



University of Kentucky
UKnowledge

University of Kentucky Master's Theses

Graduate School

2001

DIVERSITY IN HUNTER-GATHERER LANDSCAPES IN THE NORTH AMERICAN MIDCONTINENT

Victor Dominic Thompson
University of Kentucky

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Thompson, Victor Dominic, "DIVERSITY IN HUNTER-GATHERER LANDSCAPES IN THE NORTH AMERICAN MIDCONTINENT" (2001). *University of Kentucky Master's Theses*. 186.
https://uknowledge.uky.edu/gradschool_theses/186

This Thesis is brought to you for free and open access by the Graduate School at UKnowledge. It has been accepted for inclusion in University of Kentucky Master's Theses by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

ABSTRACT OF THESIS

DIVERSITY IN HUNTER-GATHERER LANDSCAPES IN THE NORTH AMERICAN MIDCONTINENT

The thesis examines changes in hunter-gatherer land-use along lower Cypress Creek, a tributary of the Green River located in west-central Kentucky. Presented, are the results of the first three years of site survey and museum work conducted by the Cypress Creek Archaeological Project. Analysis of site location and hafted bifaces suggests that, throughout the Holocene, increasing emphasis was placed on certain locations and areas of the landscape. Comparison of the Cypress Creek study area with other areas of Archaic research indicate that land-use was highly variable in both space and time across the North American midcontinent.

KEYWORDS: Archaic, Hunter-Gatherer, Landscape, Archaeology, Green River

Victor Dominic Thompson

11-08-2001

DIVERSITY IN HUNTER-GATHERER LANDSCAPES
IN THE NORTH AMERICAN MIDCONTINENT

By

Victor Dominic Thompson

Dr. Richard Jefferies

Director of Thesis

Dr. Mary Anglin

Director of Graduate Studies

11-8-2001

RULES FOR THE USE OF THESES

Unpublished theses submitted for the Master's degree and deposited in the University of Kentucky Library are as a Rule open for inspection, but are to be used only with due regard to the rights of the authors. Bibliographical references may be noted, but quotations or summaries of parts may be published only with the permission of the author, and with the usual scholarly acknowledgments.

Extensive copying or publication of the thesis in whole or in part also requires the consent of the Dean of Graduate School of the University of Kentucky.

THESIS

Victor Dominic Thompson

The Graduate School

University of Kentucky

2001

DIVERSITY IN HUNTER-GATHERER LANDSCAPES
IN THE NORTH AMERICAN MIDCONTINENT

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Arts in the
College of Arts and Sciences
at the University of Kentucky

By

Victor Dominic Thompson

Lexington, Kentucky

Director: Dr. Richard Jefferies, Professor of Anthropology

Lexington, Kentucky

2001

This work is dedicated to Sarah Dorroh and Marie Thompson.

ACKNOWLEDGEMENTS

First and foremost, I am indebted to Dr. Richard Jefferies, the chair of my thesis committee. Without his guidance and support, this work would not have been possible. I am also extremely grateful to my other two committee members, Dr. Chris Pool and Dr. Tom Dillehay. Both were always willing to take time out of their already busy schedules to speak with me and provide comments on my thesis. These individuals represent the type of scholarship to which I aspire.

This project was part of the larger Cypress Creek Archaeological Project (CCAP), directed by Dr. Richard Jefferies and Dr. George Milner, and funded by the Kentucky Heritage Council. I would like to thank them for allowing me to participate and use the data collected from the CCAP survey work for my thesis. In addition, Dr. Milner also provided valuable insights and comments during the course of the fieldwork.

Several colleagues and friends helped me during the course of this thesis. I would like to thank, in no particular order, Ricardo Fernandez de Vega and his son Arturo, Wes Stoner, Kary Stackelbeck, Scott Hammerstead, John Arnn, Dr. Jim Fenton, Dr. George Crothers, Ed Winkle, Philip Mink, and Nancy O'Malley. I would also like to thank the faculty at the Department of Anthropology and my fellow graduate students for challenging me throughout my time at the University of Kentucky. In addition, I am grateful to all the landowners of McLean and Muhlenberg counties, who generously allowed us to walk their fields in search of prehistory.

Special thanks goes to my family, who have always supported my choice to become an anthropologist. I could not have done it without them. Finally, I would like to thank my wife, Sarah Dorroh, who walked plowed fields in the heat, read drafts of earlier work, and provided the love that has kept me going all this time.

This work could not have been completed without the help of these people, as well as those whom I have forgotten to name. While many people aided in the completion of this thesis, I take full responsibility for all mistakes and errors that lie herein.

TABLE OF CONTENTS

Acknowledgments	iii
List of Tables	vi
List of Figures	vii
CHAPTER 1: ANTHROPOLOGY AND ARCHAIC HUNTER-GATHERERS	1
Hunters and Gatherers in Anthropology and Archaeology	1
Research Problem	2
Archaic Hunter-Gatherers	5
The Archaic Period	5
Why do Research on the Archaic in the Green River Area	7
Organization of the Thesis	9
CHAPTER 2: HUNTER-GATHERER LANDSCAPES	11
Landmarks, Landscapes, and Hunter-Gatherers	12
Integrating Landmarks and Landscapes	14
The Preservation of Landmarks and Landscape in the Archaeological Record ..	15
Archaic Landmarks and Landscapes in the North American Midcontinent	16
Archaic Landmarks in the North American Midcontinent: Reuse and Reoccupation in Time and Space	17
Looking at Archaic Landscapes in the North American Midcontinent	20
Explanations for the Use of Landscape: Continuity and Change	21
Summary and Conclusions: Living in the Archaic Landscape	24
CHAPTER 3: A HISTORY OF ARCHAEOLOGICAL RESEARCH ON THE GREEN RIVER	26
Previous Archaeological Research on the Green River	26
Moore and the Gopher	26
The Age of Webb	27
The “New” Generation	32
A Brave New Project: the Shell Mound Archaic Project (SMAP)	35
Sacred Place or Just Another Pile of Shell?: The Shell Burial Mound Question.	37
Beyond the Green River Archaic	40
CHAPTER 4: ENVIRONMENTAL SETTING OF THE CYPRESS CREEK REGION.	41
Regional Environmental Context and Holocene Conditions	41
Environment of the Cypress Creek Region of Kentucky	43
Soils	46
Climate	47

Formation history of the lowland soils	48
Paleoecology	52
Summary and Conclusions	57
CHAPTER 5: CYPRESS CREEK ARCHAEOLOGICAL PROJECT INVESTIGATIONS, SCENARIOS, AND SURVEY METHODOLOGY	58
Previous Investigations and the Cypress Creek Archaeological Project	58
The Cypress Creek Landscape: Scenarios and Archaeological Implications	61
Scenarios	61
Methods	62
Analysis of Previously Recorded Sites	63
Resource Zones	65
General Survey Methodology	69
CCAP Sites and Artifacts	70
Geographic Information Systems (GIS) and Statistical Analysis of Region and Site Data	74
Summary	76
CHAPTER 6: ARCHAEOLOGY OF THE CYPRESS CREEK RESEARCH AREA	78
Archaic Period Sites in the Cypress Creek Project Area	78
General Distribution of Sites	78
Archaic Site Components: General Trends	84
Site Distribution by Archaic Subperiod	90
Hafted Biface Analysis	99
Archaic Hafted Bifaces: General Trends	100
Archaic Hafted Biface Distributions	101
Distance Analysis for Sites and Bifaces	106
Analysis of Excavated Sites	113
Evaluation of Scenarios	122
The Dalton and Early Archaic	122
The Middle Archaic	123
The Late Archaic	124
Living in Space: Discussion of the CCAP Archaic Landscape	124
Hunter-Gatherers of Cypress Creek and the Green River Valley	126
Summary	128
CHAPTER 7: DIVERSITY IN HUNTER-GATHERER LANDSCAPES	130
Changing Landscapes during the Archaic Period	130
Conclusions	133
References	135
Vita	152

LIST OF TABLES

Table 2.1, Summary of Midcontinent sites.....	19
Table 3.1, WPA excavated Archaic sites in Bulter, McLean, Muhlenberg and Ohio counties.....	31
Table 3.2, Winters functional assignments of Green River Archaic sites.....	34
Table 4.1, Description of upland and lowland soil series.....	47
Table 4.2, Holocene tree species and habitat.....	53
Table 4.3, Important faunal species and dominant habitat.....	55
Table 5.1, Distance of known Green River shell middens to the Green River.....	67
Table 5.2, Resource zones area and percentage of the project area.....	69
Table 5.3, CCAP diagnostic biface types.....	72
Table 6.1, Site distributions and coverage data by survey strata.....	81
Table 6.2, Intensively occupied sites in the CCAP project area.....	82
Table 6.3, Site distributions by resource zone.....	82
Table 6.4, Summary of Archaic components for sites in the study area.....	85
Table 6.5, Single and multi-component sites in the CCAP project area.....	87
Table 6.6, Dalton and Early Archaic sites in each survey zone.....	92
Table 6.7, Sites with Dalton and Early Archaic components.....	92
Table 6.8, Middle Archaic sites in each survey zone.....	95
Table 6.9, Sites with Middle Archaic components.....	95
Table 6.10, Late Archaic sites in each survey zone.....	98
Table 6.11, Sites with Late Archaic components.....	98
Table 6.12, Summary of bifaces by Archaic subperiod.....	100
Table 6.13, Number of Archaic hafted bifaces at each site in the CCAP project area.....	101
Table 6.14, Total number of bifaces in each zone.....	103
Table 6.15, Dalton and Early Archaic hafted bifaces in each survey zone.....	104
Table 6.16, Middle Archaic hafted bifaces in each survey zone.....	105
Table 6.17, Late Archaic hafted bifaces in each survey zone.....	106
Table 6.18, Summary of excavated sites in the CCAP project area.....	121

LIST OF FIGURES

Figure 1.1, Location of the Cypress Creek Archaeological Project (CCAP)in McLean and Muhlenburg Counties, Kentucky.....	4
Figure 2.1, Location of Archaic period investigations mentioned in the chapter.....	18
Figure 3.1, Sites in Butler, McLean, Muhlenberg, and Ohio counties, Kentucky excavated by WPA archaeologists.....	29
Figure 4.1, Location of CCAP project area and physiographic regions of Kentucky.....	44
Figure 4.2, Topographic setting of the Cypress Creek project area.....	45
Figure 4.3, 1909 Madisonville quadrangle topographic map of project area showing Cypress Creek prior to channelization (U.S. Geological Survey (1909)).....	50
Figure 4.4, Environmental features of the Cypress Creek project ara.....	51
Figure 4.5, CCAP project area resource zones.....	56
Figure 5.1, CCAP project area resource zones.....	66
Figure 6.1, Archaic sites in the CCAP project area.....	79
Figure 6.2, Location of areas surveyed in the CCAP project area.....	80
Figure 6.3, Location of intensively occupied sites in the CCAP project area.....	83
Figure 6.4, Frequency of components by Archaic subperiod.....	85
Figure 6.5, Number of sites per 1000 years.....	86
Figure 6.6, Frequency of single and multi-component sites.....	88
Figure 6.7, Single and multi-component sites in the CCAP project area.....	89
Figure 6.8, Distribution of Early Archaic sites.....	91
Figure 6.9, Distribution of Middle Archaic sites.....	94
Figure 6.10, Distribution of Late Archaic sites.....	97
Figure 6.11, Number of hafted bifaces per 1000 years.....	100
Figure 6.12, Percentage of sites to wetland resources.....	109
Figure 6.13, Percentage of sites located in surveyed areas to wetland resources.....	110
Figure 6.14, Percentage of Archaic bifaces to wetland resources.....	111
Figure 6.15, Percentage of Archaic bifaces located in surveyed areas to wetland resources.....	112
Figure 6.16, Location of WPA excavated sites in the CCAP project area.....	114
Figure 6.17, View of the Ward site (15McL11) excavations (courtesy of the W.S. Webb Museum of Anthropology).....	117
Figure 6.18, View of the Butterfield site (15McL7) shell midden (courtesy of the W.S. Webb Museum of Anthropology).....	117

CHAPTER 1: ANTHROPOLOGY AND ARCHAIC HUNTER-GATHERERS

Hunters and Gatherers in Anthropology and Archaeology

Research on hunter-gatherer societies has been a major focus in anthropology since its inception (Kelly 1995:1; Boas 1888, 1907; Drucker 1939). From ethnographic investigations (Lee 1979; Turnbull 1961; Lee and Daly 2000) and archaeological studies (Bettinger 1991; Price and Brown 1985; Sassaman and Anderson 1996; Brown and Phillips 1983), to the ethnoarchaeological work of researchers such as John Yellen (1977) and Lewis Binford (1978, 1980, 1981), studies of hunter-gatherers have focused on economic, political and ecological aspects of foraging communities and are undertaken by individuals who are affiliated with different sub-disciplines in anthropology as well as different theoretical orientations.

One of the main reasons for so much interest in hunter-gatherers may be related to the view that hunter-gatherer societies offer insights into the basis of “fundamental institutions in an original human society” (Riches 1982:208). Anthropologists realize that no modern hunter-gatherers are equivalent to past ones. However, many would argue that the conditions of modern hunter-gatherers (mobility and foraging) are similar to the conditions under which past groups developed (Kelly 1995:334).

If it is true that studying such groups lends insight into the origins and development of institutions in human society (such as inequality, sedentism, etc.), then it is important that both contemporary and prehistoric hunter-gatherers be the focus of study. Each offers a different viewpoint into the organizational structure and history of hunter-gatherers. For example, studies of contemporary groups are better able to address such things as ideological concepts and other cognitive aspects of hunter-gatherer life ways. In contrast, archaeological studies of prehistoric groups are able to examine the long term changes experienced by hunter-gatherers. Such studies illustrate the variety of ways these societies develop and change.

In recent years, anthropologists and archaeologists have emphasized the variation and complexity in both extant and prehistoric hunting and gathering societies (Lee and Daly 2000; Ingold, Riches, and Woodburn 1988; Lourandos 1998; Price and Brown 1985; Sassaman and

Anderson 1996; Kelly 1995). This new focus on the variation and degree of relative complexity found in foraging societies has led to questions on the differential development of hunters and gatherers and the emergence of new social patterns such as social inequality, long distance exchange, and increased sedentism as well as initial adaptations to new and different environments.

The importance of explaining variation and change within hunter-gatherer societies relates to the larger question of social change. By examining the beginnings, or roots, of social institutions that develop within these societies, we are able to make inferences about the development of larger, more complex groups (Arnold 1996a:1). One way in which we may begin to explore the fundamental basis of these more complex issues is through the examination of how people use and define space (Kent 1987:1). Like most aspects of human behavior, the use of space is patterned (Kent 1987:3; Binford 1983). Therefore, by examining how groups use and define space, archaeologists are able to make inferences about more complex issues such as the ones mentioned in the preceding paragraphs. Landscape archaeology offers one approach that allows archaeologists to explore the use of space by prehistoric people.

This thesis will focus on the changing landscape of Archaic hunter-gatherers. This topic was chosen for two reasons. First, use of the landscape can be examined by the types of data available for the Cypress Creek area (e.g., limited excavation data, site location, and chronological placement of sites). Second, by investigating how groups use the landscape we may be able to make predictions or inferences about more complex issues (e.g., territorialism, mobility, etc.). For the remainder of this thesis, the terms space, landscape, and settlement patterns will be used interchangeably. This is done because all of these terms denote changes in hunter-gather land-use.

Research Problem

The purpose of this thesis is to investigate changes in land-use by prehistoric hunter-gatherers during the Archaic period (ca. 10,000-3,000 B.P.) in the Cypress Creek drainage, located in west-central Kentucky. To accomplish this goal, a survey was conducted of the Cypress Creek area, and hafted bifaces from previous surveys and excavations in the project area

were examined and classified. Next, based on environmental data, the survey area was divided up into distinct resource zones. Following this, several scenarios were generated to describe possible land-use strategies. The distribution of sites and hafted bifaces, along with information from excavated sites gathered from published reports, was used to evaluate the differential use of each resource zone. Observations from these analyses were then used to evaluate the different land-use scenarios. Next, land-use in Cypress Creek was related to information on Archaic settlement and land-use in the Green River valley. Finally, the observations for the Green River area were compared to other areas of the North American Midcontinent where considerable work on hunter-gatherer settlement has been conducted. These areas include: southwest Indiana, the lower Tennessee-Cumberland Rivers, southern Illinois, and the central Mississippi River valley. The objective of this approach is to document and assess the variation in hunter-gatherer land-use and its changes throughout the Holocene Epoch (10,000-3,000 B.P.).

This survey was part of the larger Cypress Creek Archaeological Project (CCAP), directed by Dr. Richard Jefferies (University of Kentucky) and Dr. George Milner (Pennsylvania State University). The goal of the project is to understand and document changes in hunter-gatherer life ways and how they relate to different land-use strategies in the Cypress Creek area.

The data presented in this thesis is composed of the sites located during the first three years of the CCAP (1999-2001). In addition, data from previous surveys are included to make the database more robust. In order to produce a more complete view of changes in Archaic settlement for the Green River region, the survey data was then compared with data from large WPA excavated sites along the Green River.

Located in McLean and Muhlenberg counties, Kentucky, the Cypress Creek Archaeological Project (CCAP) study area is bounded by the Green River to the north-east, and uplands that separate the Pond River from Cypress Creek to the south-west (Figure 1.1). Although many of the larger sites in the Green River area have been intensively studied, few formal archaeological surveys have been conducted away from the main course of the Green. This pattern has resulted in a large amount of excavation data with little information on the distribution of sites across the landscape (Jefferies et al. 1999; Hensley 1994). By examining the distribution of Archaic period sites and hafted bifaces, I will be able to investigate diachronic

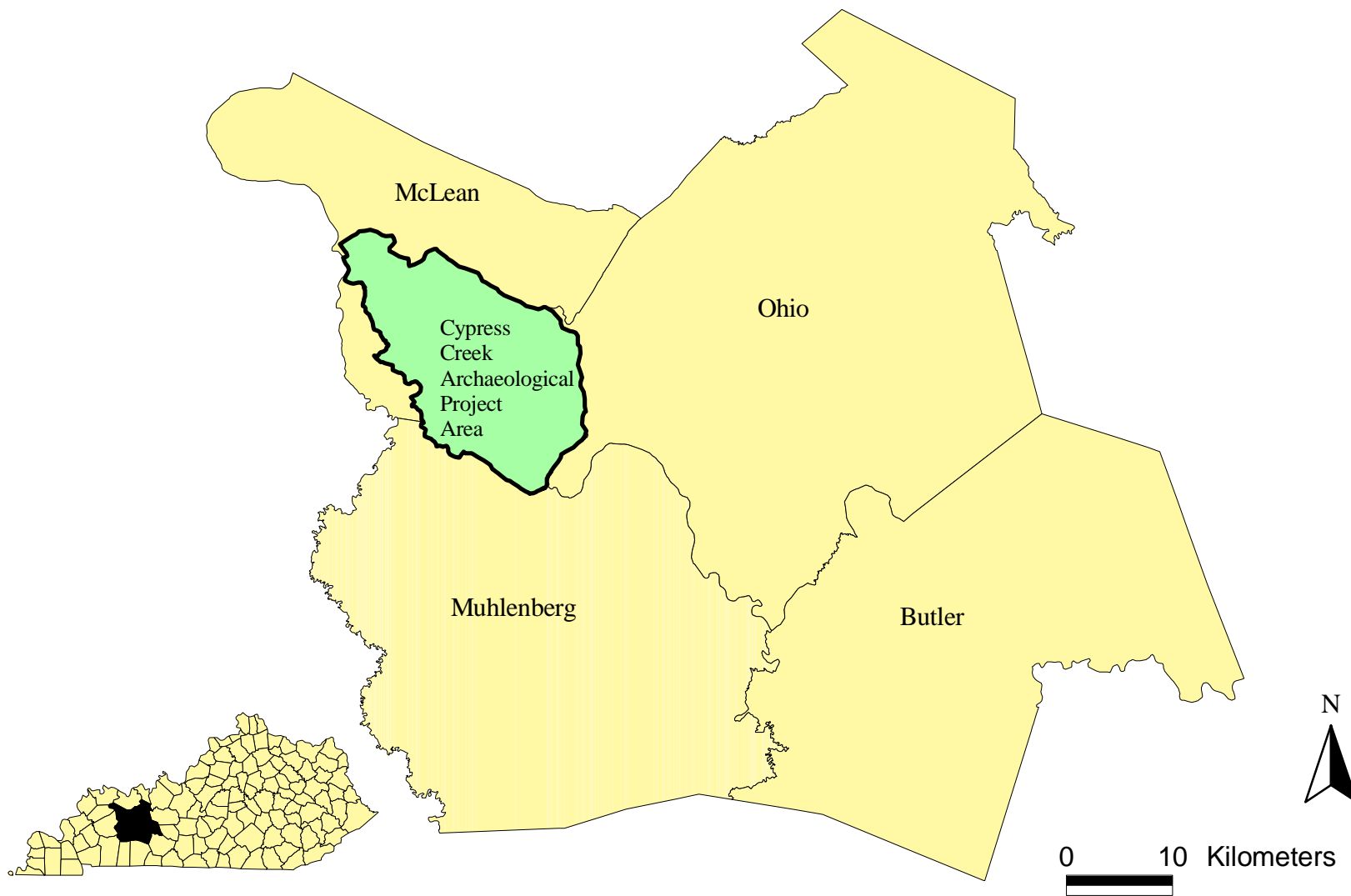


Figure 1.1. Location of Cypress Creek Archaeological Project (CCAP) in McLean and Muhlenberg Counties, Kentucky.

changes in hunter-gatherer settlement and landscape use for this period in the Cypress Creek drainage (see Stafford 1994). Hafted bifaces were chosen as the subject of study because they are effective chronological markers and are thought to reflect human activity across the landscape.

There are three main reasons why it was important to conduct the Cypress Creek survey to examine variation in hunter-gatherer land-use in the Midcontinent. First, the Green River area has contributed a vast body of information on Archaic hunter-gatherers (Jefferies 1988a). Second, without survey data away from the river, our view of settlement in the Green River area is biased toward only the large, well known sites. Third, in order to compare the Cypress Creek project area with other regions, similar investigations needed to be conducted in each area. While both archaeological survey and excavation had been carried out in the comparison areas, Cypress Creek lacked the large scale archaeological surveys needed to make comparisons comparable.

Before moving on to the next chapter, it is necessary to provide a brief overview of the Archaic period to supply the reader with a general knowledge of what is known archaeologically about this period. In addition, it is important to relate why research in the Cypress Creek/Green River area will aid in our understanding of Archaic hunter-gatherers.

Archaic Hunter-Gatherers

The Archaic Period

First used by William Ritchie (1932) to describe artifacts from the Lamoka Lake site in New York state, the term “Archaic” was used to denote a period of time based on hunting and gathering and lacking pottery and horticulture (Griffin 1952; Phillips 1983; Jefferies 1995a). The Archaic Period is the longest cultural tradition in the eastern woodlands—lasting 7000 years (ca. 10,000 to 3,000 B.P.). Due to its length, the Archaic Period is commonly divided into three subperiods: the Early Archaic (ca. 10,000-8,000 B.P.); the Middle Archaic (ca. 8,000- 5,000 B.P.); and the Late Archaic (ca. 5,000-3,000 B.P.). It is generally accepted that the Archaic Period coincides with the onset of modern climatic conditions during what is known as the Holocene (Bense 1994). The Holocene, the current interglacial stage, marks the end of the

Pleistocene glacial conditions (Bense 1994:21) and the development of warmer conditions (Wilkins et al. 1991).

During the Archaic Period, the North American Midcontinent was inhabited by people who followed a hunting and gathering way of life. This reliance on a hunting and gathering economy continued to dominate throughout the Archaic; however, the way in which people practiced this way of life varied from region to region as well as through time.

During the Early Archaic, populations expanded across the landscape. In general, during this time people lived in small bands hunting and gathering over large territories (Jefferies 1996b:40). Due to the position of sites across the landscape (as indicated by the widespread distribution of corner and basal notched points), it appears that Early Archaic people followed a highly mobile foraging lifestyle. This foraging pattern is evident by the lack of middens, features, and burials at most Early Archaic sites (Bense 1994; Jefferies 1996a; Muller 1986). Archaeological evidence suggests that most camps were used only for a short period of time indicating a high degree of mobility (Bense 1994; Jefferies 1996a; Muller 1982).

The way of life established in the Early Archaic continued into the early Middle Archaic (ca. 8,000-6,500 B.P.). At the beginning of the late Middle Archaic (ca. 6,500-5,000 B.P.), Archaic peoples became more socially complex and began to organize themselves differently than before. This is reflected in their use of the landscape, reliance on certain resources, as well as the development of a host of new technologies and the expansion of this material culture inventory. In some areas, during this time there is a reorganization of settlement which reflects increased sedentism around specific environmental resources such as food rich wetlands (Brown and Vierra 1983; Brown 1985; Jefferies 1982,1996b). It is also during this time that archaeologists have identified the development of intergroup exchange relationships (Jefferies 1995b,1996a,1997; Johnson and Brooks 1989).

Coinciding with changes in hunter-gatherer settlement organization during the late Middle Archaic is the Hypsithermal Climatic interval. The Hypsithermal Climatic interval denotes a significant climatic change in Eastern North America. During this period, the climate became warmer and dryer affecting the distribution of both animal and plant populations (Lopinot 1982). Archaeologists have hypothesized that this climate change was one of the main

catalysts for the reorganization of settlement during the late Middle Archaic (Brown and Vierra 1983; Cook 1976; Jefferies 1982; Nance 1988; Stafford 1994). Some suggest that rich, slack-water areas which developed during this time acted as a “pull” on populations to settle around these areas (Brown and Vierra 1983). Others argue that changes in the distribution of upland resources influenced populations to utilize valley areas (Stafford 1994).

At present, the exact relationship between environmental change and settlement change during the late Middle Archaic is unknown. More investigations are needed, such as the one conducted for Cypress Creek, so that we may fully evaluate the effects of the Hypsithermal in different regions and areas. The end of the Hypsithermal marks the end of the Middle Archaic and the beginning of the Late Archaic. During this time, we see changes and continuity in Archaic settlement as the climate returns once again to wetter, cooler conditions.

Settlement systems during the Late Archaic continued to exhibit evidence for increasing sedentism; however, some areas in which sedentism earlier took hold returned to a more mobile lifestyle. For example, in the Carrier Mills Archaeological District, located along the Saline River in southern Illinois, evidence for increasing sedentism is found at the Black Earth site during the late Middle Archaic (Jefferies 1983; Jefferies and Lynch 1983). However, Late Archaic populations in the Carrier Mills area returned to a more mobile lifestyle. Archaeological evidence for this is indicated by the lack of midden accumulation and less intensive use of the site as well the absence of similar sites in the area that might indicate a shift in population.

The Cypress Creek Archaeological Project (CCAP) is designed to aid in our understanding of changes experienced by Archaic period hunter-gatherers. Through this research, I will be able to provide a general view of shifting land-use strategies that occur throughout the Archaic in the Cypress Creek area. This will provide comparative information for other areas of the North American Midcontinent.

Why do Research on the Archaic in the Green River Area?

The Eastern Woodlands of the United States represents one area in which archaeologists are asking questions about the emergence of greater complexity in foraging societies (Sassaman 1995a; Jefferies 1996a; Brown 1985; Phillips and Brown 1983; Carstens and Watson 1996;

Sassaman and Anderson 1996). Research in this area provides a unique look at hunter gatherers because, unlike contemporary hunter gatherers who live in marginal environments such as the far north and desert areas, the inhabitants of the Eastern Woodlands utilized temperate forest resources. Specifically, investigations of Archaic hunter-gatherer adaptations in the Green River Valley of west-central Kentucky represent one area in which considerable research on foraging societies is currently being conducted (Milner and Jefferies 1998; Watson 1996; Marquardt and Watson 1983; Crothers 1999; Hensley 1994).

Archaic research in the Green River Valley has contributed a large proportion of what archaeologists know about this time period (Hensley 1994; Marquardt and Watson 1983; Marquardt 1985). C. B. Moore (1916) conducted the first excavations in the valley; however, it was not until the late 1930's and early 40's that large scale, systematic investigations were done on Green River Archaic sites. These investigations were conducted by archaeologists working in association with the University of Kentucky's New Deal Archaeology Program (Webb 1946; Webb and Haag 1939). Because this program had to employ many laborers, excavations tended to be located in counties with high unemployment and only focused on the larger sites (Jefferies 1988b; Jefferies et al. 1999). As a result of this focus, the information collected during this time is biased in the sample of known sites, as well as limited in its information on the spatial distribution of sites (Jefferies et al. 1999:1; Hensley 1994).

Interest in the Archaic Period of the Green River Valley has continued to the present with new studies undertaken almost every year (Rolingson 1967; Winters 1968; Stein 1980; Hensley 1994; Marquardt and Watson 1983; Marquardt 1985; Haskins and Herrmann 1996; Milner and Jefferies 1998; Crothers 1999). Despite the wide variety of research interest in this area, studies continue to focus on the large, well-known sites originally identified by the New Deal Archaeologists. Indeed, much of what we know about Archaic life in the Green River region is directly linked to the study of these sites (Jefferies et al. 1999:1).

Despite the recent growth in knowledge about the Green River Archaic, there is still much to be learned (Jefferies 1988a:124). Further investigations are necessary to contextualize these sites within a larger social and environmental setting (Jefferies et al. 1999:1; Hensley 1994:4). While changes in Archaic settlement are well documented for the Green River drainage

(Marquardt 1985; Hensley 1994; Marquardt and Watson 1983), data is lacking for its lesser-studied tributaries. In order to fully understand the changes in settlement at the larger sites within the drainage, the distribution and patterning of sites within the surrounding area must be studied - a problem that the Cypress Creek Archaeological Project attempts to correct.

The Cypress Creek project area provides an excellent research area to investigate Archaic land-use. First, the area has not been heavily impacted by urban growth and extensive land development. Second, much of the land within the project area is used to grow crops, such as corn and soybeans. This is important because, due to cultivation, sites are readily apparent on the surface just before planting and right after harvest. Third, based on a preliminary study, Jefferies et al. (1999) found that landowner attitudes are generally receptive and positive towards archaeological survey. Finally, the Cypress Creek project area contains a wide variety of environmental settings— including a portion of the Green River. This will allow for the consideration of some of the larger, well known sites of the Green River with survey data from sites located further away along Cypress Creek and the adjacent uplands. By combining these different areas, we can develop a more complete picture of the Archaic settlement in the Green River area.

Organization of the Thesis

The contents of this thesis are organized as follows. In chapter 2, I review the specific theoretical focus of landscape archaeology that is used in this thesis along with related concepts and views. In addition, I provide a discussion of Archaic settlement for different areas of the North American Midcontinent in terms of this theoretical framework. In chapter 3, I review the history of archaeological research in the Green River. In chapter 4, I describe the location of the research area. In addition, I provide the environmental context of the survey area, as well as a summary of the geological formation processes that impacted the area. Chapter 5 contains the goals of the Cypress Creek Archaeological Project and some scenarios for Archaic land-use patterns in the Cypress Creek project area. I also present the general methods of the archaeological survey conducted by the CCAP and how the scenarios presented in this chapter will be evaluated. I provide the results of the research project in chapter 6. I examine and

describe the patterns of Archaic land-use for the Cypress Creek study area and evaluate the scenarios presented in chapter 5. At the end of chapter 6, I contextualize the findings with information gathered from sites in the Green River drainage. This is done so that a general pattern for this area can be described. In Chapter 7, I present a regional view of Archaic land-use in the North American Midcontinent. I then provide some possible explanations for the patterns observed.

CHAPTER 2: HUNTER-GATHERER LANDSCAPES

Research on hunter-gatherers has boomed since the publication of Lee and DeVore's (1968) *Man the Hunter*. Since that time, a host of new theoretical perspectives and insights stemming from both archaeological and ethnographic observations have developed (see Ingold, Riches, and Woodburn 1988; Price and Brown 1985; Gamble 1999; Louranados 1998; Binford 1980, 1981; Winterhalder and Smith 1981). It is now common for research on both prehistoric and extant hunter-gatherers to examine issues such as interaction (Bird-David 1988; Jefferies 1997, Johnson and Brooks 1988; Kent 1995, Yellen 1998), mobility (Kelly 1992, Renouf 1991, Ellen 1988), property and use rights (Scott 1988, Arnold 1996b), equality and domination (Guemple 1988, Gibson 1988, Ames 1985; Clark and Blake 1994; Hayden 1995,1996), technology (Sassaman 1993, 1995b, 2000; Barnett and Hoopes 1995) and symbols and ideology (Kratz 1988, Guenther 1988). Vital to understanding all of these issues; however, are investigations of how past and present peoples use space (Kent 1987:1).

