

# AN ARCHAEOLOGICAL SURVEY OF THE KY 2 BRIDGE REPLACEMENT OVER JORDAN FORK IN CARTER COUNTY, KENTUCKY (ITEM NO. 9-1083.00)



by  
*Gavin R. Davies, RPA*

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*Prepared for*



*Prepared by*



Kentucky | West Virginia | Ohio  
Wyoming | Illinois | Indiana | Louisiana | Tennessee  
Utah | Virginia | Colorado



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by

Gavin R. Davies, RPA

With contributions by Brian G. DelCastello, RPA

*Prepared for*

David Waldner, P.E, Director  
Division of Environmental Analysis  
Kentucky Transportation Cabinet  
200 Mero Street  
Frankfort, Kentucky 40622  
Phone: (502) 564-7250

*Prepared by*

Cultural Resource Analysts, Inc.  
151 Walton Avenue  
Lexington, Kentucky 40508  
Phone: (859) 252-4737  
Fax: (859) 254-3747  
Email: cmniquette@crai-ky.com  
CRA Project No.: K14K006

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Charles M. Niquette, RPA  
Co-Principal Investigator

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Richard L. Herndon, RPA  
Co-Principal Investigator

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# ABSTRACT

On June 5, 2014, Cultural Resource Analysts, Inc., personnel conducted an archaeological survey of the proposed Kentucky State Highway 2 bridge replacement over Jordan Fork in Carter County, Kentucky (Item No. 9-1083.00). The survey was conducted at the request of David Waldner of the Kentucky Transportation Cabinet. The project area consisted of approximately 1 ha, located on both banks of Jordan Fork and on both sides of the existing bridge. The proposed right-of-way was located entirely within the Jordan Fork floodplain and included active pasture, unutilized meadows, and a disturbed lot and parking area associated with a vacant historic structure located on the northwest edge of the project area. Vegetation in the project area included a variety of grasses and weeds and ground surface visibility was poor throughout. Survey methods consisted of screened shovel testing supplemented with pedestrian survey.

Prior to the field investigations, a search of records maintained by the Office of State Archaeology was conducted. This revealed that no previously recorded archaeological sites were located within the project area and that no portion of the project area had been previously surveyed. The field investigations, however, identified one previously unrecorded archaeological site (15Cr270). Site 15Cr270 was a prehistoric open habitation represented by a very light density of undiagnostic lithic debitage. The recovered artifacts derived entirely from plow zone/topsoil contexts and no evidence of intact prehistoric features or deposits was identified. For these reasons, Site 15Cr270 is recommended as not eligible for inclusion in the National Register of Historic Places and no further work is recommended. As no sites listed in, or eligible for inclusion in, the National Register of Historic Places will be affected by the proposed bridge replacement project, archaeological clearance is recommended.



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# I. INTRODUCTION

On June 17, 2014, Cultural Resource Analysts, Inc. (CRA), personnel conducted an archaeological survey of the proposed Kentucky State Highway 2 bridge replacement over Jordan Fork in Carter County, Kentucky (Item No. 9-1083.00) (Figure 1). The survey was conducted at the request of David Waldner of the Kentucky Transportation Cabinet. The project area consisted of approximately .1 ha (.3 acres), located on both banks of Jordan Fork and on both sides of the existing bridge, all of which was surveyed by screened shovel testing supplemented with pedestrian survey. Gavin Davies conducted the fieldwork which required approximately 9 hours to complete. Office of State Archaeology (OSA) Geographic Information Systems (GIS) data requested by CRA on May 20, 2014, was returned on May 28, 2014. The results were researched by Heather Barras of CRA at the OSA between June 2 and 11, 2014. The OSA project registration number is FY14-8107.

## Project Description

The purpose of the proposed project is to improve safety and access for residents and businesses that use the KY 2 bridge over Jordan Fork, which is located in the community of Wesleyville, in Carter County, Kentucky (Figure 2). The project will involve reconstruction of the existing bridge and its approaches. The existing bridge is both structurally substandard and functionally obsolete. For example, the curb-to-curb roadway width on the structure is 5.5 m (18.0 ft), which is .6 m (2.0 ft) narrower than the width of the approach. In addition, the bridge has a curb on each side, but no other barriers or guardrails. KY 2 is classified as a Rural Major Collector and provides a connection from Olive Hill to I-64, the AA Highway, and eventually the town of Greenup in Greenup County. Due to the fact that several quarries adjoin KY 2 and its side roads, the bridge receives a high volume of truck traffic on a daily basis.

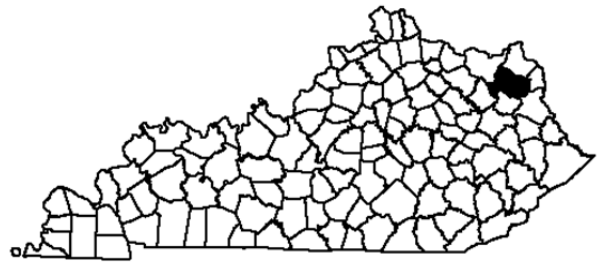


Figure 1. Map of Kentucky showing the location of Carter County.

The area of potential effect (APE) for the proposed project consisted of approximately .1 ha (.3 acres), spanning both banks of Jordan Fork and both sides of the existing bridge (Figure 3). With the exception of areas within the existing disturbed right-of-way (ROW) for KY 2 and Jordan Fork Road, the project area was surveyed in its entirety by screened shovel testing and pedestrian survey (Figure 3). Portions of the north bank had been disturbed by construction, landscaping, and demolition.

## Purpose of Study

This study was conducted to comply with Section 106 of the National Historic Preservation Act. This transportation project is federally funded, and therefore considered an undertaking subject to 106 review.

The purpose of this survey was to assess any potential effects the new bypass might have on identified cultural resources. To do this, we followed these objectives:

- identify prehistoric and historic archaeological sites located within the project area

- determine, to the extent possible, the age and cultural affiliation of sites

- establish the vertical and horizontal boundaries of sites

- establish the degree of site integrity and potential for intact cultural deposits to be present.

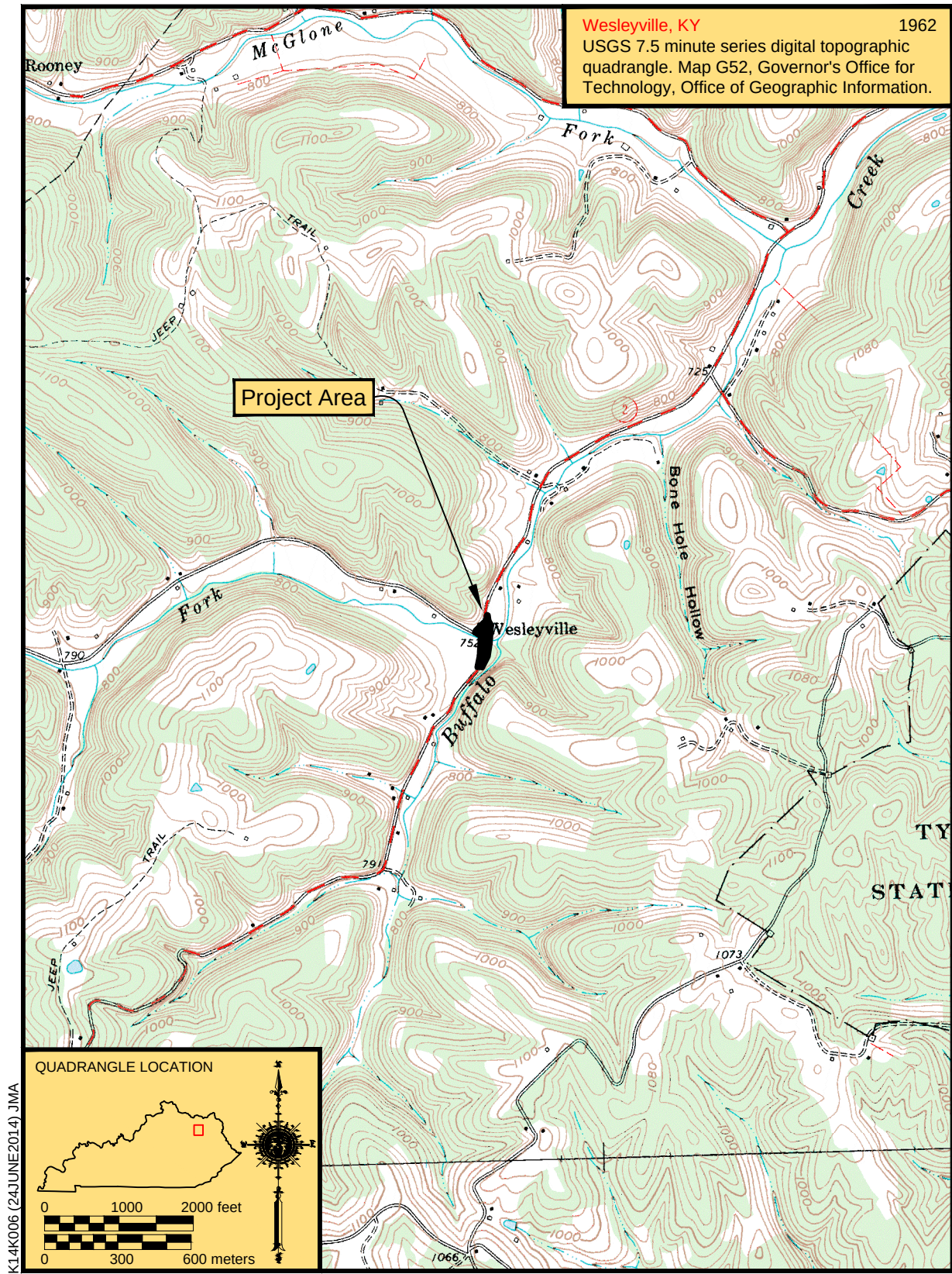


Figure 2. Project area on topographic map.

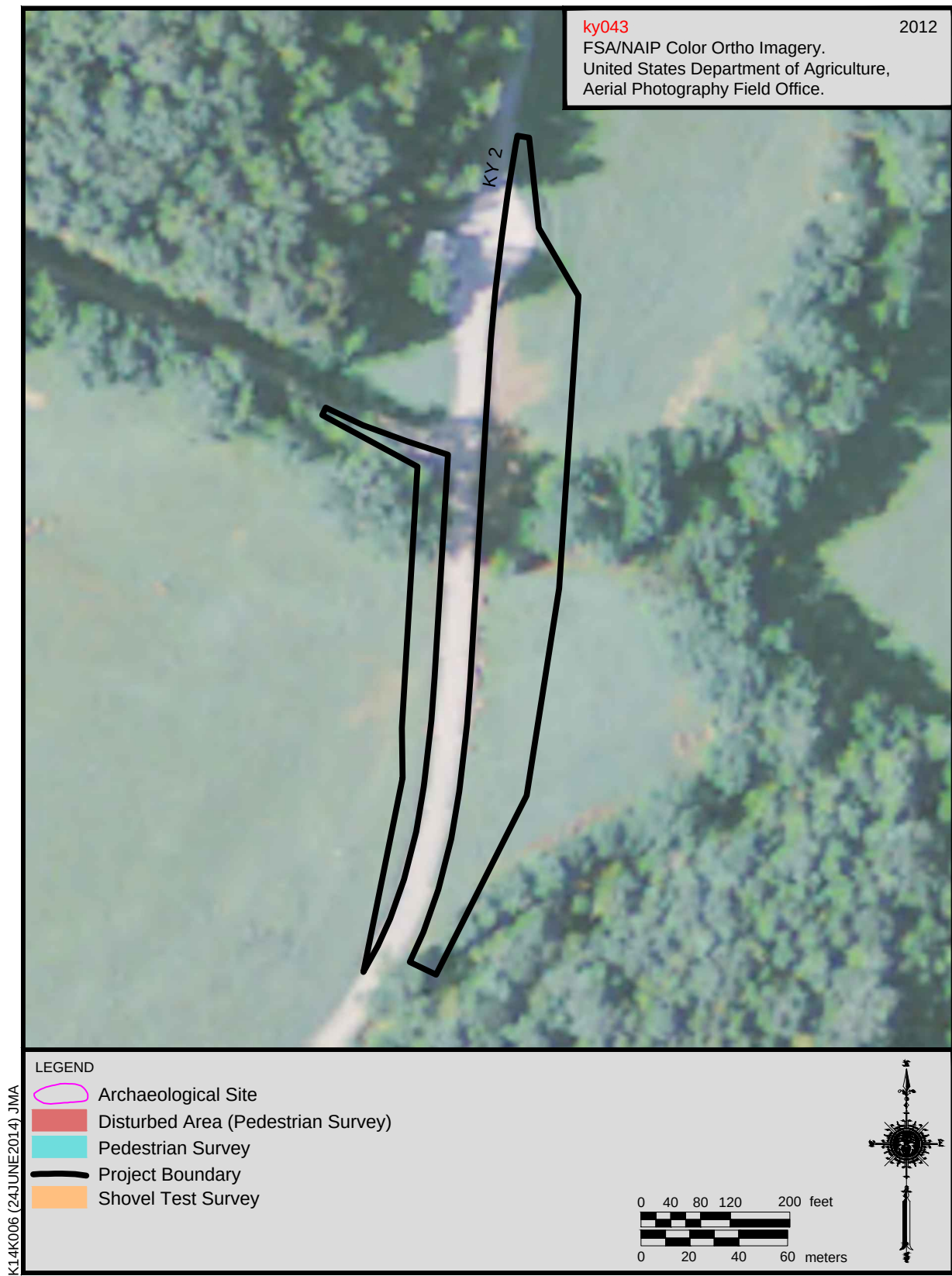


Figure 3. Project area plan map.

