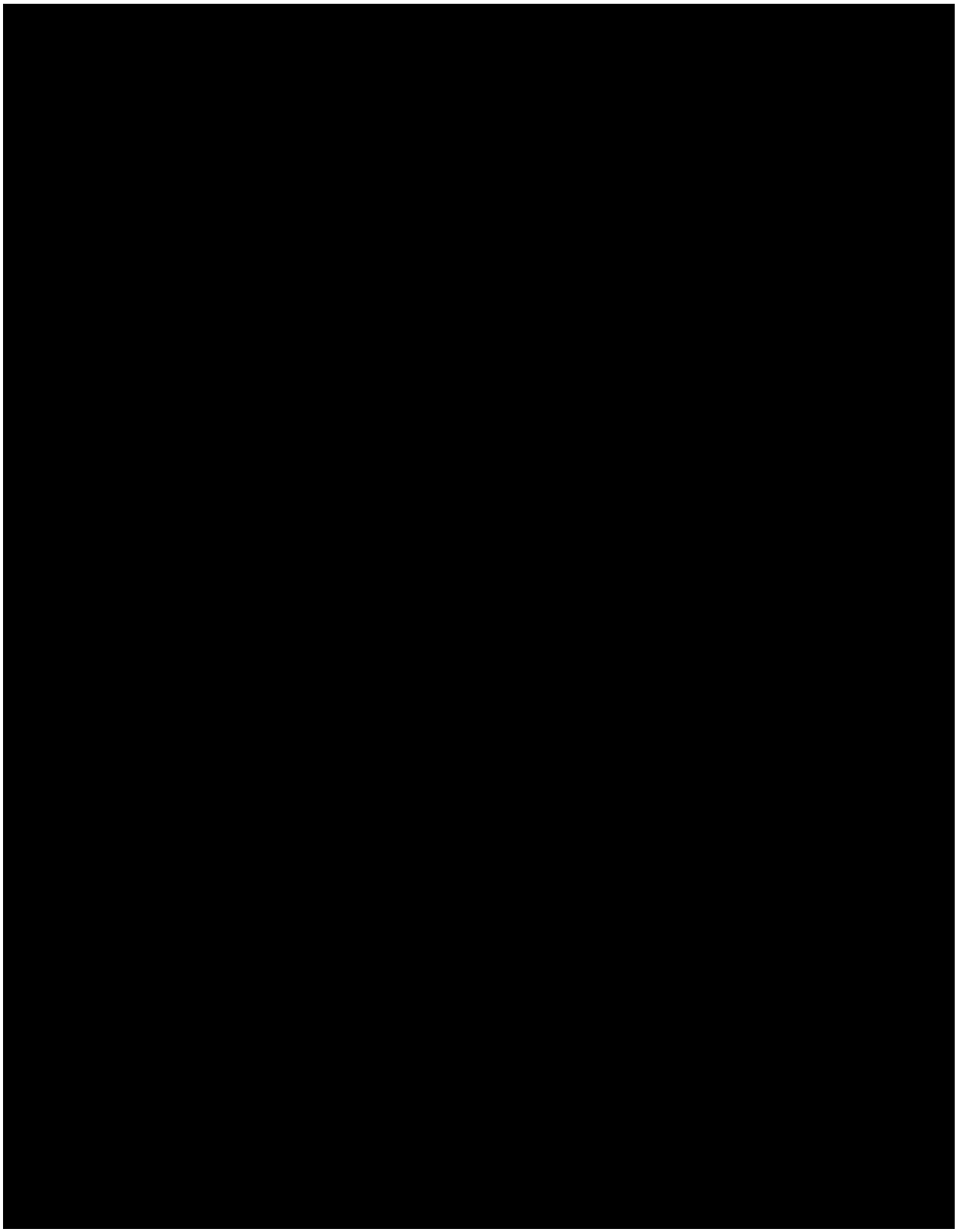


Figure 32: A portion of the USGS 7.5' [redacted] showing the location of Survey Area 4.

Artifacts

A total of 61 artifacts were encountered in Survey Area 4. Table 9 provides a list of the artifacts recovered by category and representative artifacts are shown in Figure 33, Figure 34, Figure 35, and Figure 36. Artifacts are listed by individual site in Volume 2, Appendix E.

Sixteen prehistoric artifacts were recovered from Survey Area 4. No diagnostic artifacts were recovered from the Prehistoric period in Survey Area 4.

Twenty nine diagnostic historic artifacts were recovered in Survey Area 4. Chronologically expressed these items include aqua glass recovered from sites 12-Js-305, 307, 309, 310 and 314 which was manufactured between 1800 and 1910 (IMACS 2009:18). Plain whiteware recovered from sites 12-Js-309 to 311 was manufactured from 1820 to present (Stelle 2001:Chapter 1). Stoneware with Albany interior and Bristol exterior recovered from site 12-Js-308 was manufactured from 1835 to 1940 (Stelle 2001:Chapter 1). Stoneware with Bristol glaze recovered from site 12-Js-313 was manufactured from 1835 to present (Stelle 2001:Chapter 1). Ironstone recovered from sites 12-Js-307, 310, 313, 315, and 319 was manufactured from 1842 to 1930 (Stelle 2001:Chapter 1). Amber glass recovered from sites 12-Js-304 and 318 was manufactured from 1860-present (IMACS 2009:19). Clear glass recovered from sites 12-Js-310 and 317 was manufactured from 1875-present (IMACS 2009:19). Sun colored amethyst glass recovered from sites 12-Js-309 and 310 was manufactured from 1880-1920 (Newman 1970:74)). Milk glass recovered from sites 12-Js-309 and 310 was manufactured from 1890 to 1960 (IMACS 2009:18). Stoneware with Albany slip recovered from site 12-Js-301 and 298 was manufactured before 1940 (Stelle 2001:Chapter 1).

Table 9: Artifacts from Survey Area 4.

Prehistoric	No.	Historic	No.
Biface, Unhafted	1	Porcelain, plain	1
Core	1	Ironstone, plain	5
Flake, Tool	2	Whiteware, plain	5
Flake, Proximal	4	Stoneware, Albany	1
Flake, Shatter	7	Stoneware, Bristol	4
Groundstone	1	Stoneware, Albany/Bristol	1
		Glass, Marble	1
		Glass, Sun Colored Amethyst	5
		Glass, Milk	3
		Glass, Amber	2
		Glass, Aqua	12
		Glass, Clear	2
		Coal	1
		Clinker	2
Total	**16**	**Total**	**45**

Figure 33: Blue glass marble recovered from site 12-Js-299 (photo by Felicia Konrad, Ball State University).

Figure 34: Endscraper recovered from site 12-Js-302 (photo by Felicia Konrad, Ball State University).

Figure 35: Axe/Adz preform recovered from site 12-Js-303 (photo by Felicia Konrad, Ball State University).

Figure 36: Flake tool recovered from site 12-Js-312 (photo by Felicia Konrad, Ball State University).

Sites

Twenty four archaeological sites, 12-Js-299 to 322, were recorded in Survey Area 4 (Figure 37 and Figure 38). Summaries for the individual sites are contained in Volume 2, Appendix F. Six of the sites were prehistoric isolated finds (12-Js-303, 306, 312, 316, 320, and 322) and two sites were prehistoric scatters (12-Js-302 and 321). Nine of the sites were historic isolated finds (12-Js-299, 305, 308, 311, 314, 315, and 317 to 319) and three sites were historic scatters (12-Js-309, 310, and 313). Four sites were multicomponent sites representing both the historic and unidentified prehistoric time periods (12-Js-300, 301, 304, and 307).

All twenty four sites were discovered on till plain and moraines (12-Js-299 to 322). Eight sites were on Corwin Loam (CoB) soil (12-Js-300, 301, 303, 309, 310, and 313 to 315). Eight sites were on Andres loam (AtA) soil (12-Js-299, 302, 304, 308, 311, 312, 316, and 318). Three sites were on Reddick silty clay loam (Rd) soil (12-Js-305, 306 and 317). One site were on both Andres loam (AtA) and Reddick silty clay loam (Rd) soils (12-Js-307). One site was on Andres loam (AtA), Parr fine sandy loam (PaB), and Reddick silty clay loam (Rd) soils (12-Js-321). Three sites were located on Parr fine sandy loam (PaB) soil (12-Js-319, 320, and 322).

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 102.12 acres of till plain and moraines. Within Survey Area 4, a density of one site per 4.3 acres occurred and sites covered 15.15 percent of the surface area.

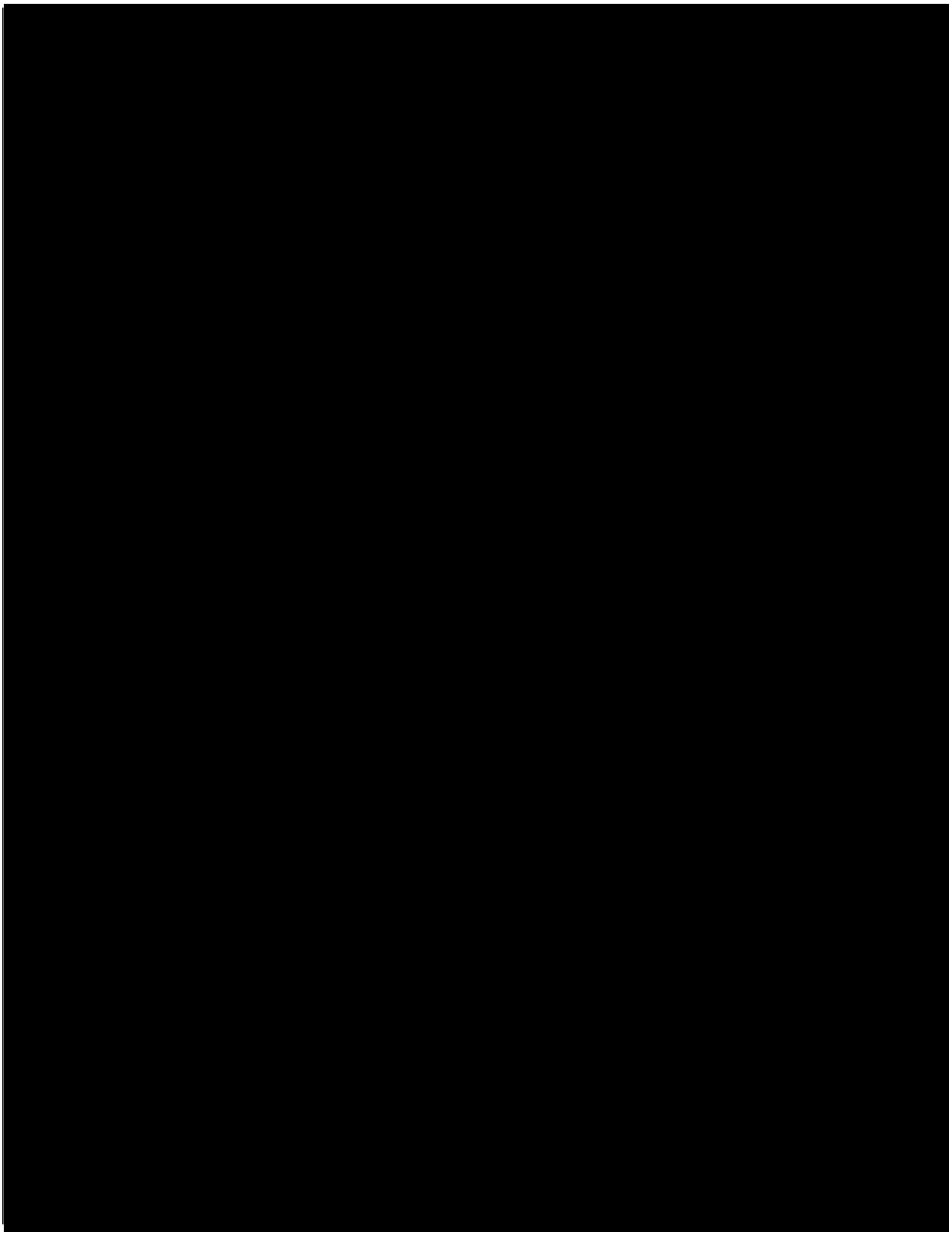


Figure 37: A portion of the USGS 7.5' [redacted] showing the location of sites 12-Js-299 to 322.

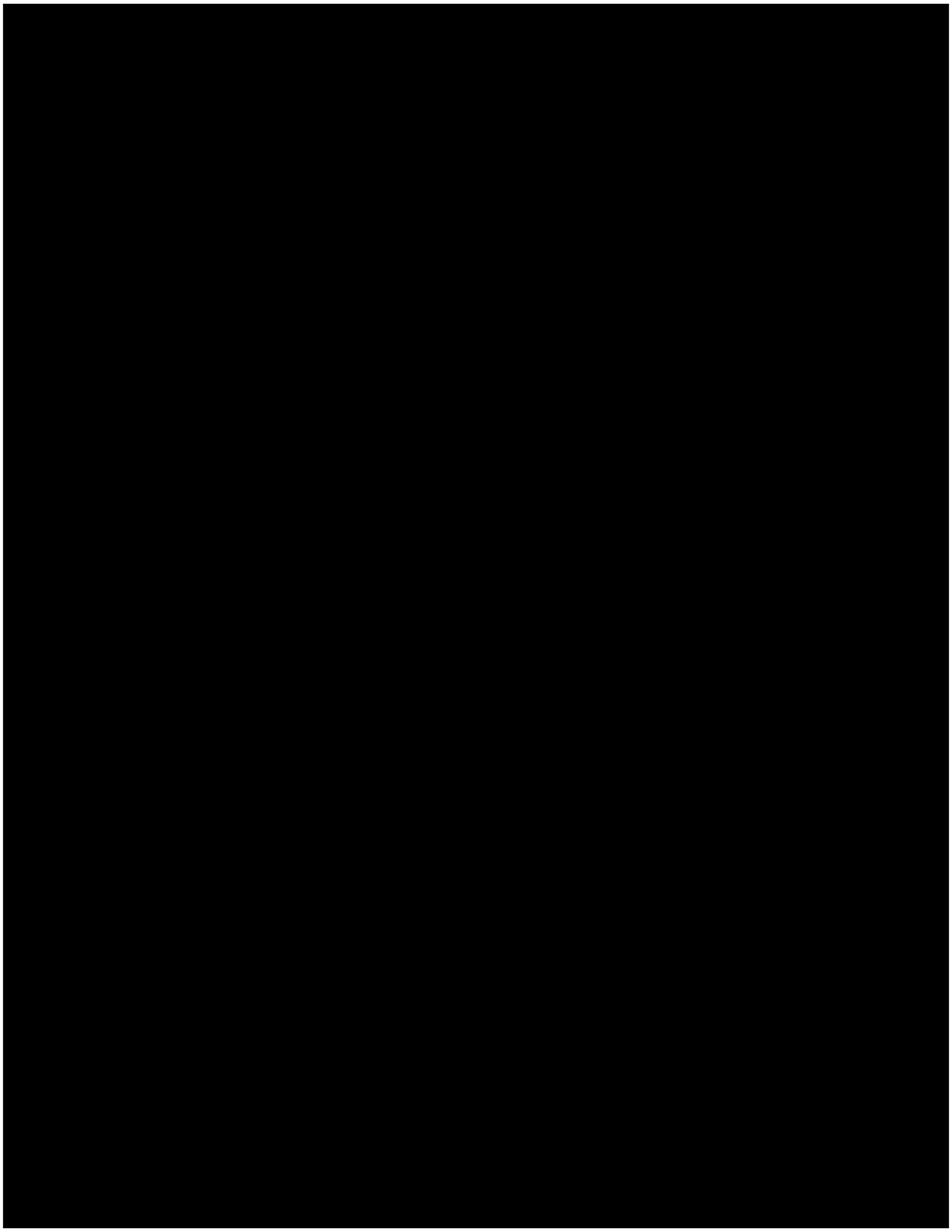


Figure 38: 2011 Aerial (Indiana Data Spatial Service) showing the location of sites 12-Js-299 to 322.

Survey Area 5

Survey Area 5 was located in [redacted] as shown in the "Maps of Indiana Counties in 1876" (Andreas 1876) and the USGS 7.5' [redacted] (Figure 39 and Figure 40). The property was surveyed on September 1, 2014. 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. This field operates as a seed plot and as such had every fourth row of corn (male plants) removed mid-season. The row removal was coupled with the removal of the top of the remaining standing corn leaving it approximately four to five feet high. These two factors led to excellent visibility and field conditions. Approximately 180.79 acres were surveyed consisting of till plain and moraines. The area contained Corwin (CoB), Darroch (Dg), and Rensselaer (Rw) soils. Thirteen sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a historic scatter of 4268.5 square meters (1.01 acres).