Landscape archaeology provides a useful approach to examine the use of space. In its broadest application the "landscape approach" attempts to understand how social environments are constructed by examining spatial patterns and structures created by social and economic behaviors (Williamson 1998:1; Nieves Zedeño 2000:97). This is a particularly useful approach to employ in studies of archaeological cultures because it is relatively non-destructive (Williamson 1998:1) and can be applied to readily available data sets, such as site and artifact distributions throughout regions. The scale of analysis for landscape archaeology involves research beyond the site level (Williamson 1998:1). Although an intimate knowledge of the site(s) is sometimes required for these types of analyses, it must be related to the larger social and physical landscape (Zedeño 2000).

In this chapter, I outline the specific approach that I will take to evaluate the hunter-gatherer landscape of the Cypress Creek region. I review what I consider to be some of the fundamental issues that relate to understanding prehistoric hunter-gatherer landscapes. These issues include how places become meaningful or embedded within a cultural system, how places

on the landscape are linked to form an integrated landscape (i.e, how use of different areas of the landscape are integrated into one system), and the preservation or the archaeological visibility of these places on the landscape. Following this discussion, I will review some of the literature on Archaic hunter-gatherers in the North American Midcontinent in terms of this theoretical viewpoint in order to make comparisons between my evaluations of the Cypress Creek region and other areas of the North American Midcontinent.

Landmarks, Landscapes, and Hunter-Gatherers

I intend to use to María Nieves Zedeño's (2000) approach to landscape archaeology described in her article *On What People Make of Places: A Behavioral Cartography* to evaluate diachronic changes in use and construction of the landscape in the CCAP research area. The advantage of this method over other applications of landscape archaeology is that this approach focuses on the construction of the social environment around the extraction and appropriation of localized natural resources such as plants and animals (Nieves Zedeño 2000:98). In contrast, other landscape approaches tend to focus on modification of the natural landscape in terms of architecture and roads (Pearson 1998; Fleming 1998; Smith 1992). While the latter approach has been a valuable research tool for more "complex" societies, it is difficult to apply to groups who do not modify the environment in any readily observable way— which seems to be the case for many Archaic hunter-gatherer groups in the Eastern United States (see Widmer 1988; Gibson 1996; Russo 1996 for some exceptions to this statement).

Integral to understanding diachronic changes in hunter-gatherer landscapes is an understanding of what makes, or constitutes a "landmark". Zedeño (2000:106) defines landmarks as "locational markers that indicate places where interactions and activities occurred and may include stationary and physically unmodified features of the natural landscape." This definition is similar to what many people refer to as "sites". However, unlike sites that may be defined on the basis of a small lithic scatter, a landmark implies importance in both time and space. The archaeological correlates of this would be deposition of cultural materials and anthropogenic modification of a place on the landscape through long-term or successive occupations. It must be remembered that the meaning and importance of landmarks, like sites,

are not static in time. The transformation of a place into a landmark is a process that can involve a number of activities and interactions from subsistence activities to ritual and social life that build up over time (Zedeño 2000:106).

The disadvantage of the definition given by Zedeño is that human action is required at a place in order to be considered a landmark. I would argue that in some cases human action is not required for a place to become a landmark. For example, the Ticuna, a South American Indian group, consider some places on the landscape as forbidden. Even though these areas are highly productive, in terms of subsistence resources, to hunt or fish at these locales is thought to cause death because they are “the place of the spirits” (Oyuela-Caycedo, personal communication 2001). Therefore, the very fact that no action takes place at these locales makes them landmarks. Unfortunately, areas such as these would be very difficult to define archaeologically because the lack of material evidence may have many different meanings. On the one hand, the lack of evidence for human action in a particular place could signify a sacred landmark. On the other hand, it could simply mean that this place was not used or considered important. Therefore, until we understand more about the cognitive aspects of landmarks, Zedeño definition provides a useful starting point to examine prehistoric hunter-gatherer landscapes.

Understanding landmarks, however, is only the first step in understanding prehistoric landscapes. Zedeño (2000:107) suggests that landmarks are “pages” in the history of the land and resource use, but in order to fully understand the landscape we must understand the interactions between people and landmarks. Therefore, Zedeño (2000:107) defines landscape as “the web of interactions between people and landmarks.” She goes on to point out that over time the interaction between people and people, and people and resources serve to “progressively link landmarks to one another, forming an aggregate” (Zedeño 2000:107).

The approach presented above allows the researcher to characterize a landscape in three basic dimensions. These dimensions, as defined by Zedeño (2000:107) are formal, relational, and historical. The formal dimension refers to the physical characteristics of landmarks. In other words, what resources are available on or near the landmark, what is the physiographic setting, etc. The relational aspect refers to how the movement of people connect landmarks to one another. This aspect is particularly appealing for studies of Archaic hunter-gatherer groups in

terms of examining mobility and seasonal rounds. Finally, the historical dimension refers to the sequential links that result from the successive use of places. By examining the landscape in this way it is possible to gain a better understanding of how people build social interactions through the use and construction of activities around the natural environment (Zedeño 2000:97).

Integrating Landmarks and Landscapes

In order to examine the nature of landmarks in the context of landscapes, we must examine certain properties of landmarks and contextualize them within the landscape. Based upon concepts developed by behavioral archaeology, this process entails examining landmarks in terms of performance characteristics, life histories, and formation processes (Zedeño 2000:108).

First, the performance characteristics and formal properties of a landmarks must be evaluated in order to assess their potential for attracting people. Properties in this sense may include both natural properties (e.g., natural resources and topography) and cultural properties (place modification through human action). Second, identification of actions that transformed a place into a landmark must be assessed. Related to this second point is the evaluation of landmarks in terms of their life histories. In other words, how has the use of a particular place on the landscape changed over time, what activities have been conducted at this location, etc. As previously stated, the meaning and use of a landmark is not static, but continually constructed. Therefore, the use history of a particular landmark may be both variable and complex over a long period of time.

Zedeño (2000:109) defines *lifehistory* as “the cycle of formation, use, and transformation of a landmark” (Zedeño 2000:109). Therefore, if one considers, for example, an Archaic shell midden to be a particular landmark, then the way in which that landmark was used can change over time. At one point, the shell midden may have been the locus of intensive shell fishing and ritual burial of the dead by a large group of people. Later, this same landmark may be used as a transient camp (as defined by Winters 1968) for a hunting party. Such variation in the use and meanings of landmarks not only occur over long periods of time, but may also occur on much shorter time scales, for example during a seasonal round (see Binford 1981). Therefore, because

landmarks are the result of multiple and varied behaviors, they do not lend themselves to simple functional models (Zedeño 2000:109; Binford 1981).

After we reconstruct the formal, relational, and historical links with other landmarks, a view of the landscape begins to take shape (Zedeño 2000:109). Linking landmarks can be achieved through formal or relational links. Formal links begin with natural and cultural properties, and then examine the potential interactions. In contrast, relational links first isolate the types of interactions and then evaluate performance characteristics (Zedeño 2000:109). The former approach will be taken in this thesis because the exact relationships between certain sites (i.e., landmarks) in the Cypress Creek study area are unknown.

The Preservation of Landmarks and Landscape in the Archaeological Record

The analysis of prehistoric landscapes presents a problem somewhat different from the same analysis performed on an extant system. Prehistoric landscapes must take into account differential preservation of activity areas and formation processes that affect the archaeological visibility of landmarks and, by extension, the use and history of the landscape. While at some level, all landscape studies are subject to these kinds of problems, it is amplified in prehistoric studies.

Ethnoarchaeological research on activity areas provides a useful way of evaluating the types of behaviors that create the archaeological record (see Kent 1987, 1991, 1992, 1999; Brooks and Yellen 1987). In particular, the work by Brooks and Yellen (1987) in Northwest Ngamiland, Botswana provides useful concepts and insights into the archaeological preservation of activity areas of hunter-gatherer groups.

Brooks and Yellen (1987:68) apply a model of spatial redundancy to the formation and interpretation of the archaeological record based on ethnoarchaeological work with the !Kung San. Their model hinges upon two important concepts— *reuse and reoccupation*. They refer to reuse as “instances in which space is organized and used in a pattern which is spatially congruent with previous occupation of the same space” (Brooks and Yellen 1987:69). Reuse in terms of the archaeological record, increases our ability to identify activity areas when not obscured by other factors such as formation processes (Brooks and Yellen 1987:69). In contrast, reoccupation

refers to “the redundant use of space without spatial congruence” (Brooks and Yellen 1987:69). In other words, people are occupying the same space; however, the activities conducted later in time are fundamentally different from the previous activities. This type of behavior serves to obscure activity area patterning (Brooks and Yellen 1987:69).

These two concepts integrate well with a landscape archaeology approach in terms of evaluating the *lifelives* of landmarks. For example, there is evidence that some of the Green River shell mounds were occupied after intensive shell fishing ceased to be a major part of the activities at the site (Crothers 1999). The accumulation of mussel shells represents the reuse of the site for shellfishing for some period. These interactions and activities at a locational marker could have taken place during a single extended occupation or through successive occupations of shell fishing activities. In contrast, the cessation of shell fishing, but continued occupation of the site, indicates the reoccupation of this space. While it is possible that reuse and reoccupation may occur at the same site on both long (i.e., over hundreds of years) and short time scales (i.e., during different seasons of the same year), the dominant pattern (i.e., shell fishing verses nonshellfishing) should be evident in the archaeological record (see Binford 1982).

The concepts of reuse and reoccupation can be used to evaluate both the *lifelives* of landmarks and their relation to other landmarks across the landscape. Viewed as a whole, the reuse and reoccupation of landmarks serve to better our understanding of the diachronic nature of the landscape. For example, the redundant use of a particular area of the landscape, as indicated by the reuse of sites in a particular geographic area, indicates a specific cultural pattern which can be evaluated in both time and space.

Archaic Landmarks and Landscapes in the North American Midcontinent

In this next section, I review some of the major research on Archaic groups in the North American Midcontinent in light of the theoretical view outlined above. These areas of research include the lower Illinois River valley, central Mississippi River valley, Falls of the Ohio River area, southern Illinois, lower Tennessee-Cumberland area, and southwestern Indiana (Figure 2.1). The review of work carried out in these areas serves two purposes. First, it familiarize the reader with how I will use the theoretical concepts of landscape in the analysis of the Cypress Creek

materials. Second, it provides a larger regional perspective within which the Cypress Creek analysis may be compared.

Archaic Landmarks in the North American Midcontinent: Reuse and Reoccupation in Time and Space

Research in various areas of the North American Midcontinent indicate that some Archaic sites begin to exhibit a marked increase in reoccupation and intensity of activities between 6000 to 5000 B.P. This reoccupation and intensity of activities translates archaeologically into accumulation of midden, presence of features, more formalized use of space, evidence of inter-regional interaction, and extensive burial programs (see Brown and Vierra 1983; Jefferies and Lynch 1983; Jefferies 1996, 1997; O'Brien and Warren 1983; Stafford et al. 2000; Styles et al. 1983; Wiant et al. 1983).

Jefferies (1995a:128), summarizing the research on Archaic period hunter-gatherers of the Midcontinent, states that, investigations around the Midcontinent suggest that during the late Middle Archaic (6,500 to 5000 B.P.) at least some groups were becoming increasingly sedentary as well as increasingly socially complex (Jefferies 1995a:128). The abundance of subsistence remains, numerous pits suggesting storage, and extensive burial programs at these sites suggest that they were either continually occupied or reoccupied by either the same or different groups conducting similar activities over a long period of time. Whatever the case may be, it is clear that these places became embedded within the settlement system and served as the locus of certain behaviors (i.e., subsistence and burial related activities) for long periods of time (ca. 1000 years). It is possible, and probable, that reoccupation of these sites occurred; however, for the purposes of comparison, I am concerned only with the general archaeological trends.

The pattern of increased reuse and intensification of activities at Archaic sites during the late Middle Archaic holds for all those areas of the Midcontinent mentioned in the previous paragraph. There are, however, important differences between these regions that should be noted. Many sites are located adjacent to major rivers where aquatic resources could be exploited. These sites include Koster in the lower Illinois river valley (Cook 1976; Brown and Vierra 1983); shell midden sites located near the Falls of the Ohio (Janzen 1977; Granger 1988),

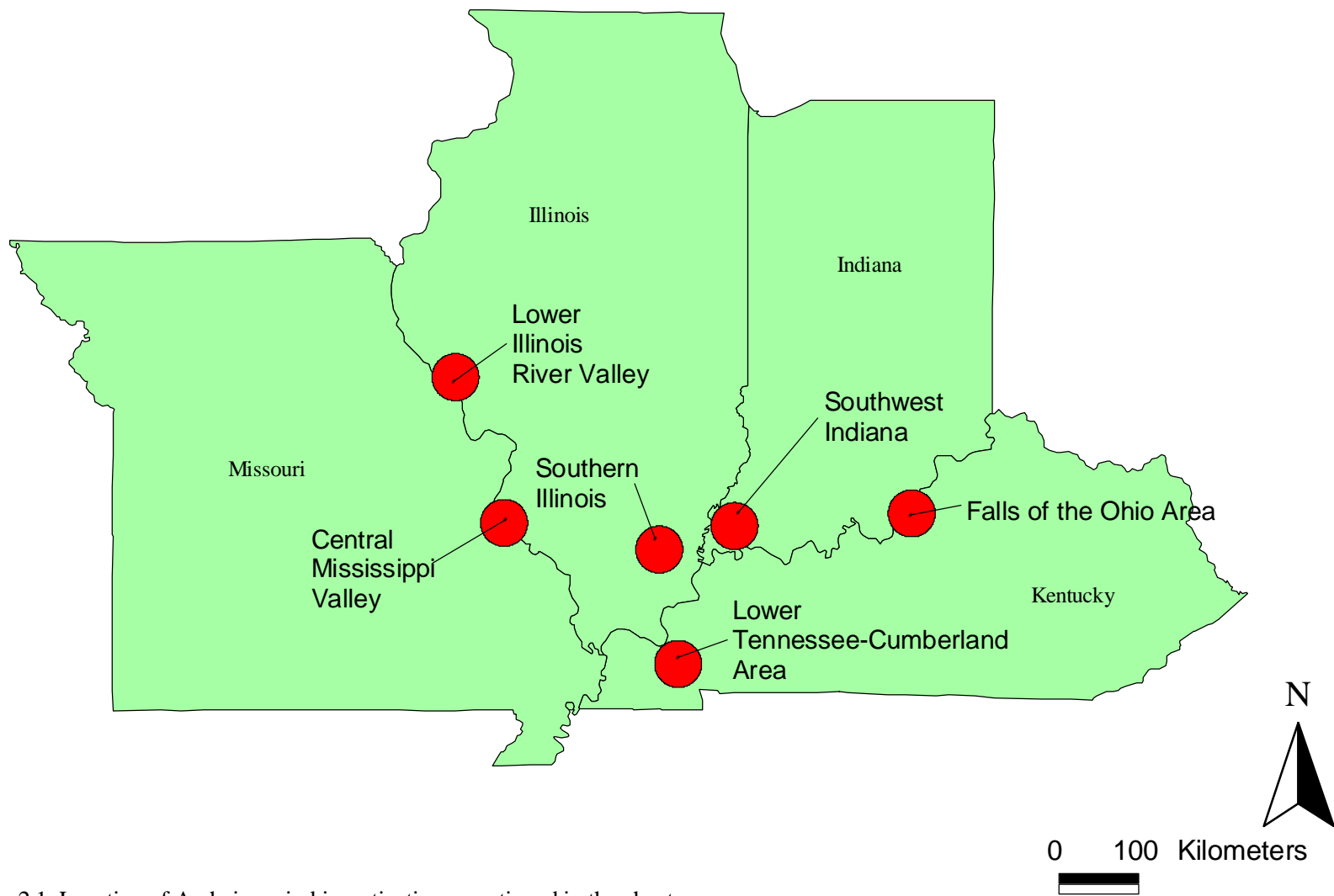


Figure 2.1. Location of Archaic period investigations mentioned in the chapter.

and the Morrisoe (15Lv156) and Whalen (15Ly48) sites along the Lower Tennessee-Cumberland rivers. In contrast, other sites with evidence of increased reuse and intensive activities occur away from the main river courses. These sites include the Bluegrass site in southwestern Indiana (Stafford et al. 2000) and the Black Earth site in southern Illinois (Jefferies and Butler 1982; Jefferies 1982;1987; Jefferies and Lynch 1983). One other site in this category is the Modoc Rock Shelter (Fowler 1959; Ahler 1984, 1993; Styles et al 1983); however, it is slightly different from the Black Earth and Bluegrass sites because it is a rock shelter and therefore affords some natural protection against the elements.

Table 2.1. Summary of Midcontinent sites.

Site	Ecological Setting	Resource Utilization	Reference
Koster	open air site adjacent to Illinois River	- river aquatic resources -terrestrial resources	Brown and Vierra 1983; Stafford 2000
Black Earth	open air site adjacent to lake/swamp area	-mixture of lake/swamp aquatic and terrestrial resources -located next to mixed forest and grasslands	Breitburg 1982; Stafford 2000; Lopinot 1982
Falls of the Ohio Shell Middens	open air sites adjacent to Ohio River	-heavy use of river aquatic resources (especially shellfish) - terrestrial resources	Janzen 1977; Granger 1988
Bluegrass	open air site in the upper portion of Pigeon Creek	-heavy use of terrestrial resources -limited use of aquatic resources	Stafford 2000
Morrisoe and Whalen	open air sites adjacent to lower Tennessee-Cumberland River	-heavy use of river aquatic resources -terrestrial resources	Nance 1988
Modoc	Rock shelter in the uplands area ca. 5 km from the Mississippi River	-mixture of aquatic and terrestrial resources	Ahler 1984; Styles et al. 1983

There is considerable variation in the resources available to and utilized by people occupying these different areas. Table 2.1 highlights some of the general formal characteristics (formal in terms of Zedeño 2000) of each site during the late Middle Archaic. As can be seen in Table 2.1, groups were reusing these sites during the late Middle Archaic despite the differences in resource availability and ecological setting. This suggests that no single pattern of subsistence allowed Archaic groups to reuse and conduct intensive activities at a particular place on the landscape. In summary, by the late Middle Archaic certain places, representing many different ecological settings, became important places on the landscape, or landmarks.

The pattern observed for the late Middle Archaic does not continue during the Late Archaic. In contrast, Late Archaic occupations are not as intensive and appear to be more limited in the types of activities that took place (see Ahler et al. 1992; Cook 1976; Jefferies 1983; Brown and Vierra 1983; Janzen 1977; Granger 1988; Nance 1988). This suggests that while these sites were being reoccupied, they were not reused in terms of the scale and intensity of activities that were conducted during the late Middle Archaic. Before I review some of the explanations that have been offered to explain the changes in Archaic settlement at these sites, I would like to consider some studies of site distributions across the landscape.

Looking at Archaic Landscapes in the North American Midcontinent

Similar to the change in occupation at sites in the North American Midcontinent, we also see a change in how the landscape was utilized during the late Middle Archaic. Archaeological surveys by Stafford (1994) in southwestern Indiana, Cook (1976) along the lower Illinois, Ahler (1984) in the central Mississippi valley, and Nance's (1987, 1988) work in the Tennessee-Cumberland area suggest that during the late Middle Archaic, land-use emphasis shifted from the uplands and began to focus on the lower reaches of the river basins (Stafford 1994:230). In addition, a change in subsistence strategy accompanied the shift in land use. Following 7000 B.P., the dietary emphasis shifted from a general to a more focused pattern, where only a few key resources were utilized. During this period, aquatic foods became important and sites were occupied for longer durations, indicated by the appearance of multi-seasonal base camps (Stafford 1994:222). Many researchers have interpreted this shift in settlement/subsistence to

indicate a change from a forager to collector strategy (see Binford 1980). This pattern does not continue into the Late Archaic for many areas of the North American Midcontinent, suggesting a shift once again in the subsistence strategies.

Settlement pattern data from the lower Illinois valley, central Mississippi valley, Tennessee-Cumberland area, and southern Illinois indicate that during the Late Archaic, sites distribution shifts to a more even pattern across the landscape (Ahler 1984; Cook 1976; Jefferies 1983; Nance 1987, 1988). In contrast, other areas such as in southwestern Indiana, indicate continuity with the late Middle Archaic pattern (see Stafford 1994). This suggests that for the most part, there were not only changes in the way individual sites (i.e., landmarks) were conceptualized and used, but also that the overall use of the landscape changed again during the Late Archaic. Now that some of the general trends occurring during the Archaic in the North American Midcontinent have been highlighted, I will explore some of the reasons given for these changes.

Explanations for the Use of Landscape: Continuity and Change

In short, two opposing views have been given to explain the shift to more intensively occupied sites and areas of the landscape during the late Middle Archaic— Brown and Vierra's (1983) resource pull model and Stafford's (1994; 2000) resource push model. Brown and Vierra (1983:174) suggest that the environmental changes exercised a "pull" on hunter-gatherers to settle in strategic locales for increasingly longer durations. As discussed in Chapter 1, many archaeologists (Brown and Vierra 1983; Cook 1976; Jefferies 1983) have used the warming and drying trend of the Hypsithermal Climatic Interval as a way of explaining culture change among Archaic hunter-gatherers. The logic behind this explanation is that climatic changes during the Hypsithermal altered the spatial distribution of resources. Hunter-gatherers, in turn, needed to augment or change settlement patterns to cope with or take advantage of the change in resource distribution. Certain archaeological features may correspond to the model presented by Brown and Vierra (1983). Due to the increased reliance on abundant and storable resources, we should expect to find that settlement patterns indicate fewer short-duration occupations in low productive zones. In contrast, sites located in highly productive and reliable resource areas

should reflect longer, more intensive occupation (Brown and Vierra 1983:186). These sites should contain a number of archaeological features that indicate longer settlement, such as “the presence of permanent structures, a greater variety of activity areas associated with maintenance tasks, greater dependence on aquatic resources, evidence of storage facilities, and a greater volume of processed food to sustain populations over longer periods” (Brown and Vierra 1983:186). According to Brown and Vierra (1983:190), the development of rich, slack-water environments in the river valleys “pulled” hunter-gatherers to these areas.

In contrast to Brown and Vierra (1983), Stafford (1994, see also Stafford et al. 2000) suggests that during this period, the high procurement costs of upland resources reduced the productivity of resource extraction from the uplands. This trend directly places a greater emphasis on exploiting nearby resource patches; however, patches once visited frequently in the Early Archaic were not disregarded (Stafford 1994:232).

Stafford presents an alternative to the “aquatic pull” hypothesis. He suggests that a simple reduction in the productivity of the land, or “forced out” hypothesis, can account for the structural changes in Archaic land-use (Stafford 1994:232). In contrast, the aquatic pull hypothesis is directly related to an enhanced aquatic habitat. Stafford criticizes this model because of its dependence on the emergence of more productive aquatic habitats in the river valleys— a pattern which has yet to be identified (Stafford 1994:232). Furthermore, he argues that developments in the late Middle Archaic do not appear to be tied to entirely to aquatic resources, as indicated by base camps in low aquatic productivity areas (Stafford 1994:232; Stafford et al. 2000).

Both the resource pull and push models depend heavily on environmental change. While environment is usually a major factor in hunter-gatherer decision-making, it is only one factor. Building on his original model with Vierra, Brown (1985) attempts to incorporate social factors along with environmental change to explain the shift in Archaic settlement. Brown (1985) offers a gradualist view of what he defines as increasing sedentism in the Midwest. He views the emergence of sedentism as a slow, drawn-out process by which social feedback continually reinforces the process of sedentism until such a time when groups are sedentary. This view argues against the use of prime movers for explanations to sedentism. Factors such as

environmental change, resource abundance, and population pressure are inadequate to describe the Midwestern data (Brown 1985:223). Although Brown's model is based on changes in the environment, he argues that the process of sedentism is the consequence of the additive efforts of individual groups' attempts to maintain intergroup spacing.

In the simplest terms, Brown suggests that as populations increased in the lower Illinois river valley during the late Middle Archaic hunter-gatherers became increasingly sedentary. As group size increased, groups continued to maintain spaces between themselves and others. However, because the size of most groups had increased, spacing became increasingly difficult to maintain under the current, highly-mobile system of movement. To offset the difficulties of maintaining group spacing under a highly mobile settlement strategy, groups become increasingly sedentary. This change in the mobility pattern allows groups to increase their population as well as maintain their distance from other groups. The increased productivity of aquatic resources provides the necessary resources to allow this reduction of mobility.

There are several problems with each of these models. First, both the resource pull (Brown and Vierra 1983) and push models (Stafford 1994) do not explain long term trends. They both offer explanations of why certain groups might have changed their use of the landscape during the late Middle Archaic, but no explanation is given as to why these groups shift their pattern of landscape use and sites again during the Late Archaic. In addition, both models fail to account for variation in settlement patterns. Neither of these models suggest that there may be multiple adaptation or responses to changing environmental stimuli— thus neglecting the important social aspects of change.

Brown (1985) attempts to account for long term trends, as well as to incorporate social factors of change into his model. However, like environmentally driven models, the aspects of social change are homogenized. Brown's model treats differences in settlement and adaptation as transitional. In doing this, he obscures the very dynamics of culture change (Ames 1991:109). Ames (1991:109) summarizes the implications of these two assumptions in the following.

“If there is a single developmental continuum from nomadism to sedentism, then all variability in residential and settlement patterns is fitted onto that continuum and is inevitably seen as transitional. Further, causation must be sustained and long-term in order to move transitional societies up the continuum to greater and greater sedentism. Population growth, long-term trends in climate, and even accumulating environmental knowledge are the kinds of processes invoked to explain such long-running trends.”

In contrast to this gradualist view, Ames (1991:110) presents the case that sedentism may be thought of in terms of social geographies or as “cultural landscapes”. In this view, certain residential patterns emerge and are maintained in some areas for a period of time. In other words, a temporal shift to sedentism may occur within a specific locale. This pattern can either be maintained or, after a period of time, revert back to a more mobile lifestyle.

Summary and Conclusions: Living in the Archaic Landscape

In this chapter, I have explained the theoretical focus of this thesis— landscape archaeology as it relates to Archaic period land-use and resource strategies. Using this framework, I summarized some of the general trends in Archaic settlement for parts of the North American Midcontinent. I then reviewed and critiqued some of the explanations that have been proposed for changes in Archaic settlement.

Based on my review and critique of research on Archaic settlement, I suggest that one of the major flaws in this research in the North American Midcontinent is the failure to recognize variation in hunter-gatherer adaptation (see Stafford et al. 2000 for an exception). Examination of Archaic settlement through a landscape framework seems to be the best approach to address the variation present in the Archaic archaeological record. This approach allows researchers to see variation in land-use between and within regions. Many of the studies of Archaic settlement described above deal primarily with issues of sedentism and mobility. In contrast, the landscape approach used here will focus specifically on change and continuity of shifting land-use and resource strategies in an attempt to understand Archaic Period life histories in the Cypress Creek area. This has implications for hunter-gatherer mobility and territoriality; however, before these

issues can be addressed or hypotheses posited, an evaluation of how the landscape is utilized and constructed must be conducted.

We also must consider whether all areas of the North American Midcontinent exhibit a similar pattern of Archaic settlement? Although the areas presented in the discussion above represent a broad sample of Archaic settlement across the Midcontinent, more investigations are needed to fully evaluate diachronic changes in Archaic hunter-gatherer groups. One area that has the potential to lend considerable insight into the nature of Archaic settlement patterns is the Cypress Creek area, located along the Green River area. In the following chapters, I evaluate diachronic changes in the Archaic landscape of the Cypress Creek area of west-central Kentucky. This analysis is conducted to provide a broader region-wide approach to Archaic settlement and change in the North American Midcontinent.

CHAPTER 3:

A HISTORY OF ARCHAEOLOGICAL RESEARCH ON THE GREEN RIVER

In this chapter, I give a history of Green River archaeological research. Beginning in the early 1900's, I summarize what I consider to be the most important research on this region up to the present.

Previous Archaeological Research on the Green River

Moore and the Gopher

C. B. Moore (1916) conducted the first work on the Green River sites that would later be assigned to the Archaic period. The main themes in American archaeology at the time of Moore's excavations were classification and description. During the early 20th century, archaeologists were concerned with the description and classification of archaeological materials, particularly architecture and monuments (Willey and Sabloff 1993:38).

Moore was an independently wealthy man with a passion for archaeology. He traveled the waterways on his steamboat, *the Gopher*, seeking out archaeological sites throughout the Eastern United States. In the years between 1891 and 1918, Moore explored archaeological sites from as far south as Florida and the Georgia coast to the Ohio River.

Eventually, Moore's work led him to the shell mounds of the Green and Ohio rivers. Of particular interest is Moore's excavation at the now famous Archaic site of Indian Knoll (Moore 1916). Moore and his crew excavated nearly 300 burials and located a number of interesting artifacts including flaked stone tools, bone awls and pins, ground stone tools, banner stones, ornamental copper, and gorgets and beads made from freshwater and marine shell (Crothers 1999:13). Even though Moore spent most of his time at Indian Knoll (15Oh2), he did investigate other Green River sites with similar midden deposits including a site (15McL15) near the town of Calhoun, in McLean County (Crothers 1999:14). Although his primary interest was to excavate graves and associated artifacts (Crothers 1999:10), Moore's publications give us our first look at these early hunter-gatherer cultures.

Moore's excavations and descriptions represent some of the first explorations of the Green River shell mounds; however, despite the many large-scale excavations that he conducted, little interpretation was put forth. Moore (1916) did produce a report describing his findings on several Archaic shell mounds, but his major interpretation of these sites was that they were pre-ceramic. Moore cannot be faulted for his lack of interpretation. This was a time when archaeology as a discipline was in its infancy, with little theory and poor excavation techniques by today's standards. Instead, Moore's contribution comes in the form of doing and showing rather than explaining. His excavations, pictures, and drawings give us our first look into a world that many archaeologists would attempt to explain for years to come.

The Age of Webb

Following Moore, we see the development of what has been termed by Willey and Sabloff (1993:96) as the Classificatory-Historical Period (1914-1940) in American archaeology. The main concern of archaeologists during this time period was chronology (1993:96). Relying mainly on the principles of seriation and stratigraphy, archaeologists working around the country focused on developing chronologies for their respective regions. The ultimate goal of these activities was to develop culture-histories of different geographic areas. Unfortunately, many of the sites investigated in the Eastern United States did not lend themselves readily to the type of stratigraphic interpretation that was common during this period (Willey and Sabloff 1993:97). Many of the sites were midden deposits spread over considerable areas, such as the shell and non-shell middens of the Green River.

During the 1920s, Funkhouser and Webb began limited excavation at some of the Green River shell mounds; however, only a few sites were tested at this time (McBride 2001:22). Despite the limited knowledge available at the time and chronological problems, Funkhouser and Webb published two summary reports on Kentucky prehistory— *Ancient Life in Kentucky* (Funkhouser and Webb 1928) and *Archaeological Survey of Kentucky* (Webb and Funkhouser 1932).

Ancient life in Kentucky is a summary of Kentucky prehistory. In this publication, Funkhouser and Webb divide Kentucky prehistory into six cultures. Although they did not think

any of the cultures were very old, some of the sites mentioned in this volume, specifically those located along the Green River, would later be found to date to the Archaic period (Jefferies 1988b:15). In 1932, the University of Kentucky published Webb and Funkhouser's statewide archaeological survey (Jefferies 1988b:15). In this volume, they report on all of the known sites in Kentucky, including shell midden sites in McLean, Muhlenberg, Ohio, and Butler counties. Although this volume covers the whole state of Kentucky, the authors address, for the first time, the "Shell Mound Area" of western Kentucky as a unique culture area. They suggest in the final chapter that the shell mound people subsisted on fishing and hunting and that these mounds may represent the oldest cultures in the state (Jefferies 1988b:15; Webb and Funkhouser 1932:425).