For the purposes of this assessment, a site was defined as “any location where human behavior has resulted in the deposition of artifacts, or other evidence of purposive behavior at least 50 years of age” (Sanders 2006:2). Cultural deposits less than 50 years of age were not considered sites in accordance with “Archeology and Historic Preservation: the Secretary of the Interior’s Standards and Guidelines” and were not assessed as part of this study (National Park Service 1983).

The following is a description of the project area, previous research and cultural history of the area, field and laboratory methods, materials recovered, and results of this study. It conforms to the *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* (Sanders 2006). Cultural material, field notes, records, and site photographs will be curated with the William S. Webb Museum of Anthropology, University of Kentucky, in Lexington.

## Summary of Findings

Office of State Archaeology (OSA) records indicated that there were no previously recorded archaeological sites within the project area and that no portion of the project area had been previously surveyed. The field investigations, however, identified one previously unrecorded archaeological site (15Cr270). Site 15Cr270 was a prehistoric open habitation represented by a very light density of undiagnostic lithic debitage. The recovered artifacts derived entirely from plow zone / topsoil contexts and no evidence of intact prehistoric features or deposits was identified. For these reasons, Site 15Cr270 is recommended as not eligible for inclusion in the National Register of Historic Places (NRHP) and no further work is recommended. As no sites listed in, or eligible for inclusion in, the NRHP will be affected by the proposed bridge replacement project, archaeological clearance is recommended.

## II. ENVIRONMENTAL SETTING

This section of the report provides a description of the modern and prehistoric environment and considers those aspects of the environment that may have influenced the settlement choices of past peoples. Attributes of the physical environment also often guide the methods used to discover archaeological sites. Topography, bedrock geology, vegetation, hydrology, soils, lithic resources, and climate for the project area are discussed below.

The Eastern Kentucky Coal Field region (Figure 4) is a rugged and maturely dissected area that is underlain by sandstone, shale, and coal (Bladen 1973:23, 31; Pollack 2008a:16–18). There are 35 counties situated either entirely or partially within this region: Bell, Boyd, Breathitt, Carter, Clay, Elliot, Estill, Floyd, Greenup, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lewis, McCreary, Magoffin, Martin, Menifee, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Rowan, Wayne, Whitley, and Wolfe Counties (Bladen 1973:23). Lewis and Rowan Counties in northeastern Kentucky encompass a portion of the Knobs, a wedge of the Mississippian Plateaus, and a portion of the Eastern Kentucky Coal Field. Rockcastle County is situated partially within the Knobs subregion, partially within the Mississippian Plateaus, and partially within the Eastern Kentucky Coal Field region. Pulaski and Wayne Counties are situated partially within the Mississippian Plateaus and partially within the Eastern Kentucky Coal Field regions. Finally, Estill and Powell Counties overlap portions of the Knobs and the Eastern Kentucky Coal Field as well.

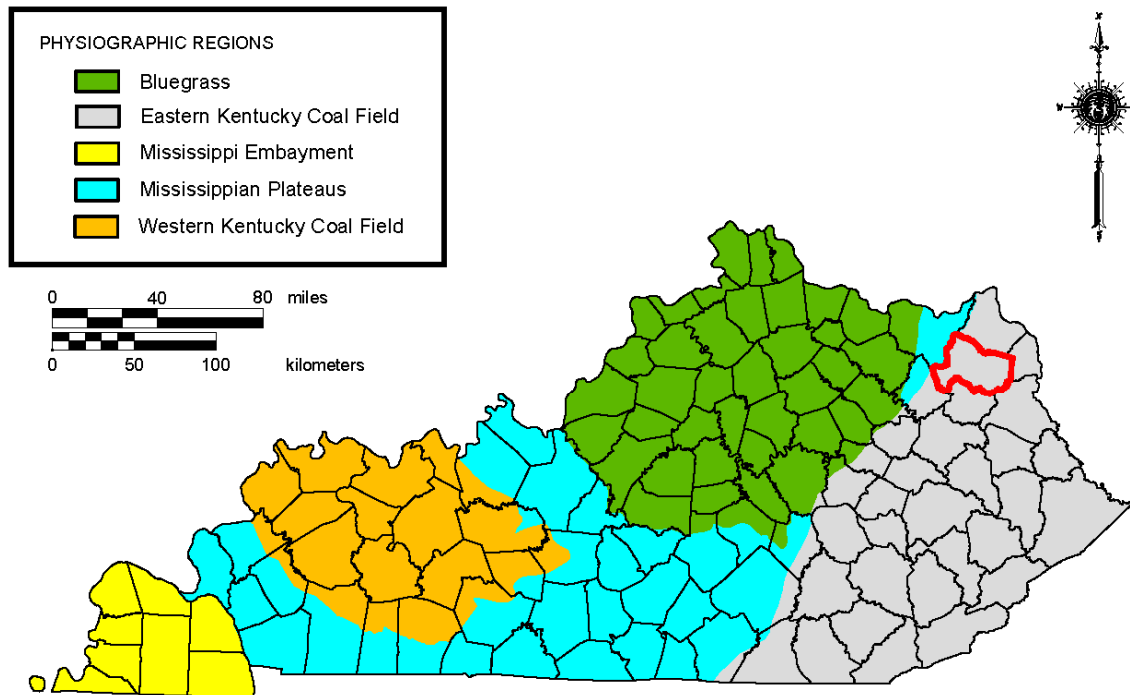


Figure 4. The Eastern Kentucky Coal Field region.

This region holds the highest elevations in Kentucky, culminating with Black Mountain in Harlan County, which has an estimated elevation of over 1,250 m (4,100 ft) above mean sea level (AMSL) (Bladen 1973:23; Schwendeman 1979:27). The region is bordered to the west and north by the Pottsville Escarpment and to the east and south by the state lines of West Virginia and Virginia, respectively. Ridge crests and valley bottoms are typically very narrow, and the majority of the terrain is steeply sloped.

The Big Sandy, Cumberland, Kentucky, Licking, Little Sandy, and Ohio Rivers and their tributaries, along with Tygarts Creek, drain the Eastern Kentucky Coal Field region (Figure 5). Locally, the major river valleys are very wide, and most of the human habitation is on the floodplains and low terraces (Newell 2001). High terraces are remnants of earlier valley bottoms.

The Eastern Kentucky Coal Field is located in the Mixed Mesophytic Forest region, which is described as the most

complex and oldest association of the Deciduous Forest Formation (Braun 2001:39). Mixed mesophytic refers to a climax association in which dominance is shared by a number of species, and the dominant trees are beech, tuliptree, basswood, sugar maple, chestnut, sweet buckeye, red oak, white oak, and hemlock (Braun 2001:40). Historically, ridgetops contained various pines (black, white, and yellow) and chestnut, and slopes were typically covered in hemlock and rhododendron (Davis 1924:19). Originally, the valleys were heavily forested with oak, hickory, walnut, yellow poplar, and beech, but by the early 1920s, the forest had been almost entirely removed (Davis 1924:25). In the modern Eastern Kentucky Coal Field region, north and east slopes are dominated by white basswood, while beech and oaks are dominant on south and west slopes. Modern ravines are often dominated by hemlock and rhododendron, but magnolia is also generally abundant. The uppermost slopes and ridges contain oak-chestnut and oak-hickory communities (Braun 2001:91–92).

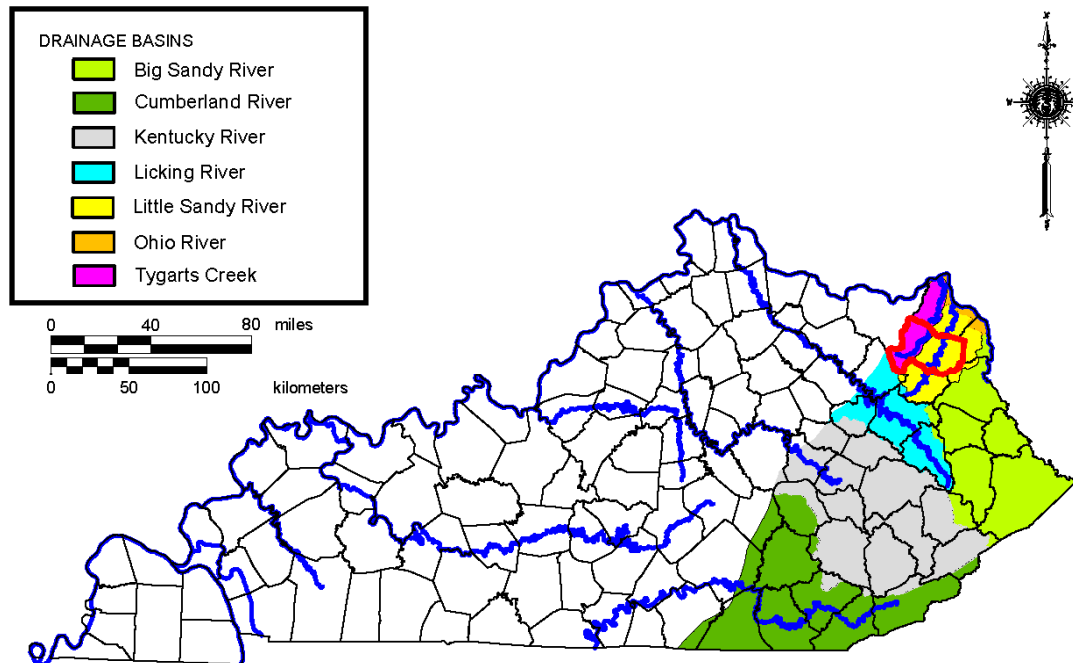


Figure 5. Rivers that drain the Eastern Kentucky Coal Field region.

## Soils of the Eastern Kentucky Coal Field

The Eastern Kentucky Coal Field region is predominantly mapped as the Ultisols order of soils. Ultisols formed in completely weathered colluvium or residuum of the underlying bedrock, which in eastern Kentucky is predominantly shale, siltstone, and sandstone, and they occurred on Late Pleistocene or older surfaces. They are found on nearly level to very steep landforms. These soils display a light-colored or thin or low organic-carbon content, grayish-colored surface horizon and a clay-enriched subsoil. They are relatively infertile due to being strongly leached. Ultisols are typically red to yellow in color, resulting from the accumulation of iron and aluminum oxides. They're not characterized by any specific soil temperature, and they exhibit all but aridic soil moisture regimes (Soil Survey Staff 1999:721–726). Ultisols may contain buried and intact archaeological deposits as a result of colluvium, depending upon the landform on which they formed (e.g., footslope vs. bench), but most

cultural deposits contained in these soils will be on or near the surface.

The region is predominantly mapped as the Udults suborder of soils, which are the more or less freely-drained and humus-poor Ultisols found in areas with well-distributed rainfall and that form in humid climates. Udults are thought to have developed under forest vegetation, but some developed under a savanna associated with, or influenced by, human activity. Many are cultivated with the addition of nutrient amendments or by allowing a fallow period following very few years of use. Udults can exhibit a compacted zone, or fragipan, in or below the clay-enriched subsoil (Soil Survey Staff 1999).

Portions of the Eastern Kentucky Coal Field that are predominantly mapped as Inceptisols occur to a lesser extent. Inceptisols developed in silty, acid alluvium during the Late Pleistocene or Holocene time periods on nearly level to steep surfaces. Inceptisols may contain deeply buried and intact archaeological deposits, depending upon the landform on which they formed (e.g.,

sideslope vs. alluvial terrace). Inceptisols exhibit a thick, dark-colored surface horizon rich in organic matter and a weakly developed subsurface horizon with evidence of weathering and sometimes of gleying (Soil Survey Staff 1999:489–493).