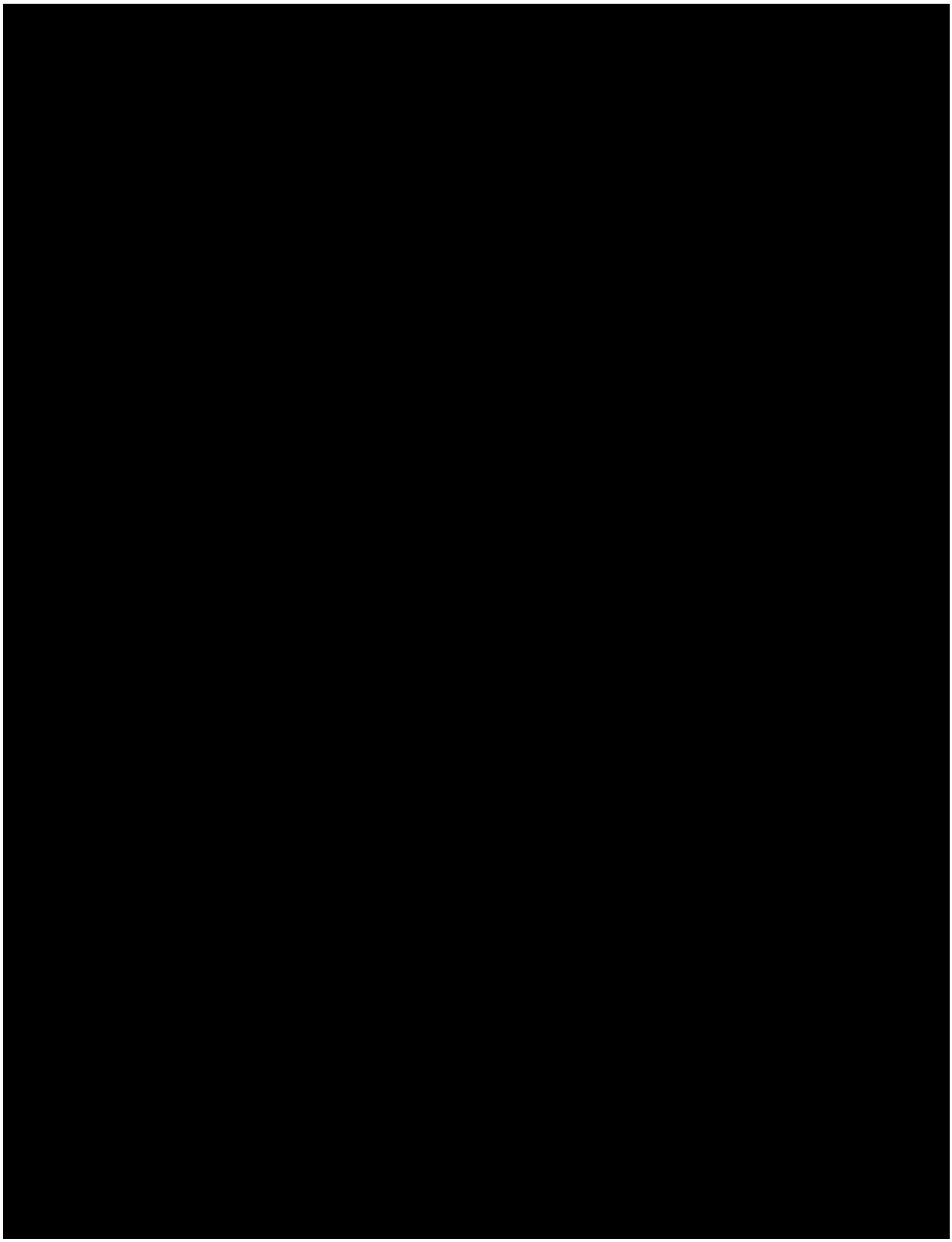


Figure 39: A portion of the [redacted] map of Jasper County in the "Maps of Indiana Counties in 1876" (Andreas 1876) showing Survey Area 5.

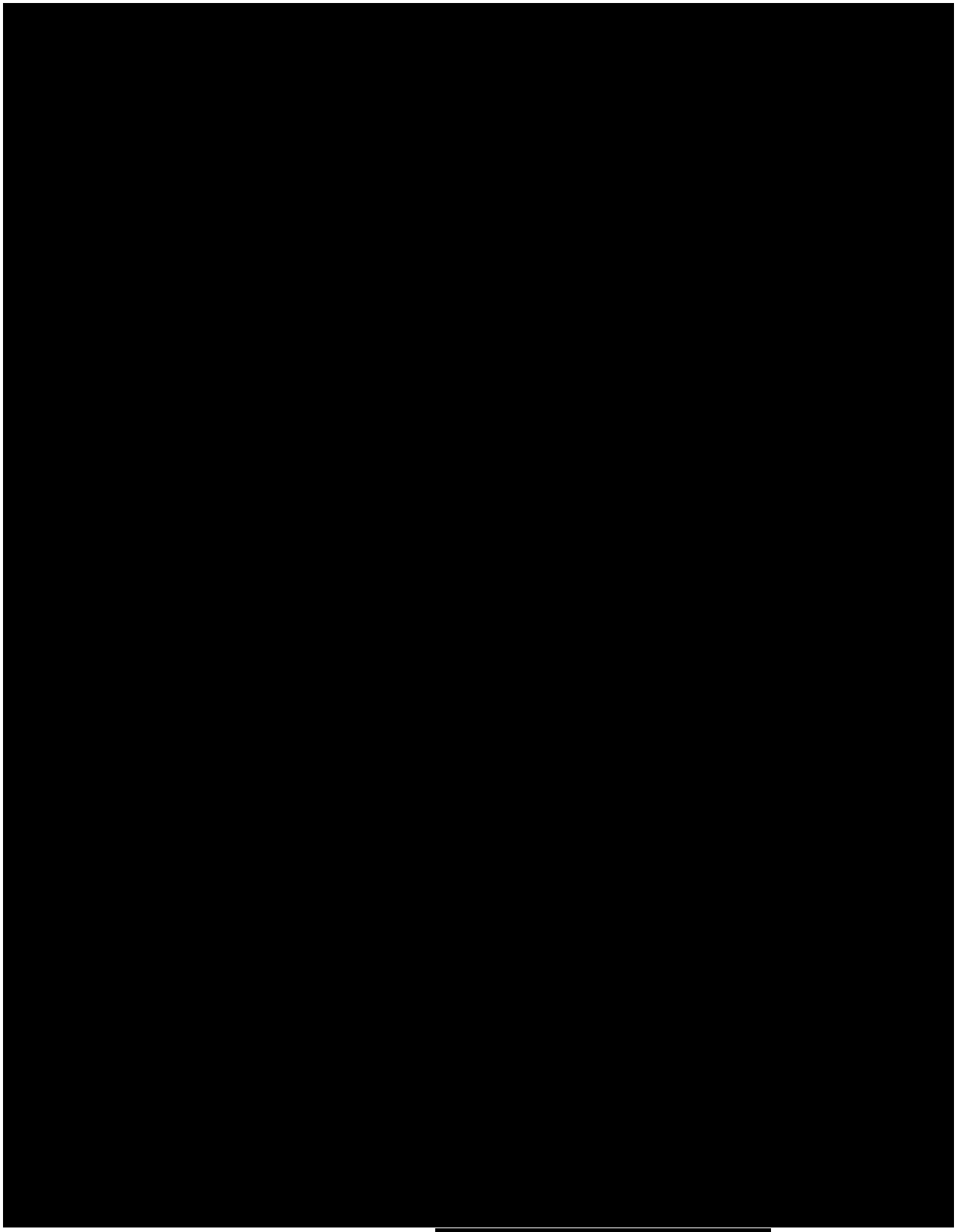


Figure 40: A portion of the USGS 7.5' [redacted] showing the location of Survey Area 5.

Artifacts

A total of 103 artifacts were encountered in Survey Area 5. Table 10 provides a list of the artifacts recovered by category and representative artifacts are shown in Figure 41 and Figure 42. Artifacts are listed by individual site in Volume 2, Appendix E.

Five prehistoric artifacts were recovered from Survey Area 5. No diagnostic artifacts were recovered from the Prehistoric period in Survey Area 5.

Ninety five diagnostic historic artifacts were recovered in Survey Area 5. Chronologically expressed these items include aqua glass recovered from sites 12-Js-323, 327, and 332 which was manufactured between 1800 and 1910 (IMACS 2009:18). Plain, green glazed, and tan glazed whiteware recovered from sites 12-Js-327, 332, and 335 was manufactured from 1820 to present (Stelle 2001:Chapter 1). Porcelain with blue transfer print recovered from site 12-Js-328 was manufactured from 1830 to 1860 (Lofstrom et al. 1982:14). Stoneware with Albany interior and Bristol exterior recovered from site 12-Js-332 was manufactured from 1835 to 1940 (Stelle 2001:Chapter 1). Stoneware with Bristol glaze recovered from sites 12-Js-325 and 332 was manufactured from 1835 to present (Stelle 2001:Chapter 1). Ironstone recovered from sites 12-Js-327, 332, 333, and 334 was manufactured from 1842 to 1930 (Stelle 2001:Chapter 1). Amber glass recovered from sites 12-Js-332 and 318, and green glass recovered from site 12-Js-323 were both manufactured from 1860-present (IMACS 2009:19). Clear glass recovered from sites 12-Js-327 and 332 was manufactured from 1875-present (IMACS 2009:19). Sun colored amethyst glass recovered from sites 12-Js-327 and 332 was manufactured from 1880-1920 (Newman 1970:74). Milk glass recovered from sites 12-Js-327 and 332 was manufactured from 1890 to 1960 (IMACS 2009:18). Cobalt glass recovered from site 12-Js-332 was manufactured from 1890 to present (IMACS 2009:19) and stoneware with Albany slip recovered from site 12-Js-332 was manufactured before 1940 (Stelle 2001:Chapter 1).

Table 10: Artifacts from Survey Area 5.

Prehistoric	No.	Historic	No.
Flake, Tool	1	Porcelain, Blue Transfer print	1
Flake, Proximal	1	Porcelain, plain	2
Flake, Shatter	3	Ironstone, plain	7
		Whiteware, plain	16
		Stoneware, Albany	1
		Stoneware, Bristol	2
		Stoneware, Albany and Bristol	5
		Glass, Red	1
		Glass, Cobalt	3
		Glass, Green	2
		Glass, Sun Colored Amethyst	9
		Glass, Milk	6
		Glass, Amber	1
		Glass, Aqua	11
		Glass, Clear	31
Total	**5**	**Total**	**98**

Figure 41: Possible blade fragment recovered from site 12-Js-329 (photo by Felicia Konrad, Ball State University).

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Figure 42: Representative historic artifacts recovered from sites 12-Js-327 and 328 (photo by Felicia Konrad, Ball State University).

Sites

Thirteen archaeological sites, 12-Js-323 to 335, were recorded in Survey Area 5 (Figure 43 and Figure 44). Summaries for the individual sites are contained in Volume 2, Appendix F. Five sites were prehistoric isolated finds (12-Js-324, 326, 329, 330, and 331), five sites were historic isolated finds (12-Js-325, 328, and 333 to 335), and three sites were historic scatters (12-Js-323, 327, and 332).

All 13 sites (12-Js-323 to 335) were discovered on till plain and moraines. Four sites were on Rensselaer, till substratum-Wolcott complex (Rw) soil (12-Js-327, 331, 333, and 334. Five sites were on Darroch, till substratum-Odeil complex (Dg) soil (12-Js-324, 325, 329, 332, and 335). Three sites were on Corwin loam (CoB) soil (12-Js-326, 328, and 330). One site was on both Darroch, till substratum-Odeil complex (Dg) and Rensselaer, till substratum-Wolcott complex (Rw) soils (12-Js-323).

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 180.79 acres of till plain and moraines. Within Survey Area 5, a density of one site per 13.9 acres occurred and sites covered 1.99 percent of the surface area.

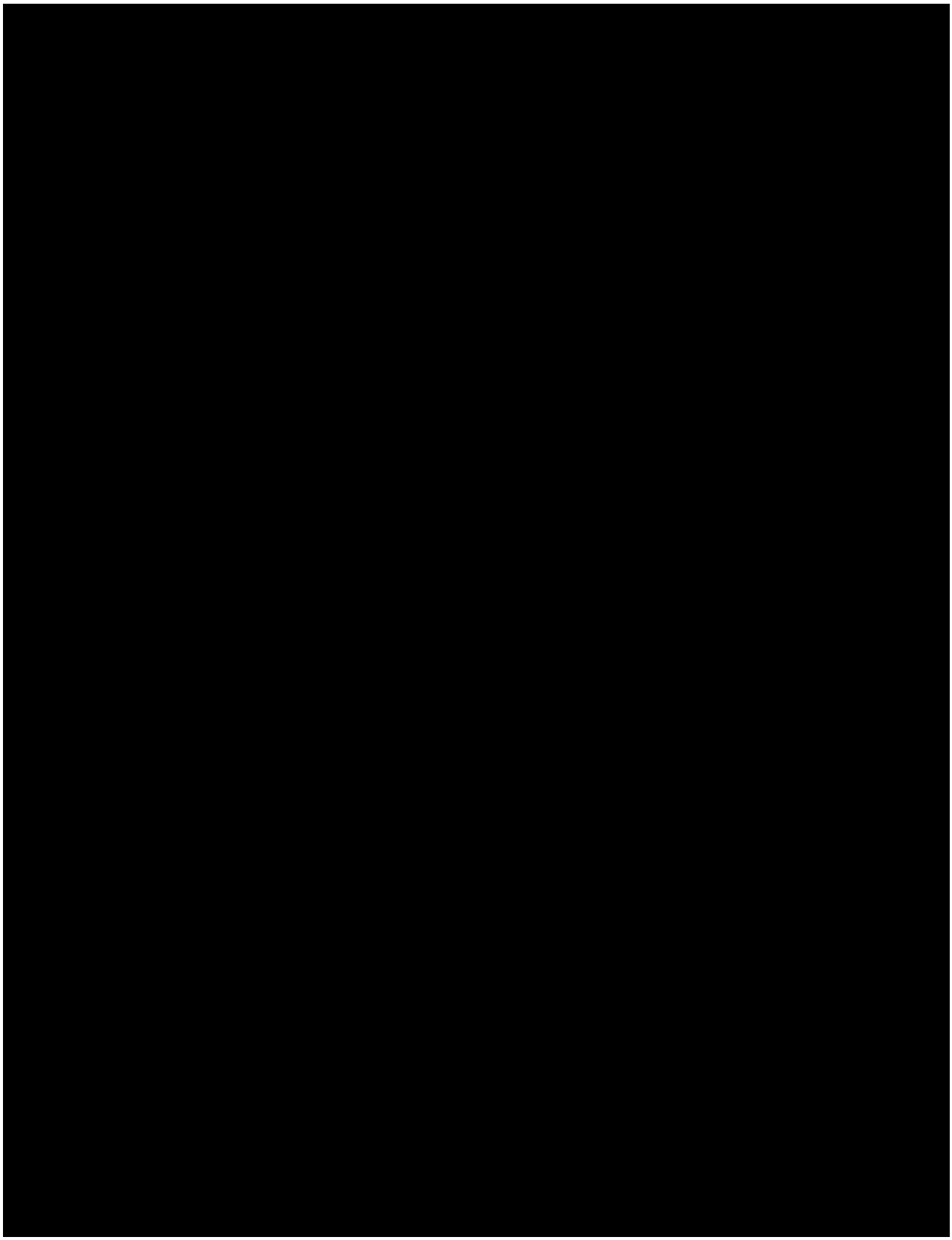


Figure 43: A portion of the USGS 7.5' [redacted] showing the location of sites 12-Js-323 to 335.