During the late 1930s and early 1940s, large-scale excavation began at Archaic shell midden sites. Excavation at these sites was largely due to the Works Progress Administration (WPA) and New Deal Archaeology programs (Webb 1974, 1950a, 1950b; Webb and Haag 1939, 1940, 1947). During this time that Webb, along with William Haag, supervised work on the Green River shell mounds, several of the larger, well-known sites were excavated. The reason why excavations focused on these large sites is twofold. First, research in this area was dedicated to developing the culture-history of Archaic sites. Second, and more importantly, the WPA program needed to employ a large number of people (Milner and Smith 1988).

Some of the more prominent sites along the Green River to be excavated under the direction of Webb were Read shell midden (15Bt10), Indian Knoll (15Oh2), and Carlston Annis (15Bt5). In addition, several Archaic sites were investigated along Cypress Creek, a tributary of the Green, and its adjacent wetlands. These sites include: Ward (15McL11) and Kirkland (15McL12), two non-shell midden sites; the Smith site (15McL5), a rock shelter; and the Reynerson site (15McL8), a small camp site located on a bluff overlooking bottom lands (Webb and Haag 1947).

Webb's investigations at the Green River Archaic sites represent the first systematic excavations conducted in this area. Webb could now employ a large group of WPA laborers to work on archaeological projects in Kentucky. This made large-scale excavations using standardized field and laboratory techniques possible (Jefferies 1988a:90). Unfortunately, while the WPA Green River excavations do represent a step towards greater scientific rigor,

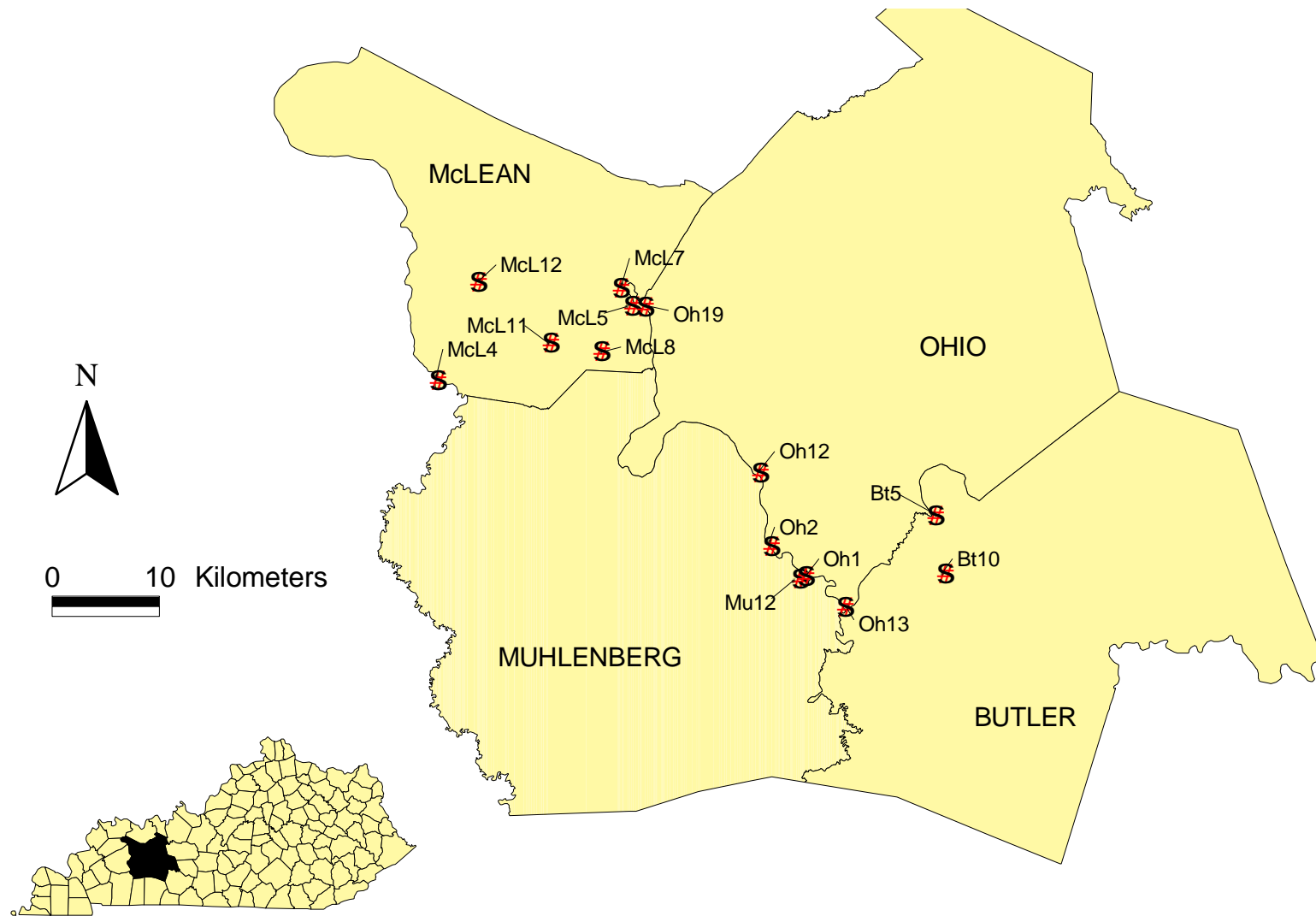


Figure 3.1. Sites in Butler, McLean, Muhlenberg, and Ohio counties, Kentucky excavated by WPA archaeologists.

information that would normally be collected today was neglected. In general, the soil was removed and burial and features were mapped. Due to the excavation techniques employed by Webb's field directors, only large artifacts were recovered such as projectile points and other large stone and bone tools. In contrast, materials such as debitage were either missed or ignored.

Overall, Webb's WPA crews excavated at least fourteen Archaic sites in Butler, McLean, Muhlenberg, and Ohio counties, Kentucky (see Table 3.1 and Figure 3.1); however, the majority of the work focused on three sites: the Read shell midden, Carlston Annis Mound, and Indian Knoll (Crothers 1999:26). A quick look at the WPA reports reveals Webb's preoccupation with trait lists and his lack of formal cultural interpretation. In general, Webb found that the Green River shell midden sites were similar in form and function based on artifact, feature, and burial data. With over 1,000 burials and more than 50,000 artifacts, Indian Knoll is by far the most elaborate and largest of the shell mound sites excavated (Webb 1946). However, despite its large size, Indian Knoll is fairly typical of what is usually found at other Green River shell middens (i.e., human and dog midden burials, shell accumulation, features of trash pits and artifact caches, and bone and lithic artifacts). In contrast, sites like Ward (15McL11) offer some interesting contrasts those along the Green River.

The Ward site was one of two midden sites that Webb and Hagg (1940) investigated along Cypress Creek, a tributary of the Green River. These sites, dubbed in their 1940 report the "Cypress Creek villages", consisted of the Ward and the Kirkland (15McL12) sites. Excavations revealed that substantial activity was conducted by Archaic groups away from the Green River.

The Ward site is located on a bluff overlooking Cypress Creek. WPA excavations revealed anthropogenic soils, features, burials, and a host of different artifact types, suggesting that activities conducted at the site were varied and occurred over a long period of time (Jefferies et al. 2001). Over 430 human burials, 23 dog burials, and 61 features were excavated at Ward. Feature types included midden pits, fire hearths of clay, fire areas marked by fire cracked rock, a rectangular house structure (which dates to the Mississippian period), and caches of axes, sandstone pebbles, chert bifaces, deer antlers, mussel shells, and hammerstones (Webb and Haag 1940:72).

Table 3.1 WPA excavated Archaic sites in Bulter, Mclean, Muhlenberg, and Ohio counties, Kentucky (adapted from Crothers 1999:26).

County	Site Number	Site Name	Site Type
Butler	15Bt5	Carlston Annis	Shell Midden
Butler	15Bt10	Read	Shell Midden
Muhlenberg	15Mu12	Baker	Shell Midden
Ohio	15Oh1	Chiggerville	Shell Midden
Ohio	15Oh2	Indian Knoll	Shell Midden
Ohio	15Oh12	Jackson Bluff	Shell Midden
Ohio	15Oh13	Bowles	Shell Midden
Ohio	15Oh19	Jimtown Hill	Shell Midden
McLean	15McL4	Barrett	Shell Midden
McLean	15McL7	Butterfield	Shell Midden
McLean	15McL5	Smith	Rock Shelter
McLean	15McL8	Reynerson	Non-shell Midden
McLean	15McL11	Ward	Non-shell Midden
McLean	15McL12	Kirkland	Non-shell Midden

Compared to other large Archaic sites in the Green River area, the Ward site is important for three reasons. First, Ward is a large site located along Cypress Creek– indicating that Archaic hunter-gatherers intensively utilized areas away from the Green River. Second, the large midden accumulation consists mainly of anthropogenic soils instead of shellfish remains. This point suggests that proximity to shellfish was not necessary for the intensive use of an area. Finally, the similarity between the Ward site assemblage and other large Archaic shell midden assemblages suggests that many of the same activities that took place at sites near the Green River also occurred away from the river.

While not as large as Ward, Kirkland exhibits similar characteristics. The midden accumulation at Kirkland is less substantial than at Ward, and is primarily composed of anthropogenic soils rather than shell. In addition, 70 human burials, 10 dog burials, and 8 features

were found at the site. Despite the size variation and number of features excavated, it appears that similar activities took place at both Ward and Kirkland. Such variation in size and intensity of occupation between sites is not uncommon for shell midden sites along the Green River. This evidence further suggests that similar activities of hunter-gatherer groups took place away from, as well as, on the Green River.

In summary, the WPA excavations of the Cypress Creek sites and large Green River shell middens contribute to our understanding of Green River Archaic hunter-gatherers in two important ways. First, excavations of the Green River shell mounds represent the first systematic excavations of these kinds of sites. Second, excavation of the Cypress Creek sites illustrates the variation in settlement for this area.

Despite the fact that Webb's interpretations were simplistic, mainly relying on progressive unilinear evolutionary models (Crothers 1999:30), his work on the Green River has been influential on Archaic period research. Many of his reports continue to be cited today and in many cases, contain all that is known about some of the Green River Archaic sites.

The "New" Generation

Webb published little more than simple descriptions of excavated sites from the late 1940's until his retirement in 1957 (Crothers 1999:33). By the early 1960s, the development of archaeological interest in the Archaic period increased considerably (see Jefferies 1995a). During this time, researchers began focusing on questions of hunter-gatherer adaptation in the Eastern Woodlands (Caldwell 1958), and established precise temporal boundaries for the subdivisions of the period (Griffin 1967; Willey 1966). By the late 1960's, the Archaic period was firmly entrenched as a major research topic in Eastern North American archaeology (see Winters 1969, 1968, Rolingson 1967).

Martha Rolingson (1967) conducted one of the first post-Webb studies of Green River Archaic sites. She examined material that had been excavated by Webb from sites along the Green River. In her study, Rolingson wanted to assess whether or not the Green River shell middens were occupied year round. Her study was based on the analysis of projectile point clusters that were supposedly indicative of occupation sequences. In sum, she attempted to find

similarities between projectile points among several Green River shell midden sites. Through this analysis, she identified a central cultural unit occurring at eight Archaic sites in the Green River valley. Based on the lack of formal architecture, the limited number of hearths at sites, and the observation that the average distance between sites is 4.2 km, she concluded that there was little evidence to suggest that these sites had been occupied year round (Hensley 1994:39).

This interpretation is contrary to what Webb (1950) thought, who viewed these same sites as year round settlements. Unfortunately, Rolingson's identification of projectile point clusters was hampered by the mixing of materials and resulted in the definition of broad phases that roughly correspond to contemporary Archaic temporal divisions (McBride 2000:26; see also Crothers 1999:Chapter 2). The weakness in Rolingson's interpretations is that she neither confirms or disproves that these sites were occupied year round. Although site structure may indicate certain trends (see Kent 1991), it does not provide the type of evidence needed to make this interpretation. In order to make these types of claims, seasonality studies must be conducted on faunal and floral remains (e.g., Russo 1998)

Howard Winters's (1968, 1969, 1974) study of the Green River Archaic was another post-Webb study. Winters began working on Archaic period sites in the Wabash River valley in Illinois. There he developed a settlement system model for the Archaic sites of the lower Wabash River valley. Known as the Riverton culture, these sites included winter settlements, transient camps, summer base camps, and hunting camps, gathering camps, and bivouacs (see Winters 1969:137 for the full description of each settlement type). His identification of site type was based on a systemic index for functional categories of artifacts. He developed a formula by which he could evaluate the function of a particular site based on the relative frequencies of functional tool types present. These functional tool types included fabricating, processing, domestic implements and weapons. In other words, he thought that he could identify site function by comparing the ratio of fabricating, processing, and domestic implements to weapons (Crothers 1999:41).

Based on his research in the Wabash River valley, Winters (1969) attempted to apply the Riverton culture settlement pattern to Green River sites. Using Webb's reports, Winters tested his settlement model on several Green River sites. He interpreted the Green River shell midden sites,

along with the non-shell midden sites, as representing variable site functions within a single settlement system (Hensley 1994:39). When he applied this model to the Green River sites, he came up with several different functional categories of sites, which are summarized in Table 3.2. This model of Green River Archaic settlement would eventually be challenged by the next group of archaeologists working in this area (Crothers 1999:42).

Table 3.2 Winters functional assignments of Green River Archaic sites (adapted from Winters 1969:Table 76).

Site	Systemic Index	Functional Assignment
Indian Knoll	1.2	Base Camp
Chiggerville	2.7	Settlement
Ward	2.6	Settlement
Barrett	0.7	Base Camp?
Kirkland	0.9	Base Camp
Smith Rock Shelter	0.7	Camp
Butterfield	0.5	Hunting Camp
Reynerson	?	Hunting-Gathering Camp
Carlson Annis	1.2	Base Camp
Read	1.8	Transient Camp?

Crothers (1999:42) summarizes the objections of Marquardt and Watson (1997) to Winters’s settlement classification of the Green River Archaic sites. Their biggest objection is that Winters forced data into categories developed for different data sets. In addition, he did this from secondary knowledge that he gleaned from Webb’s reports. The most conspicuous example of this is Winters’s assumption that items classified by Webb as hammerstones were actually manos (Crothers 1999:42; see Winters 1969:134). Crothers (1999:42) also points out that another weak aspect of Winters settlement analysis is “that it must be balanced in order to be coherent”. In other words, for every summer base camp there in turn must be a winter settlement. Considering the other large shell midden sites that Webb excavated but never published, Crothers

points out that there seems to be too many sites in the Green River region to accommodate the Riverton settlement model (Crothers 1999:42).

A Brave New Project: the Shell Mound Archaic Project (SMAP)

In terms of contemporary research, few names are as prominent in the Green River literature as those of William Marquardt and Patty Jo Watson. Beginning in 1972, Marquardt and Watson began the Shell Mound Archaic Project (SMAP). The purpose of this project was to evaluate incipient horticulture in the eastern North America (Marquardt and Watson 1983:324). However, site formation processes became a component of the project (Hensley 1994:41).

During the early part of the project, Marquardt and Watson (1983) conducted testing on a number of sites in the area including Carlston Annis (15Bt11), Bowles (15Oh13, and Peter Cave (15Oh94). These investigations revealed squash rind in a context dating to 4300 B.P at Carlston Annis (Crothers 1999:50); however, Marquardt and Watson were concerned about the stratigraphic integrity of these sites. Later, using accelerator mass spectrometry (AMS), these squash remains were confirmed to date between 5000 and 7000 B.P. (Crothers 1999:51). However, for the time being, SMAP focused its attention on site formation processes and environmental history.

This new focus led SMAP to begin examining the geoarchaeology and paleo-environment of the Green River area. As part of SMAP's new focus, Julie Stein (1980; see also Stein 1982) focused her dissertation work on the geoarchaeology of the shell mounds in the Big Bend region of the Green River. In her study, she concluded that, based on the fluvial history of the Green River, any archaeological sites located on the broad alluvial lake plains of the Green River valley should still be found on or near the surface. A more detailed discussion of Stein's work will be presented in Chapter 5 of this thesis.

Today, archaeologists continue to investigate the economic importance of shellfish, environmental history, and settlement patterns of the Green River Archaic groups. Many of these studies remain in the form of unpublished master's theses (see Crothers 1999:53 for a list of these). While the whole corpus of literature generated from the SMAP project is too large to describe in detail here, two recent dissertations deserve mention before moving on to the next

section– Christine Hensley’s (1994) study of settlement patterns in the Big Bend area and George Crothers’s (1999) study of the economic and social importance of shellfishing locations.

Hensley (1994:ii) uses information on shell midden sites excavated during the WPA era, as well as survey and excavation data from non-shell midden sites along the Green River to evaluate models concerning the development of horticulture, social complexity, and sedentism. Based on differences in site structure, material assemblages, and subsistence/seasonality data, she proposes that the Carlston Annis, Read, Barrett, Butterfield, Ward, Indian Knoll, and Bowles shell middens represent long-term seasonal occupation or residential base camps. In addition, she argues that these shell middens sites with large burial populations represent aggregation sites and based on radiocarbon dates were primarily occupied during the Late Archaic (Hensley 1994:254).

Crothers (1999) examines faunal material from two shell middens, the DeWeese (15Bt6) and Haynes (15Bt11) sites along the Green River, and compares them with faunal data from Carlston Annis (15Bt11). Based on his analysis of faunal material from these sites, he suggests that they continued to be seasonally occupied– despite that, at times, shellfishing ceased to be the major subsistence activity (1999:244). Recent work by Morey and Crothers (1998) has shown that many of these sites were located next to riffle runs– areas of shallow, fast moving water. The importance of this finding is that it supports the assumption that prime shellfish habitat (i.e., riffle runs) was one factor influencing site location.

Based on both the environmental importance of these locations and the faunal data from excavated sites, Crothers presents some interesting insights into the social and economic significance of shellfishing locations. He suggests that shell midden sites were established due to their proximity to resources areas (1999: 246-250). Hunter-gatherers in this area would have exercised communal ownership of shellfishing locations, passing them on to successive generations. Access rights to these areas would have been continually negotiated and shellfish and other aquatic resources would have been used to support economic feasts. Finally, Crothers suggests that over time, shellfishing locations became venerated, taking on greater social significance, despite the fact that shellfishing no longer appears to be the central activity at the site.

While Crothers offers an interesting alternative explanation of Green River shell mounds, his interpretations are not readily identifiable by the data presented (e.g., site use after shell fishing ceased). Perhaps burial data may provide another line of evidence to support his interpretations. If sites are not only being used, but used in a ceremonial fashion (i.e., burial rites and interment) then this might further support the idea that these areas were venerated and possibly maintained by lineages.

Many of the studies presented up to this point give us a new look at the Green River sites. We no longer see Webb's permanent shellfishing villages, but instead see them as part of a dynamic system of settlement. We have also learned that locations of shell middens may have continued to be important places on the landscape even after shellfishing ceased to be the main activity conducted at the site. In addition, places other than shellfish areas were important to hunter-gatherers of the Green River, as indicated by the intensive occupation of non-shell midden sites such as York-Render (15Bt92) and Ward (15McL11) (see Hensely 1994; Jefferies et al. 2001). While there is no doubt that shellfish were important in an economic sense, it has also been suggested that the shells themselves might have more of a socio-religious importance than previously thought (Claassen 1991a, 1992, 1996).

Sacred Place or Just Another Pile of Shell?: The Shell Burial Mound Question.

Cheryl Claassen (1991a, 1991b, 1992, 1996) has recently challenged eco-functional explanations of shellfish middens in favor of more ideological reasons. Simply stated, Claassen suggests that we should reconsider the interpretation of the Archaic shell mounds as simply habitation sites where people lived and were buried with their trash (Claassen 1996:243). Instead, she suggests that the shell mounds were actually ceremonial mounds similar to later Woodland period (3,000-1,000 B.P) burial mounds (1996:243). She further suggests that the harvesting of shellfish in and of itself was a ceremonial activity and that the meats of the shellfish may have been stored for later consumption (Claassen 1991b:295).

Milner and Jefferies (1998) counter Claassen's argument that shell middens represent intentionally constructed burial mounds. Through their reanalysis of the WPA Read site

excavations, they argue that the evidence is inconsistent with the purposeful construction of burial mounds (Milner and Jefferies 1998:130). In short, Milner and Jefferies state:

“There were many graves, but there are no clear signs of one or more formal cemeteries in the midden. A few people might have been intentionally buried near one another, but well-defined groups of graves showing some internally coherent order are not evident (Milner and Jefferies 1998:139).”

In contrast to Claassen’s argument, Milner and Jefferies (1998:130) conclude that hunter-gatherer groups consistently occupied the Read site. During the time that the site was occupied, considerable debris was discarded near the encampment– and when people died at the site, they were often buried on the side facing the river.

The two views presented here are opposite extremes. What are the benefits of each view? Crothers (1999) comments on this dual view of shell middens. While he does not agree with Claassen’s view of shell middens, he does suggest that Milner’s and Jefferies’ interpretations fail to recognize the connections between the Read site and other sites in the Green. Crothers states:

“Why did they bury their dead on the side facing the river? Webb made this observation at several sites, and I specifically avoided the river sides of the sites when deciding where to excavate. Of course, we cannot be certain what was in their heads, but the pattern is yet another connection among the Green River sites. Is this pattern peculiar to the Green River? Do we find it at all midden sites? shell midden sites? Archaic period sites? (Crothers 1999:248).”

Milner and Jefferies make an important point saying that we should not conflate the meaning of the mounds; however, Crothers’s critique is valid. We must also keep in mind that there are connections that exist and that they must be explored.

Regarding Claassen’s view of the shell mounds as burial mounds: I agree with Milner and Jefferies (1998) and Crothers (1999) that shell mounds were not intentional burial mounds, but I do not think the idea should be completely abandoned. Recent work by Russo (1994, 1996) has identified purposeful mound construction in other parts of the Eastern United States during the Middle Archaic. While shell mounds of the Green River may not be purposeful constructions, the ceremonial nature of these locations should be explored. New theoretical views should be

employed when examining these questions. What we can identify as ceremonial in the archaeological record may be quite different from what was actually important.

Who Are You?: Identity and Social Boundaries in the late Middle Archaic

Jefferies (1995b, 1996a, 1997, 1999) has identified an interaction network in the lower Ohio and central Mississippi River valleys of the southern Midwest. Evidence for interaction in this area is suggested by the distribution of carved and engraved bone pins found at sites throughout this area (Jefferies 1996a:227). The presence of similar pin styles suggests either actual exchange of pins between local groups, the movement of people who wore the pins, or that each group produced a variety of pins reflecting the flow of information between groups (Jefferies 1996a:227).

Jefferies (1996a:228) suggests that the distribution of these stylistically similar pins represents a socially bounded area. In this context, bone pins represent affiliation with the regional group which suggests an increased level of social circumscription between increasingly sedentary hunter-gatherers in the mid-continent (Jefferies 1996a:228). The temporal association of this interaction network appears to date to the late Middle Archaic (ca. 6000 to 5000 B. P.).

In an effort to further evaluate the implications of this network, Jefferies (1999) examines an additional 20 contemporary sites located outside the southern Midwest region. Ten of these sites are located along the Green River in Kentucky and include: Kirkland (15McL12), Baker (15Mu12), Jackson Bluff (15Oh12), Jimtown Hill (15Oh19), Carlston Annis (15Bt5), Read (15Bt10), Barrett (15McL4), Butterfield (15McL7), Indian Knoll (15Oh2), and Ward (15McL11). Stylistic analysis of these pins suggests that the Green River pins are significantly different from those found in the southern Midwest region.

Jefferies (1999:14) has interpreted these differences as an indication that two distinct social networks existed in these two parts of the midcontinent from ca. 5500 to 4500 B.P. The low level of interaction shared between these two groups suggests a social boundary somewhere near the Ohio River (1999:14). Jefferies contends that the physical boundary of the Ohio should not have hindered interaction. This statement is based on the observation that stylistically similar

pins are found in southern Illinois and eastern Missouri— indicating that the Mississippi River did not impede the flow of information and materials.

Beyond the Green River Archaic

Research in the Green River began with humble objectives. From the excavations of C.B. Moore and the WPA work of Webb, we got our first look at these interesting sites. Some of the first interpretations of these sites maintained that they represented year round sedentary villages; however, with time and more research we came to view the Green River Archaic sites as part of a dynamic settlement system. Thanks to studies by Rollingson, Winters, SMAP researchers, Milner and Jefferies, and Claassen, we now see more than just shell middens. Today, the view that archaeologists have of the Green River can be described as dynamic. Regardless of whether shell middens were intentional burial mounds or places where hunter-gatherers lived and died, they continue to hold the attention of archaeologists interested in hunter-gatherer societies.

Over the course of the last 30 years much knowledge has been gained about the Green River Archaic (Jefferies 1995b). This information provides the backdrop for my discussion of Archaic land-use in the Cypress Creek area. Throughout the remaining part of this thesis, I will draw upon this information to illustrate and make points on the use of specific locations and areas of the landscape.

CHAPTER 4: ENVIRONMENTAL SETTING OF THE CYPRESS CREEK REGION.

Introduction

Studies of geomorphological processes that formed the Green River valley, have great value for Archaic research in the Cypress Creek area. Although no specific studies have been conducted in the Cypress Creek area, I argue that research conducted in the Big Bend area of the Green River may be used to interpret the paleoenvironment of Cypress Creek (e.g., Stein 1982).

Regional Environmental Context and Holocene Conditions

The study area is located in the Interior Low Plateaus region of the eastern United States. Some of the largest rivers cross cut this area, along with many smaller tributaries. The most important rivers, as they relate to both prehistoric and historic human settlement, include the Illinois, Ohio, Green, Mississippi, Tennessee, and Cumberland.

In general, this area can be characterized as a karst terrain. Geographic features include steep ridges, rolling hills, lowland plains, and bottom lands along major rivers (McFarland 1961). The majority of the bedrock of the region is Pennsylvanian sandstones and Mississippian limestones, with minor amounts of siltstone, shale and coal (McFarland 1961).

Humans first settled the Cypress Creek area during the late Pleistocene (ca. 12,000 B.P.); however, it was not until during the Holocene in the Archaic period (10,000 to 3,000 B.P.) that human settlements become numerous throughout the region. In order to understand the conditions that Archaic hunter-gatherers faced during this time, we must understand the changes in climate and vegetation that took place during the Holocene geological epoch. The Holocene is commonly divided into three internal subdivisions: early, middle, and late. Each of these subdivisions correspond with changes in vegetation and temperature. The early Holocene (10,000-8,000 B.P.) begins at the Pleistocene-Holocene transition. Although changes occur at different times in different areas, the transition occurs sometime between 12,000 and 10,000 B.P. Generally, during the early Holocene, temperatures began to rise and the glacial ice sheets that once covered the much of the northern part of North America began to recede. During this time,

the Midcontinent developed into wide-spread and diverse biotic communities of plants and animals (Leach 1986; Bense 1994:22). Also, massive extinctions of many large mammalian species, such as mammoths and mastodons occurred between 11,000 and 10,000 B.P. (Leach 1986).

By around 10,500 B.C., the spruce forests in the Midwestern portion of the Mississippi Valley were replaced by cypress-gum forest (Muller 1986:50). In addition, the boreal forests, composed of spruce and fir, that once covered much of the Southeast were now relegated to higher altitudes in the southern Appalachians (Muller 1986:50). North of the Ohio Valley, the landscape was dominated by Oak-Hickory forest, mixed conifer and hardwoods across the Midwest, and mixed hardwoods to the south and east (Muller 1986:50). Lopinot (1982:72) states, based on paleobotanical data, that during this time, a rich mesic forest dominated the landscape in this area, with oak being the dominate species, along with stands of elm and ash.

The early Holocene marks a dramatic change in the resources available for human populations. The importance of large vertebrates in the diet of early hunter-gatherers has probably been over estimated. We do know, however, that at least some of these early peoples consumed such animals (Walters 1988). During the early Holocene, Pleistocene megafauna no longer would have been available, but the emergence of the rich oak-hickory forest would have opened up a host of new resources that could be exploited by Early Archaic hunter-gatherers. Not only did these forests provide more nut-bearing species of trees than the previous boreal forest, they also supported more game— allowing early people to exploit a wider area of the landscape (Muller 1986:50).

During the middle Holocene (8000-4000 B.P.), the Hypsithermal Interval occurred. This climatic change is considered the peak of the interglacial conditions (Bense 1994:22). The Hypsithermal, also sometimes called the Altithermal, was warmer and drier than the early Holocene (King and Allen 1977). One of the greatest changes during this period was the extension of prairie across the central Mississippi Valley due to the reduction in rainfall (Wilkins et al. 1991; Lopinot 1982; Muller 1986). At this time, much of the Midcontinent north of the Ohio valley was covered by oak-savannahs with interspersed stands of oak in the valleys and gorges (Muller 1986:51). In addition, pollen studies from central Kentucky as well as other parts

of the North American Midcontinent (Wilkins et al 1991; King and Allen 1977) indicate that in some areas mesic open canopy deciduous forests were replaced by dry oak-hickory forests between 7300 and 3900 B.P. (Stafford 1994:224).

Also, during the Middle Holocene, rivers began to stabilize, increasing the productivity of backwater swamps in some areas such as Midwestern portion of the Mississippi River valley, the lower Illinois River valley, the Wabash River valley, and Green Lake area along the lower Green River (see Brown 1985; Jefferies and Lynch 1983; and Stein 1980). These areas would have been highly productive in terms of biotic resources, both aquatic and terrestrial.

During the late Holocene (4000 B.P. to present), the climate became cooler and sea levels along the Atlantic and Gulf coasts stabilized (Bense 1994:24). Despite minor fluctuations in temperature and precipitation, the late Holocene environment is much as it is today (Delcourt and Delcourt 1981).

Environment of the Cypress Creek Region of Kentucky

The Cypress Creek Archaeological Project study area is located in McLean and Mulenberg Counties in the Western Kentucky Coal Fields Physiographic Region (Figure 4.1). The region is characterized by rolling to hilly geological deposits of limestone, sandstone, shale and coal (McGrain 1983). The landscape consists of dissected uplands, sandstone cliffs, and large expanses of floodplain (Hensley 1994:46).

The project area encompasses approximately 311 square kilometers. The northeast side of the project area is bounded by the lower Green River. The lower Green River begins in Butler County, Kentucky at the confluence of the Green and Barren Rivers (Stein 1980:15). The Green River in this area has sloping river banks with wide expanses of floodplain (Hensley 1994:49). This wide, fertile valley makes for excellent farmland, and much of the area is under cultivation today.