When Inceptisols are the predominantly mapped soil order, they are typically mapped as the Udepts suborder of soils, which are mainly the more or less freely-drained Inceptisols in areas with well-distributed to excessive rainfall. In the areas where rainfall was excessive, the soils formed in older deposits. Most of the soils are thought to have developed under forest vegetation, but some supported shrubs or grasses. Most of the soils have either a thinner or thicker but leached surface horizon and a weakly developed subsoil or B-horizon. Some also have a sulfuric acid-enhanced horizon, which commonly occurs as a result of artificial drainage, surface mining, or other earthmoving activities. Some also exhibit a cemented zone subsurface, such as a duripan, and some have a compacted zone, such as a fragipan (Soil Survey Staff 1999).

There are also smaller areas predominantly mapped as Entisols in the region. Entisols are sandy soils that formed very recently in unconsolidated parent material and have not been in place long enough for pedogenic processes to form distinctive horizons aside from an A-horizon. They are located on steep, actively eroding slopes or on floodplains or glacial outwash plains that frequently receive new deposits of alluvium. They do not have a compacted zone, such as a fragipan, and do not have accumulated clays or aluminum or iron oxides, but they may be sodium enriched (Soil Survey Staff 1999:389–391). Because of their young age, Entisols rarely contain buried and intact prehistoric archaeological deposits.

Several suborders dominate the Entisol order. They include the Aquents, Orthents, and Psamments suborders. Aquents are found along margins of lakes or along streams where the water table is at or near the surface for much of the year. Many Aquents have bluish

or grayish colors and redoximorphic features caused by alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Most Aquents support vegetation that tolerates permanent or periodic wetness. Orthents are located on recent erosional surfaces that are the result of geologic erosional processes or are caused by mining, cultivation, or other factors. The upper horizons have been either truncated or completely removed. Some are in areas of recent loamy or fine eolian deposits, in areas of glacial deposits, or in areas of debris from recent landslides and mudflows. Orthents occur in any climate and under any vegetation. Finally, Psamments are very sandy soils formed in poorly graded (well sorted) sands on shifting or stabilized sand dunes, in cover sands, in sandy parent materials that were sorted in an earlier geologic cycle, or in material weathered from sandstone or granitic bedrock. They are generally found on outwash plains, lake plains, natural levees, or beaches, and they generally exhibit a wide range of vegetation (Soil Survey Staff 1999).

## Lithic Resources

Chert resources in the Eastern Kentucky Coal Field region are somewhat localized, and many portions of the region are devoid of chert resources. Chert is more common along the western border of the region. The vast majority of the area is underlain by Pennsylvanian-age sandstone, shale, and siltstone deposits (United States Geological Survey 2014). Breathitt chert primarily outcrops in the central portion of the region in the area of Breathitt County. Breathitt chert can also be found in portions of Knott, Magoffin, Owsley, and Perry Counties. Minor sources also occur in Bell, Leslie, and Harlan Counties. Brush Creek chert can be found in the northeastern portion of the region in Boyd, Carter, and Lawrence Counties. Mississippian-age Newman limestone, containing Newman chert, is found in outcrops along the northwestern and southeastern edges of the region. Ste. Genevieve and St. Louis cherts of the same age are found along the western edge of the region, predominantly in Clinton, Estill,

Menifee, Powell, and Wayne Counties. Mississippian-age Fort Payne, Monteagle, and Bangor cherts are found in sandstone or limestone outcrops, mostly in the southern counties. Finally, there are several Ordovician and Cambrian Formations along the Kentucky-Virginia-Tennessee border in Harlan and Bell Counties that contain chert. The Ordovician Formations are noted as containing olive-black to black chert, referred to as Poteet or Chickamauga chert. Lower Ordovician and upper Cambrian Formations contain Knox chert. Although often of small size, the chert is a high quality material.

## Prehistoric and Historic Climate

Climatic conditions during the period of human occupation in the region (Late Pleistocene and Holocene ages) can be described as a series of transitions in temperature, rainfall, and seasonal patterns that created a wide range of ecological variation, altering the survival strategies of human populations (Anderson 2001; Niquette and Donham 1985:6–8; Shane et al. 2001). The landscape during the Pleistocene was quite different from that of today. Much of the mid-continent consisted of periglacial tundra dominated by boreal conifer and jack-pine forests. Eastern North America was populated by a variety of faunal species, including megafaunal taxa such as mastodon, mammoth, saber-toothed tiger, and Pleistocene horse, as well as by modern taxa such as white-tailed deer, raccoon, and rabbit.

The Wisconsinan glacial maximum occurred approximately 21,400 years B.P. (Anderson 2001; Delcourt and Delcourt 1987). By 15,000 B.P., following the Wisconsinan glacial maximum, a general warming trend and concomitant glacial retreat had set in (Anderson 2001; Shane 1994). Towards the end of the Pleistocene and after 14,000 B.P., the boreal forest gave way to a mixed conifer/northern hardwoods forest complex. In the Early Holocene and by 10,000 B.P., southern Indiana was probably on the northern fringes of expanding deciduous forests

(Delcourt and Delcourt 1987:92–98). Pollen records from the Gallipolis Lock and Dam on the Ohio River near Putnam County, West Virginia, reveal that all the important arboreal taxa of mixed mesophytic forest had arrived in the region by 9000–8500 B.P. (Fredlund 1989:23). Similarly, Reidhead (1984:421) indicates that the generalized hardwood forests were well established in southeastern Indiana and southwest Ohio by circa 8200 B.P.

Prior to approximately 13,450 B.P., climatic conditions were harsh but capable of supporting human populations (Adovasio et al. 1998; McAvoy and McAvoy 1997). Populations were probably small, scattered, and not reproductively viable (Anderson 2001). The Inter-Allerod Cold Period, circa 13,450–12,900 B.P., brought about the dispersal of Native Americans across the continent. This period was followed by the rapid onset of a cooling event known as the Younger Dryas (circa 12,900–11,650 B.P.) during which megafauna species became extinct, vegetation changed dramatically, and temperature fluctuated markedly. It was also a period of noticeable settlement shift that marked the appearance of a variety of subregional cultures across eastern North America (Anderson 2001).

In a recent review, Meeks and Anderson (2012:111) described the Pleistocene/Holocene transition as “a period of tremendous environmental dynamism coincident with the Younger Dryas event.” The Younger Dryas (circa 12,900 to 11,600 cal. B.P.) represents one of the largest abrupt climate changes that has occurred within the past 100,000 years. The onset of the Younger Dryas appears to have been a relatively rapid event that may have been driven by a freshwater influx into the North Atlantic as a result of catastrophic outbursts of glacial lakes. “The net effect of these outbursts of freshwater was a reduction in sea surface salinity, which altered the thermohaline conveyor belt; effectively slowing ocean circulation of warmer water (heat) to the north and bringing cold conditions” (Meeks and Anderson 2012:111; though see Meltzer and Bar-Yosef 2012:251–252 for a critique of this

view). This resulted in significantly lower temperatures during this time. The Younger Dryas ended approximately 1,300 years later over a several decade period. The onset of the Younger Dryas coincides with the end of Clovis and the advent of more geographically circumscribed cultural traditions.

Pollen records for the Younger Dryas indicate that vegetation shifts were sometimes abrupt and characterized by oscillations. These shifts were not uniform over the entire southeast and indicate that a variety of factors were at play. At Jackson Pond in Kentucky (Wilkins et al. 1991), for example, several pronounced reciprocal oscillations occurred in a large number of spruce and oak. According to Meeks and Anderson, “these oscillations reflect shifts between boreal/deciduous forest ecotones associated with cool/wet and cool/dry conditions, respectively” (2012:113).

Meeks and Anderson (2012:126–130) define five population events for the Paleoindian–Early Holocene transition. Population Event 1 (circa 15,000–13,800 cal. B.P.) is a pre-Clovis occupation that exhibits a slow rise in population. This event may represent the initial colonization of the southeast region and may represent the basis of later Clovis occupation or a failed migration (Meeks and Anderson 2012:129). Population Event 2 represents an apparent 600 year gap between Events 1 and 3. Population Event 3 (circa 13,200–12,800 cal. B.P.) occurred just prior to, and extended into, the Younger Dryas event. This event represents the “first unequivocal evidence for widespread human occupation across the southeastern United States” (Meeks and Anderson 2012:129). Event 3 coincided with the Clovis occupation in the region. A marked decline in the population is posited for Population Event 4 (12,800–11,900 cal. B.P.). This equates with the early to middle Younger Dryas and relates to a post-Clovis occupation of the region. Meeks and Anderson (2012:129) see a fragmentation of the regional Clovis culture at this time along with “the development of geographically circumscribed subregional, cultural traditions in the southeastern United States.” A marked increase in population

density is posited between 11,900 and 11,200 cal. B.P. This coincides with the late portion of the Younger Dryas and the early portion of the Holocene. Population Event 5 is represented by this time frame. Early Side Notched and Dalton are seen during this time.

During the Early Holocene, rapid increases in boreal plant species occurred on the Allegheny Plateau in response to the retreat of the Laurentide ice sheet from the continental United States (Maxwell and Davis 1972:517–519; Whitehead 1973:624). At lower elevations, deciduous species were returning after having migrated to southern Mississippi Valley refugia during the Wisconsin advances (Delcourt and Delcourt 1981:147). The climate during the Early Holocene was still considerably cooler than the modern climate, and based on species extant at that time in upper altitude zones of the Allegheny Plateau, conditions would have been similar to the Canadian boreal forest region of today (Maxwell and Davis 1972:515–516). Conditions at lower elevations were less severe and favored the transition from boreal to mixed mesophytic species. At Cheek Bend Cave in the Nashville Basin, an assemblage of small animals from the Late Pleistocene confirms the environmental changes that took place during the Pleistocene to Holocene transition and the resulting extinction of Pleistocene megafauna and establishment of modern fauna in this area (Klippel and Parmalee 1982).

Traditionally, Middle Holocene (circa 8000–5000 B.P., also referred to as the Hypsithermal) climate conditions were thought to be consistently dryer and warmer than the present (Delcourt 1979:271; Klippel and Parmalee 1982; Wright 1968). The influx of westerly winds contributed to periods of severe moisture stress in the Prairie Peninsula and to an eastward advance of prairie vegetation (Wright 1968). More recent research (Anderson 2001; Shane et al. 2001:32–33) suggests that the Middle Holocene was marked by considerable local climatic variability. Paleoclimatic data indicate that the period was marked by more

pronounced seasonality characterized by warmer summers and cooler winters.

The earliest distinguishable Late Holocene climatic episode began circa 5000 B.P. and ended around 2800 B.P. This Sub-Boreal episode is associated with the establishment of essentially modern deciduous forest communities in the southern highlands and increased precipitation across most of the mid-continental United States (Delcourt 1979:271; Maxwell and Davis 1972:517–519; Shane et al. 2001; Warren and O'Brien 1982:73). Changes in local and extra-local forests after approximately 4800 B.P. may also have been the result of anthropogenic influences. Fredlund (1989:23) reports that the Gallipolis pollen record showed increasing local disturbance of the vegetation from circa 4800 B.P. to the present, a disturbance that may have been associated with the development and expansion of horticultural activity. Based on a study of pollen and wood charcoal from the Cliff Palace Pond in Jackson County, Kentucky, Delcourt and Delcourt (1997:35–36) recorded the replacement of a red cedar-dominated forest with a forest dominated by fire-tolerant taxa (oaks and chestnuts) around 3000 B.P. The change is associated with increased local wildfires (both natural and culturally augmented) and coincided with increases in cultural utilization of upland (mountain) forests.

Beginning around 2800 B.P., generally warm conditions, probably similar to those of the twentieth century, prevailed during the Sub-Atlantic and Post-Sub-Atlantic climatic episodes, with the exception of the Neo-Boreal sub-episode, or Little Ice Age (circa 700–100 B.P.), which was coldest from circa 400 until its end. Despite the prevailing trend, brief temperature and moisture variations occurred during this period. Some of these fluctuations have been associated with adaptive shifts in Midwestern prehistoric subsistence and settlement systems (Baerreis et al. 1976; Griffin 1961; Struever and Vickery 1973; Warren and O'Brien 1982).

Studies of historic weather patterns and tree-ring data by Fritts et al. (1979) indicate

that twentieth-century climatological averages were “unusually mild” when compared to seventeenth- to nineteenth-century trends (the time period used for comparison represents the coldest period of the Neo-Boreal [400–100 B.P.], or the Little Ice Age) (Fritts et al. 1979:18). The study suggested that winters were generally colder, weather anomalies were more common, and unusually severe winters were more frequent between A.D. 1602 and A.D. 1900 than after A.D. 1900. The effects of the Neo-Boreal sub-episode, which ended during the mid- to late nineteenth century, have not been studied in detail for this region. It appears that the area experienced smaller temperature decreases during the late Neo-Boreal than did the upper Midwest and northern Plains (Fritts et al. 1979), so it follows that related changes in extant vegetation would be more difficult to detect.