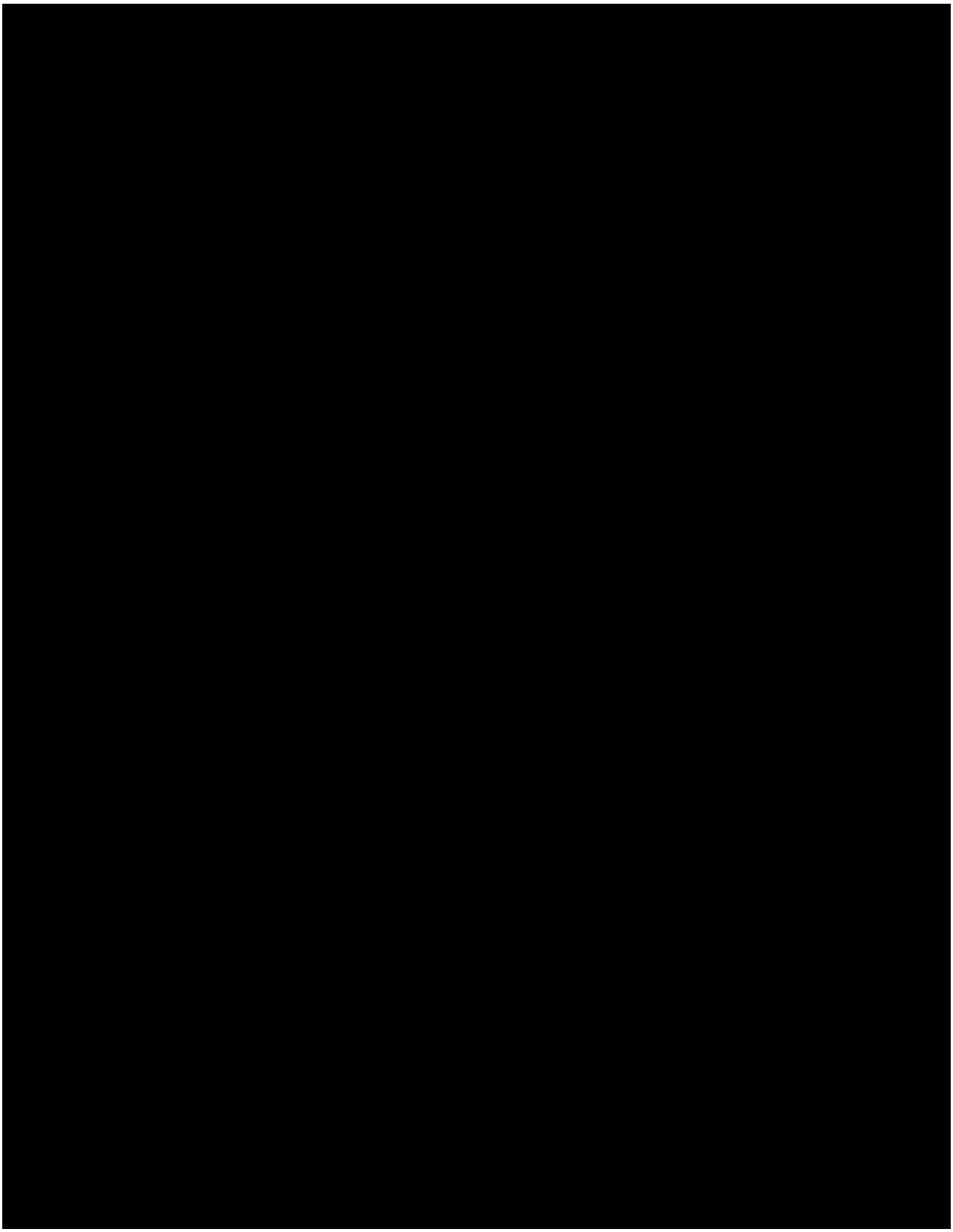


Figure 44: 2011 Aerial (Indiana Data Spatial Service) showing the location of sites 12-Js-323 to 335.

Survey Area 6

Survey Area 6 was located in [redacted] as shown in the "Maps of Indiana Counties in 1876" (Andreas 1876) and the USGS 7.5' [redacted] (Figure 45 and Figure 46). The property was surveyed on September 7, 2014. Ground surface visibility was approximately 95 percent with small amounts of corn debris being the only visual obstacle. This field operated as a seed plot and as such had virtually all of the corn stalk removed during harvesting. These two factors led to an open field with excellent visibility and field conditions. Approximately 115.81 acres were surveyed consisting of floodplain. The area consisted of Iroquois (Ir), Papineau (Pa), Simonin (SmA), Sloan (So), and Strole (St) soils. Ten sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a lithic scatter of 9534.6 square meters (2.36 acres).

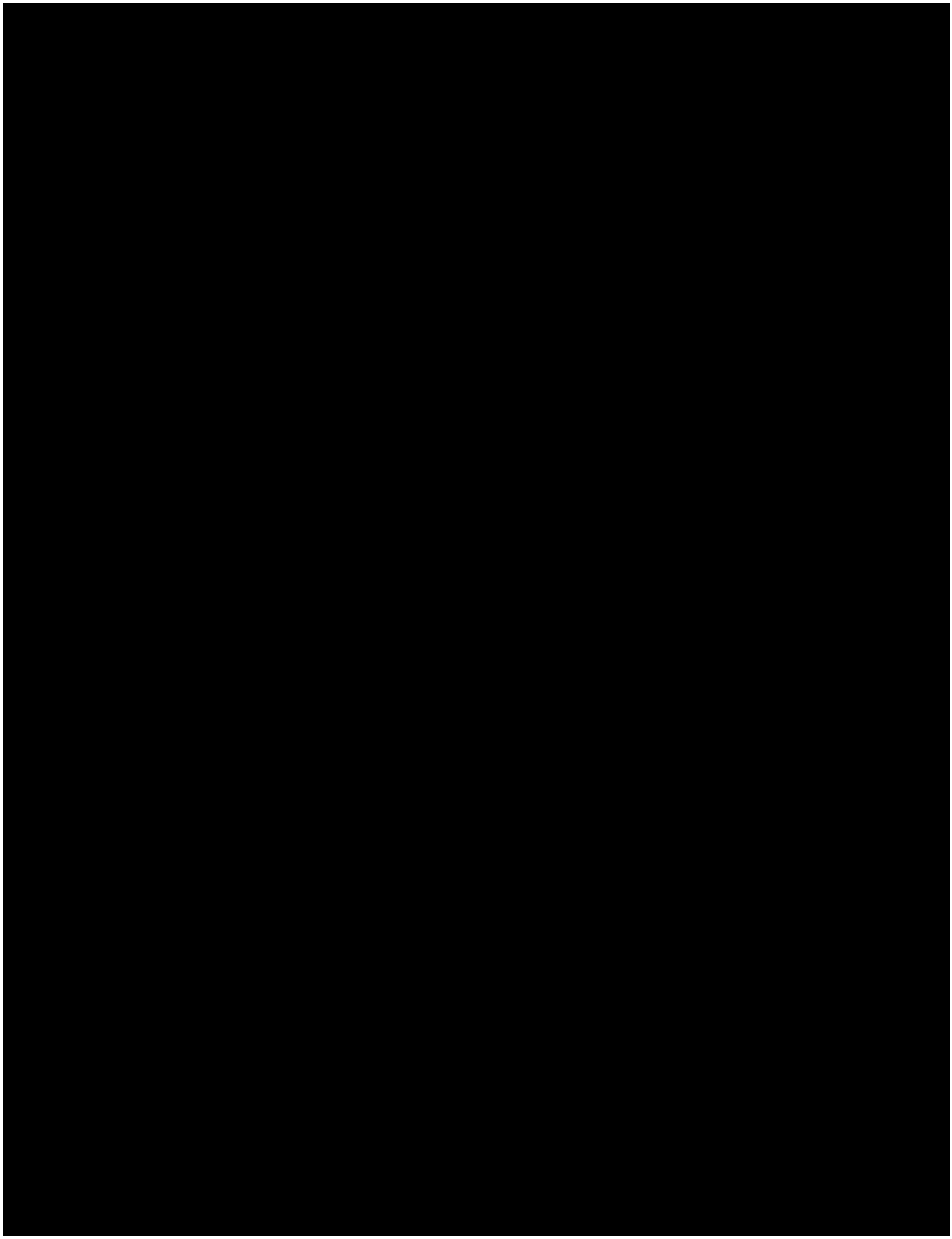


Figure 45: A portion of the [redacted] map of Jasper County in the "Maps of Indiana Counties in 1876" (Andreas 1876) showing Survey Area 6.

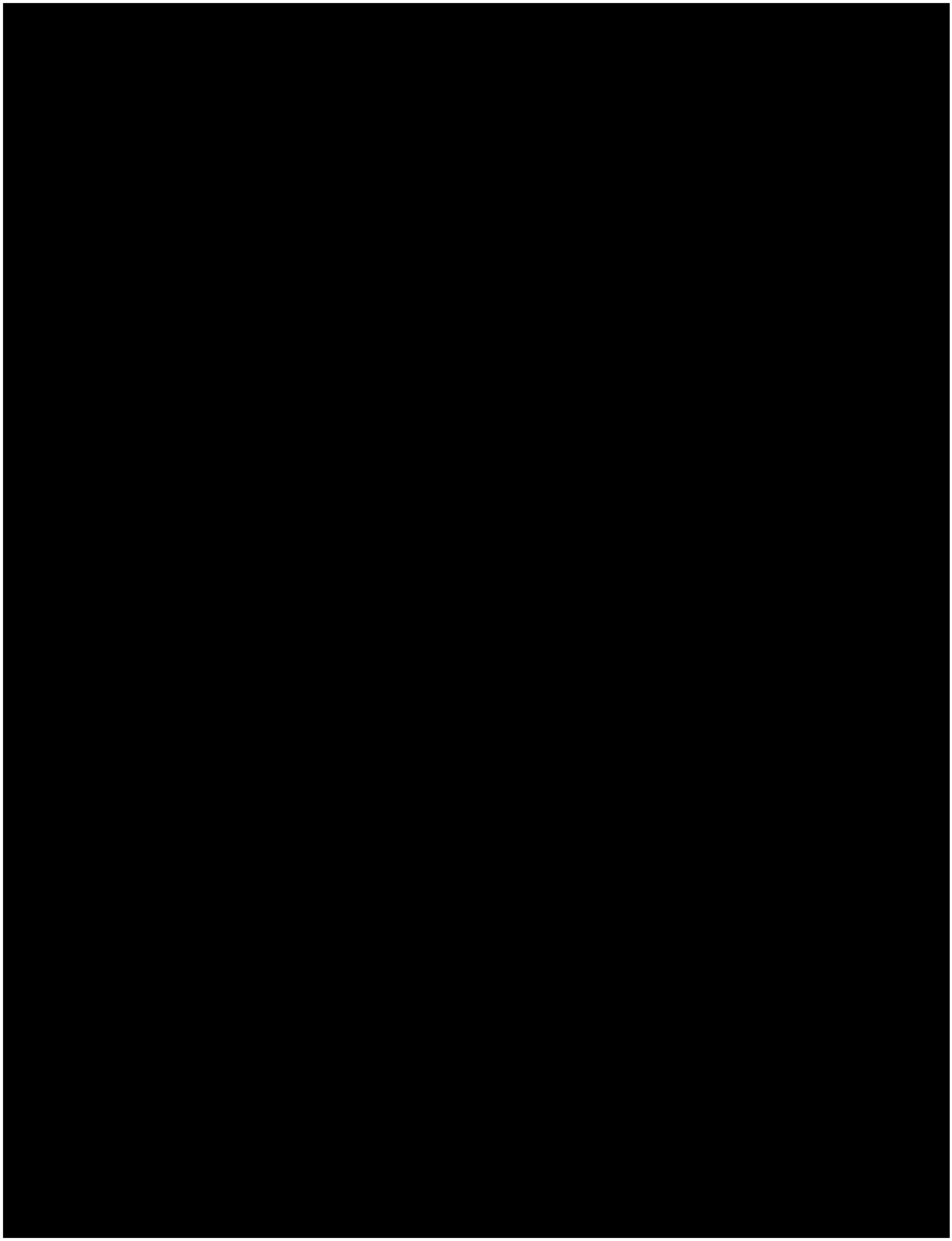


Figure 46: A portion of the USGS 7.5’ [redacted] showing the location of Survey Area 6.

Artifacts

A total of 143 artifacts were encountered in Survey Area 6. Table 11 provides a list of the artifacts recovered by category. Representative artifacts are shown in Figure 47, Figure 48, and Figure 49. Artifacts are listed by individual site in Volume 2, Appendix E.

A total of 132 prehistoric artifacts were recovered from Survey Area 6. Two diagnostic prehistoric artifacts were recovered from Survey Area 6 (Figure 47 and Figure 48). A Raddatz Side Notched point diagnostic of the Middle Archaic and a Jack's Reef Pentagonal point diagnostic of the Late Woodland were both recovered from site 12-Js-340.

Eleven diagnostic historic artifacts were recovered from Survey Area 6. Chronologically expressed these items include aqua glass recovered from site 12-Js-337 which was manufactured between 1800 and 1910 (IMACS 2009:18). Plain whiteware recovered from sites 12-Js-340 and 345 was manufactured from 1820 to present (Stelle 2001:Chapter 1). Ironstone recovered from site 12-Js-336 was manufactured from 1842 to 1930 (Stelle 2001:Chapter 1). Clear glass recovered from site 12-Js-340 was manufactured from 1875-present (IMACS 2009:19). Sun colored amethyst glass recovered from sites 12-Js-340 and 345 was manufactured from 1880-1920 (Newman 1970:74).

Table 11: Artifacts from Survey Area 6.

Prehistoric	No.	Historic	No.
Biface, Hafted (Raddatz Side Notched)	1	Ironstone, plain	1
Biface, Unhafted (Jack's Reef Pentagonal)	1	Whiteware, plain	2
Biface, Hafted	1	Glass, Aqua	1
Biface, Unhafted,	2	Glass, Sun Colored Amethyst	3
Core, Tool	1	Glass, Clear	4
Core	3		
Flake, Tool	15		
Flake, Proximal	53		
Flake, Shatter	45		
Angular Shatter	10		
Total	**132**	**Total**	**11**

Figure 47: Part of a Raddatz Side Notched point diagnostic from site 12-Js-340 (photo by Felicia Konrad, Ball State University).

Figure 48: Part of a Jack's Reef Pentagonal point diagnostic from site 12-Js-340 (photo by Felicia Konrad, Ball State University).

Figure 49: Part of a non-diagnostic point from site 12-Js-340 (photo by Felicia Konrad, Ball State University).

Sites

Ten archaeological sites, 12-Js-336 to 345, were recorded in Survey Area 6 (Figure 50 and Figure 51). Summaries for the individual sites are contained in Volume 2, Appendix F. Two of the ten sites were prehistoric isolated finds (12-Js-341, and 342) and four sites were lithic scatters (12-Js-338, 339, 343, and 344). Two of the sites were historic isolated finds (12-Js-336, and 337). One of the sites was a multicomponent site representing the historic and unidentified prehistoric periods (12-Js-345), and one site was a multicomponent site representing the historic, Late Woodland, Middle Archaic, and unidentified prehistoric periods (12-Js-340).

All five sites were discovered on floodplains (12-Js-336 to 342). Four sites were on Papineau sandy loam (Pa) soil (12-Js-338, 339, 341, and 342). Two sites were on Simonin loamy sand (SmA) soil (12-Js-343 and 344). Two sites were on both Papineau sandy loam (Pa) and Simonin loamy sand (SmA) soils (12-Js-340 and 345). Two sites were on Iroquois fine sandy loam (Ir) soil (12-Js-336 and 337).

Due to the high number and diversity of both raw material and form of lithic artifacts recovered from site 12-Js-340 we recommend this site as potentially eligible for the National Register of Historic Places. The assemblage from 12-Js-340 includes two identifiable projectile

points, many expedient and formal tools, both objective and detached pieces, and evidence of on-site lithic reduction (shatter). In addition to the one Middle Archaic and Late Woodland diagnostics, there is another side notched untyped point, and a blade-like flake. The area was utilized, repeatedly for a very long period of time and at a variety of time periods. This diverse assemblage indicates that a variety of activities took place here, and the variety of periods of use indicate that this area was a persistently important part of the local subsistence and settlement cycle. For these reasons, 12-Js-340 has the potential to yield important information about the nature of the extractive use of this area over broad swaths of time and may be able to inform environmental reconstructions. The absence of groundstone and FCR may indicate a different part of the settlement system than represented by 12-Js-279. This difference, if confirmed, may be temporal, or functional, or both. No sub-surface features were encountered in 12-Js-340. Two historic maps (Andreas 1876; Geo. A. Ogle & Co. 1909) were consulted to assess any potential historic influence and none was found. No structures were found on either of these maps that were located inside of or immediately adjacent to Survey Area 6, and there was no sign of substantial disturbance to 12-Js-340; thus the site should contain sufficient integrity to warrant further investigation. The rest of the site types found in Survey Area 6 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 6 consisted of approximately 115.81 acres of floodplains. Within Survey Area 6, a density of one Prehistoric site per 11.6 acres occurred and sites covered 3.72 percent of the surface area.