To the southwest, the survey area is defined by the divide that separates the Pond River drainage from the Cypress Creek watershed. The dividing line in this area runs directly across the top of an area of dissected uplands that lies between the Pond River and Cypress Creek. The

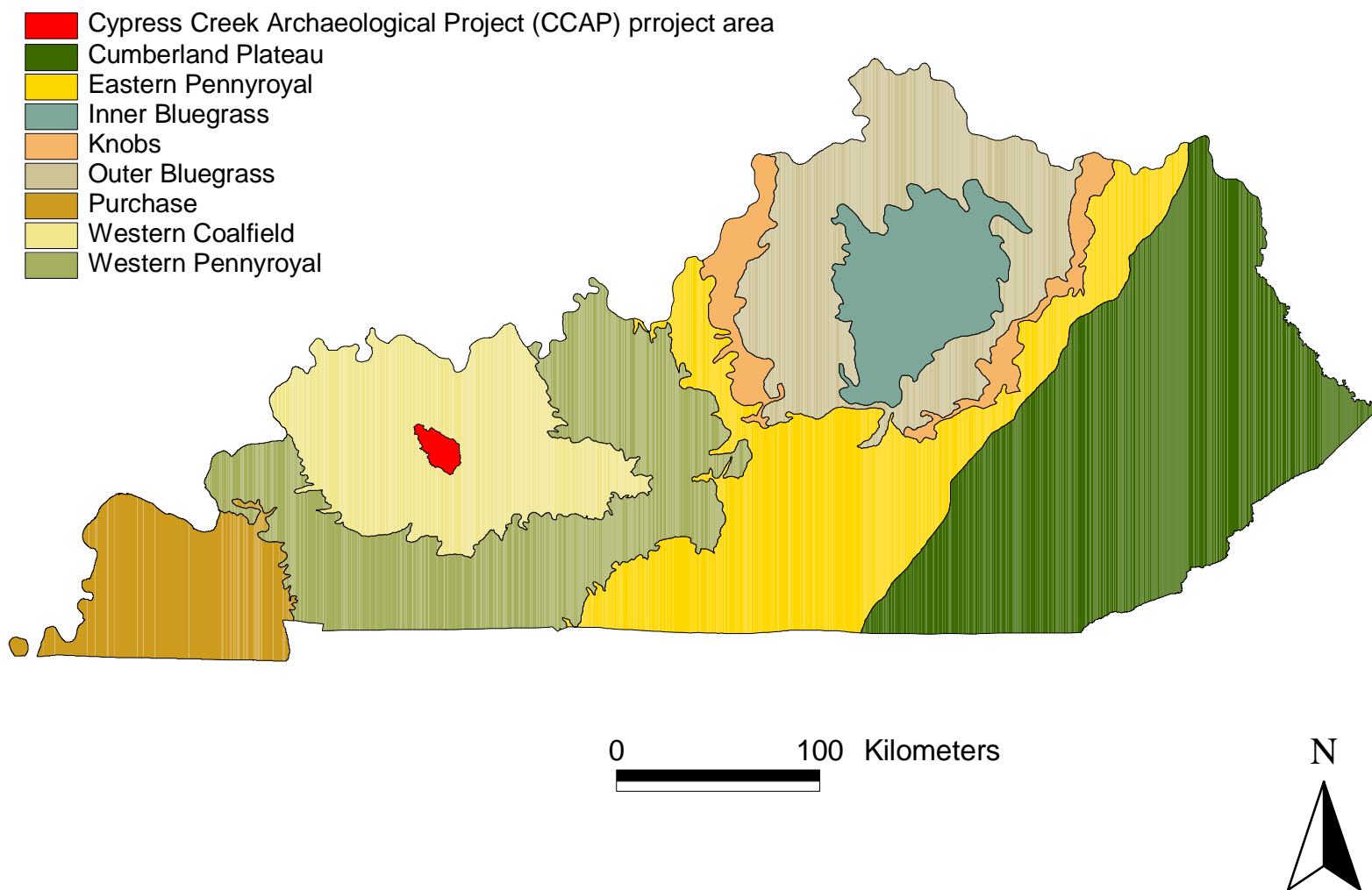
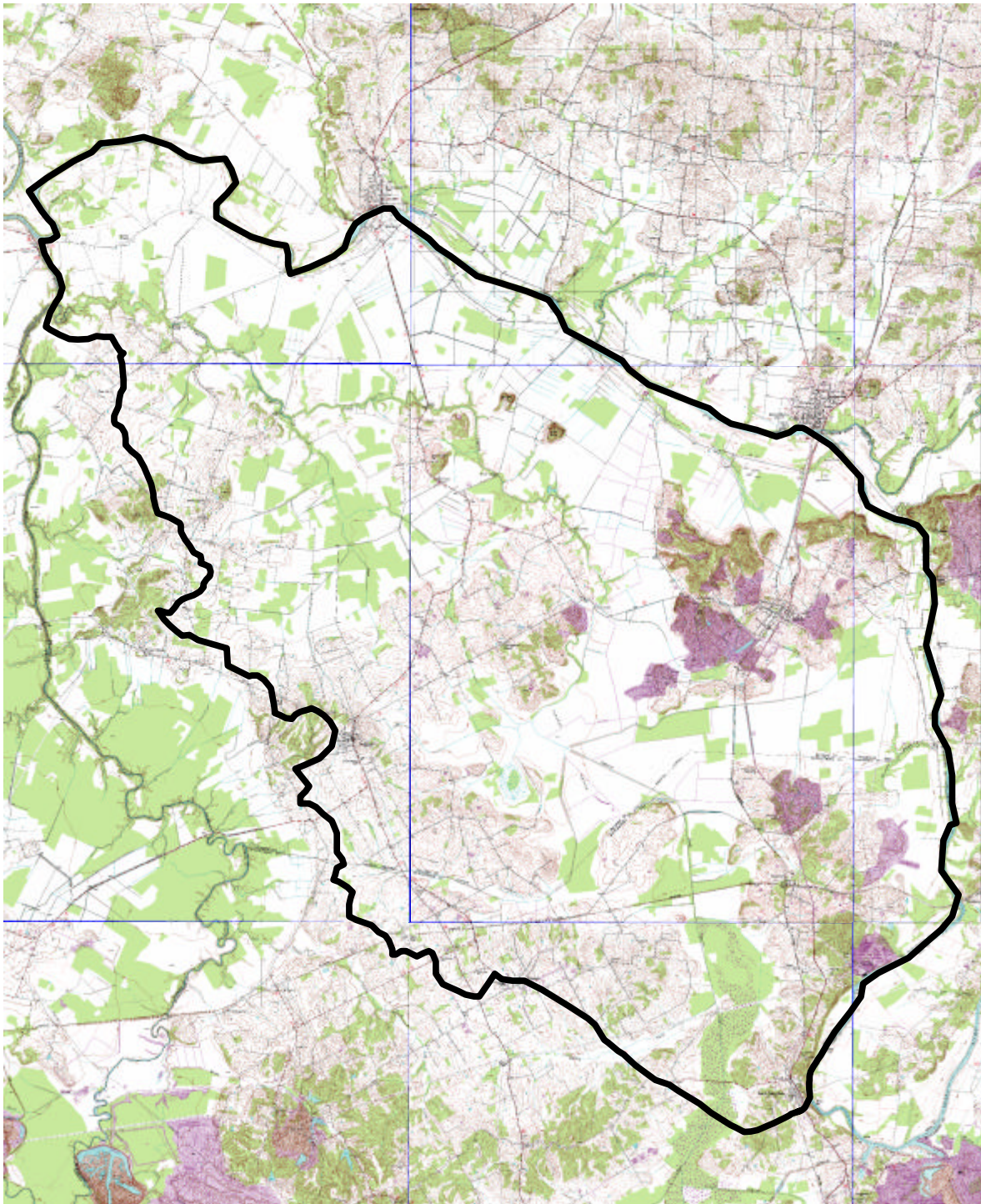


Figure 4.1. Location of CCAP project area and physiographic regions of Kentucky



0 10 Kilometers



Figure 4.2. Topographic setting of the Cypress Creek project area.

exact location of the drain line was obtained from geological survey data from the Kentucky Geological Survey. Both the Pond River and Cypress Creek are tributaries of the Green River. The lower portion of both of these drainages meet at the northwestern most end of the survey area. The lower portion of the Cypress Creek drainage runs through the survey area for approximately 32 kilometers. In the southern end of the survey area, Cypress Creek flows into a large expansive wetland as well as a small body of water known as Black Lake. Figure 4.2 shows the topographic setting of the CCAP project area.

The project area is divided into two distinct physiographic zones; uplands and lowlands. Uplands, constituting approximately 60 percent of the study area, were defined on the basis of soil types (see Table 4.1). Some upland areas are comprised of continuous features of uplands, such as the hills that separate the Pond River and Cypress Creek. In contrast, other upland areas are represented by isolated hills or knobs. Examples of features such as these are Bates and Boehler Knobs and the area occupied by the town of “Island” in McLean County. Referred to as “islands” by local informants, it was not uncommon for these areas to be completely surrounded by water during spring floods before twentieth-century drainage modification. Lowlands in the survey area cover approximately 40 percent of the land area. These areas include Pleistocene soil deposits (see Table 4.1) as well as waterways and wetlands. These areas correspond to low areas on topographic maps of the survey area. I will discuss the origin of the lowland areas below.

Soils

Project area soils can be divided into two major categories. The first consists of loamy soils found in areas subject to flooding. The second group consists of loamy and clayey, moderate to well-drained soils. Soils in the first group are nearly level, typically located on flood plains and stream terraces (Cox 1980:125). In contrast, the second soil group is located on side slopes, hilltops, and wide ridgetops (Cox 1980:125). Table 4.1 summarizes the different soils in the project area.

Table 4.1. Description of upland and lowland soil series (adapted from Cox 1980).

Soil Series	Description of soils	Associated with Lowland/ Uplands	Group one or two
Melvin-Karnak-McGary	Nearly level, deep, somewhat poorly-drained, loamy and clayey soils on floodplains and terraces.	Lowlands	One
Newark-Otwell-Melvin	Nearly level and gently sloping, deep, moderately well-drained to poorly drained, loamy soils on floodplains and terraces	Lowlands	One
Loring-Wellston	gently sloping to steep, deep, moderately well-drained and well drained, loamy soils on hilltops and side slopes	Uplands	Two
Grenada-Loring	Gently sloping to moderately steep, deep, moderately well-drained, loamy soils mainly on wide ridgetops	Uplands	Two

Climate

In general, summers in the Cypress Creek region are hot in the valley areas. More moderate temperatures can be found in the uplands and hills during this time of year (Cox 1980:1). Rain is moderate to heavy throughout the year, being slightly heavier in winter. Winters are moderately cold, receiving snow nearly every season; however, snow cover generally lasts only a few days (Cox 1980:1).

The majority of precipitation falls during the period from April through September, which corresponds to the growing season of most crops in the area (Cox 1980:2). Snowfall averages approximately 12 inches per year (Cox 1980:2). The number of days that snow accumulates on the ground varies greatly from year to year; however, on average seven days have at least one

inch of snow on the ground (Cox 1980:2). The average humidity throughout the year is 60 percent, with slightly higher humidity at night for all seasons; however, the humidity may vary greatly throughout the year (Cox 1980:2).

Formation history of the lowland soils

Prior to the mid-twentieth century, the Cypress Creek area, as indicated by historic maps and geo-archaeological studies (Stein 1980), was wetter than it is today. Previously, sections of bottomland along the creek were large expanses of wetlands. Channelization of the Cypress Creek region during the early twentieth century resulted in the drainage of much of these wetlands and today the creek can simply be characterized as a small tributary of the Green River (Jefferies et. al. 1999:14).

Although no information exists for the environmental conditions of Cypress Creek during the mid-Holocene, comparisons to other areas can be made. Stein's (1980) work in the Big Bend area of the Green River provides one basis for comparison due to its physical similarity and geographic proximity to the study area. Located just 45 km southeast of the Cypress Creek Project area, Stein's area of study is so close that she mentions the town of "Island" which is included within the Cypress Creek Study Area.

Geomorphological data from the Big Bend area reveals that, during the Pleistocene (ca. 20,000 years ago), the lower Green River area was essentially a glacial lake. Remnants of the lake can be observed in the comparison between the upper and lower Green River geomorphology. The upper Green exhibits a very narrow floodplain never exceeding 0.4 km wide, and has steep rising slopes on both sides of the valley (Stein 1980:21). In contrast, the lower Green River floodplain is, in some places, over 10 km wide (Weller 1927:74, cited in Stein 1980:21).

The difference between the upper and lower regions of the Green River is related to processes of valley filling that occurred in the Ohio River valley during the Pleistocene (Stein 1980:21). Beginning ca. 22,000 years ago, Wisconsin glacial ice advanced into central Illinois, Indiana and Ohio, resulting in the main drainages of the area becoming sluiceways, carrying glacial meltwaters to the Mississippi River (Stein 1980:47).

As the Ohio began to aggrade, it became the main sluiceway for the Midwestern United States. This resulted in the backfilling of glacial meltwaters in the unglaciated tributaries, such as the Green River in west-central Kentucky (Stein 1980:51). This ponding essentially created a lake in the lower Green River Valley all the way to Reedyville, Kentucky, which represents the eastern-most extent of what has become known as “Green Lake” (Stein 1980). Similar backfilling occurred in adjacent river valleys in southwestern Indiana and southern Illinois. Studies of the paleoenvironment of the Lake Saline area in southern Illinois suggest a formation history similar to that of the Green Lake (Jefferies and Lynch 1983; Jefferies 1983; Lopinot 1982).

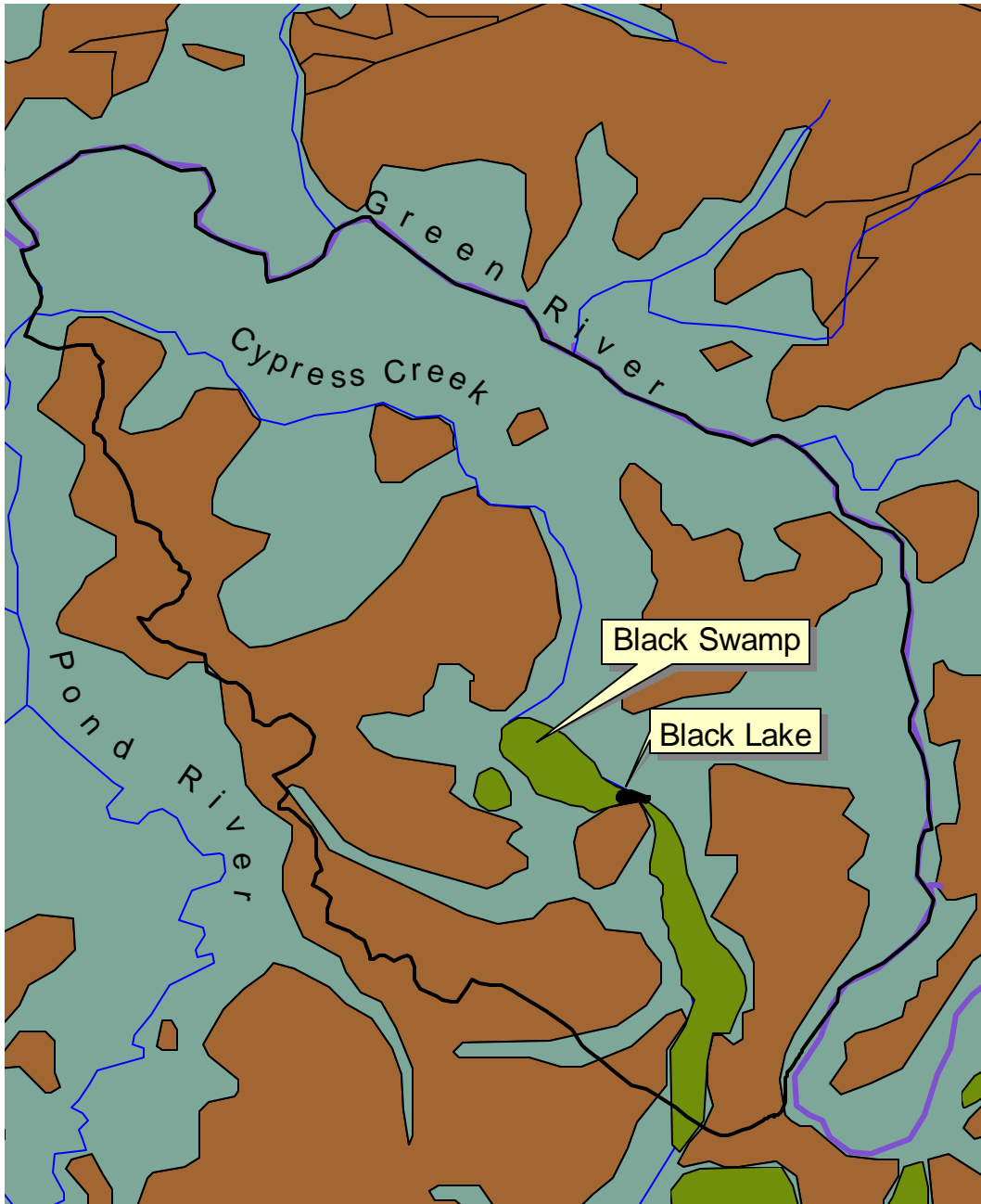
As a result of the ponding, the lower Green River Valley was filled with Pleistocene deposits. These soils, mostly silt and clay, can reach depths from 3 to 57 meters (Stein 1980). Because the Pleistocene deposits do not represent a true floodplain, the Green River continues to cut into these sediments. There are only a few developed levees and no evidence of abandoned channel scars or scroll bars (Stein 1980: 36).

Although there is considerable flooding in the area, these episodes usually result in the erosion of, not the addition to, these sediments. In the Early Holocene, incision of the river channel began and water was able to flow over the plain; however, floodwater does not contribute sediment to the plain. Based upon the depositional history, it appears that these waters move too fast to leave any considerable deposition of fine grain sediment (Stein 1980:36). As a result of the character of the Green River floodplain, flood water overflow results in standing water on the plain. This water, carried in by sloughs, stands until it either evaporates or is absorbed by plant life in the sloughs (Stein 1980:37). Examples of this type of river behavior have been documented historically (Stein 1980:37). Maps from the early nineteenth-century show extensive wetland areas, such as Black Lake Swamp, that lasted at least a portion of the year (see Figures 4.3 and 4.4). This area has at least one permanent body of standing water known as “Black Lake” or “Cypress Pond” (Munsell 1818; Lee 1851).

Stein (1980:72) concludes that the combination of glaciation, Ohio River sluiceway development, ponding, and flowing through a non-glaciated region resulted in the deposition and preservation of Green Lake sediments. Based on this evidence, she suggests that the geomorphological processes acting on the river today are similar to the ones that have impacted



Figure 4.3. 1909 Madisonville quadrangle topographic map of project area showing Cypress Creek prior to channelization (U.S. Geological Survey 1909)



0 10 Kilometers

N










-  Project Area Boundary
-  Black Lake
-  Wetlands
-  Pond River and Cypress Creek
-  Green River
-  Alluvium
-  Uplands

Figure 4.4. Environmental features of the Cypress Creek project area.

the river for the past 14,000 years (Stein 1980:72). Therefore, by taking into account historic developments by humans, such as locks and dams, reservoirs, and agriculture, the prehistoric environment can be reconstructed (Stein 1980:72).

The unusual nature of the Green River geomorphology has implications for archaeologists working in the region. Investigation of the Carlston Annis shell mound reveals that despite the fact that it has been covered by flood waters between 40 and 80 times, no significant deposition has occurred. Therefore, any archaeological sites located in the plain of the Green River should be recognizable on the surface (Stein 1980:42). Stein (1980:103) suggests Late Archaic hunter-gatherer in the Big Bend region lived adjacent to the river channel. In general, it was not necessary for groups to occupy elevated locations along the river channel, although some sites are positioned along bluff areas (Stein 1980:103).

Stein's conclusions on the formation history of the Green River have important implications for the Cypress Creek Archaeological Project (CCAP). The most important implication of her work is the observation that due to the limited amount of deposition since the Pleistocene, sites in the basin area should be located on or near the surface. This means that any survey conducted in the plowed fields in the basin area of the Cypress Creek region should yield archaeological sites without the aid of subsurface testing (see Stein 1980:42). This removes the bias of missing large numbers of potentially buried sites in the basin area. Therefore, it should be possible to examine relative degree of prehistoric land use between the basin and other areas, such as the uplands, within the project area. It is possible that some of the smaller, more ephemeral sites (i.e., small lithic scatters) may be buried by colluvial deposits. However, due to the intensive plowing of these areas and the relatively high degree of ground visibility, it is the opinion of the author that at least a portion of even these sites should be recognizable. In fact, when survey was conducted in these areas, ephemeral, lithic scatters were identified (see Chapter 6).

Paleoecology

Although information is limited on vegetation of the Cypress Creek survey area, inferences can be made from work conducted in adjacent areas. Because of its similar formation history and close proximity, vegetation reconstructions from the Big Bend region of the Green River may be

readily applied to the Cypress Creek study area. In addition, work conducted in the Little River area of Christian and Trigg counties, just 80 kilometers southwest of the project area may be used as supplemental environmental data.

By the end of the Pleistocene (12,000 B.P.), western Kentucky was covered by a mesic forest (Leach 1986). The habitat and species represented in this area would have been similar to modern conditions. During this time, the rivers began to down cut into the bedrock (Leach 1986). These forests supported a wide variety of plant species including tulip tree, sweetgum, oak, and hickory (Leach 1986).

Wagner’s (1979) botanical study of the Big Bend area suggests that plant communities correspond to three distinct microenvironments: floodplain, slope, and upland. Economically important tree species are present in all three habitats; however, the uplands represent the most important plant communities due to the dominance of nut producing species of trees. Table 4.2, based on Wagner’s 1979 study, summarizes tree species and their dominant habitat. It appears that all three habitats would have yielded important resources for the region’s prehistoric inhabitants. These resources would have waxed and waned in importance depending on the change in seasons, as well as the different types of settlement systems utilized by inhabitants.

Table 4.2. Holocene tree species and habitat (based on Wagner 1979 and Leach 1986).

<i>Species</i>	<i>Floodplain</i>	<i>Slope</i>	<i>Upland</i>
Black walnut	available	-----	-----
Chestnut	-----	available	available
Persimmon	-----	available	-----
Sycamore	available	available	-----
Pawpaw	available	available	-----
Sweet gum	available	available	-----
Oak (various species)	available	available	available
Shellbark hickory	-----	-----	available
Mockernut hickory	-----	-----	available
Shagbark hickory	available	available	available

In addition, many different faunal species would have been available to prehistoric inhabitants during the Holocene. The onset of Holocene conditions diminished species diversity with the extinction of some of the larger mammals such as mastodon and mammoth; however, the remnants of the large glacial backwater lakes and swamps of this area continued to support large populations of water-edge faunal species such as beaver, otter, and raccoon (Leach 1986). With the onset of the Hypsithermal Climatic Interval, wet environment species may have been more restricted in their distribution due to the reduction of the backwater areas (Leach 1986). During this time, species inhabiting the oak-hickory forests, such as white-tail deer, would have increased in population (Leach 1986).

Shellfish (e.g., fresh-water mussel, aquatic and terrestrial gastropods) were utilized extensively by late Middle to Late Archaic groups across the Midcontinent and southeastern United States (Claassen 1996; Marquardt and Watson 1983; Watson 1996; Marquardt 1985; Milner and Jefferies 1998). The Cypress Creek area was no exception as indicated by the large accumulations of shell at sites such as 15McL24 within the project area. Morey and Crothers (1998; see also Crothers 1999: 146) have found that geologic conditions, such as faulting and point bar development along rivers, are important variables in the creation of shellfish habitat. The restriction of shellfish habitats to certain areas of the river would have, in turn, influenced settlement location.

Few differences should be seen between the Mid-Holocene and modern faunas (Leach 1986). Analysis of faunal remains from several sites in the Big Bend area reveals that Mid-Holocene hunter-gatherers exploited a wide range of food resources including shellfish, fish, turtles, mammals, fowl, nuts and seeds (see Crothers 1999: chapter 5).

Similar to the plant species, certain faunal resources may be thought to dominate a particular habitat; however, for the faunal availability, it is useful to divide the floodplains into river settings and backwater areas. The reason is that many of the backwater areas may be located considerable distances from the river and represent a distinct habitat. One example of such an area in the Cypress Creek project area is the large wetland near the Ward site (15McL11). Table 4.3 summarizes the location of faunal resources.

Table 4.3. Important faunal species and dominant habitat (based on Crothers 1999 and Leach 1986).

Species	river setting	swamp	slope	upland
aquatic turtle	available	available	-----	-----
fish	available	available	-----	-----
shell fish	available	-----	-----	-----
small mammals	available	available	available	available
deer	available	available	available	available
elk	-----	-----	-----	available
water fowl	available	available	-----	-----

Resources in the Cypress Creek area (both floral and faunal) fall into distinct environmental zones. Although the Green River would have been a focal point for many hunter-gatherer subsistence activities, resources such as nuts, deer, and other aquatic species could be found at a considerable distance from the main river channel. This type of resource distribution could potentially affect Archaic hunter-gatherer settlement. Because of this resource distribution, it was not necessary for large settlements, such as the Ward site (see Chapter 2), to be located near the main river channel.

Based on these observations and the data from sources summarized in the previous discussion, I divide the Cypress Creek study area into four distinct resource zones, designated as zones 1 through 4 (Figure 4.5). These zone represent the unequal distribution of resources within the CCAP study area corresponding to differences in elevation and proximity to wetland and river habitats. Higher elevations or uplands should contain more nut-bearing tree species. In contrast, the Green River should contain abundant aquatic resources, especially shell fish beds (see Morey and Crothers 1998). Floodplain habitats should also contain abundant aquatic resources such as fish and turtle, but shell fish resources should be minimal in these areas because these wetlands consist mainly of swamps and small creeks. In addition, since many of the floodplain wetland habitats are located adjacent to upland habitats, it is useful to distinguish the area where the uplands and floodplain meet as a separate resource zone. The reason for this is that this area

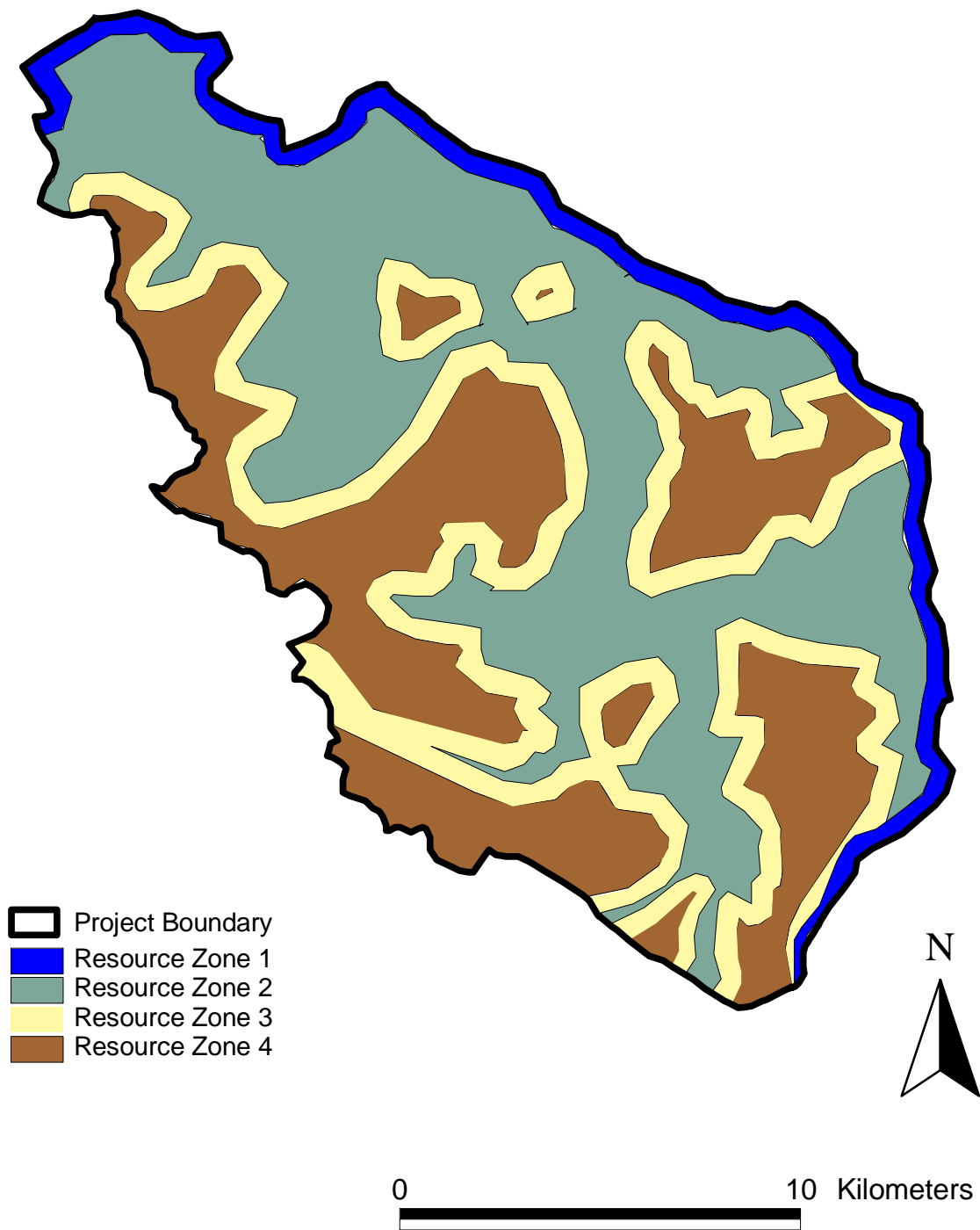


Figure 4.5. CCAP project area resource zones.

represents an on a ecotone in the Cypress Creek area. Prehistoric groups located here would have had access to both dry upland and wetland floodplain habitats.

Each of the habitats mentioned above offers distinct and overlapping resources for hunter-gatherers. In order to evaluate the intensity of activity within each habitat for each Archaic subperiod, the survey area was divided into resource zones, which were treated as sampling zones for analytical purposes. Sample areas of each zone were examined in order to evaluate the density of sites in each of these areas. It is recognized that the division of resource zones is an artificial creation and that different microenvironments may exist within a given area at different times. However, I argue that these divisions represent broad categories of resources. The reason for this is that, in general, plant and animal communities respond to variations in topography and hydrology, which, as indicated by Stein (1982), seem to be fairly consistent throughout the later part of the Holocene. Consequently, they may be used to infer general patterns of hunter-gatherer activities across the landscape.

Summary and Conclusions

In summary, during the Pleistocene the Cypress Creek area was inundated by a slack water glacial lake. Geoarchaeological studies and nineteenth-century accounts suggest that the current character of the landscape closely resembles how it was during the Mid-to-Late Holocene. Due to the limited amount of deposition which occurred in the valley areas since the Pleistocene, the Cypress Creek survey area represents an advantageous place to study hunter-gatherer settlement. Sites in this area should be visible on or near the surface— increasing the chances of site identification. Finally, resources that were potentially important to prehistoric inhabitants are located in many different environmental zones. This distribution of resources would have allowed prehistoric inhabitants to occupy a wide variety of areas across the landscape including those along the Green River and others locales located away from the main river channel.

CHAPTER 5: CYPRESS CREEK ARCHAEOLOGICAL PROJECT INVESTIGATIONS, SCENARIOS, AND SURVEY METHODOLOGY

In this chapter, I describe previous investigations in the Cypress Creek area, the goals of the Cypress Creek Archaeological Project (CCAP), settlement scenarios, methodology, and the database for the CCAP survey. First, I present a general background on the CCAP, noting all previous work in the project area. Next, several scenarios are presented for changing settlement strategies during the Archaic. Then specific field methods for the survey are presented in detail. Included in this section is information on how sites were identified, how sites were geo-referenced using a Global Positioning System (GPS), the inclusion of materials from sites in the project area, how the survey zones were defined, and how the temporal placement of each site was determined. Finally, I present the general methodology for the spatial analysis of the regional data.

Previous Investigations and the Cypress Creek Archaeological Project

Much of what is known about the Cypress Creek area comes from investigations conducted in the late 1930s by the University of Kentucky's New Deal archaeology program (Jefferies et al. 1999:1). The majority of the studies conducted in this area focused on the larger sites such as Ward (15McL11) (Webb and Haag 1940). Excavations at the Ward site by WPA archaeologists revealed a thick midden accumulation with numerous artifacts, features, and burials (Webb and Haag 1940). The nature and diversity of the assemblage suggests that a variety of activities took place at the site during the Archaic (Jefferies et al. 2001) and emphasizes that extensive activities of Archaic hunter-gathers took place away from the main course of the Green River. An in-depth discussion of the sites excavated by New Deal archaeologists in the vicinity of the Cypress Creek project area is presented in Chapter 2.

Several archaeological surveys were conducted in the project area between the WPA period and the early 1990's. These surveys discovered many additional Archaic period sites. Many of the sites in McLean and Muhlenberg counties were recorded by Kentucky Heritage Council (KHC) archaeologists Tom Sanders and Charles Hockensmith as part of the county-wide

surveys conducted by the KHC during the 1970s. Although no formal report of these investigations was ever produced, Kentucky state site forms were completed and filed at the Office of State Archaeology in Lexington, Kentucky.

Recent archaeological work in the Cypress Creek area was conducted in 1996 by the Cultural Resource Management division of Vaughan Engineering in order to evaluate the impact of proposed surface mining within the area (Smith 1997). This survey covered approximately 316 ha which traversed uplands, terraces, and flood plain areas. This survey located eighteen previously unrecorded archaeological sites, of which seven have Archaic components. Several Early Archaic and Late Archaic projectile points were recovered from sites located in the floodplain or floodplain margins suggesting that alluvial and colluvial deposition may have been minimal in parts of the Cypress Creek drainage (Smith 1997:17; Jefferies et al. 1999:6). In summary, this survey provides a broad view of site density and site types located in the area (Jefferies et al. 1999:5).