## Modern Climate

The modern climate of Kentucky is moderate in character and temperature, and precipitation levels fluctuate widely. The prevailing winds are westerly, and most storms cross the state in a west to east pattern. Low pressure storms that originate in the Gulf of Mexico and move in a northeasterly direction across Kentucky contribute the majority of the precipitation received by the state. Warm, moist, tropical air masses from the Gulf predominate during the summer months and contribute to the high humidity levels experienced throughout the state. As storms move through the state, occasional hot and cold periods of short duration may be experienced. During the spring and fall, storm systems tend to be less severe and less frequent, resulting in less radical extremes in temperature and rainfall (Anderson 1975).

## Description of the Project Area

The project area is located at the intersection of KY 2 and Jordan Fork, within the community of Wesleyville, Carter County, Kentucky (see Figures 2 and 3). It consists of approximately .1 ha (.3 acres), located on both

banks of Jordan Fork and on both sides of the existing bridge (Figures 6 and 7). Elevations within the project area are between 229 and 231 m (750 and 760 ft) above mean sea level (AMSL). The project area is located entirely within the floodplain of Jordan Fork (Figure 8). Jordan Fork drains into Buffalo Creek, then Tygarts Creek, which eventually flows into the Ohio River.

Vegetation in the project area included short pasture grass, tall meadow grass and a variety of weeds (Figures 9 and 10). Ground surface visibility was poor except in disturbed areas along the edges of KY 2.

Portions of the project area had been disturbed previously due to construction associated with the existing road and bridge as well as landscaping and demolition activities. One standing structure (Figure 11) with associated outbuildings (Figure 12) was located at the northwestern edge of the project area and is discussed later as map structure 2 (MS 2). A vacant lot immediately to the south of this (Figure 13), which yielded disturbed soils, appears to have been the location of a residence up until the 1950s. The small parking area directly opposite MS 1 appears to have been occupied by a barn (MS 3) up until the same period.

Chert resources for the region have been previously discussed. For a more detailed analysis of chert resources, see the Lithic Analysis section of this report.

Three soil series (Bledsoe, Grigsby, and Skidmore) have been defined in the project area. The soil series are classified by the amount of time it has taken them to form and the landscape position on which they are found (Birkeland 1984; Soil Survey Staff 1999). This information can provide a relative age of the soils and can express the potential for buried archaeological deposits within them (Stafford 2004). The soil order and group classifications for each soil series are used to assist with determining this potential.

The Bledsoe soil series is classified as an Alfisol and is found on landforms that formed during the late Pleistocene or earlier (Soil

Survey Staff 1999:163–165). Archaeological deposits would only be expected on or very near the ground surface on landforms mapped with Alfisols. Bledsoe soils were mapped for the portion of the project area on the north bank of Jordan Fork and west side of KY 2.

The Grigsby and Skidmore soil series are classified as Inceptisols that are found on landforms that formed during the late Pleistocene or Holocene time periods (Soil Survey Staff 1999:489–493). These may have deeply buried and intact archaeological deposits, depending upon the landform on which they formed (e.g., sideslope vs. alluvial terrace). Grigsby series soils were mapped for the entire south bank of Jordan Fork as well as a small portion of the north bank. Skidmore series soils were restricted to a portion of the north bank of Jordan Fork, to the east of KY 2.

Sediments observed in shovel probes excavated on the south bank of Jordan Fork, within the agricultural field revealed profiles that were consistent with the Grigsby series soils. These included a brown (10YR 4/3) sandy loam plow zone with common rounded gravel that extended to approximately 18 cm (7 in) below ground surface (bgs). This had a diffuse boundary, below which was a light olive brown (2.5Y 5/4) loamy sand with common rounded gravels and common fine manganese (Mn) nodules to at least 30 cm (12 in) bgs.

Sediments observed in shovel probes excavated on the north bank of Jordan Fork, to the east of KY 2 revealed soils that were consistent with both the Grigsby and Skidmore series soils. These included a brown (10YR 4/3) sandy loam with common rounded gravel to approximately 16 cm (6 in) bgs over a dark yellowish brown (10YR 4/4) sandy loam with frequent rounded gravel to at least 30 cm (12 in) bgs.

Shovel tests excavated in the area mapped with Bledsoe series soils (north bank of Jordan Fork, west side of KY 2) revealed a lack of topsoil, indicating disturbance by heavy machinery.



Figure 6. Overview of southern portion of project area, facing south from bridge.



Figure 7. Detailed view of existing bridge, facing south.



Figure 8. General view of Jordan Fork, facing west-northwest.



Figure 9. General overview of pasture within southern portion of project area, facing southwest.



Figure 10. General overview of meadow area within northeastern portion of project area, facing south.

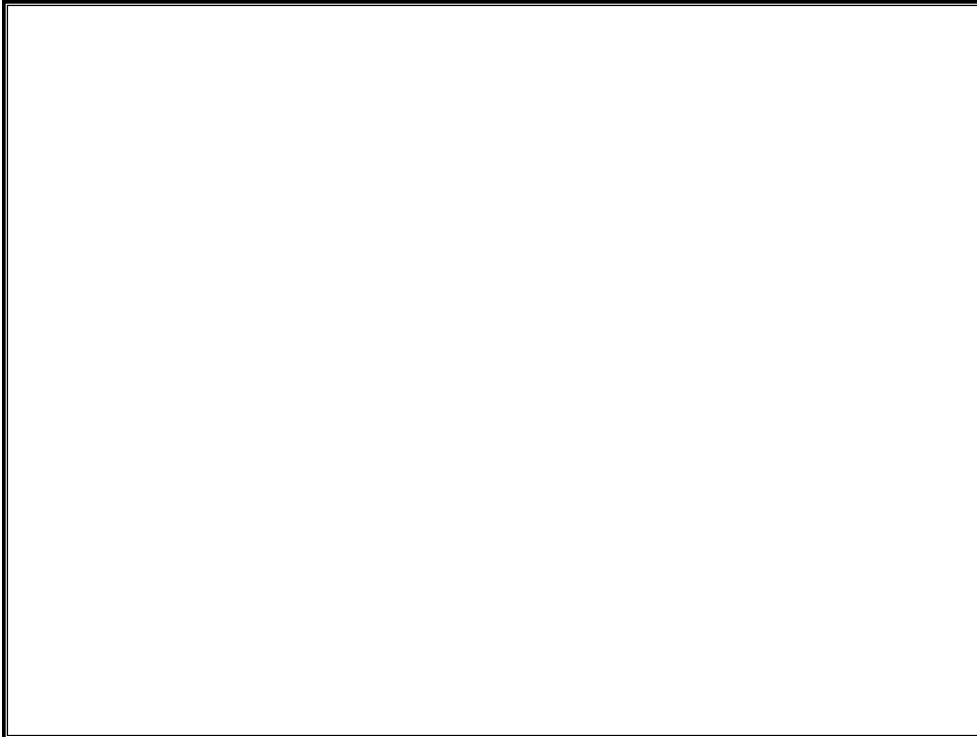


Figure 11. Standing structure (MS 2) at the northwestern edge of the project area, facing west-northwest.



Figure 12. Shed associated with MS1, facing northwest.



Figure 13. Vacant lot to south of MS1, facing southwest.

### III. PREVIOUS RESEARCH AND CULTURAL OVERVIEW

Prior to initiating fieldwork, a search of records maintained by the NRHP (available online at: and the OSA (FY14-8124) was conducted to: 1) determine if the project area had been previously surveyed for archaeological resources; 2) identify any previously recorded archaeological sites that were situated within the project area; 3) provide information concerning what archaeological resources could be expected within the project area; and 4) provide a context for any archaeological resources recovered within the project area. A search of the NRHP records indicated that no archaeological sites listed on the NRHP were situated within the current project area or within a 2 km radius of the project area. The OSA file search was conducted between June 6 and 11, 2014. The work at the OSA consisted of a review of professional survey reports and records of archaeological sites for an area encompassing a 2-km radius of the project footprint. To further characterize the archaeological resources in the general area, the OSA archaeological site database for the county was reviewed and synthesized. The review of professional survey reports and archaeological site data in the county provided basic information on the types of archaeological resources that were likely to occur within the project area and the landforms that were most likely to contain these resources. The results are discussed below.

OSA records revealed that 2 previous professional archaeological surveys have been conducted within a 2 km radius of the project area. Six archaeological sites have been recorded in this area also. The records search revealed that one of the 6 sites in the file search area (15Cr138) is a cave with a prehistoric occupation. One site (15Cr249) is a

historic cemetery. The remaining four sites (15Cr141 and 15Cr246 – 15Cr248) are prehistoric open habitations. The 2 km radius included areas within the Wesleyville quadrangle.

#### Previous Archaeological Surveys

Between August 26 and 29 and on October 1, 2007, Kentucky Archaeological Survey personnel completed an archaeological survey of the Adkins property, a tract of land which will serve as an addition to the Tygarts State Forest in Carter County, Kentucky (Schlarb et al. 2008). At the request of the Kentucky Division of Forestry, 73 ha (180 acres) were investigated via pedestrian survey supplemented with screened shovel testing in order to provide the Kentucky Department of Fish and Wildlife Resources with information about cultural resources on the tract. One previously recorded site (15Cr138) was revisited and four previously unrecorded sites (15Cr246–15Cr249) were documented during the survey.

Site 15Cr138, xxxx xxxx Cave, was originally documented in 1967 by Matthew Maley during a visit with the Cincinnati Speleological Society. The site received its name from the amount of human bones reported by previous relic hunters. The cave consists of a main passage and three side passages extending to the east. The cave ends with a terminal breakdown and passages extending to the southeast and southwest have been blocked. The Schlarb et al. (2008) survey recovered prehistoric materials of indeterminate temporal affiliation, faunal, and human remains from the surface of the site. The entrance of the cave has been disturbed by looters, but there were potential intact cultural deposits beyond the cave's vestibule. The cave was considered potentially eligible for the NRHP or, in other words, would require evaluation before it could be listed in the NRHP. If the cave suffered further damage or additional human bones were discovered, notification of the Kentucky Heritage Council (KHC) and law enforcement was recommended.

Sites 15Cr246–15Cr248 were prehistoric open habitations. Site 15Cr246 and 15Cr248 had indeterminate temporal affiliations. Site 15Cr247 contained an Early Archaic component. Due to land disturbance, these sites were not considered eligible for NRHP inclusion and no further work was recommended (Schlarb et al. 2008).

Site 15Cr249 is a historic cemetery dating to the early twentieth century. The cemetery was enclosed with chain-link fencing and appeared to be well maintained. The NRHP eligibility was not assessed for the site, but no further work was recommended (Schlarb et al. 2008).

On May 20, 2008, Cultural Heritage Research Services, Inc., personnel conducted an archaeological survey for a proposed cell tower site in Olive Hill, Carter County, Kentucky (Basalik and Miller 2008). At the request of TRILEAF Corporation, .09 ha (.23 acres) were investigated with a pedestrian survey supplemented with screened shovel testing. No archaeological sites were identified during the survey and project clearance was recommended.

Site 15Cr141 did not have an associated report, but the site form found in OSA records indicated it was a prehistoric open habitation without mounds of indeterminate temporal affiliation recorded by Matthew Maley on April 26, 1994. Its NRHP status was not assessed at the time.

## Archaeological Site Data

According to available data, 265 archaeological sites have been recorded in Carter County (Table 1). The site data indicate that the majority of archaeological sites recorded in Carter County consist of prehistoric open habitations without mounds (n = 120, 45.28 percent). Rockshelters (n = 94, 35.47 percent) are also very common in Carter County. Sites appearing with lower frequency include historic farm/residences (n = 13, 4.91 percent), caves (n = 6, 2.26 percent), undetermined sites (n = 6, 2.26 percent), quarries (n = 5, 1.89 percent), workshops (n = 5, 1.89 percent), cemeteries (n = 4, 1.51

percent), and stone mounds (n = 4, 1.51 percent).

The landform locations of sites in Carter County were examined to determine the likelihood of encountering sites on similar landforms within the project area. The current project area is located entirely within the floodplain of Jordan Fork. A total of 41 sites (15 percent) have been recorded on floodplains in Carter County. The vast majority of these (n = 31, 75.61 percent) have been prehistoric open habitation sites without mounds. Historic farm/residences (n = 4, 9.76 percent) and undetermined sites (n = 4, 9.76 percent) are the next most common site types encountered on floodplains.