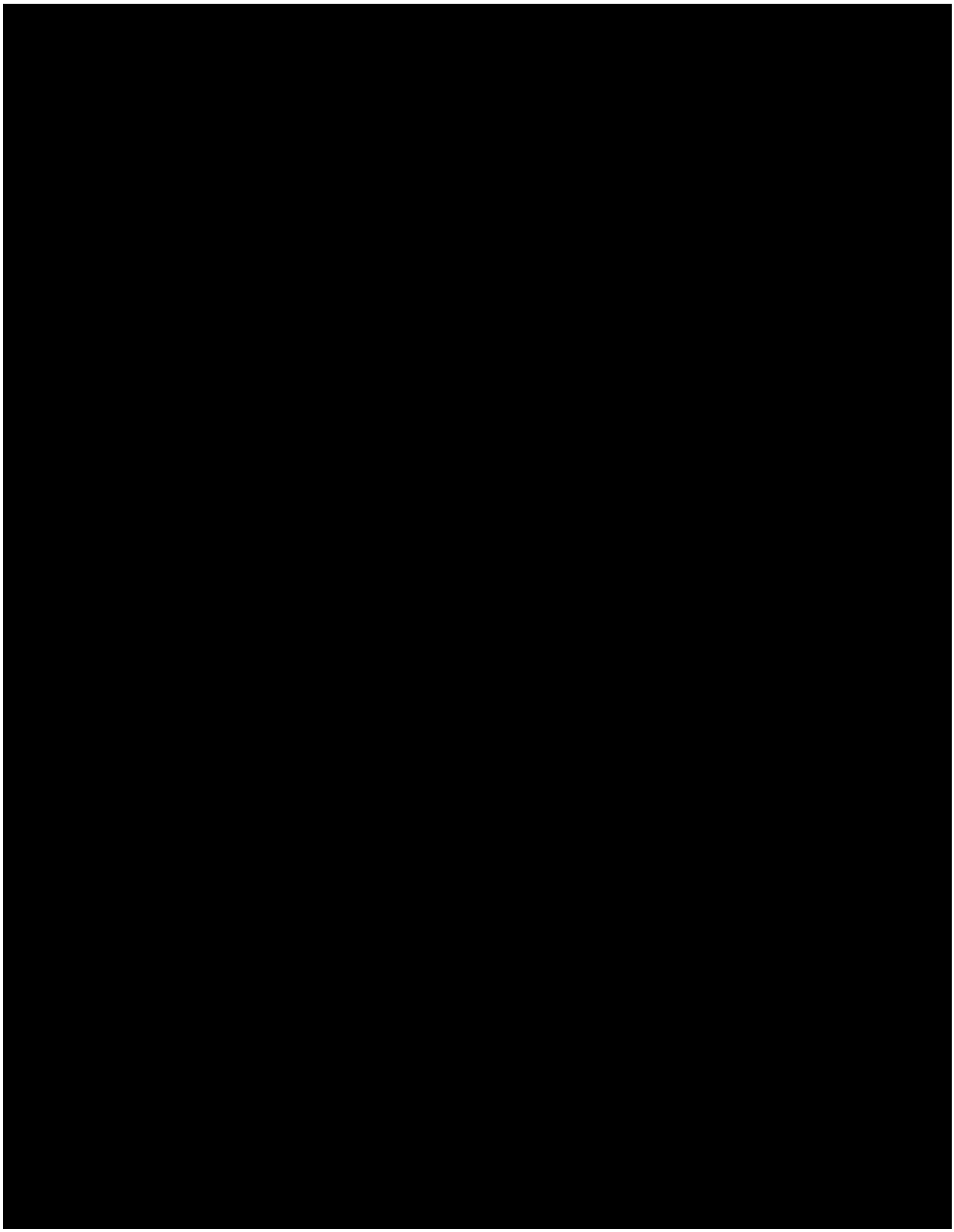


Figure 50: A portion of the USGS 7.5' [redacted] showing the location of sites 12-Js-336 to 345.

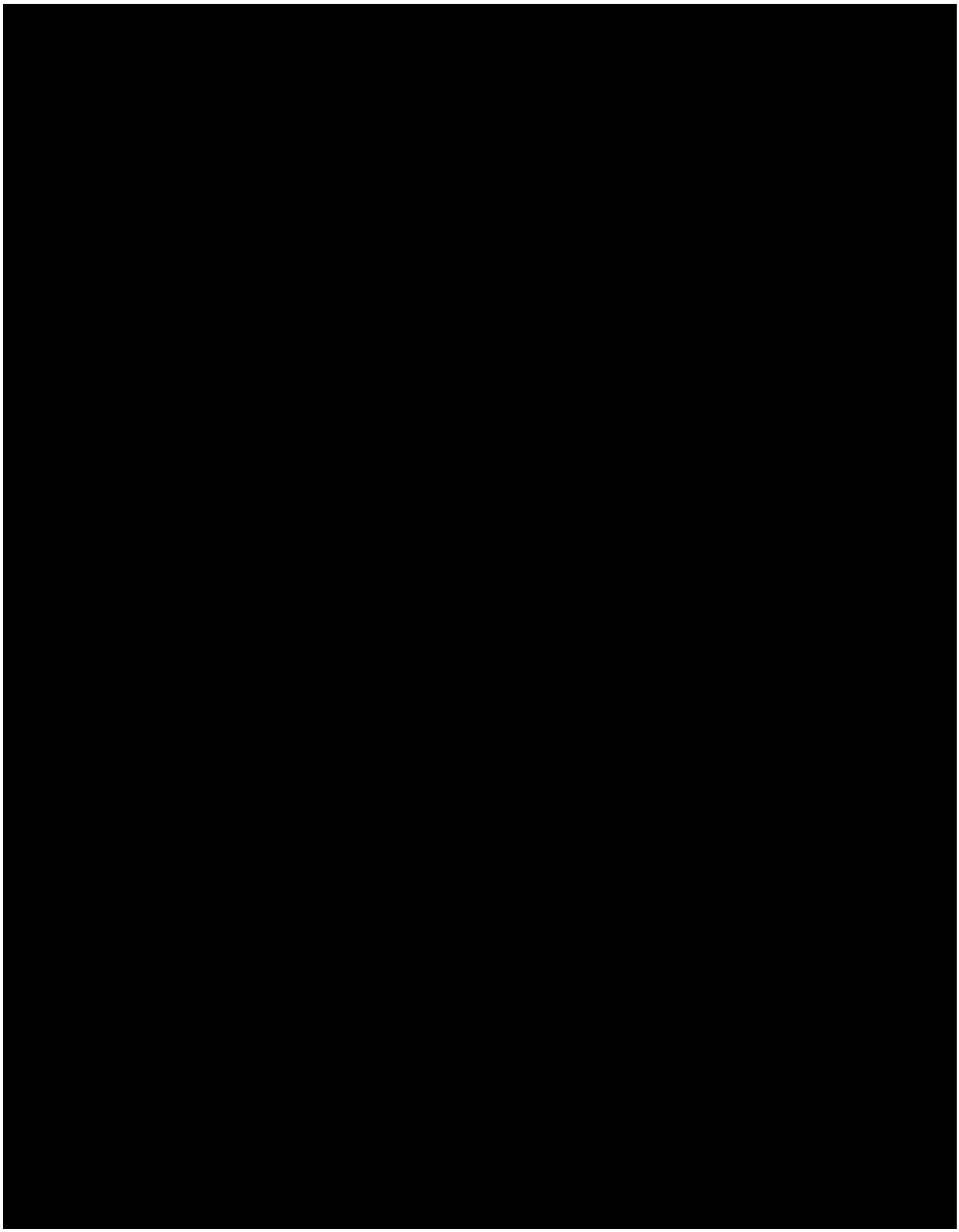


Figure 51: 2011 Aerial (Indiana Data Spatial Service) showing the location of sites 12-Js-336 to 345.

Survey Area 7

Survey Area 7 was located in [redacted] as shown in the "Maps of Indiana Counties in 1876" (Andreas 1876) and the USGS 7.5' [redacted] (Figure 52 and Figure 53). The property was surveyed on September 13, 2014. Ground surface visibility was approximately 95 percent with small amounts of corn debris being the only visual obstacle. This field operated as a seed plot and as such had virtually all of the corn stalk removed during harvesting. These two factors led to an open field with excellent visibility and field conditions. Approximately 151.59 acres were surveyed consisting of till plain and moraines. The area contained Brems (BeB), Chelsea (ChB), Corwin (CoB), Darroch (Dg), Gilford (Gf), Morocco (Mu), and Rensselaer (Rw) soils. Ten sites were encountered during the survey. The sites ranged in size from prehistoric and historic isolated finds to a small historic scatter of 1328.89 square meters (0.33 acres).

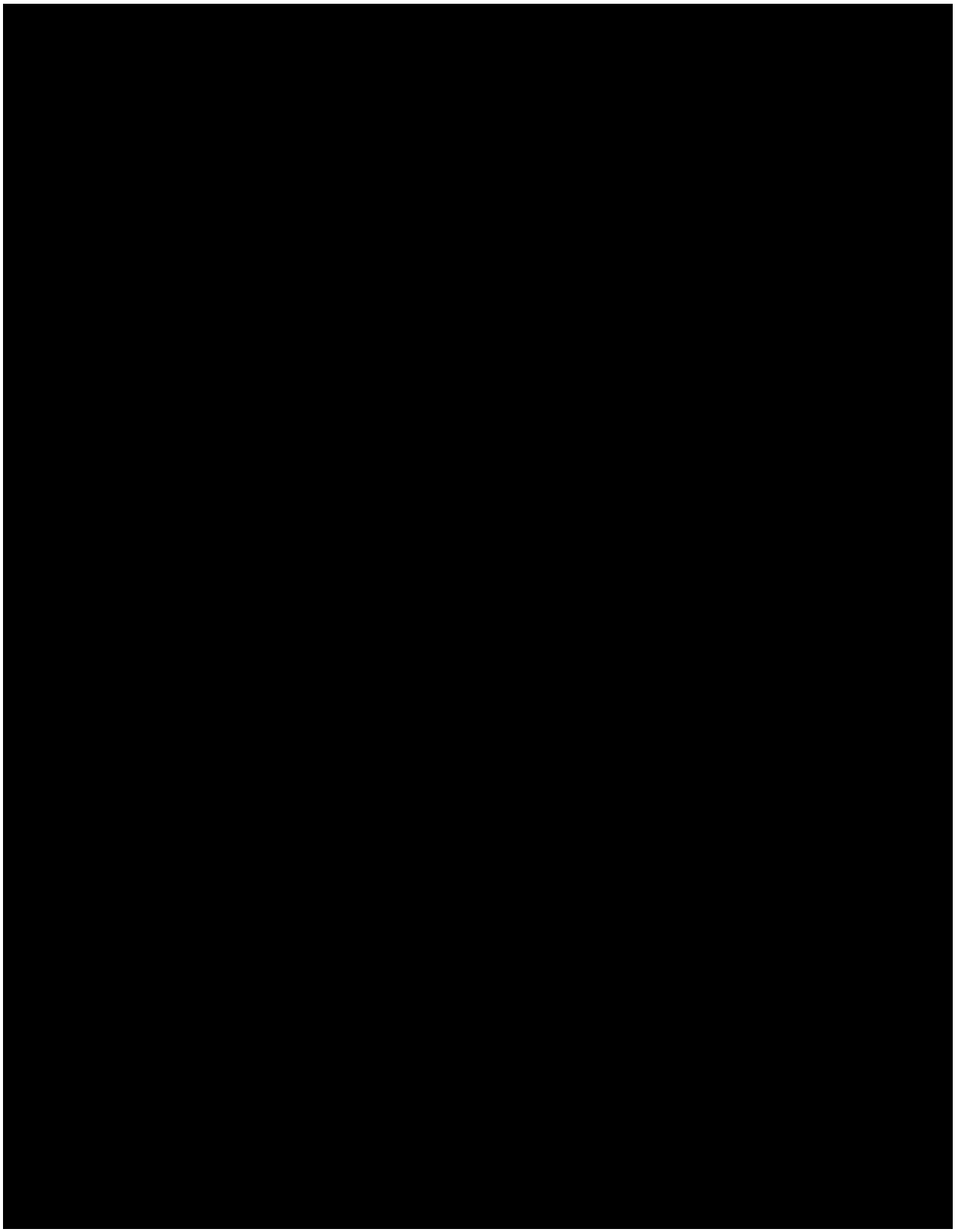


Figure 52: A portion of the [redacted] map of Jasper County in the "Maps of Indiana Counties in 1876" (Andreas 1876) showing Survey Area 7.

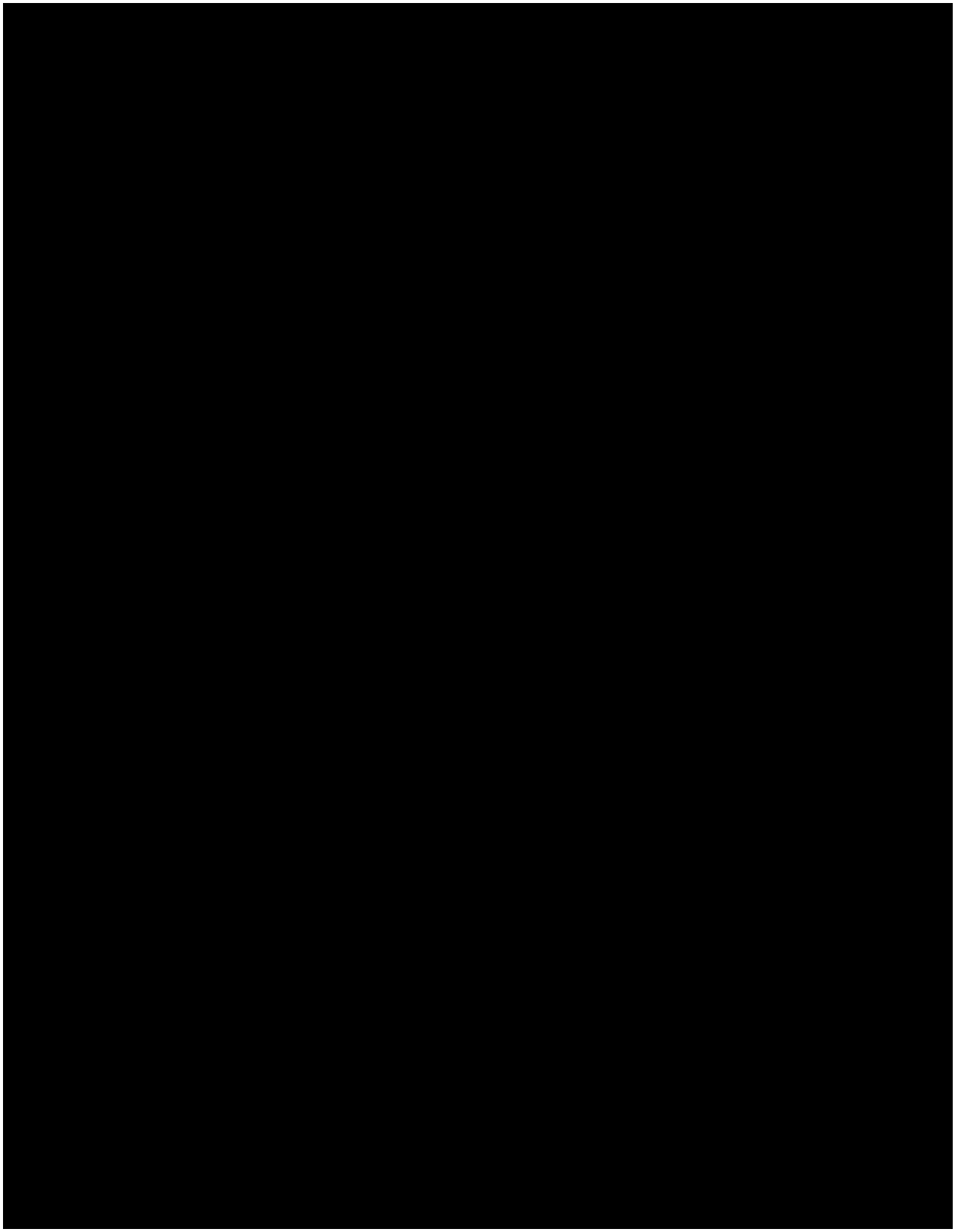


Figure 53: A portion of the USGS 7.5' [redacted] showing the location of Survey Area 7.

Artifacts

A total of 12 artifacts were encountered in Survey Area 7. Table 12 provides a list of the artifacts recovered by category, representative artifact shown in Figure 54. Artifacts are listed by individual site in Volume 2, Appendix E.

Five prehistoric artifacts were recovered from Survey Area 7. No diagnostic prehistoric artifacts were recovered from Survey Area 7.

Six diagnostic historic artifacts were recovered in Survey Area 7. Chronologically expressed these items include aqua glass recovered from sites 12-Js-346 and 354 which was manufactured between 1800 and 1910 (IMACS 2009:18). Plain whiteware recovered from site 12-Js-346 was manufactured from 1820 to present (Stelle 2001:Chapter 1). Ironstone recovered from site 12-Js-353 was manufactured from 1842 to 1930 (Stelle 2001:Chapter 1). Sun colored amethyst glass recovered from site 12-Js-355 was manufactured from 1880-1920 (Newman 1970:74) and cobalt glass recovered from site 12-Js-352 was manufactured from 1890 to present (IMACS 2009:19).