In general, the archaeological research in this area has concentrated on the excavation of large sites. Some survey work was conducted, but this was only to assess part of the drainage for mining. As a result of this restricted focus, questions about the regional settlement and relationships during the Archaic period for this area have not been addressed.

In 1997, Richard Jefferies of the University of Kentucky (UK), and George Milner of Pennsylvania State University (PSU) initiated the first phase of the Cypress Creek Archaeological Project (CCAP). This initial research consisted of a review of the museum collections and notes at the University of Kentucky William S. Webb Museum of Anthropology. The goals of the first phase of the project were to assess the research significance of existing artifact collections and excavation records and the feasibility of a full-scale survey and excavation program in the area (Jefferies et al 1999:1; Jefferies et al. 2001).

In 1998, the KHC provided funds to conduct an exploratory survey of the Cypress Creek area (Jefferies et al. 2001). During the winter of 1999, 10 ha of land in the study area were examined for archaeological sites. Three previously unrecorded sites were found during the course of this survey. In addition to an archaeological survey, landowner attitudes toward future work in the area were evaluated. Generally, it was found that there is a great local interest in

archaeology, and landowners appear to be receptive to future investigations (Jefferies et. al. 1999:33).

Based on the initial study, CCAP archaeologists began long term investigation in the Cypress Creek area. There are several research goals of the CCAP (Jefferies et al 2001), including:

- Identifying undocumented Archaic sites.
- Examining the distribution of known and newly discovered sites across the landscape.
- Examining site densities in different topographic settings.
- Documenting diachronic changes and similarities in Archaic hunter-gatherer settlement.
- Understanding the cultural, temporal, and functional relationships between the Cypress Creek sites and the Green River shell middens.

The work conducted by the CCAP should provide a more comprehensive view of hunter-gatherer activities in the Green River region. In turn, it is hoped that through these investigations a better understanding of the evolution, variation, and adaptive strategies of hunter-gatherer societies will be obtained.

In order to meet the above goals, research was resumed on the CCAP during the summer of 2000. Supported by University of Kentucky research funds, more survey and museum research was conducted. The survey project was field directed by the author, and crews consisted of student volunteers from the University of Kentucky. The field crew surveyed an additional 315 ha and identified five additional archaeological sites, three of which date to the Archaic period. Because of the availability of freshly plowed tracts of land, most of the 2000 field work focused on low areas of the Cypress Creek drainage (Jefferies et al. 2001). High site densities were not expected for these areas since historic and paleoenvironmental data indicate that low areas were the location of extensive wetlands during the Holocene (Jefferies et al 2001; see also Chapter 5).

The 2000 museum work reviewed the data on existing sites in the CCAP study area. This work included a search of the Kentucky site file database and a review of the published reports. Collections from all Archaic period sites identified by the review were obtained for analysis by project archaeologists (Jefferies et al. 2001).

In the summer of 2001, CCAP archaeologists continued the survey of the Cypress Creek area. Funded by a KHC grant, three weeks of intensive survey resulted in the examination of an additional 286 ha, identification of 34 additional archaeological sites, and revisiting three previously recorded sites. Out of the 34 new sites (including one isolated find), 13 date to the Archaic period. Work conducted at this time focused on a wide variety of topographic settings, including uplands, areas adjacent to Cypress Creek and areas adjacent to the Green River.

The data presented in this thesis encompasses all three seasons of field investigations (1999-2001), as well as the analysis of all previously known sites from WPA investigations to more recent surveys (e.g., Smith 1997). The primary concern of the analysis of these data is to document changes in Archaic hunter-gatherer settlement in the Cypress Creek study area. In order to evaluate changes in hunter-gatherer land use, several scenarios must be generated. In the following section, four land use strategy scenarios are given for each Archaic subperiod.

The Cypress Creek Landscape: Scenarios and Archaeological Implications

Based upon the review of the literature on hunter-gatherer settlement in the North American Midcontinent given in Chapter 2, several scenarios can be put forth concerning the Cypress Creek Archaic landscape. Each scenario presents a different model of how the landscape might have been used. In the next chapter, I will evaluate these scenarios for each subperiod of the Archaic.

Scenarios

Scenario 1

Archaic hunter-gatherers did not utilize any one specific area of the landscape. In addition, they did not intensively use any one place on the landscape. The archaeological evidence of this pattern would be an even distribution of sites across the landscape with no specific utilization of any one resource zone. There should be no clustering of sites in this pattern. In this thesis, a site cluster is considered to be two or more sites that are within 500 meters of

each other. In addition, there should be little or no reuse or reoccupation of particular locals or places (i.e., sites).

Scenario 2

Archaic hunter-gatherers did not utilize any one specific area of the landscape; however, certain locations or sites were intensively occupied. The archaeological evidence of this pattern would be an even distribution of sites across the landscape (i.e., no preferential use of specific resource zones) with evidence of reuse or reoccupation of particular locals or places (i.e., sites). Reuse and intensive occupation should be evident by accumulation of cultural materials and a more structured utilization of space compared to contemporaneous sites.

Scenario 3

Archaic hunter-gatherers utilized specific areas of the landscape. In addition, certain locations were intensively occupied. The archaeological evidence of this pattern would be site clustering in specific areas of the landscape (i.e., preferential use of resource zones) with evidence for reuse of particular locales or places (i.e., sites). Reuse and intensive occupation should be evident by accumulation of cultural materials and greater site structure compared to contemporaneous sites.

Scenario 4

Archaic hunter-gatherers utilized specific areas of the landscape, but did not intensively occupy specific locations. The archaeological evidence of this pattern would be a clustering of sites in specific areas and utilization of specific resource zones. Sites on the other hand, should indicate ephemeral occupation with little to no evidence of use.

Methods

In order to evaluate the above scenarios, the distributions of sites and hafted bifaces across the landscape were considered. In order to investigate land-use, a comparison between observed settlement distributions and resource zones was conducted (see Ahler 1984:160; Stafford 1994;

Stafford and Hajic 1992). In order to evaluate the intensity and reuse of sites, original WPA reports and notes were consulted and bifaces from available sites were examined.

Listed below are the procedures that were followed in order to examine which, if any, of these patterns conform to the Cypress Creek area.

- An examination of collections and reports from all previously recorded sites in the CCAP study was conducted.
- The CCAP study area was divided up into different sampling strata corresponding to gross resource zones.
- A pedestrian survey was conducted encompassing a portion of all the different resource zones.
- The density of sites and hafted bifaces for each subperiod of the Archaic were examined for each zone.
- The distance of sites and hafted bifaces to wetland habitats was measured and calculated for each Archaic subperiod.
- Based on reports and previous excavations, I examined where long term, intensively occupied sites were located vis á vis resource zone and distance from wetland habitats.

In the remaining part of this chapter, I describe in detail these procedures.

Analysis of Previously Recorded Sites

This study utilized site data from previous archaeological investigations in the Cypress Creek area. This entailed examining all site forms for McLean and Muhlenberg counties. In order to make sure that no sites were missed, all collections from all previously recorded prehistoric sites in the survey area were examined for Archaic materials. This search located 38 previously recorded sites that have components dating to the Archaic period. The bulk of the material was housed in the University of Kentucky's W.S. Webb Museum of Anthropology in Lexington; however, smaller collections were located at Murray State University and the Kentucky Heritage Council in Frankfort, Kentucky.

For the purposes of this study, only temporally diagnostic hafted bifaces (i.e., projectile points, hafted scrapers, and drills) were examined. The analysis of these materials was designed

to address changes in the distribution and intensity of human occupation across the landscape during the Archaic period. Following this objective, each biface was classified and assigned to a temporal period (Dalton and Early Archaic, Middle Archaic, and Late Archaic) in accordance with Justice (1987).

The reader should note that although Dalton period sites are usually thought to date to the Late Paleoindian period (ca. 10,700 to 9,900 B.P.) (see Morse 1996:26-27), I have included these sites in with the Early Archaic. This was done for three reasons. First, only two Dalton period components are located in the CCAP study area. These two sites (15McL4 and 15McL6), represented by four projectile points, are the only known Paleoindian sites in the area. Therefore, any attempt to evaluate the settlement system of this period would be highly speculative. The second reason that I include them with the Early Archaic is based on the differences between Dalton assemblages and other Paleoindian assemblages. Dalton points represent a transition between Paleoindian and Archaic technologies (Goodyear 1982:389-392). Certain changes, first appearing during the Dalton period and later elaborated during the Early Archaic, include woodworking, as evident by the Dalton adz (Morse and Goodyear 1973), beveling and reshaping of projectile points (Morse 1996), and the widespread use of rock shelters (Walthall 1998). In addition, Dalton points are not associated with mammoth, mastodon, camelid, tapir, horse, camel, sloth or any other species that became extinct during the Late Pleistocene (Morse 1996:426). Finally, by our best estimates the Dalton period (10,700-9,900 B.P.) and Early Archaic (10,000-8,000) overlap by at least 100 years and possibly more (see Ahler 1984:69-70). Therefore due to the limited number of Dalton period sites in the CCAP project area and the transitional nature of Dalton assemblages, I have included these sites in with the Early Archaic sites.

Although many diagnostic materials belonging to the museum collections were already separated; all bags for each site were examined to ensure that all diagnostic artifacts were identified. Diagnostic artifacts were chosen to the exclusion of all others for two reasons. First, analysis of these artifacts allows the researcher to assign a temporal association to a given site. Therefore, by comparing where these diagnostic artifacts occur on the landscape and in what densities, one can reconstruct the use and intensity of given areas of the landscape (see Stafford

1994). Second, many of the sites examined are multi-component surface scatters. Without any vertical provenience information, it is difficult to compare non-diagnostic lithic assemblages.

When possible, site reports and field notes for excavated sites were consulted to evaluate reuse and intensity of site occupation. This was done so that intensively occupied sites could be identified. A site was considered to be an intensively occupied site if it exhibited three or more of the following: midden accumulation of shell or anthropogenic soils, human and dog burials, features such as trash or storage pits, or over 100 finished artifacts (e.g., bifaces, ground stone tools, etc.). Understanding where these sites are located will aid in the evaluation Archaic land-use.

Resource Zones

As mentioned in Chapter 4, the CCAP survey area was defined by the Green River to the north and northeast and the Lower Cypress Creek drainage boundaries to the south and southwest. This area encompasses ca. 311 sq. kilometers with a wide variety of landscape features. The resource zones (hereafter called “zones”) are defined as follows.

Figure 5.1 shows the location of the resource zones in the CCAP project area.

Zone 1 consists of the area nearest to the Green River. This zone includes the river and all land within a distance of 500 meters of it (Figure 5.1). A distance of 500 meters was chosen because many of the large shell middens that have been the focus of intensive study for this area fall within 500 m of the river. Most are within 200 meters. Table 5.1 shows a sample of forty-one Green River shell middens and their distances from the Green River. Distance to the river was calculated by measuring in Archview GIS the distance from the center of a site to the edge of the river, as shown by the Kentucky State Site Files database. In addition, the river could be easily accessed from any location in this zone with minimum effort. On average, 500 meters can be traveled on foot in less than 10 minutes.

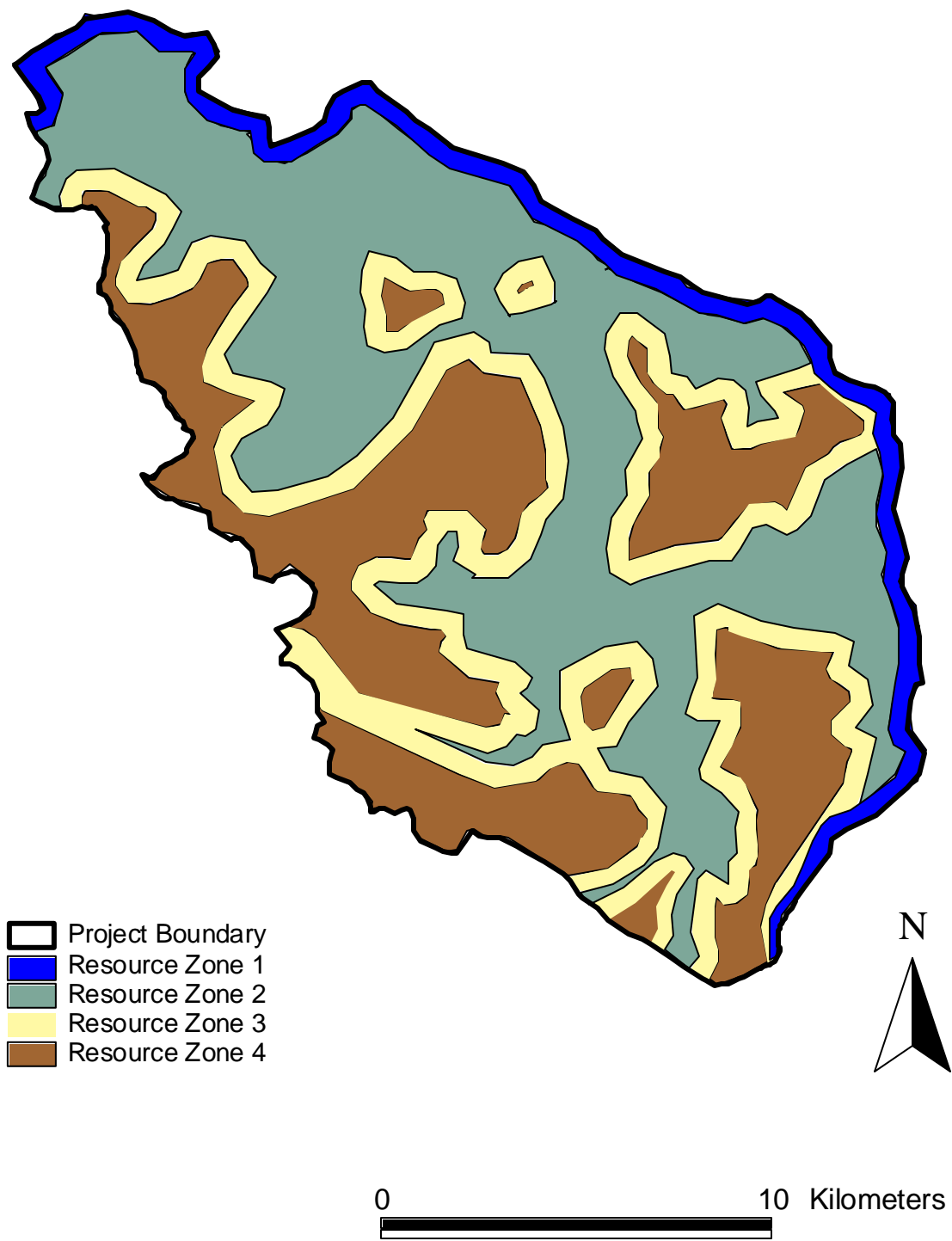


Figure 5.1. CCAP project area resource zones.

Table 5.1. Distance of known Green River shell middens to the Green River.

Site Number	Distance from Green River
15McL111	229 m
15McL2	217 m
15McL22	206 m
15McL13	196 m
15McL19	246 m
15McL16	50 m
15McL24	47 m
15McL18	231 m
15McL26	218 m
15McL17	316 m
15McL15	10 m
15McL7	163 m
15McL5	368 m
15Oh97	86 m
15Oh10	151 m
15Oh95	476 m
15Oh20	157 m
15Oh19	240 m
15Oh12	284 m
15Oh2	136 m
15Oh1	141 m
15Oh13	173 m
15Oh9	195 m
15Mu81	147 m
15Mu41	242 m
15Mu12	97 m
15Bt7	226 m

Table 5.1. (Continued)

15Bt24	55 m
15Bt11	141 m
15Bt15	211 m
15Bt6	155 m
15Bt41	169 m
15Bt23	231 m
15Bt101	233 m
15Bt12	106 m
15Bt13	430 m
15Bt8	366 m
15Bt67	83 m
15Bt9	114 m
15Bt10	324 m
15Bt5	399 m

Zone 2 is the floodplain area (Figure 5.1), consisting of all floodplain soils that are not within 500 meters of the Green River or within 250 meters of the interface corridor. Zone 3 includes all land within 250 meters of the interface between the floodplain and upland soils (Figure 5.1). This zone is essentially a 500 meter wide strip that traverses the project area. One of the largest and best known Archaic sites, Ward (15McL11), is located in this Zone, suggesting that it was an important location for prehistoric hunter-gatherers. The inhabitants of sites located in this zone had easy access to both upland and wetland resources. Finally, Zone 4 consists of all upland soils not located within zones 1 and 3 (Figure 5.1). Table 5.2. lists the absolute and relative areas for each zone in the project area.

Table 5.2. Resource zones area and percentage of the project area.

Resource Zones	Physiographic Characteristic	Area km²	Percentage of Project Area
Zone 1	Adjacent to Green River	22 km ²	7%
Zone 2	Pleistocene lake plain	125 km ²	40%
Zone 3	Junction of lake plain and uplands	74 km ²	24%
Zone 4	Uplands	90 km ²	29%

General Survey Methodology

Artifact concentrations were designated as “sites”. Over the past twenty-five years, the site concept has been criticized as a construct created by the archaeologists, existing only in the present (Binford 1975:12; Dunnell 1992: 26-29). Despite this argument, the concept provides a useful way in which data may be recorded and presented. Although the survey recorded artifact concentrations as sites, the final analysis is presented both in terms of the distribution of diagnostic bifaces and the distribution of sites. Consequently, the following analysis conforms to both a site-based and non-site based methodology— similar to studies conducted by Stafford (1994), Ebert (1992), Bettinger (1977), and Nance (1988). Using both a site-based and non-site approach fits in well with studies of prehistoric landscapes in terms of dealing with specific landmarks (i.e., sites) and in terms of looking at activities across the landscape (i.e., a non-site based approach).

All sites were identified on the basis of observed surface artifact scatters. No subsurface testing was performed during the survey, limiting investigations to the plowed fields in the CCAP project area. There are three reasons for this limitation: 1) surface materials present a greater likelihood for the recovery of diagnostic artifacts (i.e., projectile points), 2) due to the depositional history of the area, sites should be readily identifiable on the surface (see Stein 1980; see also Chapter 5), 3) shovel tests are unlikely to recover diagnostic artifacts. The reader should note that this recovery strategy biases the sample towards soils suitable for agriculture.

Fortunately, much of the land within the project area is under cultivation (planted in either corn, soybean, or tobacco). Visibility in these cultivated fields is excellent prior to crop growth and just after harvest. During the time in between planting and harvest (ca. early May-September), visibility varies based on the growth of crops. As a result of the changing surface visibility, the majority of the fieldwork took place during early summer.

Areas within the CCAP project area were deemed eligible for survey based on surface visibility (70% or greater) and landowner permission. In addition, survey blocks were chosen to represent each physiographic area (i.e., Zones 1-4) in the survey area. Survey blocks were walked on transects at a maximum spacing of 10 meters. Based upon degree of surface visibility (70% or greater), sites should be readily identifiable at this interval.

Once a given survey area was examined, the limits of the survey block were geo-referenced with a global positioning system (hereafter GPS). In order to ensure accuracy of plotting these areas once fieldwork was completed, all sites were geo-referenced in the field using a Magellan 315 Global Positioning System to obtain UTM coordinates. This system was chosen for two reasons. First, it cost under \$200. Second, with selective availability turned off, the error for this unit is estimated at ca. 15 meters. The highly visible horizon and open fields of the project area increased the precision of the reading because signals are not obscured by trees and more satellites could be utilized. Tests of the Magellan in the project area show an average error of ca. 5 meters.

CCAP Sites and Artifacts

Sites were identified on the basis of the presence of two or more artifacts within 30 meters of each other. Once a site was located, an intensive visual inspection at 3 m intervals was conducted. A representative sample of at least 50% of the observed surface material was collected, bagged, and given a field site number, and a standardized field site form was filled out. Site limits were defined on the basis of artifact scatter. For mapping purposes, pin flags were placed at artifact recovery locations on the site. A Global Positioning System UTM reading was taken at the center point of the site. Using the GPS point as a datum, the artifact recovery points

were mapped by pacing off the datum point. After the site was mapped, all pin flags were removed.

Occurrences of one artifact were designated as “Isolated Finds” (IF). Instead of site numbers, these occurrences were given IF numbers. In order to record the exact location of the isolated finds, a GPS reading was made for each artifact. Isolated finds which date to the Archaic period were included in the distribution analysis and treated as sites. It is possible that many of these isolated finds are displaced materials due to farming practices; however, not all material may be put into this category. There are many kinds of sites, such as stations or locations (see Binford 1980, 1982), that would not result in the accumulation of much cultural material (Ahler 1984:183). Therefore, I include the IF on the basis that it may represent a location of Archaic hunter-gatherer activity.

All artifacts recovered during the CCAP surveys (1999-2001) were washed and catalogued, and classified. Prehistoric cultural materials were divided into two broad categories: ceramics and lithics. Ceramic artifacts were classified based on surface treatment and temper. Because the focus of this study is on the Archaic period occupants of the area, no further analysis of pottery was conducted. Lithic artifacts were divided into broad categories of ground and polished stone, cobbles, debitage, and flaked stone tools. Similar to the ceramic analysis, this was conducted primarily for site form recording.

As discussed earlier in this chapter, for the purposes of this study, emphasis was placed on the diagnostic hafted bifaces (i.e., projectile points, hafted scrapers, and drills) located by the CCAP. The analysis of these materials was designed to address diachronic changes in the distribution and intensity of human occupation across the landscape during the Archaic period. Following this objective, each biface located by the CCAP was classified and, when possible, assigned to a temporal period (Dalton and Early Archaic, Middle Archaic, and Late Archaic) in accordance with Justice (1987). Table 5.3 lists all biface types found in association with sites in the project area. Although Woodland and Late Prehistoric bifaces were documented, their distribution is not considered in this study.

Table 5.3. CCAP diagnostic biface types.

PPK Type	Temporal Affiliation	Reference
Dalton	Late Paleo/Early Archaic	Justice 1987; Goodyear 1982
Saratoga	Late Archaic to Early Woodland	Justice 1987
McWhinney/Rowelett	Middle to Late Archaic	Justice 1987; Cook 1976
Pinetree	Early Archaic	Justice 1987
St Albans	Early Archaic	Justice 1987
St. Charles	Early Archaic	Justice 1987
LeCroy	Early Archaic	Justice 1987
Big Sandy	Early Archaic	Justice 1987
MacCorkle	Early Archaic	Justice 1987
Greenbriar	Early Archaic	Justice 1987
Palmer	Early Archaic	Justice 1987
Kirk Corner Notched	Early Archaic	Justice 1987
Stillwell	Early Archaic	Justice 1987
Kirk Stemmed	Early Archaic	Justice 1987
Hardin Barbed	Early Archaic	Justice 1987
Lost Lake	Early Archaic	Justice 1987
Thebes	Early Archaic	Justice 1987
Matanzas	Middle Archaic	Justice 1987
Eva	Middle Archaic	Justice 1987
Morrow Mt.	Middle Archaic	Justice 1987
Raddatz	Middle Archaic	Justice 1987
Godar	Middle Archaic	Justice 1987
Brewerton	Middle Archaic	Justice 1987
Graham Cave	Middle Archaic	Justice 1987
Sykes/White Spring	Middle to Late Archaic/Middle Archaic	Justice 1987
Pickwick	Late Archaic	Justice 1987
Wade	Late Archaic-Early Woodland	Justice 1987
Ledbetter	Late Archaic	Justice 1987

Table 5.3 (Continued)

Merom-Trimble	Late Archaic	Justice 1987
Lamoka	Late Archaic	Justice 1987
Table Rock	Late Archaic	Justice 1987
Karnak	Late Archaic	Justice 1987
Bottleneck	Late Archaic	Justice 1987
Etley	Late Archaic	Justice 1987
Buck Creek	Late Archaic-Early Woodland	Justice 1987
Turkey Tail	Late Archaic-Early Woodland	Justice 1987
Motley	Late Archaic-Early Woodland	Justice 1987
Little Bear Creek	Late Archaic-Early Woodland	Justice 1987
Adena	Early Woodland	Justice 1987
Robbins	Early Woodland	Justice 1987
Cypress Stemmed	Early Woodland	Justice 1987
Snyders	early Middle Woodland	Justice 1987
Lowe Flared Base	Middle Woodland	Justice 1987
Copena	Middle Woodland	Justice 1987
Jack's Reef	Middle Woodland-Late Woodland	Justice 1987
Madison	Late Woodland-Mississippian	Justice 1987
Nodena	Late Mississippian	Justice 1987

Although many different projectile points were located in the CCAP project area, Archaic components were primarily identified based on the presence of a few specific types. Early Archaic components were identified mainly by the presence of Dalton, Hardin Barbed, Lost Lake, Greenbrier, Kirk Corner Notched, Kirk Serrated, Palmer, St. Charles, and MacCorkle types (Justice 1987). As discussed earlier, Dalton bifaces represent a shift in technology from Paleoindian to Early Archaic technologies (Goodyear 1982). In general, these hafted bifaces have ground concave bases, no notching, and ground lateral haft elements; beveling is also common for this type (Justice 1987:35-36; Ahler 1987:66). The remaining types are all corner notched varieties (except for the Kirk Serrated type). Most of these types exhibit corner notching,

alternately beveled blades, ground bases, and basal thinning (Ahler 1984:73; Justice 1987). These Early Archaic types represent a shift away from the fluted lanceolate points that were manufactured during the Paleoindian period (ca. 12,000-10,000 B.P.).

Middle Archaic components were identified by the presence of two groups of hafted bifaces. Early Middle Archaic components (8,000-6,500 B.P) were recognized by the presence of Eva, Morrow Mountain, Sykes, and White Springs types (Justice 1987), while late Middle Archaic components (6,500-5,000 B.P.) were recognized by the presence of several sidenotched types including Big Sandy II, Godar, Matanzas, and Brannon (Justice 1987). The early Middle Archaic types exhibit slight stems, except for the Eva point which is basally notched (Justice 1987:100), and all have broad triangular blades. In contrast, the late Middle Archaic types are all sidenotched. All of these types exhibit distinct side notches, flat or slightly concave bases, and rounded corners (Ahler 1984:79; see also Cook 1976; Justice 1987:60-70, 119-123).

For the Late Archaic period, Saratoga, McWhinney/Rowelett, Karnak, Etley, Pickwick, Ledbetter, Lamoka, Wade, and Trimble types (Justice 1987) were the most often recognized types. In general, all of these points have broad blades and a stem for a haft element (Ahler 1984:86; Justice 1987).

After all the materials from each site were analyzed, all artifacts, maps, field notes, and other documents were curated at the W.S. Webb Museum of Anthropology, University of Kentucky. Site forms for each site found during the course of the CCAP were filed at the Office of State Archaeology at the University of Kentucky and at the Kentucky Heritage Council in Frankfort.

Geographic Information Systems (GIS) and Statistical Analysis of Region and Site Data

A number of different analyses were undertaken in order to describe the data and evaluate the scenarios presented earlier in this chapter. First, in order to compare changes in site frequency through time, the number of components for each Archaic subperiod was calculated. Site component frequency was then standardized by frequency of sites per 1000 years. This procedure was also performed on the number of hafted bifaces for each Archaic subperiod. The

standardized frequencies reflect the relative population density or activity of hunter-gatherer groups for each subperiod.

Cypress Creek project area analysis is based on the assumption that the number of hafted bifaces located at a site or within a particular zone is a reflection of occupation intensity at the site level, as well as across the landscape (see Stafford 1994; Nance 1987; Milner and Jefferies 1998). It is recognized that the frequency of bifaces can be affected by other factors such as curation rates and raw material use-life and visibility. It is assumed that despite these factors, the distribution of bifaces reflects, at least in part, intensity of occupation and therefore can be used to assess relative intensity of occupation in both time and space (Jefferies et al. 2001).

In order to evaluate the relative intensity of activity across the landscape, the study area is divided into four survey strata, defined by resource zones. Each of these zones was defined using the ArcView GIS program. A spatial analysis was conducted to examine which sites were located in each zone. A site was considered to be in a designated zone if it was entirely located within one zone. If a site was found to be located on the boundary between two zones, it was assigned to the zone in which most of the site was located. Because site locations are recorded in the form of polygons for the Kentucky GIS Site file database and not points, assigning a site to a particular zone is reliable because polygons are more representative of actual site dimensions than points which do not take account of non-symmetrical shapes (see Mink et al. 2001).

The number of temporally diagnostic hafted bifaces found at sites in each of the four zones was calculated. This includes all bifaces recovered during fieldwork conducted by the Cypress Creek Archaeological Project (1999-2001), as well as those found during survey by CRM firms and other research projects. These totals do not include the hafted bifaces from the excavated sites in the project area, which would inflate the number of hafted bifaces compared to surface collected sites.

To further examine the patterns of landscape use, distances were measured to alluvial soils, which represent areas of wetland habitat in the CCAP project area (see Chapter 5). Several authors have suggested that as hunter-gatherers become increasingly less mobile, following a collector based strategy, they began to rely more on aquatic resources (e.g., Brown and Vierra 1983; Jefferies and Lynch 1983; Ahler 1984). Therefore, as hunter-gatherers become tied to

aquatic resources, the distances from archaeological sites to these resources should decrease. The pattern is meant to describe a general trend and does not mean that all sites should be located near these resources. In fact, we should see a skewed distribution of site types if this is occurring within an area. Larger, more intensively occupied sites should primarily be situated next to aquatic resources. In contrast, smaller sites may be located considerable distances away; however, even the smaller sites, such as hunting camps, should be located closer to these resources than sites that were occupied by groups following a more mobile, forager strategy. Sites occupied by hunter-gatherer groups relying heavily on aquatic resources, on the whole, should be located closer to these resources than groups exploiting a more generalized subsistence pattern (Kelly 1995). Therefore, by measuring the distance between sites and resource zones for each Archaic subperiod, I will be able to evaluate diachronic patterns in hunter-gatherer strategies (i.e., importance of aquatic resources).

The distance analysis was accomplished by taking the center point of the site and measuring the distance to the alluvial soils using ArcView GIS program. After this was done, distances were divided into 100 meter increments, along with a separate category for sites that are located in the alluvial zones. Percentages were calculated for each sub-period (Dalton and Early Archaic, Middle Archaic, and Late Archaic) and the distribution examined.

To supplement the survey data and provide more information about the settlement-subistence patterns of Archaic hunter-gatherers, excavation materials were also considered in this study. All excavation data presented in this thesis was collected during the WPA era. There are six excavated sites in the CCAP project area that are considered in this thesis, some of which represent large, intensively occupied sites. Hafted bifaces from each excavated site were classified and assigned to a temporal period (e.g., Dalton and Early Archaic, Middle Archaic, Late Archaic). The relative intensity of occupation for each site is assessed by examining the relative frequencies of bifaces.

Summary

An archaeological survey was conducted to examine Archaic hunter-gatherer settlement patterns in the Cypress Creek drainage of west-central Kentucky. The field work was undertaken

by archaeologists from the University of Kentucky and Pennsylvania State University, as well as a number of volunteers. In addition to archaeological survey, a re-analysis was conducted for all previously recorded sites within the project area. This re-analysis included data from previous archaeological surveys as well as extensive excavations from some of the larger sites.

Using the survey data in GIS, hafted biface distributions were calculated for each Zone in the project area to examine diachronic trends in landscape use throughout the Archaic period. In addition, excavation data from major sites in the area were also considered in order to address the variation and duration of occupation of sites in this CCAP project area.

CHAPTER 6: ARCHAEOLOGY OF THE CYPRESS CREEK RESEARCH AREA

In this chapter, I present the results of the data analysis for materials collected during archaeological survey in the Cypress Creek Project Area, as well as artifacts from previous surveys and excavations. Using the survey data, I evaluate diachronic changes in landscape use throughout the Archaic, specifically focusing on the relative intensity of use and occupation of different resources in the study area. Following this, I consider the reuse and reoccupation (see Brooks and Yellen 1987) of sites using excavation data from the WPA era investigations. Based on the data analysis, I evaluate the scenarios presented in Chapter 5. Finally, I summarize the Cypress Creek research and its implications for Archaic land-use in the Green River region.