Table 1. Summary of Selected Information for Previously Recorded Archaeological Sites in Carter County, Kentucky. Data Obtained from OSA and May Contain Coding Errors.

| Site Type:                     | N           | %          |
|--------------------------------|-------------|------------|
| Cave                           | 6           | 2.26       |
| Cemetery                       | 4           | 1.51       |
| Earth Mound                    | 1           | 0.38       |
| Historic Farm/Residence        | 13          | 4.91       |
| Mound Complex                  | 2           | 0.75       |
| Open Habitation with Mounds    | 2           | 0.75       |
| Open Habitation without Mounds | 120         | 45.28      |
| Other                          | 1           | 0.38       |
| Other Special Activity Area    | 1           | 0.38       |
| Petroglyph/Pictograph          | 1           | 0.38       |
| Quarry                         | 5           | 1.89       |
| Rockshelter                    | 94          | 35.47      |
| Stone Mound                    | 4           | 1.51       |
| Undetermined                   | 6           | 2.26       |
| Workshop                       | 5           | 1.89       |
| <b>Total</b>                   | <b>265</b>  | <b>100</b> |
| Time Periods Represented       | N           | %          |
| Archaic                        | 38          | 12.06      |
| Woodland                       | 32          | 10.16      |
| Late Prehistoric               | 16          | 5.08       |
| Indeterminate Prehistoric      | 199         | 63.17      |
| Historic                       | 26          | 8.25       |
| Unspecified                    | 4           | 1.27       |
| <b>Total</b>                   | <b>315*</b> | <b>100</b> |
| Landform                       | N           | %          |
| Dissected Uplands              | 65          | 24.53      |
| Floodplain                     | 41          | 15.47      |
| Hillside                       | 96          | 36.23      |
| Other                          | 18          | 6.79       |
| Terrace                        | 26          | 9.81       |
| Undissected Uplands            | 9           | 3.4        |
| Unspecified                    | 10          | 3.77       |
| <b>Total</b>                   | <b>265</b>  | <b>100</b> |

\*One site may represent more than one time period.

## Map Data

In addition to the file search, a review of available maps was initiated to help identify potential historic properties (structures) or historic archaeological site locations within the proposed project area. The following maps were reviewed.

1937 Highway and Transportation Map of Carter County, Kentucky (Kentucky Department of Highways [KDOH])

1948 General Highway Map of Carter County, Kentucky (KDOH)

1950 Olive Hill, Kentucky, 15-minute series topographic quadrangle (USGS)

1958 General Highway Map of Carter County, Kentucky (KDOH)

1962 Wesleyville, Kentucky, 7.5-minute series topographic quadrangle (USGS)

The earliest map showing the project area dates to 1937 and this map depicts 4 structures within or near the project area, including two residential structures (MS 1 and MS 2), a schoolhouse (MS 3), and a church (MS 4) (Figure 14). The subsequent 1948 map shows these same four structures with an additional non-residential structure (MS 5) located to the south of the schoolhouse (Figure 15). The more accurate USGS map from 1950 shows, however, that the church was in fact well outside the project area, to the west along Jordan Fork Road (Figure 16). This map also shows no sign of the schoolhouse (MS 3) which was likely also located outside the project area, this time to the north. MS 5 is clearly depicted as a barn on this map.

The 1958 (KDOH) map shows the same configuration of structures as the previous 1950 (USGS) map, with the only change being that MS 2 is now depicted as a non-residential structure. By 1962, this was the only structure remaining near the current project area and remains to be so today (see Figure 2).

A standing structure that is partially within the archaeological APE (see Figure ?) likely represents MS 2. The vacant lot adjacent to this to the south is likely the former location of MS 1. Shovel tests excavated within this lot revealed

a complete lack of topsoil indicating the area had been landscaped/scraped with heavy machinery. Shovel tests excavated on the east side of KY 2 within the north bank of Jordan Fork revealed no indications of the barn (MS 3) or schoolhouse (MS 4); however, a gravel parking area within this portion of the project area likely demarcates the footprint of the now non-extant barn (MS 3). The schoolhouse (MS 4) was likely located well outside the project area to the north.

## Survey Predictions

Considering the known distribution of sites in the county, the available information on site types recorded, and the nature of the present project area, certain predictions were possible regarding the kinds of sites that might be encountered within the project area. Prehistoric open habitation sites were the primary site types expected, but historic residences were also considered a possibility.

## Cultural Overview

### Early Human Occupation (Before 11,050 B.C.)

The timing and actual entry point of the first humans into North America are still topics for debate. The general consensus remains that humans entered North America from Asia via the Bering Strait. Waters and Stafford (2013:557) summarized the currently available data and conclude that the First Americans originated in Central Asia and started entering the New World circa 16,000 B.P. Clovis developed later and was a New World construct.

Several sites in the southeastern United States have been suggested as pre-Clovis candidates. Among these are the Cactus Hill site in southeast Virginia (McAvoy and McAvoy 1997; Wagner and McAvoy 2004), the Topper site in South Carolina (Chandler 2001; Goodyear 1999; Goodyear and Steffy 2003), and the Debra L. Friedkin site in Texas (Waters et al. 2011). Despite the evidence of pre-Clovis occupations in many areas, to date, no definitive pre-Clovis occupations or materials have been found in Kentucky (Maggard and Stackelbeck 2008:114).

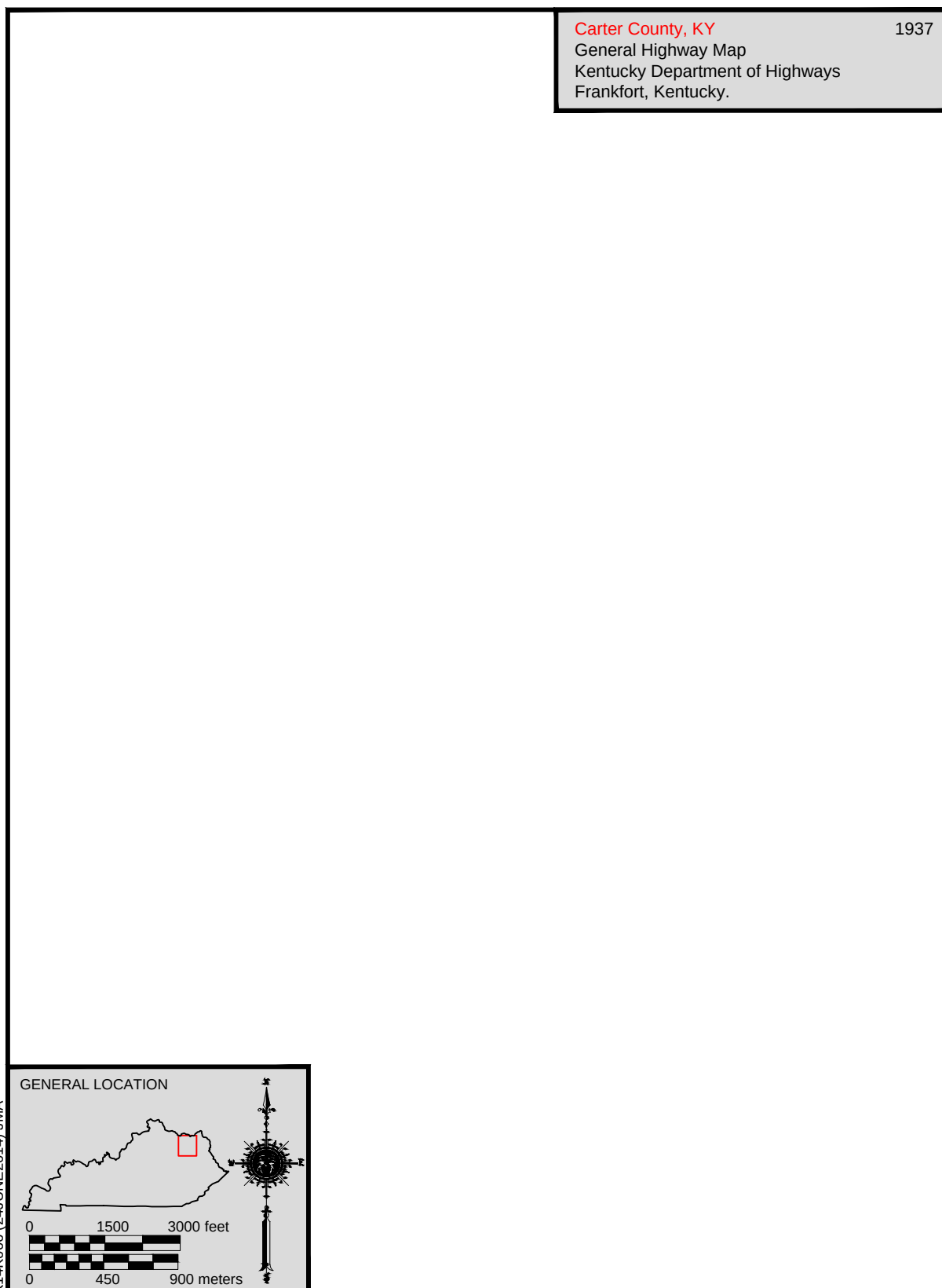


Figure 14. Section of historic map from 1937 (KDOH) showing MS 1–4.

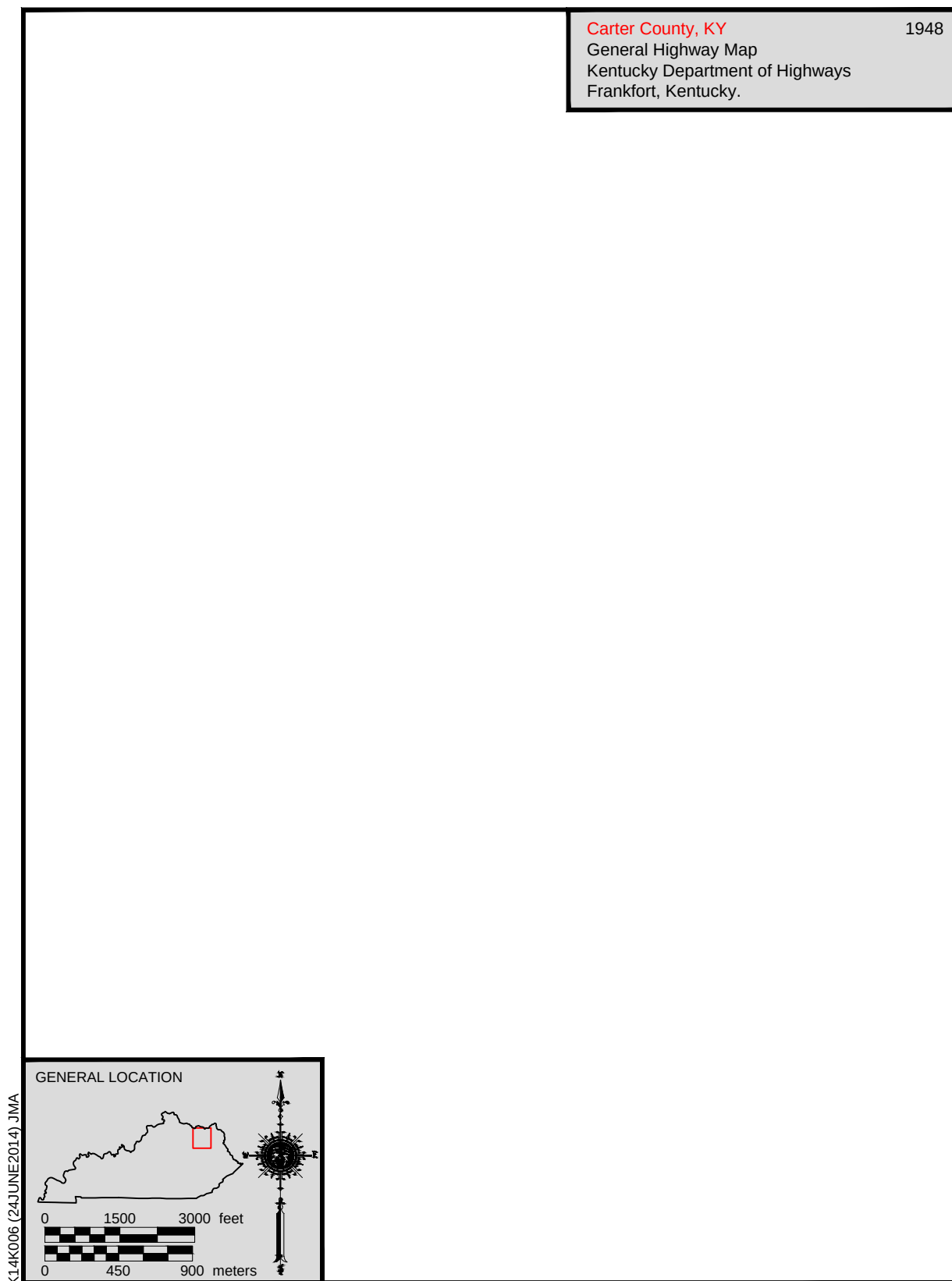


Figure 15. Section of historic map from 1948 (USGS) showing MS 1–5.

Wesleyville, KY

1950

USGS 7.5 minute series topographic  
quadrangle. United States Department of the  
Interior, United States Geological Survey.