Table 12: Artifacts from Survey Area 7.

Prehistoric	No.	Historic	No.
Core	2	Ironstone, Plain	1
Flake, Proximal	1	Whiteware, Plain	1
Flake, Shatter	2	Glass, Cobalt	1
		Glass, Sun Colored Amethyst	1
		Glass, Aqua	2
		Coal	1
Total	**5**	**Total**	**7**

Figure 54: A proximal flake recovered from site 12-Js-348 (photo by Felicia Konrad, Ball State University).

Sites

Ten archaeological sites, 12-Js-346 to 355, were recorded in Survey Area 7 (Figure 55 and Figure 56). Summaries for the individual sites are contained in Volume 2, Appendix F. Five sites were prehistoric isolated finds (12-Js-347 to 351). Four sites were historic isolated finds (12-Js-352 to355) and one site was a historic scatter (12-Js-346).

All 10 sites were discovered on till plain and moraines (12-Js-346 to 355). Three sites were on Darroch, till substratum-Odeil complex (Dg) soil (12-Js-348, 349, and 354). Four sites were on Rensselaer, till substratum-Wolcott complex (Rw) soil (12-Js-347, 350, 351, and 355).

Two sites were on Brems loamy sand (BeB) soil (12-Js-352, and 353). One site was on both Corwin loam (CoB) and Rensselaer, till substratum-Wolcott complex (Rw) soils (12-Js-346).

Survey Area 7 was the only survey area for which a historic map indicated a historic structure. A house was identified within Survey Area 7 on the "Maps of Indiana Counties in 1876" (Andreas 1876). No evidence of this structure was recovered during the survey. Despite excellent field conditions and visibility, Survey Area 7 still displayed a tremendously low density of artifacts. In addition to this, no artifacts recovered from Survey Area 7 which were constructional in nature indicating that if a structure was there its footprint has been completely removed from the landscape.

The site types found in Survey Area 7 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 151.59 acres of till plain and moraines. Within Survey Area 7, a density of one site per 15.2 acres occurred and sites covered 1.25 percent of the surface area.

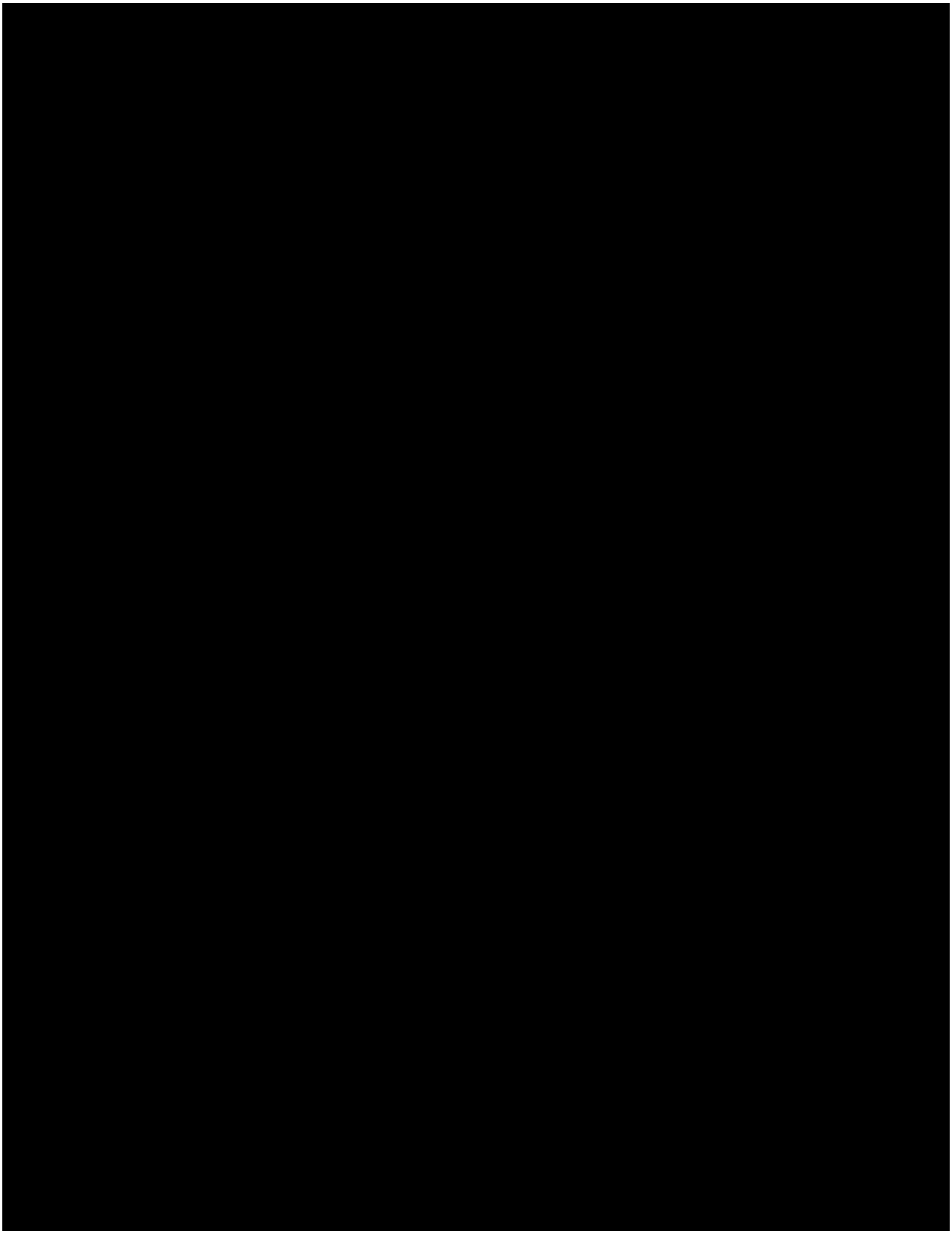


Figure 55: A portion of the USGS 7.5' [redacted] showing the location of sites 12-Js-346 to 355.

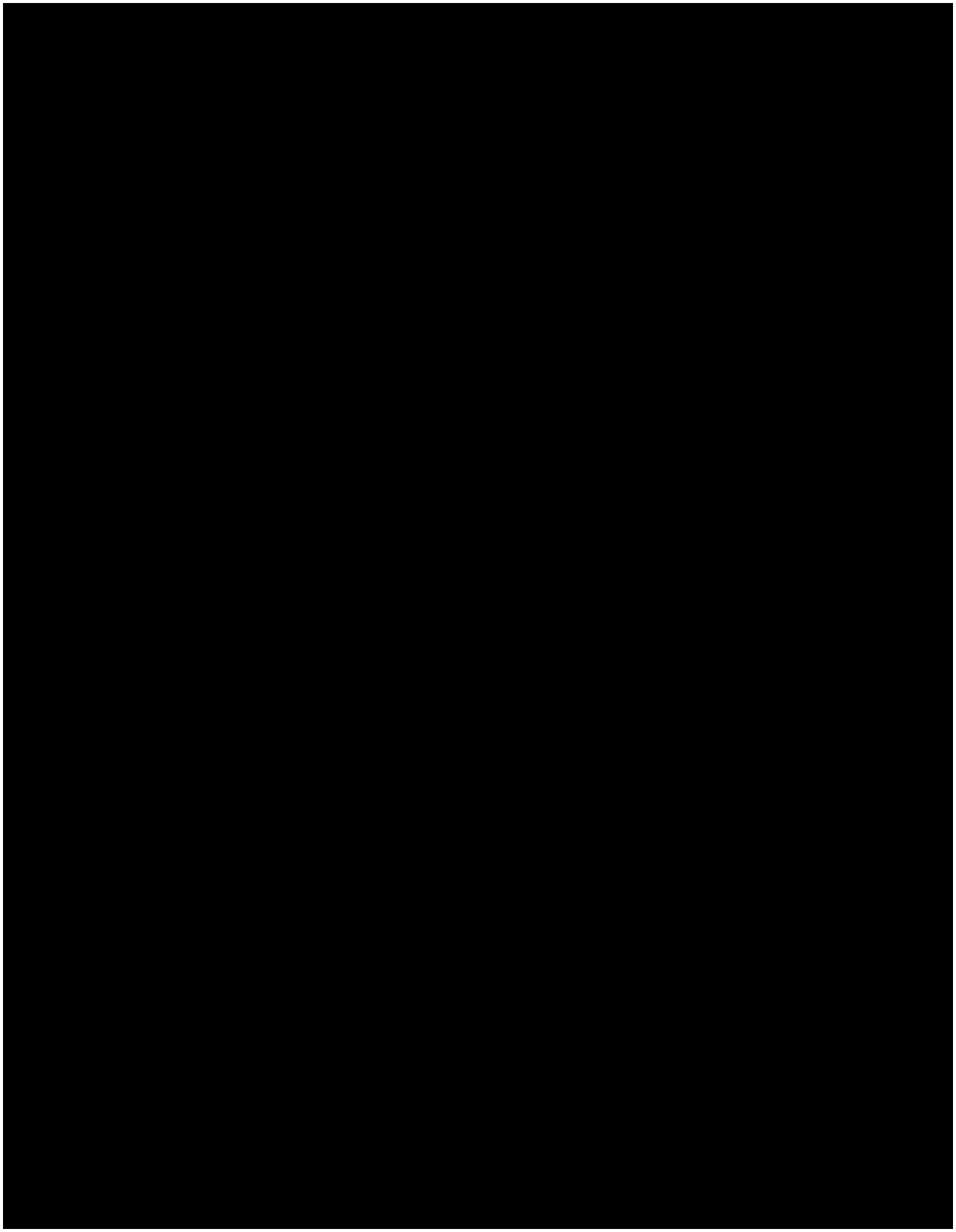


Figure 56: 2011 Aerial (Indiana Data Spatial Service) showing the location of sites 12-Js-346 to 355.

Collector Visit

On February 6, 2015 Nolan and Macleod visited the home of local artifact collector, [redacted], in Jasper County. His collection consisted of materials recovered predominantly in Jasper County and occasionally in Newton and Pulaski Counties over the last 50 years. [redacted] had no known provenience for most individual artifacts other than that they had come from known areas where he had collected. [redacted] had his collection divided between formal "show case artifacts" and loose artifacts in boxes which tended to be of lower aesthetic quality. This visit consisted of a visual inspection of his collection. The higher quality "display" materials were documented as is, so as not to destroy any display context. The loose, or "general collection", materials were sorted into coarse groups based on easily identifiable criteria such as hafting elements (i.e. flutes, stems, corner–notching, side-notching, and base-notching), re-sharpening, size, and overall morphology with the assistance of Justice (1987). Each item was inspected individually, occasionally with the use of 5x, 10x, 25x, and 60x magnification in order to make material identifications. If material association could not be determined in a timely manner (on the order of minutes) it was classified as "unidentified." All pictures and scans taken during the visit are available in Volume 2, Appendix G.

A total of 431 artifacts were examined. As mentioned above, the volume of lithic materials only allowed for a coarse evaluation of material type and general artifact class. This led to a majority of the materials (55.22%) being classified as Unidentified as we were unable to spend large amounts of time identifying the material of any one artifact. The identified lithic materials (Table 13) collectively displayed a source breakdown comparable to the materials recovered from the survey. An overwhelming majority of identified cherts were of Mississippian age (33.41%), approximately one third of chert in this collection (9.05%) was Silurian in age, and around half of one percent (0.46%) of the total material identified as Pennsylvanian. An additional 0.70 percent was classified as Other which consisted of shale and quartzite.

Table 13: Lithic Material Associations of the [redacted] collection

Chert Type	No.	Percent of Assemblage
Silurian	**39**	**9.05**
Kenneth, Harmilda	13	3.02
Laurel HT	1	0.23
Liston Creek	25	5.80
Mississippian	**144**	**33.41**
Attica HT	12	2.78
Attica	46	10.67
Blanding, Elwood-Joliet HT	2	0.46
Blanding, Elwood-Joliet	3	0.70
Blanding	5	1.16
Burlington HT	6	1.39
Burlington	36	8.35
Cataract	1	0.23
Cobden	4	0.93
Dongola	1	0.23
Haney HT	1	0.23
Haney	1	0.23
Indian Creek	3	0.70
Muldraugh HT	3	0.70
Muldraugh	6	1.39
Wyandotte	14	3.25
Pennsylvanian	**2**	**0.46**
Holland Dark Phase	2	0.46
Other	**3**	**0.70**
Quartzite	1	0.23
Shale	2	0.46
Unidentified	**238**	**55.22**
Unidentified HT	21	4.87
Unidentified	217	50.35

The artifact class breakdown from the general collection is available in Table 14. Fifteen fluted/Paleoindian points were documented from this collection (3.48%). As this is typically an underrepresented period in Indiana due to its age, general depth to material, as well as having the largest amount of geomorphic disturbance since production, these high numbers seem interesting and possibly anomalous. With only one previously documented Paleoindian site in Jasper County, this may indicate a strong, as of yet, undocumented Paleoindian presence in Jasper, or possibly may be a result of collection bias. These numbers may also be inflated artificially if the collector repeatedly came across the same site, in which case this would likely be indicative of a single sizable occupation as opposed to county-wide high site density. When questioned about the source of these artifacts, the collector assured us that they came from many different

collection areas and not one site. The varying material of these artifacts also indicates several distinct sources and lends support to the idea that there was a more prominent Paleoindian presence in Jasper County than has been previously documented. If a disproportionately large Paleoindian presence did exist in the county it is likely the result of different geomorphic conditions allowing for more habitable land during that period and less in subsequent periods. Investigating this distribution and quantity difference may provide insight into how the nature of the county and the wetlands changed throughout time.

As for the artifact classes in the general collection, side notched points (n=89) were the most common at 39.73 percent, possibly indicating a strong Middle Archaic presence (Table 14) (Justice 1987). Corner notched points (n=55) which were used during multiple phases were not surprisingly the second most represented group at 24.55 percent. Stemmed points (n=47), common among Late Archaic through Early Woodland cultures, such as Adena, were also well represented at 20.98 percent.

These numbers are generally inconsistent with what has been previously recovered in Jasper County (see Table 3). Compare the preponderance of side notched points in the [redacted] collection to only one Middle Archaic site in SHAARD, and the large number of stemmed points to the three previously documented Early Woodland sites. The proportion of side-notched points is, however, roughly consistent with the results of our survey which documented one Middle Archaic site, accounting for 25% of the diagnostic prehistoric materials. These numbers, while important, should be viewed cautiously as there are a relatively low number of documented diagnostic prehistoric sites in Jasper County and as a result of this survey. This means that comparisons based on these samples should only be discussed generically. Potential collection bias is another reason for caution in comparing results; however, the results should at the very least stimulate interesting and provocative research questions in years to come.

Though lithic materials from the display cases were unable to be grouped effectively, all general lithic artifact classes represented in the general collection were also represented in the display cases. In addition to those several tools were documented, including what appeared to be additional drills, as well as possible burins, awls, and one historic gun flint.

Table 14: Distribution of Artifact Classes within the General Collection

General Artifact Class	No.	Percent of General Assemblage
Fluted/Paleoindian	15	6.70
Stemmed	47	20.98
Corner Notched	55	24.55
Side Notched	89	39.73
Base Notched	4	1.79
Drill	1	0.45
Unhafted	13	5.80
Total	**224**	

The artifact classification and material type were only both documented for the general collection. These results documented a total of 208 general collection specimens and are presented in Table 15. As discussed earlier, limited time and instrument availability meant that most of the material classifications of this sample were unclassified. However, there still appears to be a distinct trend in local sources as indicated by elevated levels of Mississippian cherts consistent with Attica and Liston Creek. While exotic materials such as those consistent with Burlington and Wyandotte are present, they display appreciably lower numbers than local sources.

Table 15: Chert types consistent with general artifact classes within the [redacted] general collection.

	Paleo/ Fluted	Stemmed	Corner Notched	Side Notched	Base Notched	Drill	Unhafted
Attica	1	5	6	9	0	0	3
Attica HT	2	0	0	4	0	0	0
Blanding, Elwood-Joliet HT	0	0	0	2	0	0	0
Blanding, Elwood-Joliet	0	0	0	2	1	0	0
Blanding	0	0	0	2	0	0	1
Burlington	0	3	3	2	1	0	1
Burlington HT	0	1	0	0	0	0	0
Cobden	0	1	0	0	0	0	0
Dongola	0	1	0	0	0	0	0
Holland Dark	0	1	1	0	0	0	0
Kenneth, Harmilda	1	0	0	1	0	0	0
Laurel HT	0	0	0	1	0	0	0
Liston Creek	0	2	4	0	0	0	1
Liston Creek HT	1	0	1	0	0	0	0
Shale	0	2	0	0	0	0	0
Unidentified	1	14	13	19	2	1	7
Unidentified HT	1	4	5	9	0	0	0
Wyandotte	1	0	2	0	0	0	0

A small prehistoric ceramic collection was also in [redacted] possession. This collection contained three dentate stamped sherds, multiple incised sherds, and one thick Early Woodland sherd.