Archaic Period Sites in the Cypress Creek Project Area

From 1999 to 2001, the Cypress Creek Archaeological Project (CCAP) collected information from a total of fifty-four Archaic period sites and one Archaic period isolated find (IF). The analysis conducted from this point on will include the Archaic isolated find as a site. Forty of the fifty-five sites were from museum collections. The exact location of these previously recorded sites was obtained from the Kentucky State Site File GIS database. The remaining sixteen Archaic sites were recorded by the CCAP survey. The database comprises a total of ninety-two components dating to the Dalton Period and Early Archaic (10,700-8,000 B.P.), Middle Archaic (8,000-5,000), and Late Archaic (5,000-3,000 B.P.) subperiods. Out of the fifty-five sites examined, six have been excavated by WPA archaeologists. The remaining forty-nine were located during the various surveys discussed in Chapter 5.

General Distribution of Sites

Archaic period sites were found in all of the project area's environmental zones. Table 6.1. gives the site distributions and coverage data for each resource zone. Figure 6.1 shows the location of all Archaic sites in the project area and Figure 6.2. shows all areas surveyed.

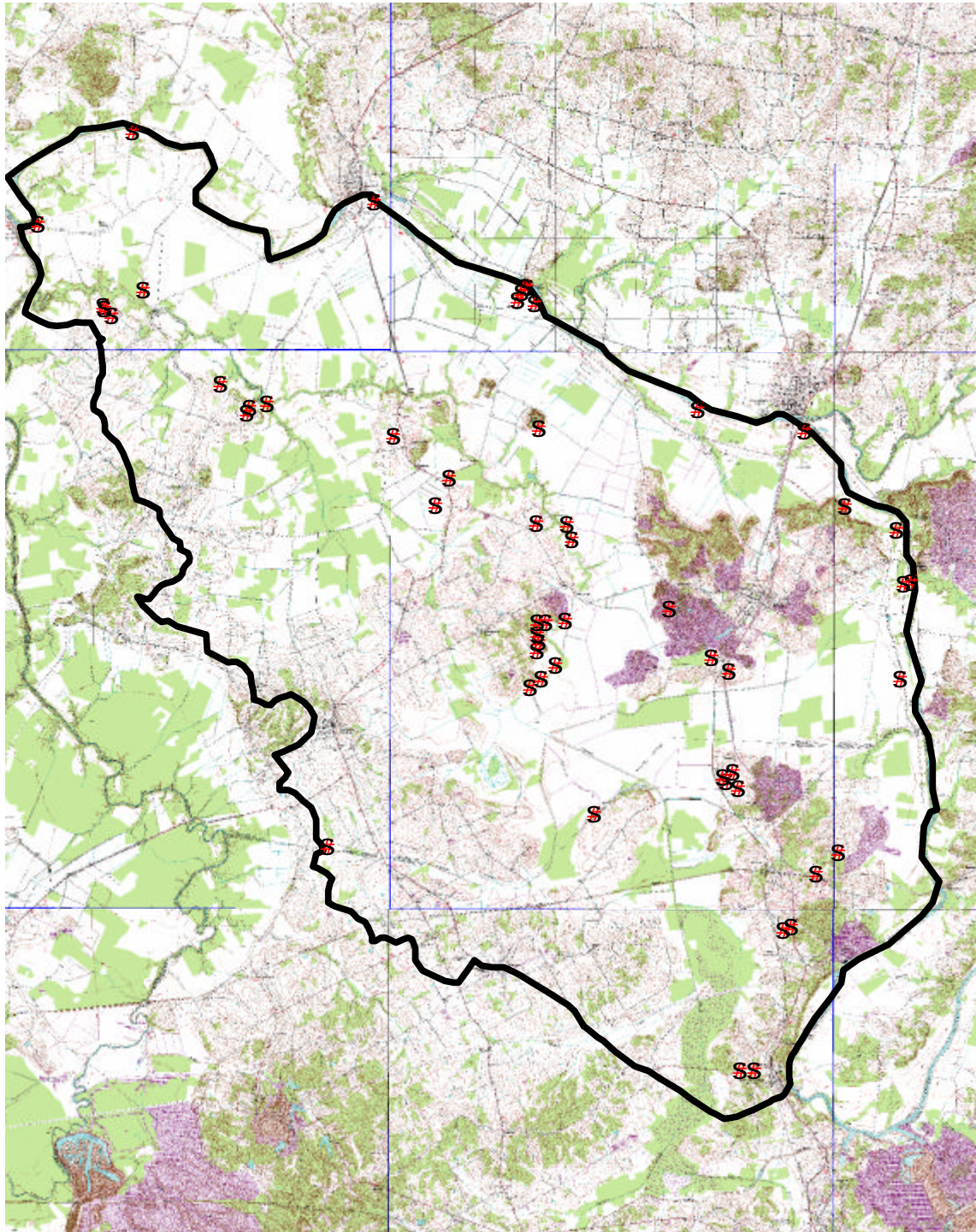
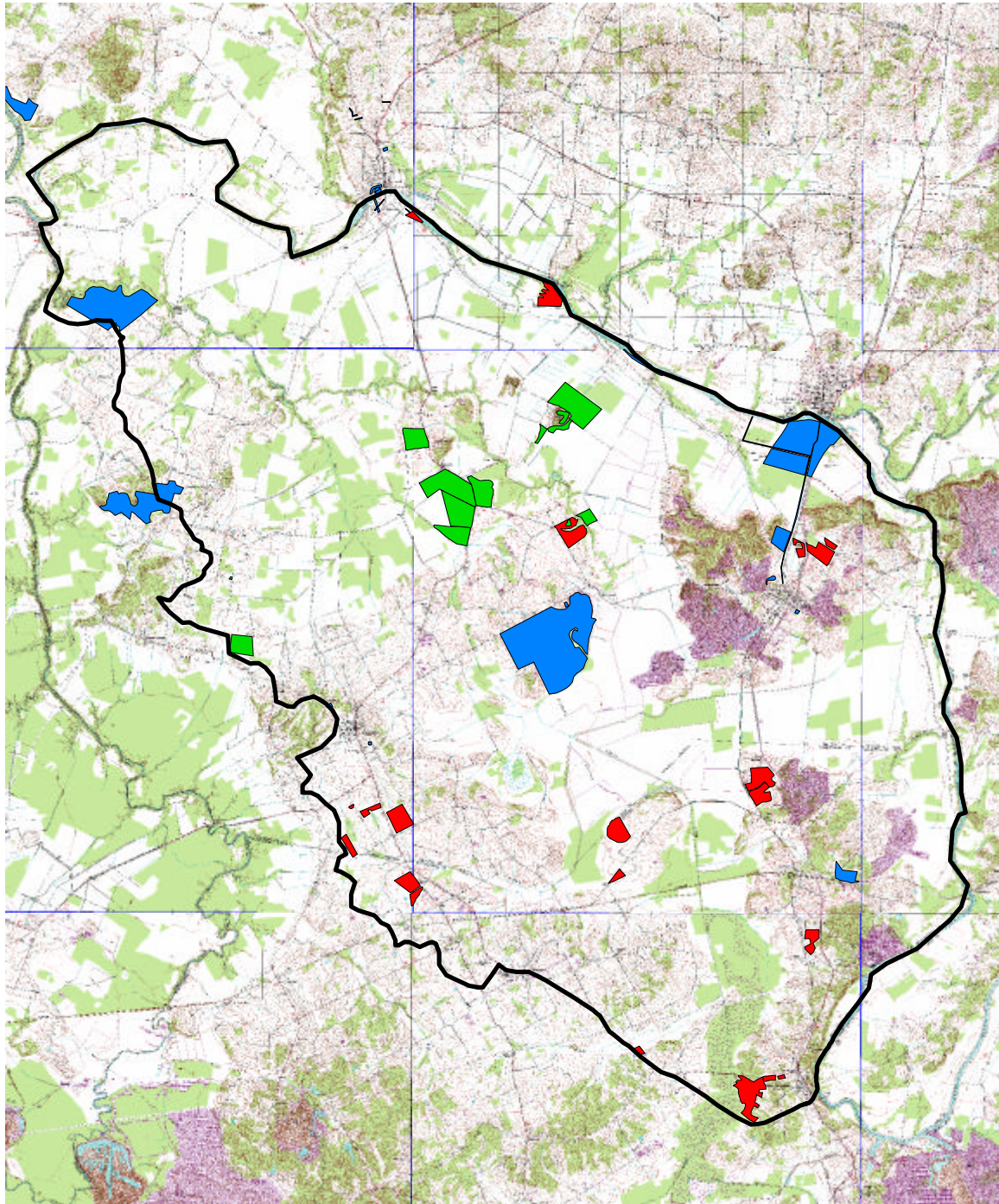






Figure 6.1. Archaic sites in the CCAP project area.



-  Project boundary
-  Previous Surveys
-  1999-2000 CCAP Survey
-  2001 CCAP Survey



10 Kilometers



Figure 6.2. Location of areas surveyed in the CCAP project area.

Table 6.1. Site distributions and coverage data by survey strata.

Resource Zone	Total ha. in each zone	Coverage in ha.	Coverage %	Archaic sites	Archaic sites %
1	2200	117	5.31	15	27%
2	12500	220	1.76	7	13%
3	7400	383	5.17	12	22%
4	9000	448	4.98	21	38%

Twenty-one of the previously recorded sites fell outside of known survey areas. It is likely that many of these sites were located by landowner interview or by word-of-mouth. These sites tend to be intensively occupied sites (see Hensley 1991:84), which would have drawn the attention of local landowners and collectors, as well as archaeologists working early on in the area.

Webb and Haag's (1947) *Archaic Sites in McLean County, Kentucky* shows nine sites located along the Green River. These sites were eventually incorporated into the Kentucky site file database. It likely that these sites were located by local informant interviews rather than formal archaeological survey, which resulted in the documentation of the site, but not an associated survey area. Table 6.2 lists the intensively occupied sites in the study area as outlined in Chapter 5. The reader should note that many of these sites are located in Zone 1, along the Green River.

Table 6.2. Intensively occupied sites in the CCAP project area (Hensley 1991).

Site Number	Site Name	Zone	Burials	Large number of Artifacts	Midden Accumulation	Intensive occupation
15McL11	Ward	3	present	present	present	yes
15McL7	Butterfield	1	present	?	present	yes ?
15McL24	Hollins	1	present	?	present	yes
15McL12	Kirkland	3	present	present	present	yes
15McL22	?	1	present	present	present	yes
15McL16	Ramsey	1	?	?	present	yes ?
15McL18	Wilson-Seymour	1	present	present	present	yes

The examination of sites found only in survey tracts probably gives a more accurate picture of relative site densities across the landscape; however, the sample size is low. Therefore, though it is desirable to include sites located outside survey areas, the inclusion of these sites may be biased toward particular zones and highly visible sites. In order to assess the problems posed by sample size and zone bias, the relative frequencies and relative site densities for all sites and only those found in survey areas were examined (Table 6.3).

Table 6.3. Site distributions by resource zone.

Resource Zone	Total sites	Archaic sites located in survey areas.	Archaic sites/total ha in each zone	Archaic sites located in survey areas/ha. surveyed
1	15	6	0.00636	0.0513
2	7	4	0.00056	0.0182
3	12	7	0.00162	0.0183
4	21	17	0.00233	0.0379

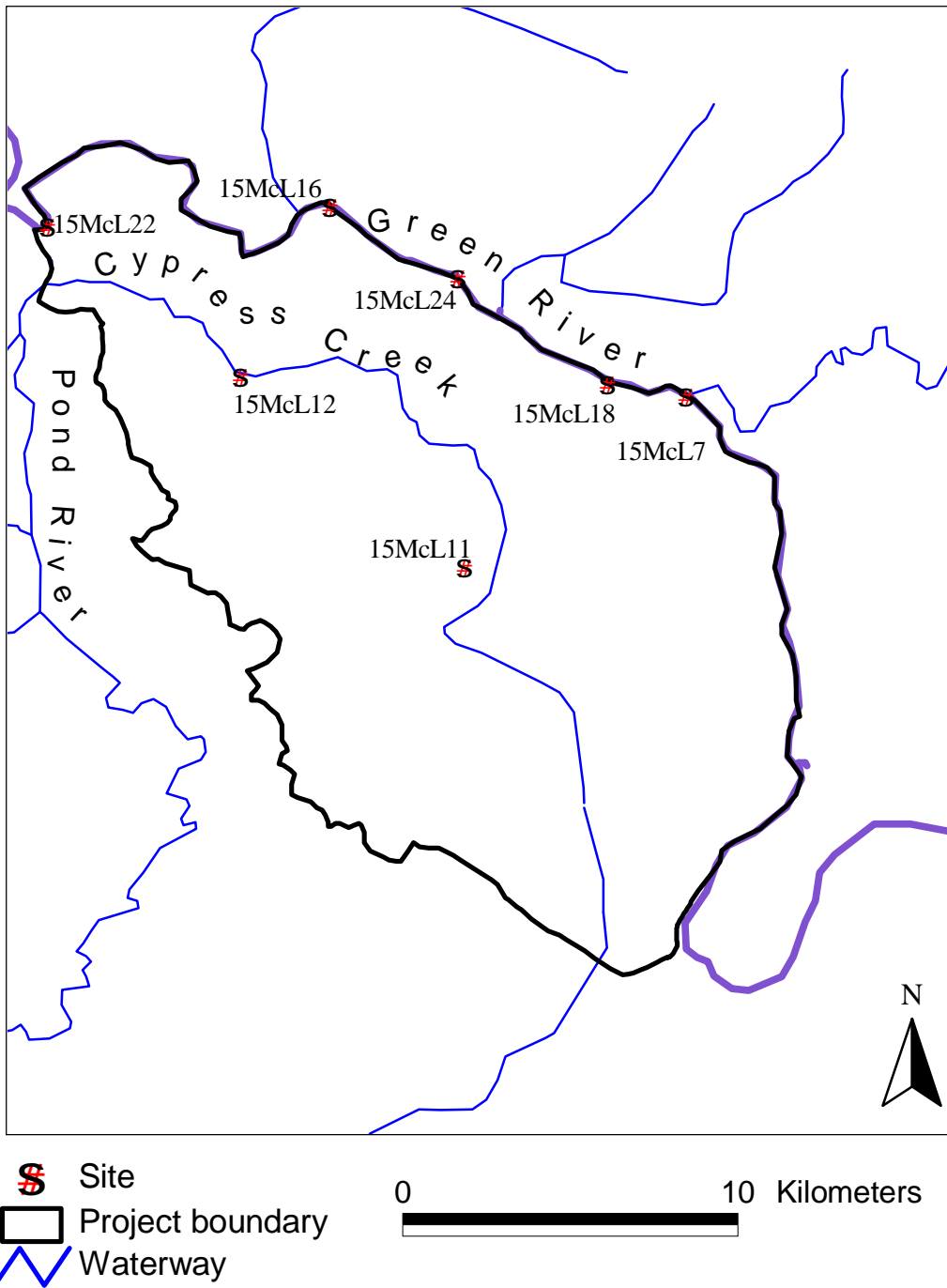


Figure 6.3. Location of intensively occupied sites in the CCAP project area.

As can be seen in Table 6.3, the inclusion of all sites substantially decreases the proportion of sites located in Zones 2, 3, and 4. Based on this comparison, inclusion of all sites cannot be used uncritically to assess land-use patterns in the Cypress Creek area. In order to mitigate the problems noted above, all sites will be examined to increase sample size and to look for broad patterns. However, sites found only in survey areas will be examined to check and verify the patterns.

Archaic Site Components: General Trends

The fifty-five Archaic (10,000-3,000 B.P.) period sites in the CCAP project area were assigned to one of three subperiods: Dalton and Early Archaic (10,700-8,000 B.P.), Middle Archaic (8,000-5,000 B.P.), and Late Archaic (5,000-3,000 B.P.). Ninety-two components dating to one of these Archaic subperiods were identified in the project area. In the following analysis, the component, rather than the site, is considered the unit of analysis. Components were chosen because many sites within the CCAP project area were occupied during more than one subperiod of the Archaic.

Figure 6.4 shows the frequency of components by Archaic subperiod in the CCAP project area. As a way of comparing site frequency, the number of sites for each Archaic subperiod was standardized by calculating the site frequency per 1000 years (see Jefferies et al. 2001). The relative frequency of hafted bifaces may be affected by a number of factors such as curation rates, functional differences, and raw material types (Jefferies et al. 2001). It is assumed here, however, that the frequency of sites is at least partially related to the intensity of activity on the landscape (Jefferies et al. 2001; Stafford 1994:227-228). Figure 6.5 shows the number of sites for each Archaic subperiod per 1000 years.

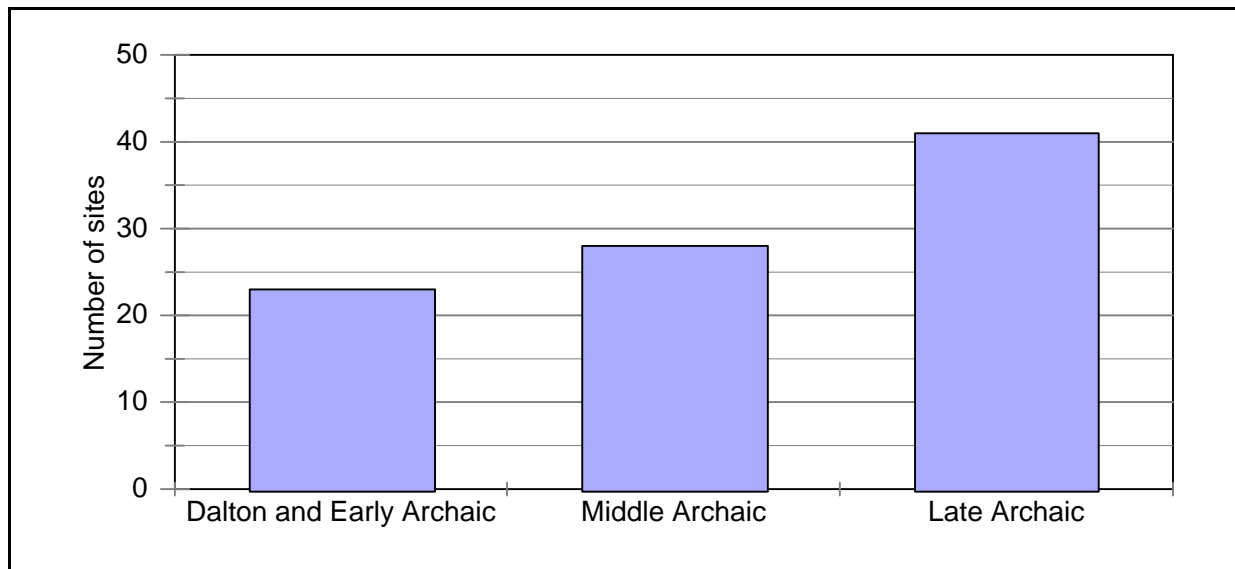


Figure 6.4. Frequency of components by Archaic subperiod.

Table 6.4. Summary of Archaic components for sites in the study area.

Time Period	number of components	Relative frequency of components at sites in the study area	components/ 1000 years
Dalton and Early Archaic	23	42%	11.5
early Middle Archaic	3	6%	2
late Middle Archaic	25	45.5%	16.6
Late Archaic	41	74.5%	20

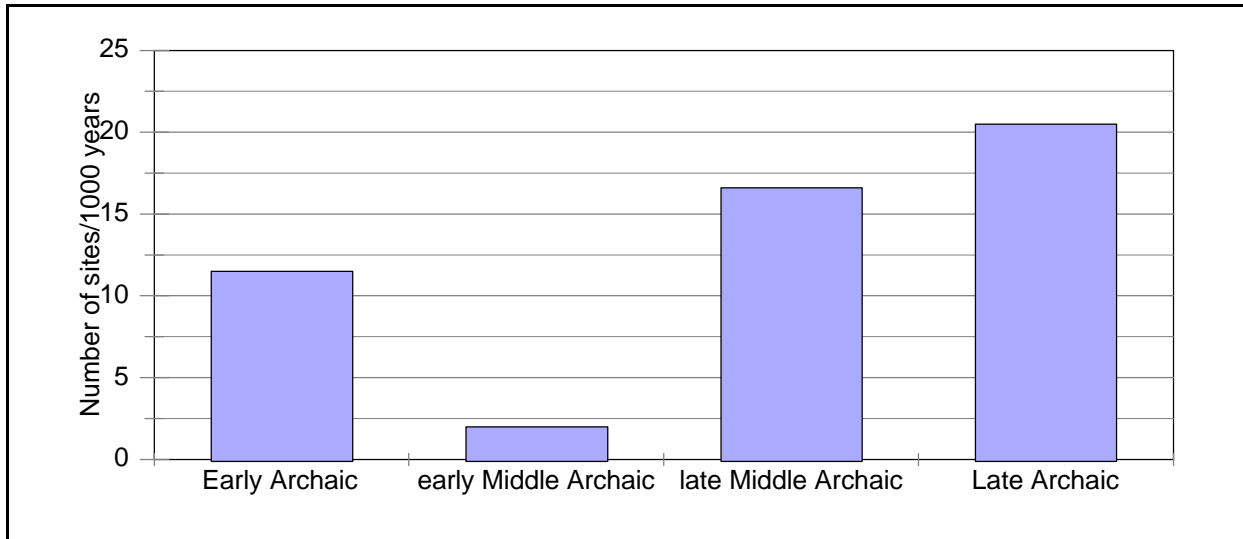


Figure 6.5. Number of sites per 1000 years.

Several observations can be made based on Figure 6.5 and Table 6.4. First, both the number of sites and the site frequency increase through time. In general, site frequency for the Early Archaic subperiod is low. Similarly, Middle Archaic sites also appear in small numbers; however, when separated into early and late Middle Archaic sites, this distribution is not uniform throughout the Middle Archaic. In general, early Middle Archaic sites occur in small numbers, while late Middle Archaic sites show a dramatic increase. The low frequency of early Middle Archaic sites may be the result of problems with securely dating point types to this subperiod (Stafford 1994:227; Jefferies et al. 2001). Similar trends have been observed for Middle Archaic populations in adjacent areas of the Midwest (Jefferies 1996:72; Stafford 1994). Finally, Late Archaic sites are the most numerous Archaic sites in the CCAP project area. Based on the increased number of sites and the frequency at which they occur, population seems to have increased during this time.

Several other trends can be observed for Archaic periods sites by examining the distribution of single and multi-component sites. Out of the fifty-five Archaic sites, twenty-seven are single-component sites and twenty-eight are multi-component sites. Out of the twenty-eight multi-component sites, seventeen have two Archaic subperiods represented and ten have evidence

of all three subperiods. Table 6.5 shows the breakdown of components by Archaic subperiod, Figure 6.6 shows their frequency, and Figure 6.7 shows their locations.

Table 6.5. Single and multi-component sites in the CCAP project area.

Sites with only Early Archaic	Sites with only Middle Archaic	Sites with only Late Archaic	Sites with both Early and Middle Archaic	Sites with both Early and Late Archaic	Sites with both Middle and Late Archaic	Sites with Early, Middle and Late Archaic
CCAP 2	15McL45	15McL22	15McL44	15McL13	15McL12	15McL4
CCAP 12	15McL106	15McL32	15McL175	15McL14	15McL16	15McL5
CCAP 25	15McL157	15McL40		15McL147	15McL24	15McL6
CCAP 32	15McL166	15McL41		15McL167	15McL56	15McL7
CCAP 34	CCAP 16	15Mu91		CCAP 11	15McL57	15McL8
CCAP 40	CCAP 18	15McL105			15McL61	15McL11
		15McL143			15McL63	15McL18
		15McL144			15McL109	15McL19
		15McL155			15McL110	15McL169
		15McL156			CCAP 28	CCAP 3
		15McL46				
		CCAP 1				
		CCAP 14				
		CCAP 30				
		CCAP 36				
		IF 5				
6 sites	6 sites	16 sites	2 sites	5 sites	10 sites	10 sites
11%	11%	29%	4%	9%	18%	18%

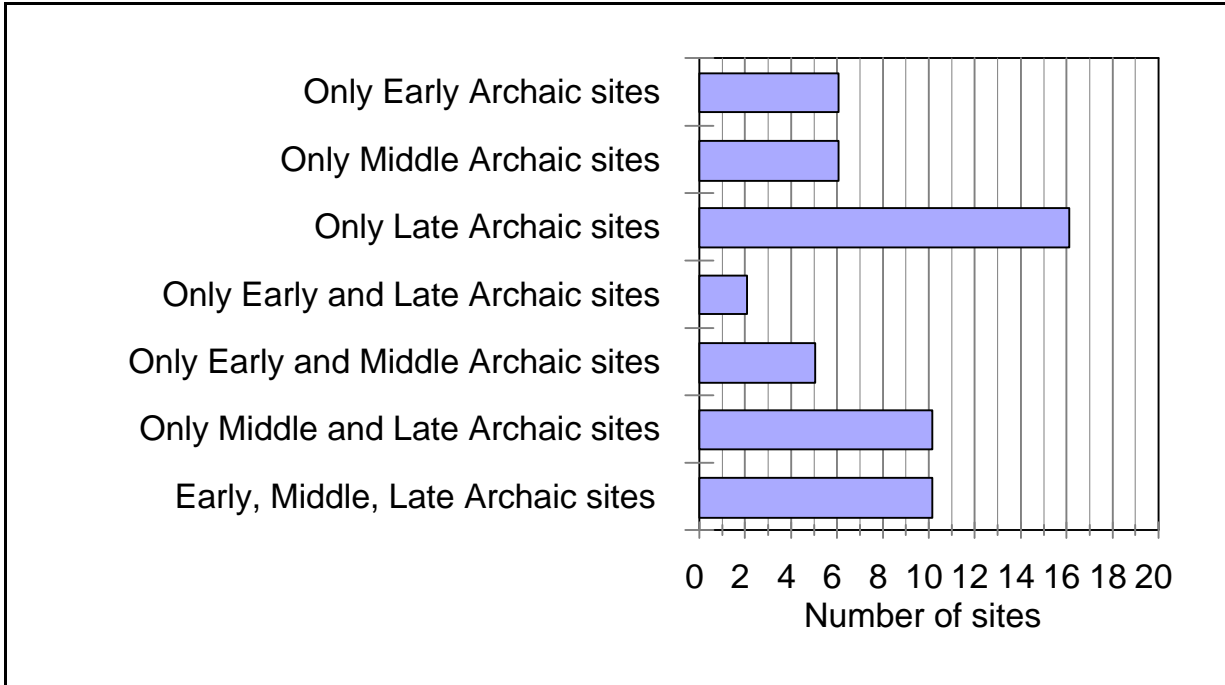
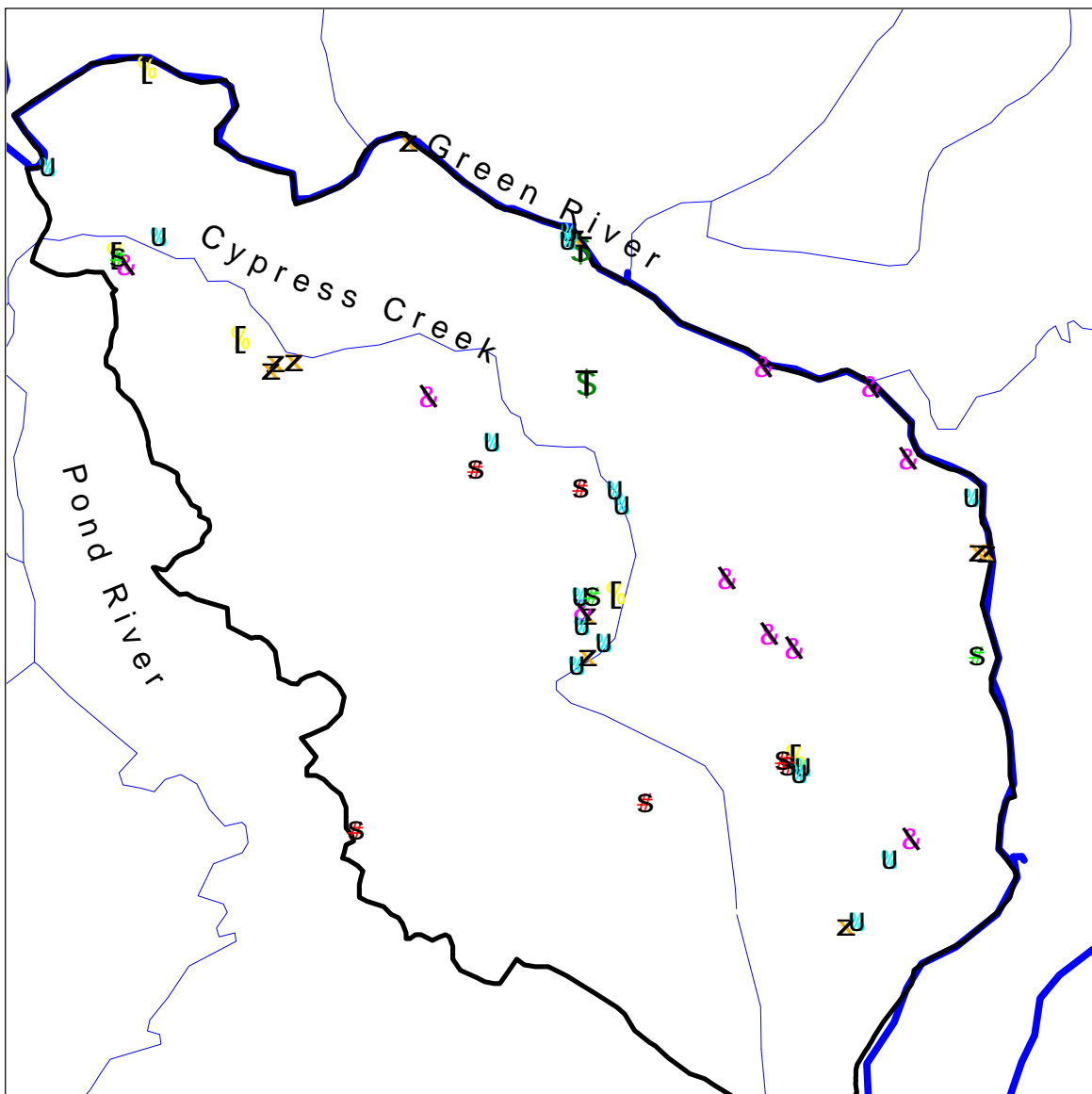


Figure 6.6. Frequency of single and multi-component sites.

Upon examination of Table 6.5 and Figure 6.6, it is evident that sites occupied only during the Late Archaic are more frequent than any other single component or multi-component sites. Figure 6.7 shows all single and multi-component sites in the CCAP project area. In addition, more sites are found to have only Middle and Late Archaic components than only Early and Late Archaic or only Early and Middle Archaic components. This pattern suggests that Late Archaic hunter-gatherers continued to use many of the same locations utilized during the Middle Archaic and, to a lesser extent, sites occupied during the Early Archaic.



- S Sites with only Early Archaic componets
- S Sites with only Middle Archaic components
- U Sites with only Late Archaic components
- X Sites with Early and Middle Archaic components
- L Sites with Early and Late Archaic components
- Z Sites with Middle and Late Archaic components
- \$ Sites with Early, Middle, and Late Archaic componets
- Project boundary
- ~ Waterways

0 10 Kilometers



Figure 6.7. Single and multi-component sites in the CCAP project area.

Site Distribution by Archaic Subperiod

In this section, I will present spatial information on 92 Archaic site components located in the CCAP project area. The goals of this section are as follows:

- To present a visual display of site distributions by Archaic subperiod.
- To investigate changes or continuity in site distributions for each Archaic subperiod through the distribution of sites.
- To explore the relationship between site distributions and resources located across the landscape in the CCAP project area.

The observations presented in this section will be used with others in this chapter to evaluate the scenarios for Archaic settlement/subsistence patterns outlined in Chapter 5. In order to evaluate changes in landscape use, the Cypress Creek project area was divided up into four zones, as presented in Chapter 5. Then, the distribution of sites was examined to evaluate the differential use of each zone in the project area for each Archaic subperiod (Dalton and Early Archaic, Middle Archaic and Late Archaic).