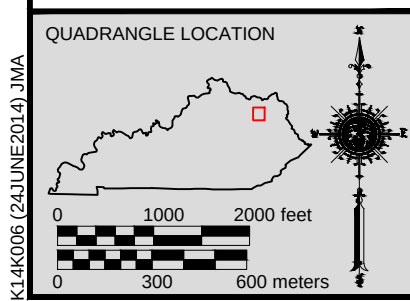


Figure 16. Section of historic map from 1950 (KDOH) showing MS 1, 2, 4, and 5.

## The Paleoindian Period (11,050–8000 B.C.)

The Paleoindian period is the earliest cultural period conclusively documented in Kentucky. The arrival of humans in the region was probably linked to the movements of the Pleistocene glaciers. During the Paleoindian period, the last of these glacial advances and retreats, called the Greatlakean Stadial (post-9900 B.C.), occurred.

Distinctive lanceolate, often fluted, hafted bifaces called “Clovis” are the hallmark of the early part of the Paleoindian period (Maggard and Stackelbeck 2008). Unifacially and bifacially chipped tools, such as knives, scrapers, spokeshaves, drills, graters, and endscrapers with spurs, have also been recovered. Archaeologists infer that artifacts and tools of wood, bone, and shell were also used, although they were rarely preserved. While a number of archaeologists have argued that Paleoindians were predominately big game hunters (e.g., Bonnicksen et al. 1987; Kelly and Todd 1988; Stoltman and Baerreis 1983), more recent review of the topic (Meltzer 1993) concluded that there is no widespread evidence for the specialized hunting of big game species (i.e., megafauna). Several authors (e.g., Davis 1993; Dincauze 1993; Meltzer 1993) now argue that the Paleoindian diet was more generalized and relied on a number of faunal and floral species. Megafauna would have been taken when encountered, but not to the exclusion of other species. Such indications of exploitation of megafauna in Kentucky are present at the Adams mastodon site in Harrison County, Kentucky. Here, the remains of a single mastodon with cut marks on the bones were found in association with large limestone slabs. The configuration of the skeletal remains, in addition to the above evidence, has been interpreted as representative of a possible butchering site (Duffield and Boisvert 1983; Walters 1988).

According to Freeman et al. (1996:402), most Paleoindian sites in Kentucky “represent short, ephemeral occupations that occur in

shallow, deflated, or severely disturbed deposits” and larger sites are in “areas that provide high-quality lithic raw material, or topographic features or resources that would have attracted and concentrated game.” Away from lithic source areas, for example, larger sites often “occur in association with ponded or slow-moving water, at stream confluences and fords, along major game trails, and at mineral springs” (Freeman et al. 1996:402).

With the retreat of the glaciers, the Transitional Paleoindian/Early Archaic sites of the Dalton culture are slightly more numerous than the earlier Paleoindian sites. Sites dating to this period show many resemblances to those with Paleoindian material (i.e., lanceolate projectile point knives, uniface tools) and those reflecting Early Archaic lifeways (i.e., more diverse subsistence, the introduction of many bifacial tool forms, and several types of sites). Morse (1973) has described two basic kinds of Dalton sites: base settlements and butchering camps. In addition, the first systematic use of rockshelters is seen during the Dalton period (Walthall 1998). Hunting remained important; however, there is evidence for the use of wild plants (fruits and nuts) as a dietary supplement during Dalton times.

## The Archaic Period (8000–1000 B.C.)

The Archaic period includes a long span of time during which important cultural changes took place. These manifestations probably occurred in response to environmental changes that took place at the close of the Pleistocene epoch (Anderson 2001). The Archaic period is customarily divided into three subperiods: Early (8000–6000 B.C.), Middle (6000–4000 B.C.), and Late (4000–1000 B.C.).

### *Early Archaic (8000–6000 B.C.)*

Except for the adoption of new hafted biface styles, Early Archaic tool kits are nearly identical to Paleoindian. The fact that these hafted biface styles are found over a very large area suggests that little regional subsistence

diversity occurred during the Early Archaic subperiod. Subsistence strategies are thought to have been similar to those employed by Paleoindian peoples, although a greater variety of game was hunted. The scarcity of tools associated with the preparation of plant foods and fishing in the early part of the Archaic period indicates that hunting was probably still the major subsistence activity (Dragoo 1976:11). Archaeological investigations at a number of deeply buried sites in the Southeast, such as the Longworth-Gick site near Louisville, Kentucky (Collins 1979), have provided important information about Archaic lifeways and their changes through time.

### *Middle Archaic (6000–4000 B.C.)*

The climate during the Middle Archaic subperiod was dryer and warmer than the modern environment. Increasing regionalization of artifact assemblages, with the addition of new artifact classes and hafted biface styles, implies the development of extensive resource exploitation strategies. The Middle Archaic is marked by the introduction of groundstone artifacts manufactured through pecking, grinding, and polishing. A number of these groundstone tools (e.g., manos, mortars and pestles, and nutting stones) are interpreted as plant food processing artifacts and indicate an increasing utilization of plant foods during the Middle Archaic subperiod (Jefferies 2008:203–206).

New hafted biface styles appeared during this subperiod. Stemmed, side-notched, and corner-notched points and a variety of bone tools, including antler hafted bifaces, fishhooks, and gouges, suggest an improved efficiency in exploiting local resources. Middle Archaic sites tend to contain larger accumulations of materials than those of earlier periods, “suggesting increasing group size and either increased sedentism or carefully scheduled seasonal reoccupation of selected locations” (Cohen 1977:191). Chapman (1975) has suggested that hafted bifaces were probably used in conjunction with the atlatl, a device that increases the distance and accuracy of a spear throw. The recovery in Middle Archaic contexts of bone

and groundstone objects (bannerstones) interpreted as atlatl weights tends to support his suggestion (cf., Neuman 1967:36–53). Certain classes of chipped stone tool artifacts, such as scrapers, unifaces, drills, and gouges, indicate a continuation of their importance from the Paleoindian period.

### *Late Archaic (4000–1000 B.C.)*

The Late Archaic subperiod was a time of continued cultural expansion and growing complexity. Dragoo (1976:12–15) has discussed several Late Archaic traditions for the Eastern Woodlands. Their distinctiveness stems from varied regional responses reflected in material culture. Straight-stemmed, basal-notched, or contracted-base hafted bifaces characterize the Late Archaic subperiod. Judging from the greater number of Late Archaic sites that have been recorded, an increase in population can be postulated. In some cases, evidence of longer and more intensive site occupation suggests extended habitation within an area.

Population increase and, in some parts of Kentucky, evidence of an increase in mortuary ceremonialism have led some to suggest that a more complex social organization was developing in some areas of the eastern United States. Along the Green River in west-central Kentucky, large shell-mound sites, such as Chiggerville (Webb and Haag 1939), Indian Knoll (Webb 1946), and Carlston Annis (Webb 1950), contain hundreds of human burials and evidence of complex mortuary practices and a rich ceremonial life. The development of interregional trading networks is indicated by the recovery of copper, marine shell, and other nonlocal artifacts from Late Archaic burials (Winters 1968), which testify to the growing complexity of burial ritual and the interaction of many groups (Dragoo 1976:17).

The appearance of cultigens in Late Archaic contexts has been interpreted as evidence of early plant domestication and of use of these plants as subsistence resources. Early cultigens have been documented at such sites as Koster in central Illinois (Brown 1977:168), the Carlston Annis and Bowles

sites along the Green River in west-central Kentucky (Marquardt and Watson 1976:17), and Cloudsplitter shelter in Menifee County (Cowan et al. 1981). Two plant complexes were domesticated towards the end of the Archaic: non-native plants (e.g., squash and gourd) and native plants (e.g., chenopodium, marsh elder, sunflower) (Struever and Vickery 1973). Watson (1985) views these plants as two different groups of cultigens—the East Mexican Agricultural Complex and the Eastern United States Agricultural Complex. The first includes squash (*Cucurbita pepo*), bottle gourd (*Legenaria siceraria*), and maize (*Zea mays*). The latter includes sunflower (*Helianthus annus*), sumpweed (*Iva annua*), chenopod (*Chenopodium* sp.), maygrass (*Phalaris* sp.), and knotweed (*Polygonum* sp.). Watson, like Struever and Vickery (1973), suggests that corn, squash, and bottle gourd were domesticated in Mexico and imported into the eastern United States by way of the Gulf of Mexico before being transported up the Mississippi River and its tributaries. Cowan et al. (1981:71), however, suggest that squash may “have evolved in situ from some distinctive North American stock” (Cowan et al. 1981:71). This interpretation seems to be substantiated by more recent investigations conducted throughout the Southeast and Midwest.

A number of hafted biface styles are considered terminal Late Archaic and appear in the Early Woodland subperiod (i.e., from approximately 2000 to 500 B.C.). They usually have been found in contexts without Woodland pottery, a situation that leads archaeologists to place them in the Late Archaic rather than the Early Woodland subperiod, which may not be the case.

## The Woodland Period (1000 B.C.–A.D. 1000)

Over the two millennia of the Woodland period, cultures in the region sharply diverged from their Archaic beginnings. Kentucky shared in this development, which produced in burial mounds and earthwork enclosures some of the more notable prehistoric monuments in

the area. Alongside this development came the intensification of plant domestication, the introduction and spread of pottery—first used as specialized containers and later used more widely—and the intensification of trade with distant regions of the Midwest for exotic materials used in personal life, including burial offerings (Applegate 2008).

The Woodland period, like the preceding Archaic period, is divided into three subperiods: Early Woodland (1000–300 B.C.), Middle Woodland (300 B.C.–A.D. 400), and Late Woodland (A.D. 400–1000) (Applegate 2008). Overall, and despite its distinctive features, the period witnessed a continuation and elaboration of many technologies and cultural practices that had begun during the Late Archaic subperiod. Woodland peoples became increasingly dependent on the cultivation of native plant foods, which allowed for a more sedentary lifestyle. Yet, with the exception of the latter part of the Late Woodland subperiod, subsistence practices remained similar to those of the Archaic period (i.e., a combination of hunting, plant food gathering, and fishing in a seasonal round exploitation pattern). But it is within the Woodland period that highly visible site types, such as mounds and enclosures, were constructed (Applegate 2008).

### *Early Woodland (1000–300 B.C.)*

The Early Woodland subperiod is taxonomically separated from the preceding Late Archaic subperiod by the presence of pottery. Pottery vessels possibly first appear in central and eastern Kentucky around 1000–800 B.C. (Creasman 1995; Creasman et al. 1996) and certainly by circa 600 B.C. (Creasman 1995; Creasman et al. 1996; Niquette 1989:124). Ceramic trends in this region of Kentucky generally follow the patterns of technological evolution and elaboration observed elsewhere in the Midwest and Northeast. Most sherds recovered from Early Woodland sites in the region are small and fragmentary. These are generally thick and coarsely tempered. Cordmarked, plain, and fabric impressed surface treatments are common (Applegate

2008:343). In contrast, Kerr (1995) recovered a relatively thin and well-made Early Woodland ceramic from the Main site in Bell County, Kentucky. The pottery is densely tempered with crushed quartzite, and the exterior surface is either plain or cordmarked. Early Woodland sites are most easily recognized by a collection of related stemmed hafted biface types. Plant domestication is evident, with squash, gourd, sunflower, maygrass, sumpweed, and giant ragweed being recovered from Early Woodland sites (Cowan 1985), although their use and cultivation had intensified from the Late Archaic subperiod.

Separate ritual (individual burials, earthen enclosures, and burial mounds) and domestic sites, each with distinctive, possibly regional, characteristics, also appear during this time (Clay 1991, 1998, 2002). Widely scattered domestic sites have been identified on the floodplains along all the major watercourses across Kentucky (Cole et al. 1951; Creasman 1995; Creasman et al. 1996) and in the adjacent uplands (Adovasio 1982; Mocas 1988; Stokes and Shields 1999). Characteristic features of the sites are deep, probable storage pits. There is some evidence for the presence of both permanent and temporary domestic structures (Cole et al. 1951:Plate XXa; Creasman 1995).

In the mountainous region of Kentucky, a rise in the use of natural rockshelters as habitation sites is noticed and may reflect the growing importance of plant cultivation during Early Woodland times. Caves were also extensively used for domestic, extractive (mining of gypsum, mirabilite, and epsomite), and ritualistic (burial and art) purposes during this subperiod, just as they were during the previous Late Archaic subperiod.

### ***Middle Woodland (300 B.C.–A.D. 400)***

The Middle Woodland subperiod is known by its burial mounds, except along the lower Ohio River and in the interior Mississippi Embayment. Major mound excavations have given archaeologists a detailed picture of burial customs during this period (Clay 1986, 1998). Although we have

considerable excavated evidence for burial customs, the settlement system is not well understood (Clay 1998:13–19). Those responsible for the mounds may have been widely dispersed throughout the region in relatively small groups. Seen in this light, the elaborate burial sites (the burial mounds) offered essential foci for scattered groups to meet and interact. There were also small, circular enclosures, called ceremonial circles, and hilltop enclosures. Still, daily domestic sites are very poorly understood, although examples dating to the time period have been found (Kerr and Creasman 1995) and off-mound domestic areas have been identified adjacent to the mounds (Clay 1983). Small open-air domestic sites are increasingly being discovered and investigated (Kerr and Creasman 1995; Niquette and Boedy 1986; Niquette et al. 1987). Although hunting was important in the Middle Woodland subperiod, finds from rockshelters suggest that manipulation of native plants, by this time domesticated, intensified. Despite this change, the additional food supply did not create significant changes in the way people lived (Railey 1996).