In addition to the points and pottery, the prehistoric collection also included several boxes of “complete” and grooved axes, a bannerstone, a partial birdstone, and several gorget fragments. The historic collection contained a ceramic stopper with stamped ‘+’ on the top, several 19th century pipes, a few prosser-like buttons, historic bullets, historic metal including iron and copper, and various other historic fragments. Representative photographs of the collection can be found in Figure 57 and Figure 58. Representative artifact photos can be found in Figure 59, Figure 60 and Figure 61. All information, in the form of scans, photographs, and office documents, can be found in Volume 2, Appendix G.

Figure 57: A portion of [redacted] collection prior to examination.

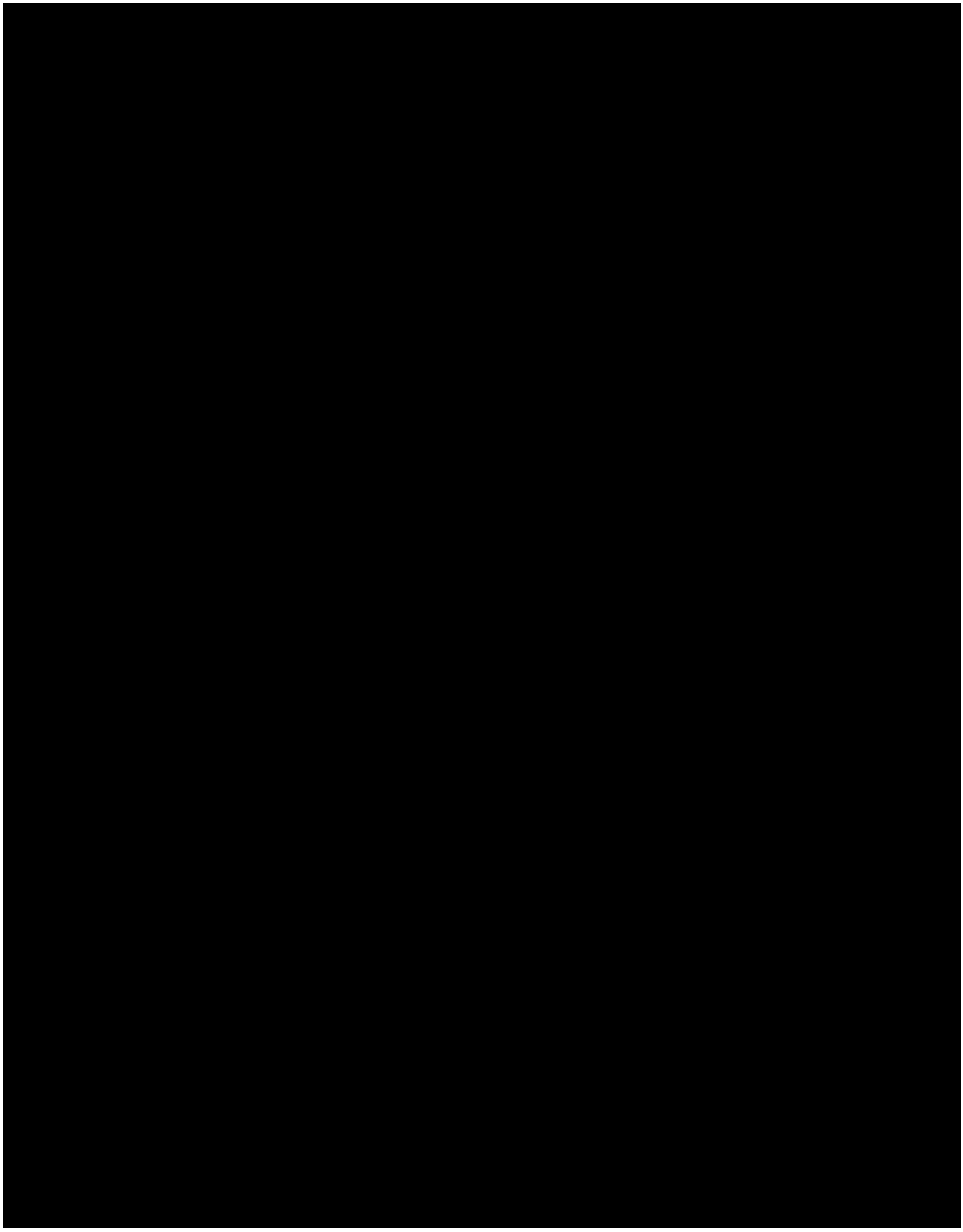
Figure 58: Graduate Assistant Colin Macleod and collector [redacted] sorting the general artifact collection.

Figure 59: Example of prehistoric pottery in [redacted] collection

Figure 60: Example of a scan of corner notched points from the general artifact collection.

Figure 61: Example of historic artifacts from the [redacted] collection.

The collector was very interested in our survey and even shared with us what information he could remember regarding the “best hunting grounds” which undoubtedly correspond to archaeological sites. [redacted] had good recollection of specific areas where he had collected, but except for a few cases, did not recall which artifacts were collected from which locations. The collection areas were identified and documented during the visit using three separate media including, two Plat Books, one of Newton and Benton counties from 1978 (Town & Country 1978) and one of Jasper County from 1984 (Jasper County Abstract Company 1984), with some locations also logged using IndianaMAP.org (Indiana Geographic Information Council 2015). Copies of all of these maps are all available in Volume 2, Appendix H. The specific documentation of artifact finds on the maps was done by highlighting and, marking on paper copies of the maps, with the exception being those maps that were produced using the IndianaMAP web resource. Other cultural resources were documented verbally, the notes from which can be viewed in Table 16. The notes of this meeting documented approximate site locations, as well as artifacts and features associated with those sites. This table also includes additional information which may be of use in identifying the exact site location such as the name of the farm or landmark association. There is considerable overlap between the meeting notes (Table 18) and the map documented sites (Volume 2, Appendix G) and as such these two resources would be most effectively used together in order to better understand local cultural resources.



Summary/Discussion

Seven parcels in southern Jasper County were surveyed encompassing approximately 900 acres, and recording 112 new archaeological sites. No human remains were discovered as a result of this grant project. The survey documented the human occupation of Jasper County beginning from the Middle Archaic period and extending through the Historic period. Considering the limitations of Phase I surveys, it is presumptuous to assign functionality to sites identified solely by pedestrian survey. Site types were therefore not defined beyond isolates and scatters. However, it appears likely based upon the variation in artifact classes discovered on the sites that multiple sites types were represented. In addition to the field survey, a collector visit was conducted on February 6, 2015 which yielded information concerning the presence of unrepresented artifact classes as well as information concerning probable site locations for time periods and site types not encountered during our reconnaissance.

Artifacts

The field survey recovered 209 prehistoric artifacts and 307 historic artifacts (Table 17). The majority of prehistoric artifacts consist of lithic debitage. The edge modification to several flakes indicates the debitage likely functioned as expedient tools. The majority of formal lithic tool types were projectile points dating to the Middle Archaic, Late Archaic, and Late Woodland/Late Prehistoric periods (Table 18). Other stone tools consisted of endscrapers, sidescrapers, groundstone tools, burins, flake tools and core tools. Historic artifacts were predominated by various types of ceramics, various colors and types of glass, metal objects, with only occasional unique items. Some of the more unique materials include red glass, a blue glass marble, a ceramic insulator, and an oblique toothed gear.

Table 17: Artifacts Recovered.

Prehistoric	No.	Historic	No.
Biface, Hafted	4	Porcelain	12
Biface, Unhafted	5	Ironstone	16
Core, Tool	2	Whiteware	52
Core	15	Stoneware	30
Flake, Tool	25	Ceramic Insulator	1
Flake, Proximal	74	Ceramic Doll Fragment	1
Flake, Shatter	69	Glass, Red	1
Groundstone, Tool	5	Glass, Cobalt	4
Angular Shatter	10	Glass, Green	3
		Glass, Sun Colored Amethyst	34
		Glass, Milk	15
		Glass, Amber	11
		Glass, Aqua	52
		Glass, Clear	64
		Glass Marble	1
		Metal, Chain pin	1
		Metal, Gear	1
		Metal, Nut	1
		Metal, Unidentified	2
		Limestone Masonry	1
		Coal	2
		Clinker	2
Total	**209**	**Total**	**307**

Table 18: Diagnostic Prehistoric Artifacts by Cultural Time Period.

Cultural Period	Projectile Point Styles
Middle Archaic	Raddatz Side Notched (1)
Late Archaic	Brewerton Side Notched (1)
Late Woodland/ Late Prehistoric	Triangular Cluster (1), Jack's Reef Pentagonal (1)

Chert

Identified chert types are shown in Table 19. The chert identification is listed by geologic time period. Chert was then listed by which type it is most consistent with as described in Cantin (2008) and with direct comparison with the AAL comparative collection. If the artifact material displayed characteristics that were consistent with multiple chert types, all applicable types were listed in the identification.

The lithic artifacts for this survey were dominated by Mississippian cherts (67.2 %). Of the Mississippian assemblage an overwhelming majority was consistent with Attica chert (43 %). This overrepresentation of Mississippian chert, and Attica in particular, is likely a result of the predomination of Mississippian bedrock throughout western Indiana and eastern Illinois. Furthermore, the proximity of Attica chert specifically to Jasper County likely plays a large role in the presence of this material. As mentioned in the introduction, no natural chert outcrops exist in Jasper County. However, outcrops of Attica exist about 40 km away in Boone, Fountain, and Warren counties; all of which are located south of Jasper County. Due to its prevalence in this survey, as well as being the closest known major chert source to Jasper County, it is reasonable to assume that this is likely an accurate representation of lithic resources in Jasper County. One of the recovered projectile points of Mississippian chert, a Raddatz Side Notched point (12-Js-340-01), was consistent with Attica chert. This point was recovered from Survey Area 6 and dates to the Middle Archaic period. The second recovered projectile point of Mississippian chert, a Brewerton Side Notched point (12-Js-286-01), was consistent with Muldraugh chert. This point was recovered from Survey Area 3 and dates to the Late Archaic period. The third recovered projectile point of Mississippian chert, a Jack's Reef Pentagonal point (12-Js-340-02), was consistent with Burlington chert. This point was recovered from Survey Area 6 and dates to the Late Woodland period consistent with points used by Albee, Oneota, and Mississippian groups. Muldraugh chert is located in the southeastern portion of Indiana and Burlington chert is found in southwest Illinois. This indicates that some resources in Jasper County, at least in the Late Archaic and Late Woodland periods, were being acquired from great distances, likely through trade. Several other large components of the Mississippian chert assemblage were consistent with Burlington chert (17.8%), Blanding/Elwood-Joliet (14.8%) cherts and Blanding chert (8.2%). These cherts come from central and western Illinois and are typically higher quality material than what is found in northwest Indiana. Burlington chert in particular is exceptional material and would have been highly prized in prehistoric times. The distance to these materials indicates that trade would likely have been active at least at some point between northwest Indiana and central/southwest Illinois.

Silurian chert had the second greatest representation in this survey (20.4%). Of the Silurian material recovered, those consistent with Liston Creek comprised the overwhelming majority of the collection (85.4%). There are no naturally occurring Liston Creek chert outcrops in Jasper County. However, Cantin shows Liston Creek chert occurring as river outcrops to the southeast in Huntington, Wabash, and Miami Counties approximately 75 km away, making it, along with Attica chert (40 km south) and Kenneth chert (40 km southeast), one of the closest major chert exposures. River transport and glacial activity may have further contributed to the acquisition of Liston Creek, or similar Silurian age cherts. This may have occurred as both processes, the river in its flow path and the glaciers with the movement of the local lobes (south west), could have moved the material farther west bringing it closer to Jasper County (Cantin 2008). None of the projectile points recovered were made from Silurian chert. Though the

sample size of projectile points offered in this survey is not large, this may indicate that Silurian age chert, particularly that consistent with Liston Creek, was used primarily for non-point tool manufacture, or even expedient tool manufacture.

Pennsylvanian chert is the third greatest in abundance (1.0%) with specimens consistent with Holland and Flint Ridge chert forming the whole assemblage (2 items). The low amount of Pennsylvanian chert is to be expected as there are few Pennsylvanian aged chert outcrops in the Indiana. Moreover, sources of these cherts in Indiana are located exclusively in the southern half of the state and in Ohio are found in the eastern part of the state. Holland chert in particular outcrops far to the south in Dubois County and would therefore have likely been a trade and/or specialty item.

The breakdown of the chert tells us that prehistoric people living in Jasper County were relying on local, easily obtained resources for about half of their lithic material (47.8%). It also indicates that this heavy reliance on local resources was supplemented substantially with more exotic lithic materials from southern Indiana such as Holland, Wyandotte, and Indian Creek among others, as well as from central and southwest Illinois in the form of Burlington, Blanding, and Elwood-Joliet. As these non-local materials have a comparable representation in all stages of lithic production, it is likely that they were procured as large pieces, such as cobbles or cores, and used for routine production as opposed to extraordinary projects.

Table 19: Chert Raw Materials.

Chert	No.	Percent of the Whole Assemblage
Silurian Chert	**41**	**20.4**
Consistent with Harmilda	1	0.5
Consistent with Harmilda and Kenneth	1	0.5
Consistent with Kenneth	1	0.5
Consistent with Laurel	1	0.5
Consistent with Laurel and Liston Creek	2	1.0
Consistent with Liston Creek	32	15.9
Consistent with Liston Creek-HT	3	1.5
Mississippian Chert	**135**	**67.2**
Consistent with Allens Creek and Haney	1	0.5
Consistent with Attica	53	26.4
Consistent with Attica-HT	5	2.5
Consistent with Blanding	10	5.0
Consistent with Blanding-HT	1	0.5
Consistent with Blanding and Burlington	2	1.0
Consistent with Blanding, Burlington and Elwood-Joliet	1	0.5
Consistent with Blanding and Elwood-Joliet	20	10.0
Consistent with Blanding and Haney	1	0.5
Consistent with Burlington	20	10.0
Consistent with Burlington-HT	4	2.0
Consistent with Burlington and Elwood-Joliet	1	0.5
Consistent with Burlington and Elwood-Joliet-HT	1	0.5
Consistent with Cataract	1	0.5
Consistent with Cobden	1	0.5
Consistent with Cobden and Dongola	1	0.5
Consistent with Dongola	2	1.0
Consistent with Dover	1	0.5
Consistent with Indian Creek	1	0.5
Consistent with Muldraugh	1	0.5
Consistent with Muldraugh-HT	1	0.5
Consistent with Oneota	1	0.5
Consistent with Wyandotte	1	0.5
Consistent with Wyandotte, Cobden, and Dongola	1	0.5
Not consistent with any known types	3	1.4
Pennsylvanian Chert	**2**	**1.0**
Consistent with Holland	1	0.5
Consistent with Holland and Flint Ridge	1	0.5
Unidentified Chert	**23**	**11.4**
Unidentified	22	11.0
Unidentified HT	1	0.5
Total	**201**	

Sites

Of the 112 archaeological sites, 59 had unidentified Prehistoric components (Table 20). The identified precontact components consisted of Middle Archaic, Late Archaic, and Late Woodland. Sixty five sites had Historic components, dating from the early-19th century to present.

Previously recorded sites for the till plain of central Indiana support the trend of encountering low frequencies of Paleoindian, Early Woodland, and Middle Woodland component sites. Low occurrence of other prehistoric periods along with the non-occurrence of Early Archaic may be indicative of shifting habitability in the region as a result of Grand Kankakee Marsh and other wetlands (see Figure 6 and Figure 9). The length of these periods also plays a critical role in the understanding of this geomorphic change. The large amount of time represented by the Archaic periods (~7000 years) is much greater than that of the Woodland periods (~2500 years) and as such may carry and increased propensity for artifact recovery, making underrepresented periods such as the Early Archaic which lasted about 2000 years seem particularly anomalous compared to periods such as the Early Woodland which lasted only about 800 years. Further, the approximately equal abundance of components from the Late Archaic and Late Woodland do not represent an equal intensity of use of the region. The Late Woodland use indicated by our survey and the previously identified sites is substantially more intense per unit of time than the Late Archaic despite similar numbers of components

As mentioned above, the approximate categorization of collector materials stands in slight contrast to these and previous results. While the collector visit found inflated numbers of fluted/Paleoindian points, this survey did not recover any evidence of Paleoindian occupation. The Middle Archaic which is often characterized by side notched points was represented in this survey in the form of a Raddatz point and was likely well represented in the private collection as well due to the large numbers of side notched points. Both the differences and similarities across artifact types indicate that further collector contact as well as investigation into heavily collected areas is recommended in Jasper County. This will ensure that seemingly congruous results such as high representations of the Middle Archaic and Late Woodland become more salient, and may also help identify previously poorly documented cultural periods within the county that in this study were found to be incongruous as was suggested here with Paleoindian representation.