Dalton and Early Archaic Site Distributions

Figure 6.8 shows the distribution of all Dalton and Early Archaic sites in the CCAP project area and Table 6.7 lists all sites with Dalton and Early Archaic components. As can be seen in Figure 6.8, small concentrations of Dalton and Early Archaic sites appear to occur in or along the margins of Zones 3. This position would have allowed these groups access to resource in Zones 2, 3, and 4. In general these sites seem to occur more evenly across the Cypress Creek project area than later subperiods as we will see. The reader should note, however, that few Dalton and Early Archaic sites occur in Zone 2. When these sites do occur in this zone, they are never located far from uplands.

Table 6.6 shows the distribution of Dalton and Early Archaic sites in each resource zone. There are some differences between the total number of sites and those sites only located in survey tracts. When we examine the total number of sites, Zone 1 appears to have the highest density of sites, followed by Zones 4, 3, and 2 respectively. In contrast, sites only located in the survey tracts show a more even distribution throughout the project area. Zones 1 and 4 have

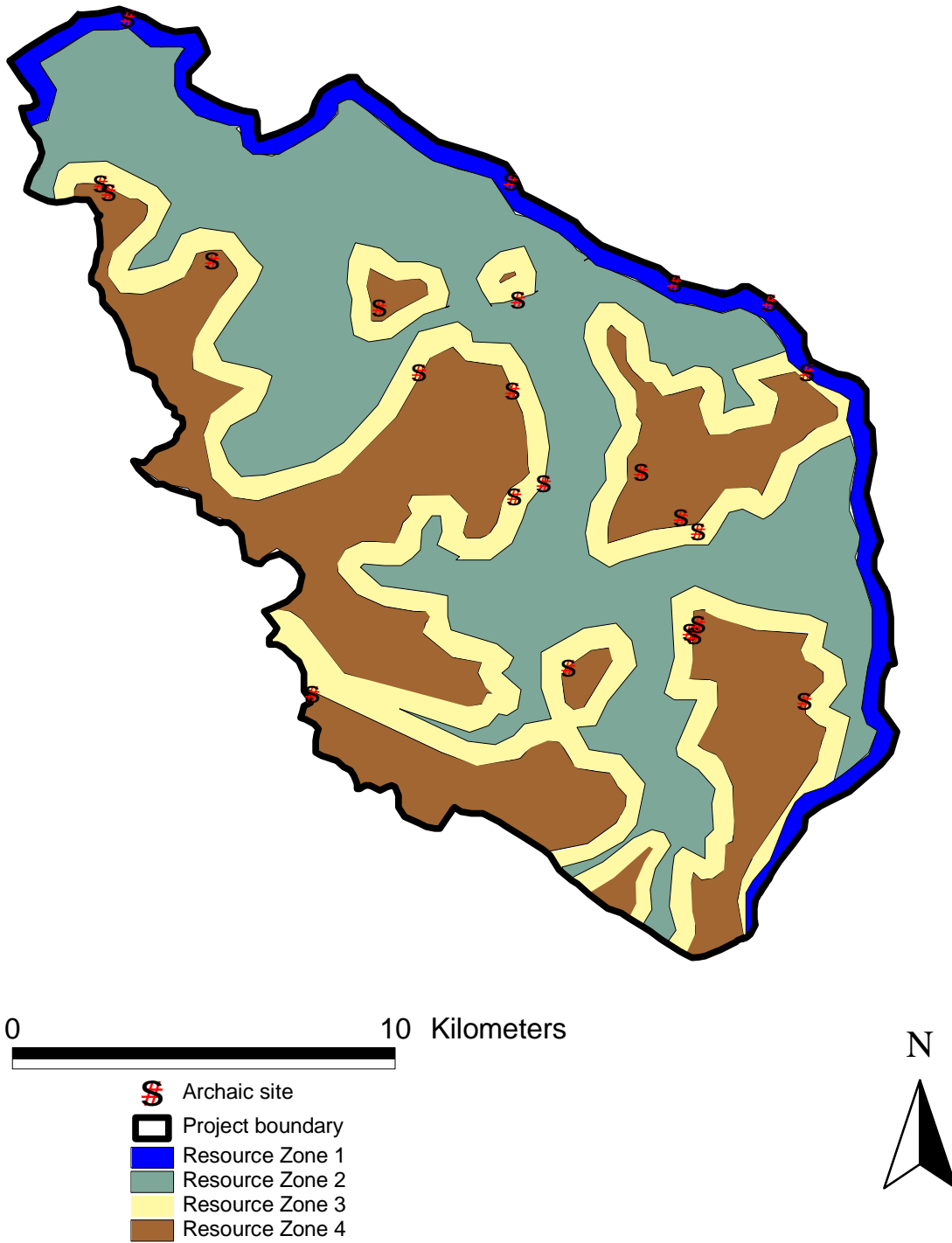


Figure 6.8. Distribution of Early Archaic sites.

approximately equal densities, followed closely by Zone 3. Finally, low densities of Dalton and Early Archaic sites were observed in Zone 2 for both total number of sites and surveyed sites.

Table 6.6. Dalton and Early Archaic sites in each survey zone.

Zone	Total sites	Sites/ ha. in each zone	Survey sites	Survey sites/ ha. surveyed in each zone
1	5	0.00227	2	0.0171
2	1	0.00008	1	0.0045
3	5	0.00068	4	0.0104
4	12	0.00133	8	0.0178

Table 6.7. Sites with Dalton and Early Archaic components.

Zone 1	Zone 2	Zone 3	Zone 4
15McL5	15McL175*	15McL8	15Mu4
15McL7*		15McL11*	15McL6
15McL13		15McL147*	15McL14
15McL18		CCAP 2*	15McL19
15McL44		CCAP 32*	15McL167*
			15McL169*
			CCAP 3*
			CCAP 11*
			CCAP 12*
			CCAP 25 *
			CCAP 34*
			CCAP 40*

* Located in a surveyed area.

Due to the bias of identifying sites in Zone 1 (along the Green River), the distribution of sites found only in survey tracts is thought to be a better measure of Dalton and Early Archaic site density. The distribution of these sites implies that Dalton and Early Archaic hunter-gatherers favored areas that would have afforded them access to multiple resources. There are slight trends towards resources located in the uplands (Zone 4); however, all of the sites in this area are located near the margin of Zone 3. While the floodplain (Zone 2) appears to have been avoided for settlement, groups occupying sites along the margins and in Zone 3 would have been close enough to take advantage of floodplain resources. In addition, though a few sites are located along the Green River (Zone 1), there appears to be no apparent concentration.

This pattern suggests that land-use during the Early Archaic tended to focus on areas that afforded access to more than one ecological zone. This is exemplified by the number as well as the concentration of sites in or along the margins of Zone 3. This implies that both wetland and upland resources were important to Dalton and Early Archaic hunter-gatherers.

Middle Archaic Site Distributions

Figure 6.9 shows the distribution of all Middle Archaic sites in the project area and Table 6.9 lists all these sites. As can be seen in Figure 6.9, Middle Archaic sites occur throughout the CCAP project area. Although Middle Archaic sites occur in all zones, it appears that there are several clusters of these sites in Zones 1 and 3. Of particular interest is the site cluster along Cypress Creek in the center of the project area. These sites are all within one kilometer of each other and include at least one site that was intensively occupied during the Archaic— the Ward site (15McL11).

Similar to the Dalton and Early Archaic distribution, many of the Middle Archaic sites appear to be in or along the margins of Zone 3. This indicates that, like Early Archaic groups, Middle Archaic populations selected places on the landscape that allowed for access to more than one resource zone (namely upland and wetland). In contrast to the Early Archaic, not only do we see the number of sites located along the Green River increase, but concentration of sites can be seen as well. Like Zone 3, Zone 1 represents an ecotone between river resources (Zone 1) and wetland habitat resources (Zone 2).

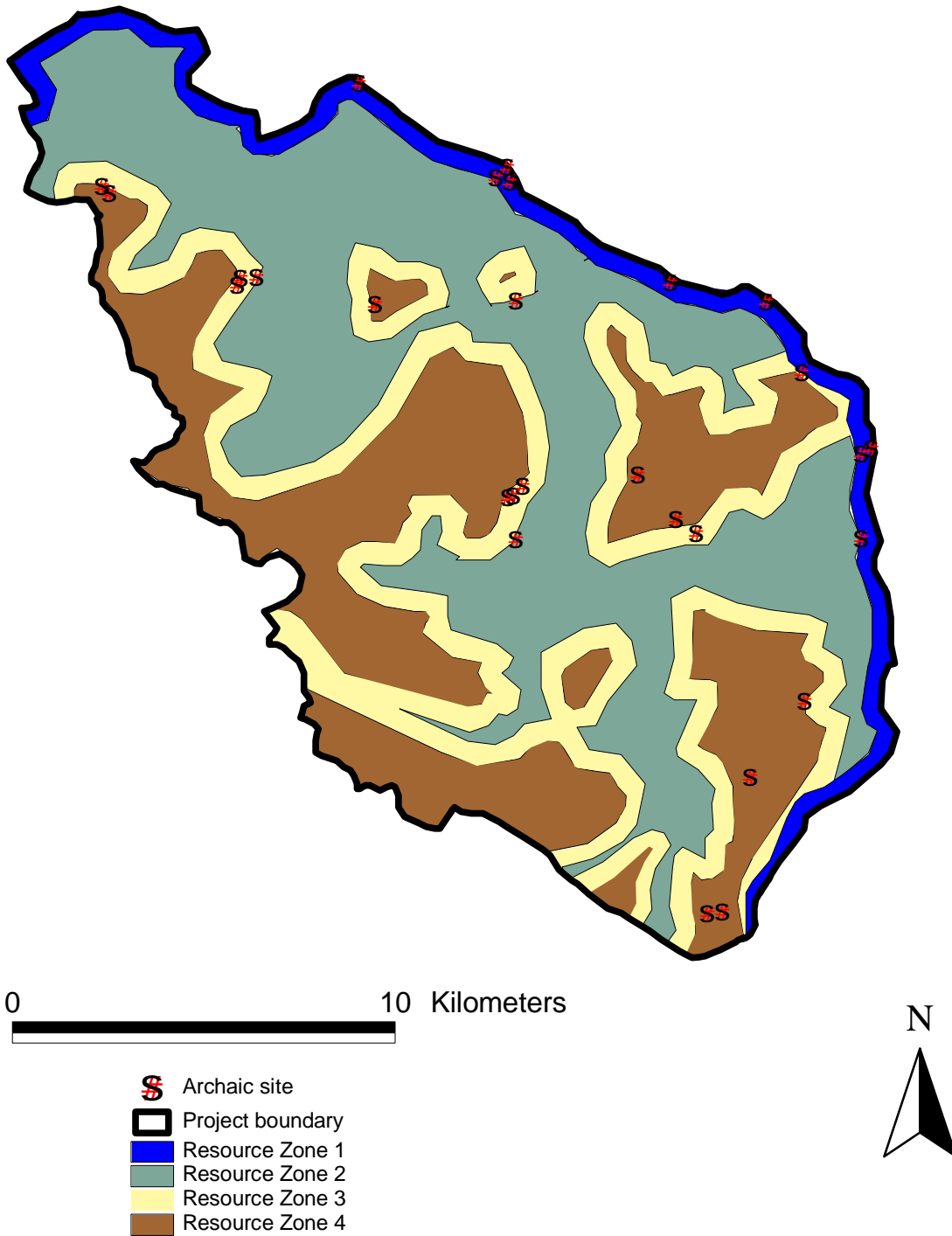


Figure 6.9. Distribution of Middle Archaic sites.

Table 6.8 shows the densities of Middle Archaic sites in each resource zone. Both the total number of sites and those only located in survey tracts follow a similar pattern. The highest densities of Middle Archaic sites occurs in Zone 1 followed by Zone 4. The next highest densities of sites occurs in Zone 3. Like the Dalton and Early Archaic period, Zone 2 exhibits the lowest density of sites for all four strata.

Table 6.8. Middle Archaic sites in each survey Zone.

Zone	Total sites	Total sites/ ha. in each Zone	Sites located in survey tracts	Survey sites/ ha. surveyed in each Zone
1	10	0.00455	3	0.0256
2	2	0.00016	1	0.0045
3	7	0.00095	3	0.0078
4	9	0.00100	6	0.0133

Table 6.9 Sites with Middle Archaic components.

Zone 1	Zone 2	Zone 3	Zone 4
15McL5	15McL63	15McL8	15Mu4
15McL7*	15McL175*	15McL11*	15McL6
15McL16		15McL12	15McL19
15McL18		15McL56	15McL166*
15McL24		15McL57	15McL169*
15McL44*		15McL61*	CCAP 3*
15McL45		15McL157*	CCAP 6*
15McL106			CCAP 8*
15McL109			CCAP 28*
15McL110			

* Located in a surveyed area.

The distribution of Middle Archaic sites implies several trends. First, Zone 1 is the most intensively utilized stratum of the CCAP project area during this period. This pattern suggests increasing reliance on riverine resources. It should be noted that the pattern of ecotone occupation in or around the margins of Zone 3 continues during this period; however, use of these areas appears to be more concentrated than during the Early Archaic. This pattern suggests that certain locales positioned along this ecotone are becoming increasingly important to hunter-gatherer groups, as indicated by the redundant occupation of space.

Late Archaic Period Site Distributions

Figure 6.10 shows the distribution of all Middle Archaic sites in the project area and Table 6.11 lists all those sites. As can be seen, Late Archaic sites occur throughout the project area. When the visual display for the Middle Archaic is compared to the Late Archaic, we observe an even greater elaboration of the Middle Archaic pattern. Many of the concentrations noted for the Middle Archaic have a greater number of sites during the Late Archaic and new concentrations of sites can be observed. Also, during the Late Archaic it appears that sites occur in greater numbers in or near Zone 3.

Table 6.10 shows the densities of Late Archaic sites in each survey zone. Both the total number of sites and only those located in survey tracts have similar distributions. The highest density of sites in both categories occurs in Zone 1 followed by Zone 4. However, some difference does exist between the two categories. In the total number of sites category, Zone 3 shows a higher site density than Zone 2. In contrast, when only sites located in survey tracts are examined, these two strata appear to have a similar distribution.

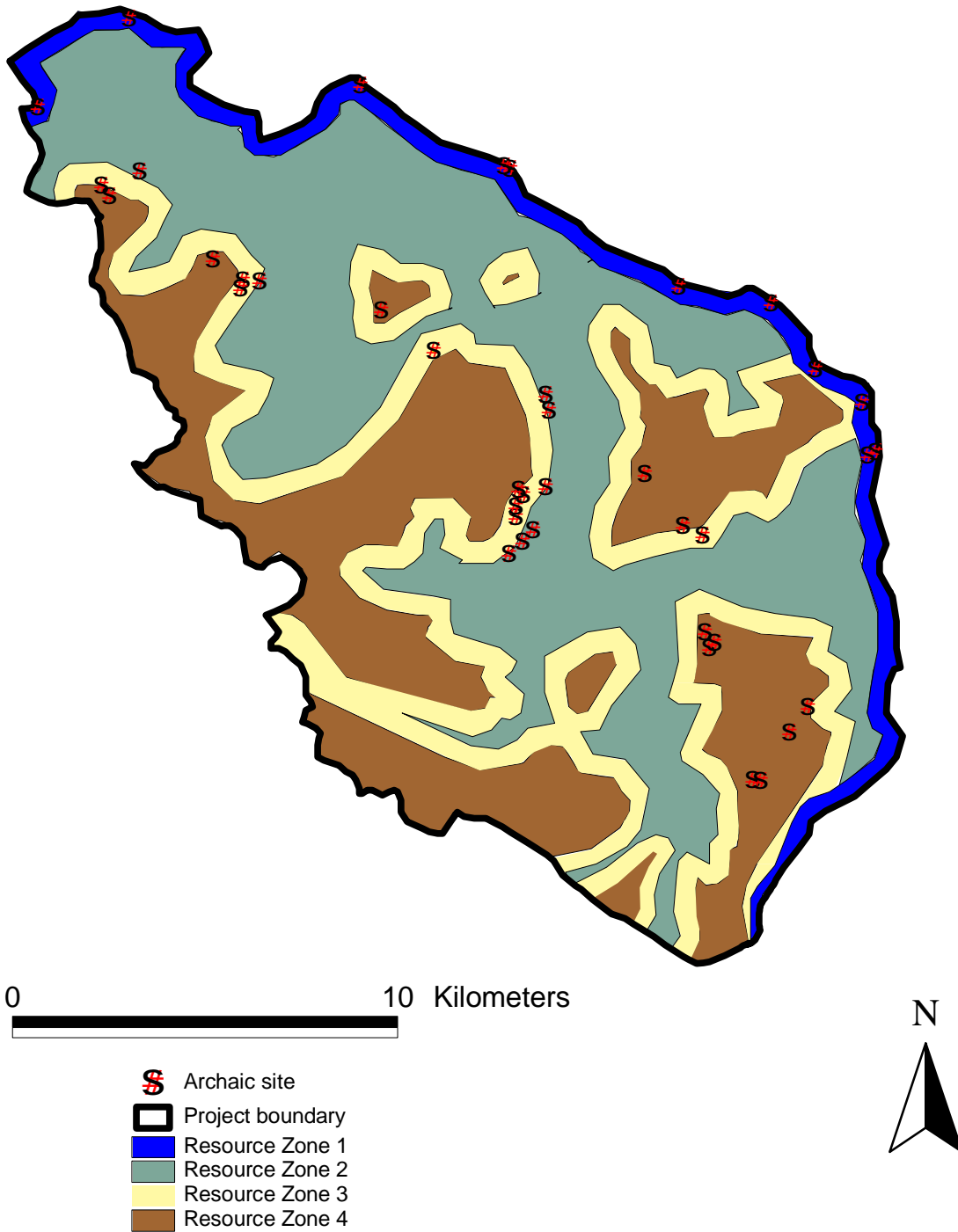


Figure 6.10. Distribution of Late Archaic sites.

Table 6.10. Late Archaic sites in each survey zone.

Zone	Total sites	Total sites/ ha. in each Zone	Sites located in survey tracts	Survey sites/ ha. surveyed in each Zone
1	11	0.00500	4	0.0341
2	6	0.00048	3	0.0136
3	9	0.00122	5	0.0130
4	14	0.00156	10	0.0223

Table 6.11. Sites with Late Archaic components.

Zone 1	Zone 2	Zone 3	Zone 4
15McL5	15McL32	15McL8	15Mu4
15McL7*	15McL40	15McL11*	IF 5*
15McL13	15McL41	15McL12	15McL6
15McL16	15McL63*	15McL56	15McL14
15McL18	15McL144*	15McL57	15McL19
15McL22	15McL155*	15McL61*	15Mu91*
15McL24*		15McL143*	15McL156*
15McL105		15McL147*	15McL167*
15McL109		CCAP 1*	15McL169*
15McL110			CCAP 3*
15McL46*			CCAP 11*
CCAP 36*			CCAP 14*
			CCAP 28*
			CCAP 30*

* Located in a survey area.

Based on the above analysis, several observations can be made for Late Archaic site distributions. First, there is considerable continuity between Middle and Late Archaic patterns. Generally, it appears that sites tend to cluster in or near Zone 3. This pattern is especially apparent during the Late Archaic, as evidenced by the many Late Archaic sites clustering in these areas. The increase in use of Zone 2, as indicated by the surveyed sites, may reflect the increase in the use of wetland areas around Cypress Creek; however, these sites do not occur far from the margins of Zone 3. As noted earlier in this chapter, many of the sites occupied only during the Late Archaic occur along or near Cypress Creek. These patterns taken together may reflect a greater elaboration of the land-use pattern established during the Middle Archaic. In general, there appears to be increased use of specific locations on or near Zone 3 as well as an increase the number and concentration of sites in Zone 1. In order to further evaluate the patterns observed via the site distributions, the distribution of hafted bifaces was examined for each Archaic subperiod.

Hafted Biface Analysis

In this section, I will discuss the distributions of 180 hafted bifaces that were found in the CCAP project area by archaeological survey. This total does not include hafted bifaces recovered from excavated sites. The reason for this separation is that these materials were recovered by a different type of sampling technique (excavation as opposed to survey), and therefore are a different measure of occupational intensity. The goal of the hafted biface analysis is to examine the intensity of occupation across the landscape.

An alternative to site based analyses is to monitor the distributions of artifacts on the landscape. Critics of the site concept have argued that the site is nothing more than a construct created by the archaeologist and that, in essence, exists only in the present context (Binford 1975; Dunnell 1992). By examining the distribution of diagnostic bifaces along with site based analyses, we may be better able to evaluate and account for the biases introduced by using only a site based analysis.

Archaic Hafted Bifaces: General Trends

As can be seen in Figure 6.11, the number of Archaic hafted bifaces increases through time. Like the site data, Archaic hafted bifaces were divided by Archaic subperiod (Dalton and Early Archaic, early Middle Archaic and late Middle Archaic and Late Archaic). Also as in the site analysis, hafted bifaces were standardized by calculating the frequency of biface per 1000 years (see Jefferies et al. 2001).

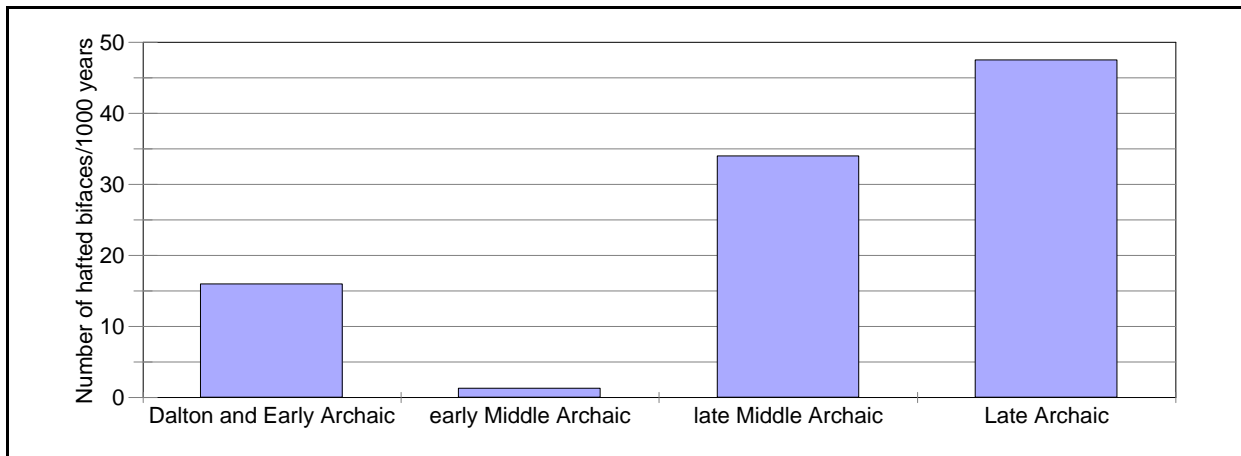


Figure 6.11. Number of hafted bifaces per 1000 years.

Table 6.12. Summary of bifaces by Archaic subperiod.

Time Period	number of bifaces	Frequency of bifaces at sites in the study area	bifaces/ 1000 years
Dalton and Early Archaic	32	18%	16
early Middle Archaic	2	1%	1.3
late Middle Archaic	51	28%	34
Late Archaic	95	53%	47.5

The overall patterns indicate that, as with the number of sites, the number of Archaic hafted bifaces increases throughout time with one exception. During the early Middle Archaic,

there appears to be a dramatic decrease in the number of projectile points, possibly due to difficulties of identifying diagnostic projectile points. Also, the frequency of hafted bifaces for each Archaic subperiod appears to follow the same pattern as observed for Archaic site frequency. Because the same pattern was observed for both the site and hafted biface analysis, we may conclude that biases introduced by the site concept either are only minimally present in the site analysis or that the same biases affect the biface analysis (or non-site approach). The one advantage of the biface analysis over the site based analysis is that the patterns are better defined due to the larger sample size of the bifaces.

Archaic Hafted Biface Distributions

Like the site analysis, the frequency of both the total number of hafted bifaces recovered and only those located in survey tracts was calculated for each of the four zones in order to evaluate changes in landscape use. Bifaces were considered to fall within a particular zone based on the location of their site provenience. This was done because the exact coordinates of every biface located in the CCAP project area are unknown. Table 6.13 gives the number of Archaic bifaces at each Archaic site in the CCAP project area and Table 6.14 shows the distribution of bifaces for each survey zone.

Table 6.13. Number of Archaic hafted bifaces at each site in the CCAP project area.

Site Number	Dalton & Early Archaic bifaces	Middle Archaic bifaces	Late Archaic bifaces	Total Archaic bifaces	Zone
15Mu4	1	1	12	14	4
15McL6	3	1	5	9	4
15McL13	2	0	2	4	1
15McL14	1	0	1	2	4
15McL16	0	1	1	2	1
15McL18	9	14	19	42	1
15McL22	0	0	1	1	1
15McL24	0	2	7	9	1
15McL32	0	0	1	1	2
15McL40	0	0	2	2	2
15McL41	0	0	1	1	2
15McL44	1	1	0	2	1

Table 6.13 (Continued)

15McL45	0	1	0	1	1
15McL46	0	0	1	1	1
15McL56	0	3	1	4	3
15McL57	0	2	3	5	3
15McL61	0	1	1	2	3
15McL63	0	12	15	27	2
15Mu91	0	0	1	1	4
15McL105	0	0	1	1	1
15McL106	0	3	0	3	1
15McL109	0	1	2	3	1
15McL110	0	1	1	2	1
15McL143	0	0	1	1	3
15McL144	0	0	2	2	2
15McL147	1	0	1	2	3
15McL155	0	0	1	1	2
15McL156	0	0	2	2	4
15McL157	0	1	0	1	3
15McL166	0	1	0	1	4
15McL167	1	0	1	2	4
15McL169	3	1	1	5	4
15McL175	1	1	0	2	2
CCAP1	0	0	1	1	3
CCAP2	1	0	0	1	3
CCAP3	1	1	1	3	4
CCAP6	0	2	0	2	4
CCAP8	0	1	0	1	4
CCAP11	1	0	1	2	4
CCAP12	1	0	0	1	4
CCAP14	0	0	1	1	4
CCAP25	1	0	0	1	4
CCAP28	0	1	1	2	4
CCAP30	0	0	1	1	4
CCAP32	1	0	0	1	3
CCAP34	1	0	0	1	4
CCAP36	0	0	1	1	1
CCAP40	2	0	0	2	4
CCAP IF5	0	0	1	1	4
Total	32	53	95	180	n/a
%	18%	29%	53%	n/a	n/a
biface/1000 years	16	17.7	47.5	25.7	n/a

Table 6.14. Total number of bifaces in each stratum.

Zone	Total bifaces	Total bifaces/ ha in each Zone	Bifaces located in survey tracts	Bifaces located in survey tracts/ ha. surveyed in each Zone
1	72	0.03272	13	0.1111
2	36	0.00288	32	0.1454
3	18	0.00243	9	0.0234
4	54	0.00600	29	0.0647

As seen in the above tables, the total distribution of hafted bifaces closely parallels the distribution of Archaic sites. In general, the majority of the bifaces are located in Zone 1. Zone 4 has the second most, and Zone 2 and 3 have roughly the same density. In contrast, the majority of the bifaces located in survey areas seem to occur in Zone 2 followed closely by Zone 1. This indicates that there is a strong bias toward the recovery of bifaces in Zone 1 for the total sample. This finding has important implications for the following analysis. First, bifaces located in survey areas better represent the actual distribution than do the total number of bifaces. The total number of bifaces will still be examined; however, the bias toward Zone 1 will be taken into account when interpreting Archaic land-use. The identification of this bias highlights the importance of systematic survey and sampling of multiple environments to interpret archaeological patterns. In the following section, I assign each biface to one of the Archaic subperiods and examine their distribution across the landscape paying close attention the previously discussed bias toward Zone 1.

Dalton and Early Archaic Hafted Bifaces

Table 6.15 gives the density of all Dalton and Early Archaic hafted bifaces in the CCAP project area. As can be seen in Table 6.15, there are considerable differences between the distribution of all Dalton and Early Archaic hafted bifaces and those located only in survey tracts.

Table 6.15. Dalton and Early Archaic hafted bifaces in each survey zone.

Zone	Total bifaces	Total bifaces/ ha in each Zone	Bifaces located in survey tracts	Bifaces located in survey tracts/ ha. surveyed in each Zone
1	12	0.00545	1	0.0085
2	1	0.00008	1	0.0045
3	3	0.00041	3	0.0078
4	16	0.00178	11	0.0245

For the distribution of all Dalton and Early Archaic sites, Zone 1 contains the highest density of bifaces— over .00545/ha. The next highest density of bifaces occurs in Zone 4, followed by 3 and 2 respectively. In contrast, for the bifaces located in survey tracts, the highest density of sites occurs in Zone 4. The next highest densities occur in Zone 1 and 3, which are roughly the same. Zone 2 has the lowest density of surveyed bifaces in the project area.

The differences noted for the total number of Dalton and Early Archaic bifaces and those located in survey tracts may be attributed to bias within the sample of total bifaces. As previously mentioned in this chapter, there is a tendency for sites (and therefore hafted bifaces) along the Green River to be located outside of survey tracts. In contrast, many of the hafted bifaces located in Zone 4 are located in survey tracts. Because of these biases, it is suggested that for the Dalton and Early Archaic distribution, the sites located in the survey tracts better represent the distribution of Dalton and Early Archaic hafted bifaces despite smaller sample sizes.

Based on the above observations, the distribution of Dalton and Early Archaic bifaces indicates that hunter-gatherer groups depended heavily on upland resources. While zones 1 and 3 were utilized, these were not as heavily utilized as the uplands according to bifaces found in the survey areas. It must be remembered, however, that many of the sites, and therefore the bifaces, located in Zone 4 are near the margins of Zone 3. This position would have allowed access to other resources. This pattern suggests that Dalton and Early Archaic hunter-gatherers utilized a variety of resources, but concentrated on areas where multiple resources could be obtained.

Middle Archaic Hafted Biface Distributions

Table 6.16 gives the densities for Middle Archaic hafted bifaces in the project area. Upon comparison between the total bifaces and those only found in survey tracts, several differences are apparent. For the total number of bifaces, Zone 1, by far, appears to be the most intensively occupied zone. The remaining three zones have approximately the same low values. In contrast, for the surveyed sites, Zone 2 appears to be the most intensively occupied, followed by Zone 1. Both of these Zones account for the majority of the bifaces for the project area (ca. 59%). The next highest densities occur in Zone 4 and then Zone 3.

Table 6.16. Middle Archaic hafted bifaces in each survey zone.

Zone	Total bifaces	Total bifaces/ ha in each Zone	Bifaces located in survey tracts	Bifaces located in survey tracts/ ha. surveyed in each Zone
1	24	0.0109	3	0.0256
2	13	0.0010	13	0.0591
3	7	0.0009	2	0.0052
4	9	0.0010	7	0.0156

Whether we accept the total number of bifaces or only those located in survey tracts, a clear trend is evident. The distribution of Middle Archaic bifaces indicates that hunter-gatherer groups during this time relied more heavily on wetland resources located in Zones 1 and 2 than in the Early Archaic. This pattern differs from that of the Dalton and Early Archaic which emphasized uplands (as indicated by the bifaces found within survey areas). In contrast to the Early Archaic, the emphasis here seems to be on locales adjacent to wetland and river areas.

Late Archaic Hafted Biface Distributions

Table 6.17 gives the densities for Late Archaic hafted bifaces in the project area. Like the Middle Archaic distribution, when the total number of bifaces is examined, we see a high density

in Zone 1. The other zones, while not as evenly distributed as in the Middle Archaic, continue to have low values. When bifaces found only in survey areas are examined, we see a remarkably similar trend compared to the Middle Archaic distributions. The highest densities of bifaces are located in Zones 1 and 2. The next highest density is found in Zone 3, followed by Zone 4.

Table 6.17. Late Archaic hafted bifaces in each survey zone.