For the most part, early Middle Woodland ceramics tend to have plain exterior surfaces, except in the Mississippi Embayment, where fabric marking persists, and the hafted bifaces consist of Adena and other similar stemmed forms (Applegate 2008; Niquette 1989). Late Middle Woodland pots are commonly cordmarked or plain, but small numbers of Hopewellian style simple stamped or checked stamped sherds from this period are also known (Webb 1942). Crosshatched rims and cord-impressed decoration were added to the earlier fabric-impressed surfaces. Late Middle Woodland hafted bifaces are weakly shouldered, expanded, or shallow side-notched forms. Alongside these other changes, a decline in the building of burial mounds was seen during the Middle Woodland (Applegate 2008).

Middle Woodland peoples continued the technologies developed in the Archaic and Early Woodland subperiods; however, there were changes as well. A chert bladelet

industry developed exclusively during the Middle Woodland period. It produced small and sharp chert tools that were used in fine work. In addition, exotic materials—copper, mica, and on rare occasions, obsidian—were obtained through trade from distant sources. These artifacts are typically known from mortuary sites in Kentucky (Applegate 2008:352).

### *Late Woodland (A.D. 400–1000)*

After circa A.D. 400, earthen burial mounds went out of style in the region. The construction and use of earthen or stone enclosures also ceases by approximately A.D. 500. Simpler communal burial sites, generally involving stone constructions or coverings, became widespread, perhaps as a replacement for the mounds (Brown 1981; Clay 1984). The nature of human settlement also changed. Evidence from sites of the subperiod indicates that Native-American groups often returned repeatedly to the same location or congregated in larger groups. However, the possible lack of permanent shelter at these sites suggests that the use of these places was sporadic, possibly seasonal, perhaps still related to certain group ceremonies (Clay 2002:174–182). Rockshelters continued to be used during this subperiod as short-term habitations or temporary hunting locales.

The economy continued to emphasize hunting, gathering, and the utilization of a variety of locally domesticated plants. While maize (i.e., corn) was introduced in the region during the Middle Woodland period, it did not become an important part of the diet until around A.D. 800. The importance of maize is more pronounced in the western portions of Kentucky at this time.

Like the Middle Woodland subperiod, the Late Woodland subperiod is often divided into early and late subdivisions. Early Late Woodland ceramic assemblages are generally cordmarked and are similar to late Middle Woodland assemblages; however, there is usually a lack of Hopewellian style decorated ceramics. Ceramics consist mainly of subconical and subglobular cordmarked jars (Applegate 2008:345–346). Early Late

Woodland hafted bifaces are typically expanding stem or crude side-notched forms.

The late Late Woodland subperiod saw increased regional variability in ceramic styles, subsistence strategies, and social organization (Applegate 2008), although there are distinct continuities expressed in settlement organization (Clay 2002). Ceramics exhibit cordmarked and now some plain surface treatments; some vessels have angular shoulders; and rims display special treatments, like collars, carinations, and castellations. In the lower Ohio River valley and far western Kentucky, necks of vessels exhibit zoned, incised, geometric designs; pan-shaped vessels are present; and red slipping occurs, but only rarely. Late Late Woodland projectile point forms include corner-notched, side-notched, and large triangular forms. Small triangular projectile points appear in artifact assemblages by A.D. 800 and may represent the first appearance of the bow and arrow.

### *Late Prehistoric Period (A.D. 1000–1650)*

In addition to an increase in cultural integration and cultural complexity, the Late Prehistoric period witnessed a rapidly growing dependence upon horticulture in the subsistence activities of native populations. Cultural materials assigned to the Late Prehistoric period include pottery that incorporated mussel shell as tempering material and small triangular projectile points. Some of the pottery is also much more elaborately decorated, has special attributes such as the addition of handles, and increasingly new vessels forms are introduced.

The Late Prehistoric period in far western Kentucky has been associated with Mississippian cultures easily recognized in the Mississippi and Illinois River valleys, although Mississippian influences were seen in a much larger geographic area (Pollack 2008b). The Mississippian period was characterized by chiefdoms and intensive agriculture. Maize (*Zea mays*), beans (*Phaseolus vulgaris*), and squash (*Cucurbita* sp.) were the principal crops. Nevertheless,

hunting and gathering continued to be important (Smith 1978).

Settlements were arranged in a hierarchical manner, were fortified, contained substructure mounds that were either for ceremonial purposes or dwellings for the elite, and were occupied year-round. Mississippian structures were built using wattle and daub construction, and the wall posts were set in trenches. Although there were continuously occupied villages in the settlement system, much of the Mississippian population lived in smaller hamlets and farmsteads scattered up and down the major rivers and secondary streams (Smith 1978). The Upper Cumberland region contains several Mississippian mound centers and smaller hamlets or farmsteads (Pollack 2008b:684–694).

In the middle Ohio River area, a culture with a similar level of development has been called Fort Ancient (Henderson 2008). Subsistence practices of this culture also focused on the cultivation of maize, beans, and squash. This was supplemented with hunting, fishing, and wild plant collecting. Many Fort Ancient villages were circular or elliptical and “exhibit[ed] distinct activity areas that encircle a central plaza: domestic/habitation, storage/trash disposal, and mortuary” (Henderson 2008:745). Some, but not all, of these circular villages were surrounded by a palisade. Unlike Mississippian sites, however, Fort Ancient sites lack large ceremonial centers and earthworks, although some had burial mounds. Large village sites are usually situated in valley bottoms along the main stems of the region’s larger drainages. On the other hand, smaller sites tend to be located throughout tributary drainages and are thought to represent seasonal camps and resource procurement activity stations. Again, rockshelters continued to be used as short-term habitation sites during this subperiod, or at least as temporary hunting locales.

## Protohistoric and Historic Period (A.D. 1650–1800s)

At the beginning of the seventeenth century A.D., Kentucky was populated by

several sedentary Native-American cultural groups (Schwartz 1967). However, the Beaver Wars of the mid-seventeenth century had almost completely disrupted and uprooted these groups by about 1680 (Hunt 1940). Even prior to the Beaver Wars, Native-American residential populations were affected by European diseases and technology through indirect contact with Europeans from the eastern seaboard. Afterwards, the area was used primarily as hunting land, and later the use of the region was reshaped in the wake of shifting fur trade patterns. Resident aboriginal groups were increasingly being displaced by newly arriving Native-American groups as a result of this shifting pattern (Hunter 1978:588).

In the early eighteenth century, Native-American tribes, who we can identify as the Shawnee, were present in most areas of Kentucky, having been pushed westward from the east (i.e., from the Susquehanna drainage of Pennsylvania) by the expansion of European settlement (McConnell 1992:21). Other established tribes in Kentucky at the time include the Cherokee in the Upper Cumberland River valley area and the Chickasaw in the Lower Tennessee and Cumberland River valleys and far western Kentucky. Conflicts between these and other groups in the region lasted through the War of 1812. They were a part of the conflict between the French and British and later the British and the new American colonies (Hammack 1992:928–929; McBride and McBride 2008; O’Donnell 1992:815).

The first Europeans to visit Kentucky included explorers, trappers, traders, and surveyors. It was in the 1750s, when the English Crown attempted to colonize the Ohio Valley, that the first organized attempt to settle Kentucky occurred. This attempt stimulated the formation of land companies that sent surveyors into the area (McBride and McBride 2008:909). One of these, the Ohio Land Company, sent a surveyor into Kentucky in 1751. The French and Indian War that erupted in 1754 disrupted this early exploration (Talbert 1992:689).

In 1763, England's King George III set aside the land west of the Appalachians for Indians and English fur traders and closed the area to permanent settlement. His decree was ignored, however, and further colonial exploration and development could not be stopped. One man who took advantage of the commercial expansion westward was Daniel Boone. Boone first explored Kentucky in 1767, and by 1769, he had explored much of the Red and Kentucky River valleys. Harrodsburg was established soon after in 1774, followed by Boonesboro in 1775. The western movement of the American frontier pushed the Native Americans further and further west, and Kentucky was one of the places where they decided to take a stand. In response, Governor Dunmore (of Virginia) waged two large campaigns in the Ohio Valley (later known as Dunmore's War), and the Native Americans were defeated. Dunmore's War opened Kentucky for settlement, although some hostilities continued after this time (Nickell 1992:96–98; Stone 1992:571).

Kentucky was originally a part of Virginia called the Kentucky District. The Kentucky District contained three counties, Fayette, Lincoln, and Jefferson, which became the Commonwealth of Kentucky on June 1, 1792 (Clark 1992). These three counties were later divided and subdivided into the 120 counties that presently make up the Commonwealth of Kentucky.

## IV. METHODS

This section describes the methods used during the survey. Site-specific field methods are discussed in further detail in the Results section of this report. Laboratory methods are discussed in more detail in the Materials Recovered section of this report.

### Field Methods

The entire project area outside the existing ROW was subjected to screened shovel testing supplemented with pedestrian survey. Shovel testing was initially conducted at 20 m (66 ft) intervals. Once cultural material was

identified, however, this interval was reduced to 10-m (33-ft) intervals to better define the horizontal extent of the cultural deposits.

All shovel test probes (STPs) measured not less than 35 cm in diameter and extended well into subsoil. Shovel tests were excavated in natural levels and all fill removed from the tests was screened through .25-inch mesh hardware cloth. The sidewalls and bottoms were then examined for cultural material and features. All artifacts recovered from STPs were bagged by STP number and soil zone number and the provenience was recorded using a Spectra Precision hand-held GPS unit. Site attributes and geographical features were then recorded on a site schematic.

Pedestrian survey during the current project was restricted to the steeply sloping banks of Jordan Fork. These areas were walked and visually examined for indications of cultural material and features but none were identified.

### Laboratory Methods

All cultural material recovered from the project was transported to CRA for processing and analysis. Initial processing of the recovered artifacts involved washing the artifacts and assigning catalog numbers. Catalog numbers consisted of the site number and a unique number for each provenience lot or diagnostic specimen. Non-diagnostic material, such as flake debris, was cataloged by provenience lot where all flakes in the same provenience received the same number.

The methods, specifics, and results of subsequent analysis are discussed in the Materials Recovered section of this report. All cultural materials, field notes, records, and site photographs will be curated at the University of Kentucky's William S. Webb Museum of Anthropology.

## V. MATERIALS RECOVERED

Prehistoric materials were recovered from one previously unrecorded archaeological site (15Cr270) during the current investigations. The assemblage from Site 15Cr270 is described below. In addition, an inventory of materials recovered from the site is listed by provenience in the Results section of this report.

### Lithic Analysis

*Brian G. DelCastello*

Lithic artifacts were recovered from Site 15Cr270. These artifacts consisted solely of non-diagnostic flake debris, consisting of 7 flakes weighing a total of 3.2 g (Table 2). This total consists of 5 flakes (3.0 g) larger than .25 inch and 2 flakes smaller than .25 inch (.2 g). No cores or modified implements were recovered during the current investigations.

The analysis of flake debris involved the recording of several attributes, including flake size, weight, raw material type, presence of cortex, and probable stage of lithic reduction during which the flake was produced. Reduction stage follows Magne's (1985) definitions and was determined by the number of facets on the platform or the number of flake scars on the dorsal surface. Early stage reduction is defined as core reduction, middle stage as the first half of tool production, and late stage as the second half of tool production and subsequent maintenance. For flakes that retain platforms, zero to one facet on the

platform indicates early stage, two facets indicate middle stage, and three or more facets indicate late stage. Biface thinning is a specialized form of late stage reduction. A biface thinning flake is defined as a flake with a lipped platform having three or more facets. For non-platform bearing flakes, dorsal flake scars were counted instead of platform facets; zero to one dorsal flake scars indicate early stage, two scars middle stage, and three or more flake scars late stage. Stage of reduction was not determined for blocky debris or flakes smaller than .25 inch.

Material type was determined by comparison with a sample collection housed at Cultural Resource Analysts, Inc. All of the flake debris larger than .25 inch from 15Cr270 were made from one of the several varieties of Newman chert, consisting of Newman (n = 4; 2.2 g) and Oolitic Newman (n = 1; .8 g). these raw material resources occur naturally throughout northeastern Kentucky (Gatus 1980). The 2 flakes smaller than .25 inch were not identified according to raw material.