The relatively low number of sites discovered as a result of this survey is tremendously telling. It indicates the degree to which the originally marshy context of the area affected habitable land. The fact that sites were still identified at all, combined with the information gleaned from the collector visit indicates that cultural resources in Jasper County are very much extant and can be interpreted as predominantly localized in nature. The recovery of diagnostic materials from all periods as a result of this survey, previous surveys, and private collectors

demonstrates that Jasper County has been inhabited continuously since the Paleoindian period. The fact that these materials are recovered differentially indicates that the habitable area has changed considerably throughout time, but at any one particular time has remained limited thereby restricting the expanse of habitations. This is an interesting contrast to counties that contain large tracks of stable, habitable land as they often exhibit a distribution across the landscape whereas a county such as Jasper that exhibits limited, fluctuating habitable area may have high concentrations of cultural material with very low density areas surrounding, conditioned by time and ecological variability. The time is important as this is related to the state of the expansive wetland habitats and, in turn, what portion of land was exposed and habitable. This limitation has tremendous application for understanding period-specific habitation preferences in the Midwest, as well as to the field of archaeological geology which, in contrast to geoarchaeology, uses archaeological information to inform geological questions and concerns. For example, the preponderance of Middle Archaic in the Vohlken collection and our survey (though N = 1) may be related to the drying of the environment associated with the Hypsithermal. The distribution of Middle Archaic sites and activity areas could help in reconstructing the Mid-Holocene fluctuations in the extent and structure of the Kankakee Marsh and related wetlands throughout the county.

Table 20: Site Components Recorded as a Result of Survey.

Component	No.	Comment
Unidentified Prehistoric	59	13 Multicomponent (11 with Historic), (1 with Middle Archaic, Late Woodland and Historic), and (1 with historic and Late Woodland)
Early Archaic	0	
Middle Archaic	1	1 Multicomponent (1 with Historic, Late Woodland and Unidentified Prehistoric)
Late Archaic	1	0 Multicomponent
Early Woodland	0	
Middle Woodland	0	
Late Woodland/Late Prehistoric	2	2 Multicomponent (1 with Historic, Middle Archaic, and Unidentified Prehistoric) and (1with Historic, and Unidentified Prehistoric)
Historic	65	12 Multicomponent (11 with Unidentified Prehistoric), (1 with Middle Archaic, Late Woodland and Unidentified Prehistoric), and (1 with Unidentified Prehistoric and Late Woodland)

Various results of the collector visit were both consistent and inconsistent with the results of our survey. The high number of Paleoindian artifacts 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 prior surveys. The large quantity of side notched points in the Vohlken collection was consistent with the one Middle Archaic point recovered from our survey. Though this was only one point, it accounted for 25 percent of the diagnostic prehistoric artifacts in the survey and is thus comparable to what had been recorded in the Vohlken collection. However, as discussed above, these results should be viewed in a general sense as the low amounts of diagnostic material recovered from our survey increases potential comparing skewed samples. The large number of stemmed points as well as Early Woodland ceramics in the Vohlken collection stood in contrast to our survey results as well as to the existing SHAARD database has limited evidence of Early Woodland components.

The interest Mr. Vohlken expressed in our survey and the assistance that he provided in the form of both artifact information as well as identification of areas with high potential for cultural resources will help tremendously in understanding the culture history of Jasper County. Future investigations, particularly in areas with more discrete artifact clusters such as Jasper County, would do well to use the previously acquired knowledge and materials accrued by local collectors. Our experience with this private collection 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 five sites with Historic components were discovered. These sites ranged from isolated finds to extensive historic scatters and were often times multicomponent with Unidentified Prehistoric scatters and occasionally diagnostic prehistoric components. The historic component sites yielded the majority of artifacts recovered during the project. Figure 6 shows the state of the Kankakee Marsh in 1876 and is an interesting static depiction of the nature of the marsh and how it may have affected historic settlement.

Survey Areas 1, 3, 4, and 5 contained sites with substantial historic assemblages that had early historic dates between 1800 and 1850. Prior to this survey, there was one historic scatter, reported for Jasper County. The results of this FY2014 survey have added an additional 17 historic scatters to the SHAARD database for the county. Though none of these were recommended for further research, macro analysis of this material may eventually be able to help increase our understanding of early historic occupation in Jasper County.

According to the "Maps of Indiana Counties in 1876" (Andreas 1876) Survey Area 7 was the only survey area to contain a structure. One house was shown to exist within the survey area. However, despite excellent field conditions and visibility, no evidence of a structure was returned from SA7 which in fact had the second lowest artifact density (historic and prehistoric) of any survey area. No other historic map showed a structure within any survey area.

Density

The project documented an average of one Prehistoric site per 15 acres and an average artifact density of one prehistoric artifact per 4.31 acres surveyed. The project documented an average of one Historic site per 13.85 acres and an average artifact density of one historic artifact per 2.93 acres surveyed. The project documented an average of one multicomponent site per 69.23 acres. Artifact densities by survey area are presented in Table 21.

Table 21: Artifact Densities.

Survey Area	No. Acres	No. Sites	Sites per Acre	No. Artifacts	Artifacts per Acre
SA 1 (Till Plain/Moraine)	31.3	3	0.10	77	2.46
SA 2 (Till Plain/Moraine and Floodplains)	155.55	5	0.03	6	0.04
SA 3 (Till Plain/Moraine)	162.89	47	0.29	114	0.70
SA 4 (Till Plain/Moraine)	102.12	24	0.24	61	0.60
SA 5 (Till Plain/Moraine)	180.79	13	0.07	103	0.57
SA 6 (Floodplains)	115.81	10	0.09	143	1.23
SA 7 (Till Plain/Moraine)	151.59	10	0.07	12	0.08
Total	**900**	**112**		**516**	

Recommendations

Of the 112 archaeological sites discovered by this project, 110 are not considered eligible for the listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places (Table 22). Most of these ineligible sites were prehistoric and historic isolated finds or small artifact scatters. There were no historic scatters which were determined to be potentially eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places. Two prehistoric scatters (12-Js-279 and 340) were determined to be potentially eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places. Site 12-Js-279 was located along the eastern margin of Survey Area 3 and contained multiple formal tools and one diagnostic. This site also contained a high density of lithic debitage and site boundaries appeared to continue beyond the survey area. Site 12-Js-340 was located in the northeast corner of Survey Area 6. This site was chosen based on its high density of artifacts as well as an assemblage of formal tools including two projectile points. In addition to formal tools this site displayed copious

amounts of lithic debitage. The large amount of debitage combined with the two projectile points dating from different time periods indicates that this site saw extensive habitation and merits further resources and investigation. Much like 12-Js-279, 12-Js-340 continued beyond the extent of the survey area and therefore should be of great interest in future investigations.

Table 22: Site Recommendations.

Recommendation	Site No.
No further archaeological investigations recommended; n=110	12-Js-244 to 278, 280 to 339, and 341 to 355
Further archaeological investigations recommended (high density, large historic scatters); n= 0	
Further archaeological investigations recommended (high density, large prehistoric scatters); n= 2	12-Js-279 and 340

Though there were a limited number of recommended sites in this survey, those sites that were recommended were significant in their contribution to the understanding of Jasper County cultural resources. The two recommended sites in an otherwise low density environment displayed a high density of both lithic debitage as well as formal and diagnostic tools. This, as mentioned earlier in the report, indicates that the cultural resources in Jasper County exist as high density pockets representing previously habitable land in the otherwise uninhabitable wetlands. The dynamism of the wetlands extent has caused these habitable areas to change considerably over time. As such it is important to maintain systematic and procedural rigor when investigating areas such Jasper County as the resources are concentrated and deliberate. Moreover, the areas of relatively low artifact density offer insights into prehistoric wetlands locations as well as possible information regarding habitable preference.

Public Outreach and Student Involvement

On September 27, 2014, 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. Posters depicting the methods and results of several previous HPF grants were on display and this was used to discuss both the methodology and goals of the FY2014 Grant surveys in Jasper and Newton counties. 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, Anderson, Indiana.

In October 2014, 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 Jasper County FY2014 Grant exhibit was twofold. 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. In addition, chert and lithic identification with hands-on demonstrations of the identification and cataloging processes were given to Open House attendees (Figure 62).

On April 27, 2015, a public presentation was given at the Newton County Government Center in Morocco, Indiana, by AAL by archaeologist Christine Thompson and Department of Anthropology graduate student Jamie Leeuwrik. This 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. At least 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.

Throughout this project there was broad support for the pedestrian surveys from the residents of Jasper County. Seven landowners gave permission to survey their properties contributing thousands of 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. All landowners requested that the artifacts discovered be kept at Ball State University and used for educational purposes. 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. This aided in parcel selection as well as resource use. One individual, an amateur collector, shared his collection with us for documentation so we may gain a better understanding of the cultural resources available in Jasper County. His warm welcome to the archaeological community and willingness to allow examination of his collection hint at a great potential for an alliance between the professional archaeological community and local collectors in Jasper County. As was the case here, more information was gained than could have been learned in the survey alone, as well as documentation of a private collection and an important engagement of a previously isolated, but important, section of local communities. It became apparent that Jasper County has an active and involved public that displays a great interest in their county's history and that this survey did much to enhance and focus that fervent curiosity.

In addition to public presentations and demonstrations, the results of the Jasper County HPF grant are being published in various ways. An article on the overall results of this FY2014 Grant will be published in the Indiana Archaeology journal, compiled and distributed by DHPA.
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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. Seventeen students were involved with the fieldwork and participated in field surveys. Two students were involved in washing and cataloging of artifacts. One student was in charge of identifying artifacts and one student was responsible for artifact photography. Three students compiled and entered all of the data into the SHAARD database. Graduate Student Jamie Leeuwrik assisted with the presentation at the Newton County Government Center on April 27, 2015. One student from the 2012 Blackford County HPF project created the methodology video that was shown during this year's HPF Grant presentation.

Figure 62: Students discussing the Jasper and Newton County HPF grants at the Applied Anthropology Laboratories Open House in October 2014 (Photo by Christine Thompson, Ball State University).

Alignment with Cultural Resources Management Plan for Indiana

This FY2014 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 Jasper County. This grant project dramatically enhanced understanding and relationships in Jasper 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 permission and informational letters mailed to over 30 landowners in Jasper County, public events such as the annual Archaeology Month Activities at Mound State Park, and with the public presentation held in Morocco in April 2015, the 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 Jasper 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 Government Center. 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 FY2014 and Jasper County HPF Grants. Contact with a local collector and an examination of his collections 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. The effort put forth by the AAL's FY2014 Jasper County grant project have hopefully served to not only preserve the recovered materials for future academic study. But also to inspire a sense of preservation and stewardship within the Jasper community at all levels, from landowners to collectors, to the general public. Though this impact may not be directly related to any specific and ongoing Jasper county preservation project it is hoped that our grant projects could be the foundation for future preservation opportunities in Jasper 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. Although AAL's FY2014 HPF Grants did not have a direct impact on this goal it is hoped that through the presentations, online journal articles, and the online redacted versions of the grant report 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 Jasper County?
2. What are the densities and distributions of archaeological sites along the Iroquois River and along on Iroquois Till Plain within the county?
3. What is the settlement pattern for Euro-American people along the Iroquois 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?
6. Can the location of the Yeoman/Nowles settlement or other settlements in the area be discovered?
7. Can the location of selected school houses and churches on the 1876 historic atlas of Japer County be found archaeologically?

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

1. What is the cultural chronology for Jasper County?

Prior to this year's grant, Jasper County had 145 Unidentified Prehistoric sites, one Paleoindian site, 20 Archaic sites (diagnostic sub-periods include seven Early Archaic, one Middle Archaic, 10 Late Archaic and one terminal Late Archaic), 28 Woodland sites (diagnostic sub-periods include 3 Early Woodland, five Middle Woodland, and 8 Late Woodland/Late Prehistoric), four Mississippian sites (three Upper Mississippian), two Protohistoric/Contact sites and 30 Historic sites (Table 3).

Upon completion of fieldwork and artifact processing, this project has added considerably to the cultural chronology of the county. Fifty nine Unidentified Prehistoric components were added along with two Archaic components (Middle Archaic and Late Archaic) and sixty five historic components (Table 23). Thirteen multicomponent sites were added. The multicomponent sites all had both historic and Unidentified Prehistoric components. One of the multicomponent sites contained the aforementioned Middle Archaic component as well as a Late Woodland component and one other multicomponent site contained an additional Late Woodland component.

Though four projectile points were recovered during this survey, no previously undocumented projectile points were recovered for Jasper County (Table 24).

Table 23: Cultural Components Added as a Result of this Survey.

Cultural Period	Added	Previous	Total
Unidentified Prehistoric	**59**	**145**	**204**
Paleoindian (ca. 10,000 – 7500 B.C.)	**0**	**1**	**1**
Archaic	**2**	**20**	**22**
Early Archaic (ca. 8000 – 6000 B.C.)	0	7	7
Middle Archaic (ca. 6000 – 3500 B.C.)	1	1	2
Late Archaic (ca. 4000 – 700 B.C.)	1	10	11
Terminal Late Archaic	0	1	1
Woodland	**2**	**28**	**30**
Early Woodland (ca. 1000 – 200 B.C.)	0	3	3
Middle Woodland (ca. 200 B.C. – A.D. 600)	0	5	5
Late Woodland/Late Prehistoric (ca. A.D. 500 – 1650)	2	8	10
Mississippian	**0**	**4**	**4**
Upper Mississippian	0	3	3
Protohistoric/Contact	**0**	**2**	**2**
Historic (post A.D. 1650)	**65**	**30**	**92**

Table 24: Currently Documented Points Within Jasper County (After Survey)

Cultural Period	Projectile Point Types
Paleoindian	
Early Archaic	Kirk Corner Notched, Hardin Barbed, Stanley Stemmed, Thebes
Middle Archaic	Raddatz Side Notched
Late Archaic	Matanzas, Brewerton, Karnak, Matanzas Side Notched, Brewerton Side Notched
Early Woodland	Adena Stemmed
Middle Woodland	
Late Woodland	Jack's Reef Pentagonal
Late Woodland/ Late Prehistoric/Mississippian	Madison, Late Woodland/Mississippian Triangular Cluster

Precontact settlement within southern Jasper County according to professional survey records is dominated by Late Archaic and Late Woodland cultural periods, followed by Early Archaic, Middle Woodland, and Early Woodland cultural periods. Very little information has been recovered for the Middle Archaic and Paleoindian cultural phases. These results are likely skewed for several reasons. The presence of the Kankakee Marsh in the north and general fluctuating wetlands throughout most of the county prior to 19th Century drainage efforts (see Figure 6) is undoubtedly the largest factor in the dearth of artifacts recovered both in this survey and in previous surveys of Jasper County. Prior to draining, the wetlands would have provided extremely limited areas for intensive activity. Identifying more of these areas in the future will be key to recovering the quality and quantity of artifacts necessary to understanding how human land use has changed over time. Large scale change in local geomorphology especially as a result of fluctuating hydric conditions can also affect interpretations of areas that display high site potential. These changes may cause researchers to look differentially in areas that display high site yields of only one or a few distinct cultural phases as these are the phases that contemporary geomorphological patterns might guide towards. Another reason the cultural phase representations from previous surveys may be skewed is due to development. Jasper County is primarily farm land, and as such remains largely within the private sector. Compared to other counties, Jasper County has had less archaeology conducted as a result of federal or state regulations. These compliance 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. As a result it is likely that the surveys conducted in Jasper County have not been extensive enough or have not sampled enough landforms within the county to fully explore the nature and distribution of human settlement, or locate underrepresented cultural time periods.

Unsystematic surveys have been conducted by private collectors. The information garnered from the collector visit this year has revealed a possible high number of Paleoindian sites in the county. It has also served to document other periods and inform archaeologists and future investigators of where cultural materials may be concentrated. This has helped confirm the discretely clustered nature of cultural materials in the county, as we know they are present and represent all periods, but they are restricted in distribution and require diligent surveying.

2. *What are the densities and distributions of archaeological sites along the Iroquois River and on Iroquois Till Plain within the county?*

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 25, Table 26, and Table 27). 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.