The flakes recovered from 15Cr270 are mostly from middle stage flakes (n = 4). A single early stage flake made from Newman chert was also identified.

Given the small sample size and the limited information gleaned from these flakes, little can be stated with any degree of certainty. Beyond the fact that prehistoric peoples once occupied these landforms, conducting lithic reduction activities, little else can be said. The lack of temporally diagnostic artifacts precludes a determination of the temporal and/or cultural affiliation of this occupation.

Table 2. 15Cr270 Flake Debris.

| Site    | Unit # | Depth (cm bgs) | Count | Wt(g) | Raw Material   | Flake Portion  | Size        | Stage  | Therm Alt | Cortex Type |
|---------|--------|----------------|-------|-------|----------------|----------------|-------------|--------|-----------|-------------|
| 15Cr270 | STP 1  | 0-16           | 1     | 0.8   | Newman         | PRB            | .25-.5 inch | Middle | None      | None        |
| 15Cr270 | STP 1  | 0-16           | 1     | 0.8   | Oolitic Newman | Flake Fragment | .25-.5 inch | Middle | None      | None        |
| 15Cr270 | STP 2  | 0-16           | 1     | 0.5   | Newman         | Flake Fragment | .25-.5 inch | Middle | None      | None        |
| 15Cr270 | STP 3  | 0-20           | 1     | 0.1   | <.25 inch      | <1/4"          | <.25 inch   | -NA-   | -NA-      | -NA-        |
| 15Cr270 | STP 3  | 0-20           | 1     | 0.4   | Newman         | Flake Fragment | .25-.5 inch | Middle | None      | None        |
| 15Cr270 | STP 4  | 0-13           | 1     | 0.5   | Newman         | Complete       | .25-.5 inch | Early  | None      | None        |
| 15Cr270 | STP 5  | 0-15           | 1     | 0.1   | <.25 inch      | <1/4"          | <.25 inch   | -NA-   | -NA-      | -NA-        |

## VI. RESULTS

During the course of the current survey, one previously unrecorded archaeological site (15Cr270) was documented. The site is described below, and its location is depicted in Figures 2 and 3.

### 15Cr270

Elevation: 229 m (750 ft) AMSL

Component(s): Undetermined prehistoric

Site type(s): Open habitation without mounds

Size: 700 sq m (7534 sq ft)

Distance to nearest water: 10 m (33 ft)

Direction to nearest water: North

Type and extent of previous disturbance:  
Plowing, unknown extent

Topography: Floodplain

Vegetation: Pasture and meadow grass

Ground surface visibility: Poor

Aspect: Flat

Recommended NRHP status: Not eligible

### Site Description

Vegetation at Site 15Cr270 consisted of pasture grass, meadow grass, and a variety of weeds. Ground surface visibility was poor

except in disturbed areas within the existing ROW for KY 2 and the intersecting Jordan Fork Road.

### Investigation Methods

Site 15Cr270 was encountered during shovel testing at 20 m (66 ft) intervals. Once cultural material was identified this interval was reduced to 10 m (33 ft) to better define the horizontal extent of the deposits. A total of six screened shovel tests were excavated within the boundaries of Site 15Cr270 (Figure 18), five of which produced cultural material.

All shovel tests (STPs) measured not less than 35 cm in diameter and extended well into subsoil. Shovel tests were excavated in natural levels and all fill removed from the tests was screened through .25-inch mesh hardware cloth. The sidewalls and bottoms were then examined for cultural material and features. All artifacts recovered from STPs were bagged by STP number and soil zone number and the provenience was recorded using a Spectra Precision hand-held GPS unit. Site attributes and geographical features were then recorded on a site schematic.

### Depositional Context

All shovel tests excavated at Site 15Cr270 displayed a shallow, brown (10YR 4/3) sandy loam plow zone with common rounded pebbles to approximately 18 cm (7 in) bgs over a light olive brown (2.5Y 5/4) loamy sand with common rounded pebbles and fine manganese (Mn) nodules to at least 30 cm (12 in) bgs. The presence of an uneven and diffuse boundary between the plow zone and subsoil indicates that these fields have not been plowed in some time. The high sand and gravel content of the soil further indicated that this was a high energy depositional environment which is generally not conducive to the survival of prehistoric deposits. The soils observed during investigations were generally consistent with the Grigsby series soils mapped for this area.



Figure 17. Overview of Site 15Cr270, facing north.

## Artifacts

A total of 7 flakes weighing a total of 3.2 g (Table 3) were recovered from Site 15Cr270. This total included 5 flakes (3.0 g) larger than .25 inch and 2 flakes smaller than .25 inch (.2 g). No cores or modified implements were recovered from the site.

Table 3. Artifacts Recovered from Site 15Cr270 by Provenience.

| Unit # | Depth (cm bgs) | Flakes |
|--------|----------------|--------|
| STP 1  | 0–16           | 2      |
| STP 2  | 0–16           | 1      |
| STP 3  | 0–20           | 2      |
| STP 4  | 0–13           | 1      |
| STP 5  | 0–15           | 1      |

All of the flakes that were larger than .25 inch were made from either Newman (n = 4; 2.2 g) or Oolitic Newman (n = 1; .8 g) chert. Both of these raw materials occur naturally throughout northeastern Kentucky (Gatus

1980). The 2 flakes smaller than .25 inch were not identified according to raw material.

Due to the small sample size, little can be stated with any degree of certainty concerning the prehistoric use of this area beyond the fact that prehistoric peoples once occupied these landforms and conducted lithic reduction activities. The lack of temporally diagnostic artifacts precludes a determination of the temporal and/or cultural affiliation of this occupation.

## Features

No evidence of features was observed during the investigations at Site 15Cr270. No fire-cracked-rock (FCR), charcoal, or burned soil was observed in any of the shovel tests.

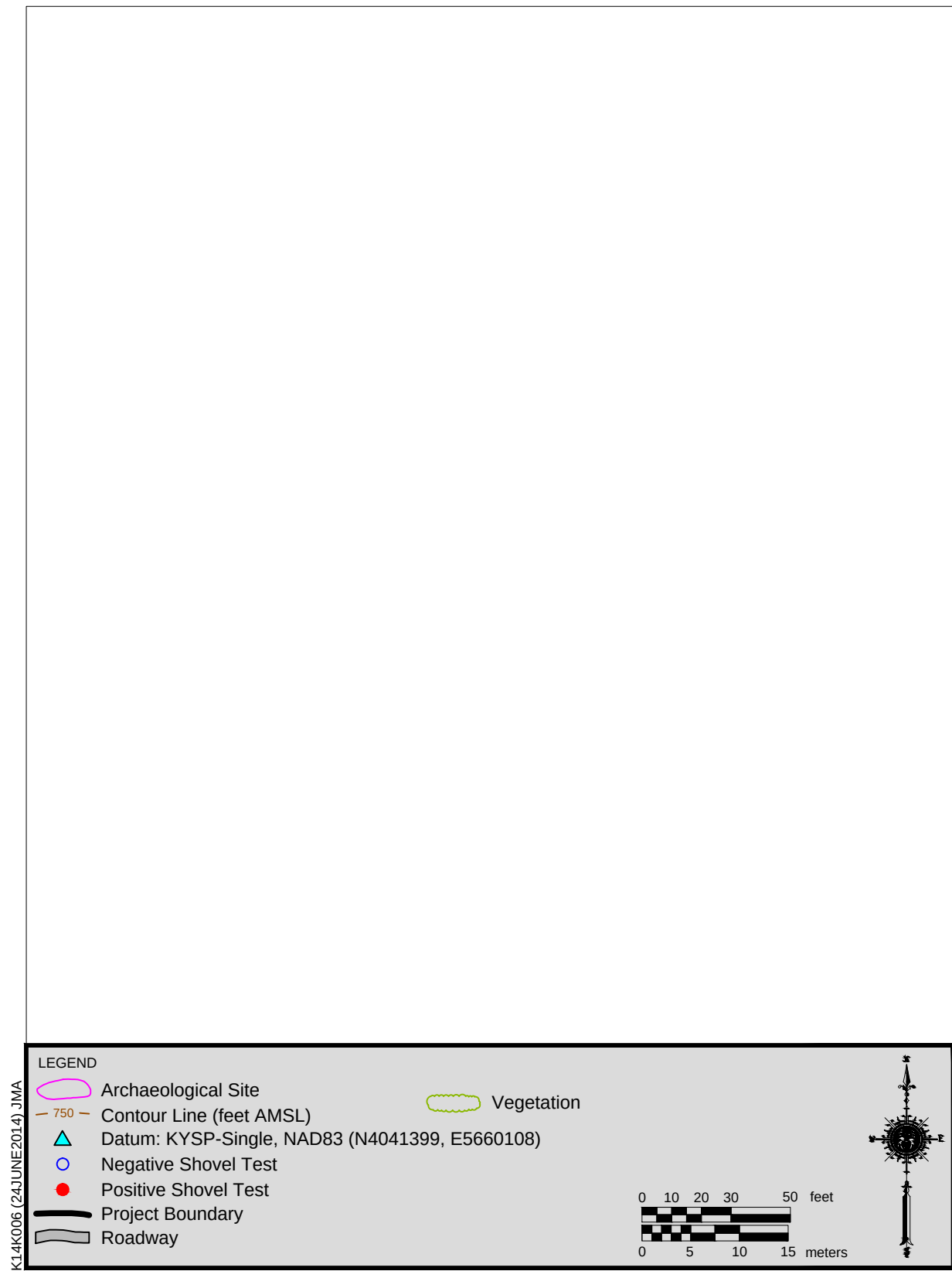


Figure 18. Schematic plan map of Site 15Cr270.

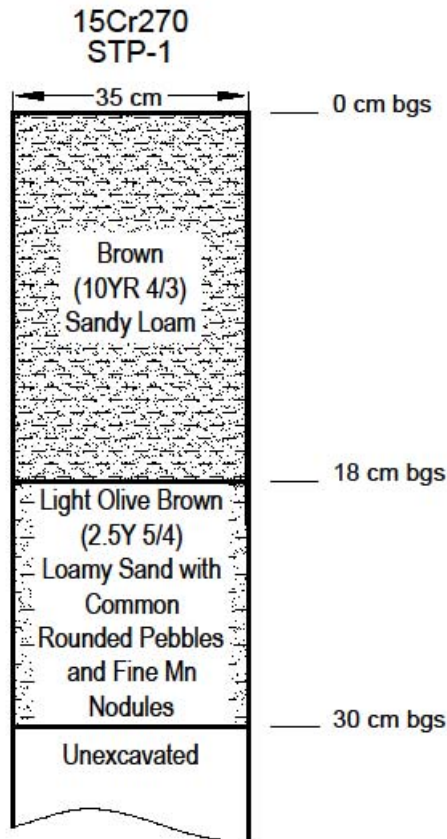


Figure 19. Representative soil profile from Site 15Cr270.

## Summary and National Register Evaluation

Site 15Cr270 was a prehistoric open habitation site represented by a very light density of undiagnostic lithic debitage recovered from the plow zone in five shovel tests. The low density of the materials and the lack of evidence for any sub-plow zone deposits or features indicate that the portion of Site 15Cr270 that occurs within the project boundaries has little research value. Additional work at Site 15Cr270 as defined within the current project boundaries would not be expected to yield information beyond that already recovered. For these reasons, this portion of Site 15Cr270 is recommended as not eligible for inclusion in the NRHP and no further work is recommended.

## VII. CONCLUSIONS, RECOMMENDATIONS, AND TREATMENT

Note that a principal investigator or field archaeologist cannot grant clearance to a project. Although the decision to grant or withhold clearance is based, at least in part, on the recommendations made by the field investigator, clearance may be obtained only through an administrative decision made by the Federal Highway Administration and KYTC, Division of Environmental Analysis, in consultation with the State Historic Preservation Office (the KHC).

The current project consisted of an archaeological survey of the proposed Kentucky State Highway 2 bridge replacement over Jordan Fork in Carter County, Kentucky (Item No. 9-1083.00). The project area consisted of approximately .1 ha (.3 acres), located on both banks of Jordan Fork and on both sides of the existing bridge. The field investigations identified one previously unrecorded archaeological site (15Cr270). Site 15Cr270 was a prehistoric open habitation represented by a very light density of undiagnostic lithic debitage. The recovered artifacts derived entirely from plow zone / topsoil contexts and no evidence of intact prehistoric features or deposits was identified. For these reasons, Site 15Cr270 is recommended as not eligible for inclusion in the NRHP and no further work is recommended. As no sites listed in or eligible for inclusion in the NRHP will be affected by the proposed bridge replacement project, archaeological clearance is recommended.

If any previously unrecorded archaeological materials are encountered during construction activities, the KHC should be notified immediately at (502) 564-6662. If human skeletal material is discovered, construction activities should cease, and the KHC, the local coroner, and the local law enforcement agency must be notified, as described in KRS 72.020.

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