Jasper County is predominantly comprised of till plain/moraine landforms, specifically the Iroquois Till Plain which is the largest till plain in the survey area. Five of the Survey Areas (1, 3-5, and 7) investigated in this project were found totally on this landform. Though till plain/moraines are the most common landforms in the county, floodplains make up a relatively large amount of the landforms compared to other counties in Indiana. The major waterways in Jasper County are the Kankakee River and the Iroquois River. Smaller waterways, exposed more formally with the draining of the Kankakee Marsh and other wetlands, feed these larger bodies by crisscrossing the county leading to a high proportion of floodplain features in the area (Smallwood and Osterholz 1990:1-3). Of the two large waterways, the Iroquois River is the dominant in the southern half of Jasper County and as such was the one exclusively encountered. Survey Area 6 was completely located on floodplain features and Survey Area 2 was split between till plain/moraines and floodplains. Survey Areas 2 and 6 were located in the same large field located along the Iroquois River. Survey Area 2 was located slightly farther west than Survey Area 6 causing only part of the sites to be included in the floodplain feature. A total of 163.98 acres were surveyed in the floodplains of the Iroquois River. Like the upland features, the floodplain features offered relatively few artifacts and small site areas. The one exception to this was site 12-Js-340 which was a multicomponent site predominantly composed of lithic materials. Additional research is recommended into the floodplain features of the Iroquois River, as well as other major waterways in the county, specifically targeting areas with comparable morphology as site 12-Js-340.

Though limited, results from the 900 acres of the FY2014 HPF Grant survey show a Middle Archaic, Late Archaic and Late Woodland presence in the southern portion of the county. No evidence of the Paleoindian, Early Archaic, Early Woodland, Middle Woodland or Late Prehistoric presence was encountered during this survey. One of the sites that produced diagnostic Prehistoric artifacts, 12-Js-340 (Middle Archaic/Late Woodland) was located on soils indicative of floodplains. The other two sites with diagnostic Prehistoric artifacts, 12-Js-279 (Late Woodland) and 286 (Late Archaic), were discovered on till plains/moraines. This may seem to indicate no landform preference however due to the small sample size and the drastic change this county has undergone geomorphically, the propensity for landform habitation among prehistoric populations in this area are very difficult to determine. A greater number of diagnostic prehistoric artifacts as well as an invasive geologic investigation such as coring would be useful if not necessary to make any definite determination of landform preference. This survey of the southern portion of Jasper County is representative of a variety of taphonomic, geomorphic, and pedogenic processes in the area and an adequate amount of both floodplains and till plain/moraine features were surveyed. This, coupled with good visibility, field conditions, and indications that cultural materials from additional time periods are in fact present in the county (per our collector visit) implies that cultural resources in the southern portion of Jasper County are extremely limited in dispersion and exposure. Future studies would benefit from gathering additional information from collectors as well as using the information in this

report to increase survey selectivity as much as possible to target specific questions. An example of this may be targeting areas specifically identified by collectors as high yield and informing the researchers to potentially tighten survey parameters in order to more effectively explore the concentrations of resources. This should be tempered with consistent maintenance of current survey procedures when doing research in areas that have previously demonstrated low artifact potential as the mapping of the absence of cultural materials is as important in mapping prehistoric habitation patterns as positive results are, especially in environmental settings like Jasper County. Along with primary geologic data (possibly coring), the combination of rigorous and systematic sampling of both areas of high and low artifact densities may provide a high resolution of both diagnostic and non-diagnostic prehistoric materials. This resolution may allow for landform associations and preferences be more accurately determined which could contribute to a geologic understanding of the development and dynamism of the prehistoric wetlands of Jasper County.

Table 25: Projectile Point Site Numbers and Cultural Periods Per Landform.

Landform	Sites and Cultural Periods
Till Plain and Moraines	12-Js-279 (Late Woodland) 12-Js-286 (Late Archaic)
Floodplains	12-Js-340 (Middle Archaic/Late Woodland)

Table 26: Site Densities and Distributions By Landform.

Landform	# of acres	# of sites	Density	Distribution
Till Plain/Moraines	736.03	99	1 site per 7.43 acres	Sites cover 3.29% of surface area
Floodplains	163.98	13	1 site per 12.61 acres	Sites cover 2.95% of surface area

Table 27: Number of Artifacts per Landform.

Landform	# of artifacts	% of artifacts recovered
Till Plain/Moraines	470	91.10%
Floodplains	46	8.91%

All of the sites in this survey were discovered on loamy texture soils. The majority of these (70.54%) were on loamy soil complexes (Table 28). For this reason soil texture for these

areas could not be precisely determined; however, the high degree of fine-scale variability in sediment may have a behaviorally meaningful implication. Fine sandy loam soils constituted 12.50 percent of the surveyed area, and loamy sand, sandy loam, and silty clay loam each made up 3.57 percent. Clay loam made up 2.68 percent, sandy loam/loamy sand made up 1.79 percent, and fine sandy loam/sandy loam as well as fine sandy loam/silty clay loam made up the remaining with 0.89 percent each of the surveyed sites.

Table 28: Soil Texture within Surveyed Areas

Soil Texture	No. of Sites	Percentage of Total Sites
loam/complex	79	70.54
fine sandy loam	14	12.50
loamy sand	4	3.57
sandy loam	4	3.57
silty clay loam	4	3.57
clay loam	3	2.68
sandy loam/loamy sand	2	1.79
fine sandy loam/sandy loam	1	0.89
fine sandy loam/silty clay loam	1	0.89

Overall, somewhat poorly drained soils (n=38) and very poorly drained soils (n=34) were the predominant drainage classes with 33.93 percent and 30.36 percent of the sites occurring in these types of soils (Table 29). A total of 16.07 percent of sites were found on moderately well drained soils (n=18), 9.82 percent of sites were found on somewhat to very poorly drained soils (n=11), 2.68 percent of the sites were found on poorly drained soils (n=3), as well as on well drained soils (n=3). 1.79 percent of sites were found on somewhat poorly to moderately well drained soils (n=2), and 0.89 percent of sites were found on somewhat poorly to poorly drained (n=1), poorly to well drained (n=1), and very poorly to moderately well drained (n=1). This predomination of poorly drained soils is in keeping with the marshy nature of the county prehistorically and is also reflective of the predominance of soil types in the survey areas. For this reason, site locations are expected in higher frequency on poorly drained soils simply due to geology, and this does not likely reflect a preference for poor over good drainage.

Table 29: Drainage Classes of Site Soils

Drainage Class	No.	Percentage of sites
well drained	3	2.68
moderately well drained	18	16.07
somewhat poorly drained	38	33.93
somewhat poorly to moderately well drained	2	1.79
Somewhat poorly to poorly drained	1	0.89
somewhat to very poorly drained	11	9.82
poorly to well drained	1	0.89
poorly drained	3	2.68
very poorly to moderately well drained	1	0.89
very poorly drained	34	30.36

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

The historic cultural context was universally present in all survey areas and were representative of the initial early 19th century settlement of the county thru modern times. Mean dates we taken for each survey area by using artifacts that displayed a date range (Table 30). 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 1911. Both of these pieces of information are in keeping with the literature narrative concerning the draining of the Grand Kankakee Marsh which began in the 1850's and continued until 1917 (Smallwood and Osterholz 1990:1). The draining of the wetlands progressively opened up the county for Euro-American farming during this period and as such makes sense that most historic artifacts would date to this time. All survey areas are within the Iroquois River drainage system, however some survey areas were located directly along the river whereas some were located some distance away on upland features. Survey Areas 2 and 6 were located directly next to the Iroquois River within its floodplains. Both survey areas display mean dates later than the mean date for the survey, with Survey Area 2 displaying the latest artifact dates of all survey areas. This late mean date for Survey Area 2 however is likely due to low artifacts counts allowing for disproportionate artifact influence. Though only two survey areas were on the floodplains of the Iroquois River these later means dates may indicate that lowland features were late to drain making their date of first large scale, Euro-American agricultural availability somewhat later. So in short, the majority of large scale agriculture, which is associated with Euro-American settlement, came with the draining of the wetlands in the mid-19th Century and may have begun with predominantly upland features and spread shortly thereafter to lowland features immediately adjacent to waterways.

Table 30: Survey Area Means Dates

Survey Area	Mean Date
Survey Area 1	1894
Survey Area 2	1945
Survey Area 3	1920
Survey Area 4	1895
Survey Area 5	1915
Survey Area 6	1914
Survey Area 7	1894
All Survey	**1911**

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

Prior to this survey there were 196 documented sites in Jasper County (Volume 2, Appendix A). Upon completion of this survey, 112 sites were added to the site database making a total of 355 sites in Jasper County. For this survey the average site density encountered was 1 site per 8.04 acres with survey area densities ranging from one site per 3.47 acres (SA 3) to one site per 31.11 acres (SA 2). Though previous indications of density vary, prior surveys have indicated a positive survey ratio of one positive survey per 2.8 surveys conducted. Previous surveys for which it has been tabulated (Swihart and Nolan 2013, 2014) have found that the positive survey ratio approximates the site density per acres surveyed. The lower site density in our surveys than expected from the positive ratio may indicate that our surveys do not accurately characterize the average site density in the county. Alternatively, the peculiar geomorphic history of Jasper County could cause the average site density to diverge from Section 106 compliance surveys that might be biased in their choice of location. More work is needed to better characterize the average site density for this county.

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

Twelve of the sites discovered (11%) in this survey displayed multiple components. Two of these had diagnostic prehistoric components (Middle Archaic/Late Woodland, and Late Woodland) and all of them had both historic and prehistoric components. Though this many multicomponent sites may show signs of contact between Euro-Americans and Native Americans it is also very plausible that these sites are simply superimposed features. The relatively late draining of the wetlands and subsequent influx of Euro-American agriculturalists, combined with the early (precontact) dates of the few diagnostics recovered from these

multicomponent sites, indicates that these sites are likely several occupations superimposed on one another. As a result, this survey did not recover any material that conclusively indicated interaction between Euro-American and Native American peoples.

6. *Can the location of the Yeoman/Nowles settlement or other settlements in the area be discovered?*

Historic sources indicate that the first permanent Euro-American settlement of Jasper County took place in the 1830's and was the home of Joseph D. Yeoman and his wife Sarah (Nowles) Yeoman. This settlement is said to have been located along the Iroquois River at the current site of Rensselaer (the largest city in Jasper County). Later, Yeoman and Nowles moved to Newton Township in western Jasper County and finally to Union Township. Map information, including historic, topographic, orthographic, and LiDAR maps aided little in the search to pin down the precise location of this original settlement. Most of Rensselaer is developed making it inaccessible to survey. Several survey areas were located directly along or adjacent to the Iroquois River in both Newton and Union Townships and recovered nothing diagnostic of original settlement. As mentioned earlier, mean dates are all much later than this original settlement date of 1830's. This means that no evidence was recovered indicating the location of the original Yeoman and Nowles settlement.

7. *Can the location of selected school houses and churches on the 1876 historic atlas of Japer County be found archaeologically?*

An attempt was made to survey land containing, or immediately adjacent to, the apparent location of schoolhouses and churches that were on the 1876 Jasper County map. Unfortunately, due to limited landowner permissions, none of the parcels that suggested schoolhouse or church locations were surveyed during this project. Furthermore, the dearth of structural artifacts during this survey demonstrates that no structures of any kind were encountered during the course of this project. Though no structures were encountered during the survey, the sterile nature of the survey areas in this aspect is still revealing. It demonstrates the limited and sparse nature of historic structures in Jasper County and suggests that a more targeted approach to structural investigation is necessary. From this, further investigation is recommended into the structures designated on the 1876 Jasper County map, with a focus on precise landowner pursuit.

Conclusions and Recommendations

This project primarily targeted the Iroquois River drainage, including adjacent upland areas in the southern half of Jasper County, Indiana. The project area was selected due to the lack of known archaeological sites in the state database (SHAARD) and the identification of Jasper County as a data deficient county. The goals of the project were to increase the site database, construct a more complete cultural chronology for the county, understand and refine both the settlement patterns, as well as the patterns of interaction between and among early Euro-American settlers and Native Americans.

Jasper County displayed a dearth of artifacts as compared to comparable county surveys in Indiana. This is in keeping with the results of previous surveys conducted in and immediately surrounding Jasper County. It is very likely that the presence of the extensive wetlands in the area for most of the last 12,000 years heavily influenced the habitability of the area. The marshy environment would have dramatically limited livable land in the area while offering unique resources. This constraint would have restricted the population and concentrated activities to select upland and well drained features. The large scale geomorphological change brought about by the historic draining of the expansive wetlands brought in a relatively late Euro-American settlement pushing the majority of the historic settlement dates to much later in the 19th century. This draining also allowed for investigation into areas that may have been exposed prehistorically and therefore offer insights into the habitation preferences of prehistoric peoples as well as the dynamic nature of the extent and location of the prehistoric wetlands.

The four diagnostic prehistoric artifacts recovered date from the Middle Archaic, Late Archaic, and Late Woodland 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 state of the wetlands during these periods. The presence of these materials shows that the area in which they were recovered was habitable at least during those time periods, or that the varied resources of the marsh were important and valued subsistence resources at that time. The types of sites and associated behaviors can help in the reconstruction of the history of the marsh. This means that comparable features/environments in this area will likely produce other cultural materials of similar, or even newly documented types, leading to a large enough sample size to make generalizations about the habitation of the entire county over time. It is recommended that this technique be used in future surveys in order to promote recovery of diagnostic prehistoric materials.

Approximately 900 acres of agricultural land were surveyed during this project and 112 new archaeological sites were recorded. The survey recovered 516 artifacts consisting of 209 prehistoric artifacts (one per 4.32 acres) and 307 historic artifacts (one per 2.93 acres). One collector visit was conducted which resulted in an increase in potential site investigations, as

well as documentation of underrepresented time periods. No human remains were discovered as a result of this grant project. The majority of the precontact sites were unidentified by cultural period, however three different prehistoric cultural periods were documented. Two sites, both lithic scatters, were recommended for further investigation and 110 sites were recommended as not eligible for listing on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places.

Compared to previous large-scale surveys on the Tipton Till Plain (Cree et al. 1994; Smith et al. 2009), whose results show a greater occupation in upland areas, Jasper County was found to be similar in that upland features did display a slightly higher incidence of site discovery. However, as a few sites, including one large and complex site, were also recorded on floodplains, these features should be examined with the same scrutiny as upland features in future investigations. Given the geomorphic history of the county, and limitations it would have imposed on inhabitants, it is likely that prehistoric remains will be discontinuous in distribution and concentrated in the areas that were exposed during the particular period. Due to this, further archaeological research into Jasper County's prehistoric past would be of great benefit for geologists as well as archaeologists.

Though limited, the results of this survey suggest that precontact populations were using Jasper County in different ways, and at different locations during different cultural time periods. For example, the disparity in location between the Middle Archaic/Late Woodland site located directly along the Iroquois River as compared to the upland nature of the sites containing Late Archaic and Late Woodland. As mentioned above, these disparities may give us insights into the how the wetlands changed over time and what areas may have offered habitable land. Because of this, examination into areas with comparable features to those containing our diagnostic prehistoric artifacts may allow for a more complete picture of prehistorically diagnostic Jasper County to be constructed.

Many factors could have influenced the project data including the location of the surveyed properties (both in relation to the marsh and each other), whether the field was tilled recently or not, whether the field was a test plot 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 Jasper County.

Jasper County would benefit from further archaeological investigations, especially those focusing on the locating of diagnostic prehistoric artifacts and systematization of landform use prehistorically. Included in this should be further large scale pedestrian surveys to corroborate the findings in this report as well as identify potentially new areas of interest, particularly those indicated by local collectors. Also, and more importantly, this would include small scale focused pedestrian surveys targeting areas of comparable geomorphic provenance to the diagnostic

prehistoric materials recovered in this survey, and previous survey, both formal and informal. This would include but not be limited to well drained, relatively flat, sand and silt loams on both upland and floodplain features. From a historical archaeology perspective, future surveys should again attempt to target areas with known historic structures. Attempts were made during this grant project to more intensely survey these areas but were unsuccessful due in large part to landowner permission. The one survey area with a documented historic structure showed no evidence of any structure having been present. The relatively low amount of recovered historic artifacts as compared to similar surveys in other Indiana Counties combined with the late dates of those artifacts indicates that early habitation spread slowly for the first 50 years. Because of this, surveys interested in recovering materials from early historic habitation should concentrate almost exclusively on known structures. Another important avenue of investigation that was utilized in this survey and should be utilized in the future is the analysis and documentation of private projectile point collections from Jasper County. This can help fill in the gaps of the cultural chronology particularly as it relates to presence of people in the county at particular times.

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