Zone	Total bifaces	Total bifaces/ ha in each Zone	Bifaces located in survey tracts	Bifaces located in survey tracts/ ha. surveyed in each Zone
1	36	0.01636	9	0.0769
2	22	0.00176	18	0.0818
3	8	0.00108	14	0.0365
4	29	0.00322	11	0.0245

The pattern observed for the Late Archaic biface distributions indicated that there is considerable continuity between the Middle and Late Archaic hunter-gatherer settlement patterns. This pattern indicates that Late Archaic hunter-gatherer groups continued to rely on the wetland and river resources found in Zones 1 and 2. The bias in the total biface sample is exemplified in the analysis of the Late Archaic bifaces. For all bifaces, Zone 2 appears to have the lowest concentration of bifaces. In contrast, when bifaces located outside the survey area are factored out, then Zone 2 has the highest density of bifaces.

In order to explore the patterns observed for the site, as well as the biface distribution analyses, the distance to alluvial soils was calculated for each site and data from excavated sites in the area was examined. The results of these analyses are presented in the next two sections.

Distance Analysis for Sites and Bifaces

Many studies have shown that as hunter-gatherers become increasingly sedentary, sites tend to cluster near wetland resources (Brown and Vierra 1983; Brown 1985; Stafford 1994). It

is certain that the quantity of wetland resources would have waxed and waned in different places in the project area during the Holocene. However, based on the sources outlined in Chapter 5, it is assumed that the Pleistocene plain, represented by certain soil types and topography (see Chapter 5), and the area around the Green River would have been the most likely places for these resources. Therefore, for the analysis presented below, the distance to alluvial soil types is considered to be roughly equivalent to the distance to wetland resources.

In order to evaluate if Cypress Creek Archaic people moved closer to aquatic resources through time, the distance to wetland resources was measured for the total number of sites, as well as those sites found only in survey tracts. Because the sample size was small, the distances were then divided into 100 meter increments to graphically present the data. This same analysis was also conducted for the total Archaic hafted bifaces and only those bifaces found in survey tracts. Similar to the biface distribution analysis, the distance measurement for each biface was calculated based on the center of the site at which it was found.

Distance Analysis for Archaic Sites

Figure 6.12 shows the distance from all sites to wetland resources in 100 meter intervals. Figure 6.13 show only those sites located in survey tracts. As can be seen, both distributions indicate two trends. First, a high percentage of Middle and Late Archaic sites are located near wetland resources. Second, the number of sites located next to these wetland resources increases through time. Third, a high percentage of Dalton and Early Archaic sites are located away from the wetland areas (Zones 1 and 2) at distances between 200 and 500 meters. It should be remembered, that although sites tend to be located closer to wetland resources through time, groups were not abandoning use of the uplands. Many of these sites adjacent to wetland resources are located on an ecotone where upland resources could be exploited as well. Therefore, the shift towards wetland resources may be better thought of as a resource maximizing strategy. In other words, by locating in these areas, groups had access to a greater diversity of resources in larger quantities as compared to other areas.

Distance Analysis for Archaic Hafted Bifaces

Figure 6.14 shows the results of the distance analysis for the total number of Archaic hafted bifaces in the CCAP project area and Figure 6.15 shows the distribution for those found only in survey tracts. As can be seen in Figure 6.14, high percentages of Early, Middle, and Late Archaic bifaces occur near wetland resources; however, as with the site analysis, Middle and Late Archaic bifaces occur in higher percentages in this area. Also, a high percentage of Early Archaic bifaces occur between 200 and 500 meters away from wetland resources. In contrast, when we examine the distribution for only those bifaces located in survey tracts, we find that only the Middle and Late Archaic bifaces occur in high percentages near the wetland resources. In contrast, Dalton and Early Archaic bifaces increase as distance increases from wetland resources until it drops off at 600 meters.

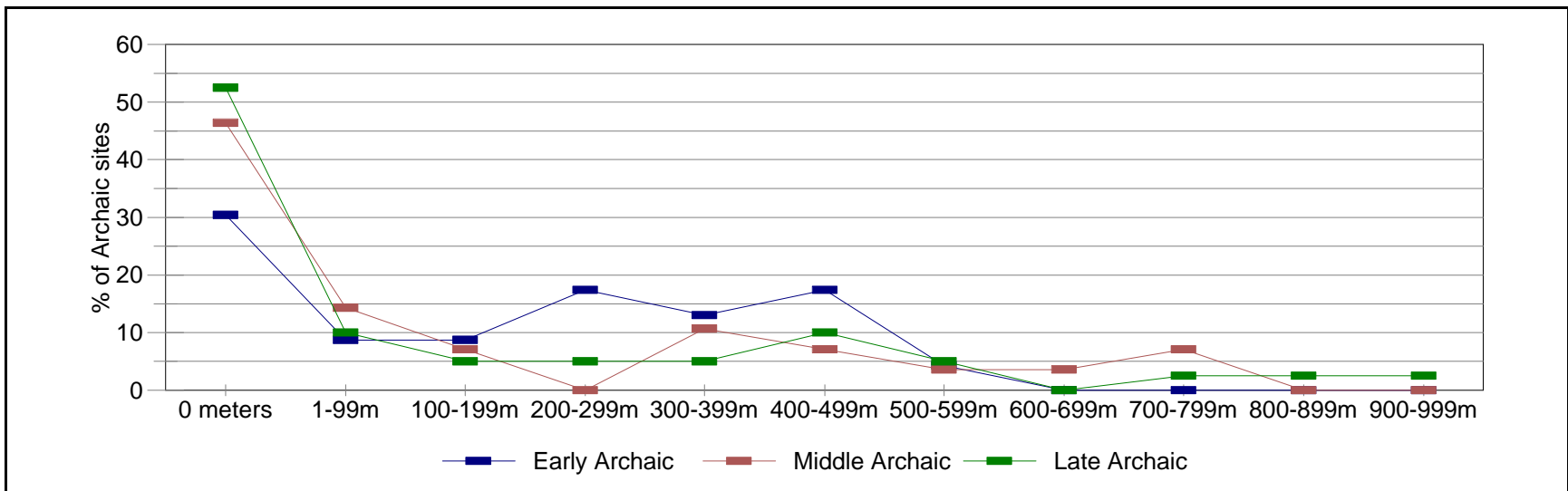


Figure 6.12. Percentage of sites to wetland resources.

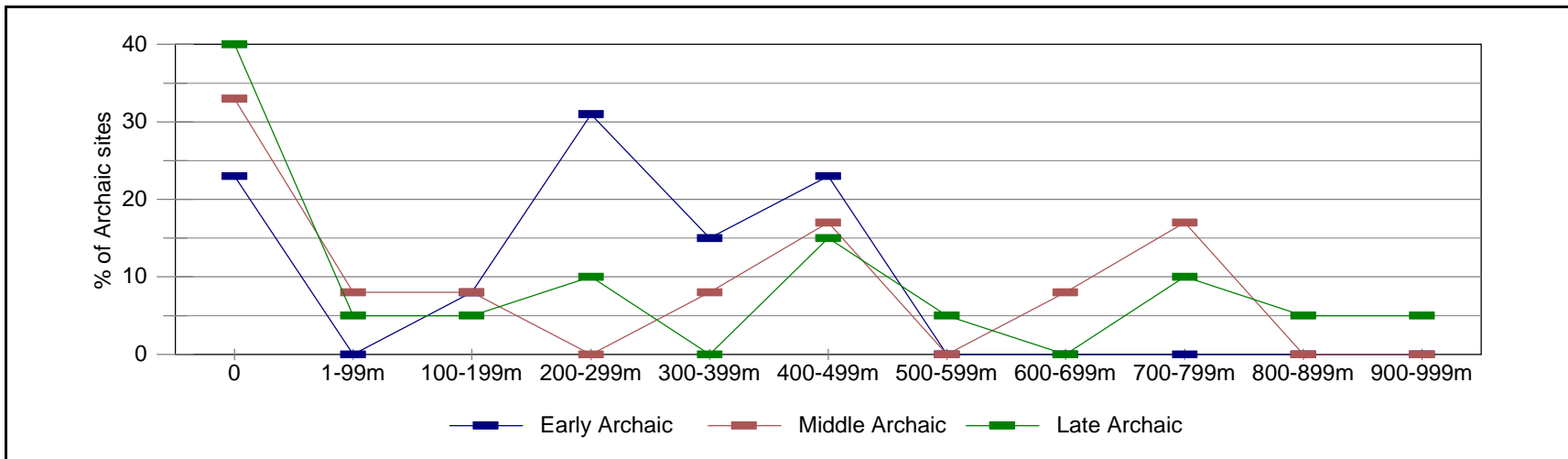


Figure 6.13. Percentage of sites located in surveyed areas to wetland resources.

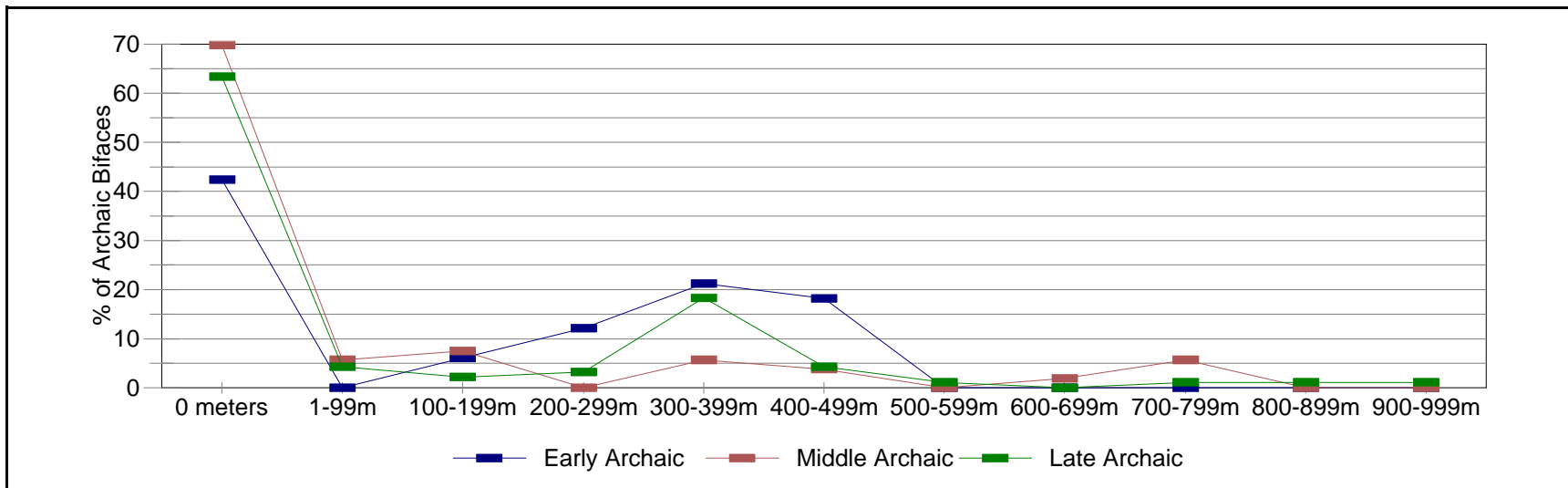


Figure 6.14. Percentage of Archaic bifaces to wetland resources.

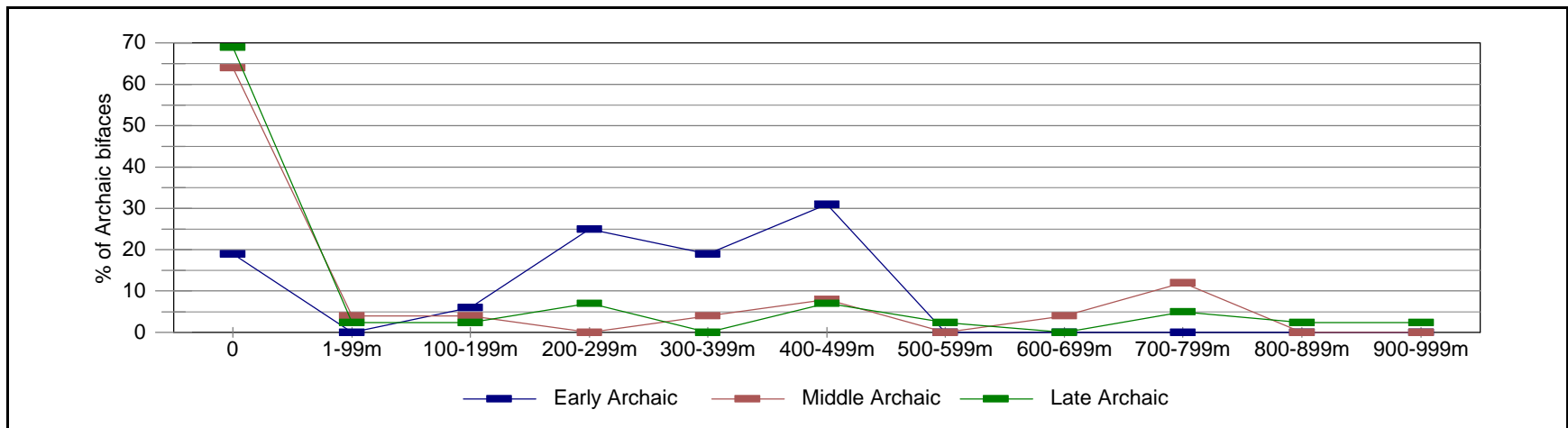


Figure 6.15. Percentage of Archaic bifaces located in surveyed areas to wetland resources.

Summary and Conclusions of the Distance Analyses

In summary, both the site and biface analysis indicate that wetland resources or areas were utilized during all three Archaic subperiods. Middle and Late Archaic hunter-gatherers appear to utilize these areas more than Early Archaic groups. Also, Early Archaic hunter-gatherers appear to utilize areas away from wetland resources more often than did Late and Middle Archaic groups.

This pattern suggests that Early Archaic groups were more mobile than Middle and Late Archaic hunter-gatherers. In contrast, Middle and Late Archaic groups tended to focus on wetland resources, indicating a more restricted mobility. Let us consider one more line of evidence— excavated sites- before we evaluate the scenarios presented in Chapter 5.

Analysis of Excavated Sites

Below, I consider the excavation data from six Archaic sites in the CCAP project area. I also present an analysis of hafted bifaces from each site. The goals of this analysis are to identify where on the landscape intensively occupied sites occur and evaluate the environmental relationships between intensively occupied sites and nearby food resources. This information, along with insights from modern survey data, will be examined with the goal of developing a more complete picture of what we know about Archaic settlement in the region.

The archaeological survey conducted by the CCAP project (1999-2001) provides limited information on the function of sites in both time and space. In contrast, a few of the Cypress Creek Archaic sites were excavated by WPA era archaeologists, yielding vast amounts of data on site activities. While the excavation techniques of that time were poor by today's standards, these excavations provide insights into the kinds of activities conducted at sites in the project area. Below, I present summaries of all the excavated sites in the study area. Figure 6.16 shows the location of all excavated sites in the CCAP project area.

The Ward Site (15McL11)

The Ward Site is located on a hill overlooking Cypress Creek (Figure 6.17). The site location is one of the most prominent features along Cypress Creek and overlooks the valley

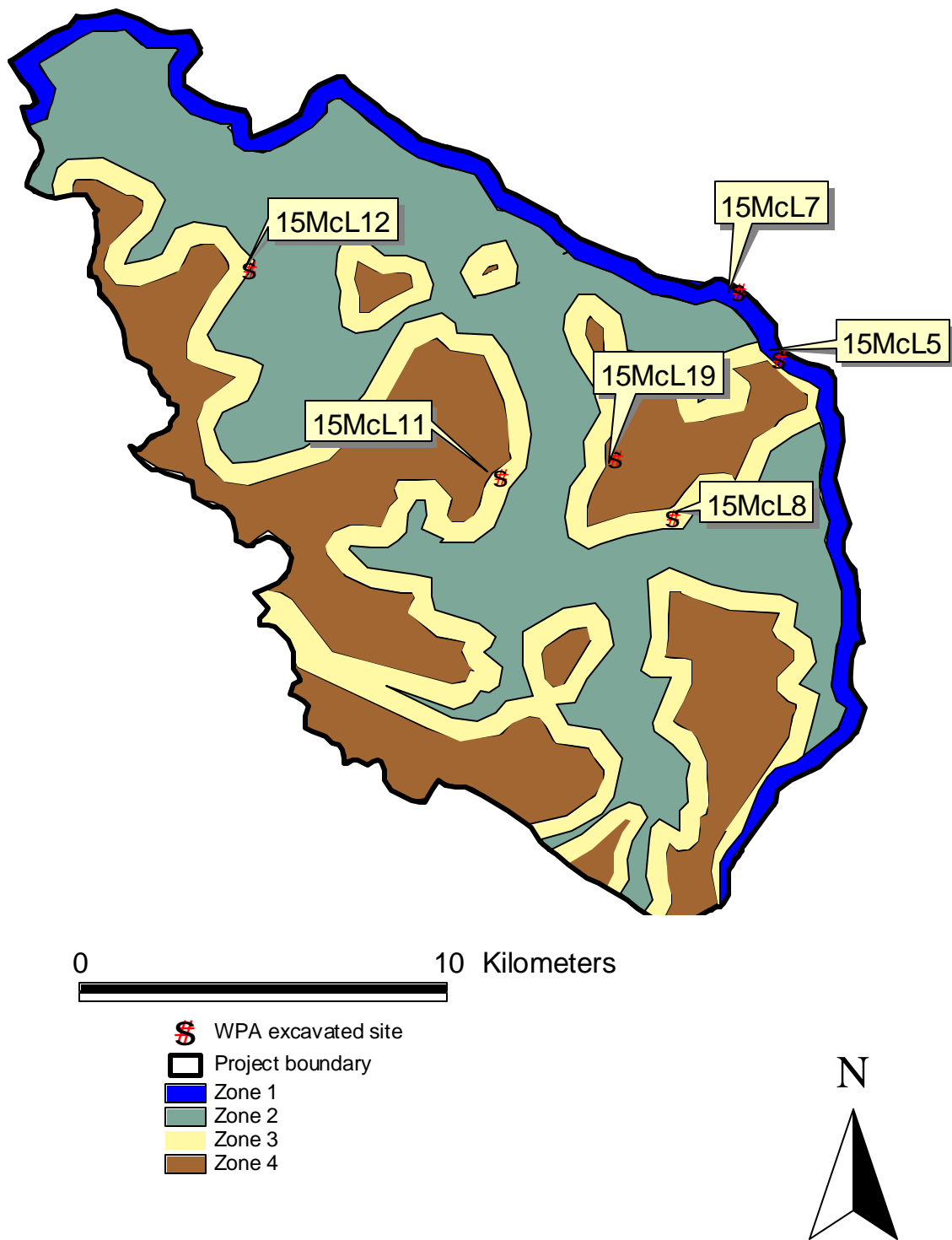


Figure 6.16. Location of WPA excavated sites in the CCAP project area.

(Webb and Hagg 1940:68). The site straddles two environmentally distinct zones. Located in Zone 3, inhabitants would have had access to a wide variety of food resources. Below this site, in the creek and wetland areas, access to fish and other aquatic resources would have provided the occupants with a steady and reliable source of food resources. Local landowners have noted that “fishing holes” located at the base of the hill near Ward were popular and productive areas up until the early 1900s. In the surrounding uplands, access to nut bearing trees would have seasonally supplemented the already rich catchment. In short, the Ward site locality provided a resource base that could support an intensive occupation of the site. In addition, the view offered by the location could have ceremonial or aesthetic significance; however, what that significance might be is beyond the scope of this thesis.

Unlike many of the large Archaic period sites located along the Green River, Ward is not a shell midden. Instead, the site consists of a thick midden deposit (ca. 90 to 110 cm deep) in which over 400 burials and a wide variety of cultural debris were found. Based on the presence of certain hafted bifaces, Ward is thought to have been occupied from the Early to the Late Archaic. If we assume that the number of projectile points reflects intensity of occupation, then we see an increase in occupation throughout time. Ward was first occupied during the Early Archaic. Out of a total of 576 diagnostic bifaces, 32 (5.6%) date to this subperiod. Occupation intensity increases during the Middle Archaic. A total of 212 or 36.8% of the hafted bifaces date to this subperiod. A closer look at these artifacts reveals that the majority date to the late Middle Archaic (n= 210) rather than the early Middle Archaic (n=3) (Jefferies et al. 2001:6). Finally, the intensity of occupation reaches its peak during the Late Archaic, with a total of 332 (57.6%) hafted bifaces dating to this subperiod.

In terms of reuse and reoccupation, the Ward site indicates heavy reuse. Evidence of reuse can be inferred from the large number of burials, the dense midden accumulation, and high concentrations of features and artifacts. In addition, some of the features contained caches of grinding stones, suggesting that inhabitants not only processed plant materials at the site, but also anticipated a return to the Ward site to conduct similar activities. This evidence, taken as a whole, suggests that the Ward site existed not only as a place on the landscape, but also as a place in the minds of individuals even when they were not physically present at the site.

The Ward site represented an important landmark for Archaic hunter-gatherers. There were probably multiple reasons why groups first decided to occupy this space during the Early Archaic. The availability of various resources (i.e., location on an ecotone) would have made this spot favorable for settlement. One quick glance, however, shows that in terms of resource availability, this location is not unique within the study area. For what ever reason, by the late Middle Archaic the Ward site had become firmly entrenched as a prominent place on the landscape. Perhaps its location on the highest spot in the area afforded some ceremonial or social significance. The presence of a large number of burials suggests at least some sort of ceremonial component to the site; however, many of the large sites in the Green River area that are not located in similar areas exhibit similar characteristics. While it may be partially attributed to ecological reasons, it is difficult to identify the reasons why Ward was a favored place on the landscape. However, based upon the elaboration of behavioral patterns (e.g., burial practice, intensive occupation) as compared to other sites in CCAP area, it is possible to argue that both social and ecological factors played a part in the construction and negotiation of Ward as an important landmark

The Butterfield Site (15McL7)

In contrast to the Ward Site, Butterfield is located adjacent to the Green River in Zone 1. Although there is currently no shallow water near the Butterfield site, Webb and Hagg (1947:30) observed that shoals may have been present prior to the damming of the Green River. Similar observations have been made for other Green River shell middens. Recent work by Morey and Crothers (1998; Crothers 1999) shows that many of the shell middens along the Green River, including Butterfield, were near shallow water riffle runs prior to impoundment.

Along with a large accumulation of shell (Figure 6.18), excavations revealed a number of features, including refuse pits, burned clay areas, burned stones, caches of axes, pestles, and hammer stones, and circular pits filled with black midden soil (Webb and Hagg 1947:32). In addition, 153 burials were recovered from the site.

Like Ward, Butterfield was occupied during all three sub-periods of the Archaic. Unlike Ward, however, we do not see the gradual increase in occupation through time. Analysis of



Figure 6.17. View of the Ward site (15McL11) excavations (courtesy of the W.S. Webb Museum of Anthropology).



Figure 6.18. View of the Butterfield site (15McL7) shell midden (Courtesy of the W. S. Webb Museum of Anthropology).

hafted bifaces reveals that the majority of the Butterfield occupation occurred during the Early and Middle Archaic. A total of 116 Archaic hafted bifaces were found at this site. Early Archaic hafted bifaces account for 43% (n=50), while Middle Archaic bifaces account for 46% (n=53). In contrast, Late Archaic bifaces account for only 11% (n=13).

It appears that reuse of the Butterfield site occurred over a long period of time. Similar to Ward, the site structure (i.e., features and activity areas) and caches of artifacts suggest that Butterfield was an important place on both the physical and cognitive landscape of Archaic hunter-gatherers. It is difficult to evaluate the diachronic use of the site based only on the hafted bifaces. Based on comparisons with other shell midden sites in the Green River region, the main occupation probably occurred from the late Middle Archaic to the Late Archaic.

Like Ward, the Butterfield site is situated on an ecotone between the wetland resources of the floodplain and the Green River. Although both sites are located on ecotones, the resources around Butterfield (e.g., wetland and river) are different from those found at Ward (e.g., upland and wetland). Despite these differences, it appears that similar activities took place at both of these sites (e.g., accumulation of burials, midden accumulation, etc.).

The Reynerson Site (15McL8)

The Reynerson site is located south of the town of Island overlooking the Thoroughfare Bottoms. This site is located in Zone 3 of the project area. Unlike Butterfield and Ward, Reynerson was not intensively occupied. Webb and Hagg (1947:39) describe this site as a camp site. Excavations revealed only limited midden accumulation and scattered areas of dark soil indicated where midden concentrations were the greatest (Webb and Hagg 1947:39). In addition, only five features were identified at this site and no burials were found.

Forty-nine Archaic diagnostic hafted bifaces were found at Reynerson. Early Archaic hafted bifaces account for 20% (n=10), while 51% (n=53) are Middle Archaic. In contrast, Late Archaic bifaces account for only 29% (n=14) of the total.

While not as intensively reused as either Ward or Butterfield, Reynerson suggests that groups repeatedly visited this location throughout the Archaic period. The presence of the

scattered midden deposits and features suggest that for a least part of the time similar activities (i.e., reuse) took place at the site.

In terms of ecological setting, Reynerson is similar to the Ward site. It is located on a hilltop overlooking a vast bottomland, thus allowing access to both upland and wetland resources. While the ecological settings of these two sites are similar, there are important difference in the activities carried out at each location. Both appear to be occupied during the Early Archaic; however, more intensive activity took place at Ward during the Late Archaic. Furthermore, the lack of burials from Reynerson suggests that ceremonial activities concerning the dead were rarely conducted at this location. The above evidence suggests that the Reynerson site, while fulfilling some of same needs of Archaic groups (i.e., subsistence related activities), was conceptualized as a fundamentally different place on the social landscape than sites such as Ward.

Smith Shelter (15McL5)

The Smith Shelter is a rock shelter located on a sandstone bluff which, at times of high water, is an island (Webb and Hagg 1947:28). The site itself is located within 500 meters of the Green River. Due to its close proximity to the river, the Smith Shelter is located in both Zone 1 and Zone 3. Surface materials collected include fragments of human and animal bones, shell, and debitage (Webb and Hagg 1947:28).

Thirteen hafted bifaces were found to be diagnostic of one of the three Archaic sub-periods. Early Archaic hafted bifaces account for 8% (n=1), while Middle Archaic bifaces account for 38% (n=5). In contrast, Late Archaic bifaces account for 54% (n=7) of the total.

The Smith Shelter is located in an unusual part of the Cypress Creek Project area. This area would have provided access to upland, wetland, and riverine resources. In addition, the rock shelter would have given refuge from the elements. Despite what seems to be an optimal location for Archaic settlement, archaeological evidence (i.e., low number of bifaces, lack of midden accumulation) indicates short, ephemeral occupation of the site. The fact that all three Archaic subperiods are represented by diagnostic bifaces suggests that site use has considerable continuity.

The Kirtley Site (15McL19)

The Kirtley site is located across the bottomlands from Ward, just south of the town of Buttonsberry. The site is situated on a knoll overlooking the bottoms and is located in Zone 3 of the project area. A portion of the site was excavated by John Elliott in the late 1930's.

Largely known for its Mississippian occupation, the Kirtly site does contain limited evidence of Archaic activity. Analysis of the Kirtly artifacts resulted in 55 hafted bifaces being associated with one of the three Archaic sub-periods. Twenty-two percent (n=12) of the hafted bifaces are Early Archaic, while Middle Archaic bifaces account for 56% (n=31). Late Archaic bifaces account for 22% (n=12) of the total.

There is only a limited amount of information on the Archaic occupation of this site due to the fact that the Mississippian occupation was the major focus of the excavations. Some observations are possible, however, based on site location and the presence of Archaic hafted bifaces. Like other sites discussed in this section, Kirtley is located on an ecotone between upland and wetland resources. Also, the analysis of hafted bifaces indicates that Kirtley was occupied throughout the Archaic period. It is possible that Kirtly site activities were similar to those conducted at Smith shelter and Reynerson. These similarities include subsistence activities, though not as extensive as those at Ward or Butterfield, and little or no ritual use— in terms of burial or death rites.

The Kirkland Site (15McL12)

The Kirkland site is located at the confluence of Cypress Creek and the Pond Drain. The occupation area of this site covers approximately .20 ha and is clearly evident from the black color of the soil (Webb and Hagg 1940:71). Webb and Hagg (1940:71) describe the site as typical of the small village and camp sites in McLean County. The site is located in Zone 3 of the project area.

WPA excavations revealed a midden containing debitage and animal bone (Webb and Haag 1940). The Kirkland excavations identified 70 human burials, 10 dog burials, and 8 features (Webb and Haag 1940: 72).

Artifact analysis identified nine Archaic hafted bifaces. No Early Archaic hafted bifaces were found, however, artifact photos from the site report (Webb and Hagg 1940:Figure 21) clearly show several corner notched types that, more than likely, date to this period. Unfortunately, these artifacts could not be located during this study. Of the bifaces that could be found, most date to the Late Archaic (77.8%, n= 7), while 22.2% (n=2) date to the Middle Archaic.

This site is located on the upland/wetland ecotone in an area very similar to the Ward site. It appears that the activities that took place at Kirkland were also similar to Ward. The accumulation of burials, midden, etc. suggests that this site was reused over a period of time and was another important place on the landscape, similar to Ward and Butterfield.

Summary

Table 6.18 summaries the excavation data for sites in the CCAP project area. All six sites are located in either Zone 1 or 3. Three of these sites are considered to have been intensively occupied. This pattern suggests that Zones 1 and 3 contained the necessary food resources to support long term, intensive occupation. The most intensive period of site use appears to have taken place during the late Middle Archaic and Late Archaic subperiods, suggesting continuity in late Middle and Late Archaic adaptive patterns.

Table 6.18. Summary of excavated sites in the CCAP project area.

Site	Archaic Sub-period*	Midden	Features	Human Burials	Intensive occupation	Zone
15McL11	E/M/L	present	present	433	yes	3
15McL7	E/M/L	present	present	153	yes	1
15McL8	E/M/L	localized midden	present	none	no	3
15McL5	E/M/L	none	present	none	no	1 and 3
15McL19	E/M/L	none	none	none	no	3
15McL12	E/M/L	present	present	70	yes	3

* E = Early Archaic; M = Middle Archaic; L = Late Archaic

Evaluation of Scenarios

The analyses presented in this chapter allows for the evaluation of the scenarios presented in Chapter 5. In general, all of the analyses presented seem to produce similar results, suggesting that the patterns observed are real and not a product of researcher bias. Below, I evaluate the scenarios presented for each subperiod of the Archaic (Dalton and Early Archaic, Middle Archaic, and Late Archaic). Scenarios are evaluated by examining the general patterns for land use in the CCAP project area (see Chapter 5 for test implications). It must be remembered that the scenarios presented are idealized models. Human behavior may be much more varied than we can tell from the archaeological record. That said, I will attempt to provide a general picture of land-use throughout the Archaic.

The Dalton and Early Archaic (10,700-8,000 B.P.)

The patterns observed for the Dalton and Early Archaic sites indicate that in general, Scenario 1 is the most plausible of the four presented. In other words, Dalton and Early Archaic groups did not utilize specific areas of the landscape, nor did they intensively occupy specific locales. This pattern is indicated by the distribution of Dalton and Early Archaic sites and hafted bifaces as well as the distance analysis (see above). In general, hunter-gatherers during this time focused on both upland and Green River food resources.

While I suggest that Scenario 1 best fits the pattern for the Early Archaic, I feel that there are exceptions to this model that are worth mentioning. First, at least four areas of the landscape seem to have been occupied multiple times, as indicated by a cluster of sites within a restricted area. Only one cluster, however, has more than two sites. These areas are all located in Zone 3 along the upland/wetland ecotone. In addition, at least two sites (Ward and Butterfield) have a large number of Early Archaic hafted bifaces. While these sites do not appear to be intensively occupied during the Early Archaic, the evidence (i.e., number of bifaces) suggests that these locales may have held a special significance for Early Archaic groups. It is interesting to note that both of these sites are located on ecotones in Zones 1 and 3.

In summary, Dalton and Early Archaic sites are not concentrated in one particular zone or a particular part of the landscape. Although some areas appear to be occupied more than once,

groups do not seem to be tied to one part of the landscape. We may infer therefore, a relatively high degree of mobility for these groups as compared to subsequent parts of the Archaic period.

The Middle Archaic (8,000-5,000 B.P.)

The patterns observed for Middle Archaic period sites indicate that Scenerio 3 is the most plausible. As previously reported, most Middle Archaic sites in the sample date to the late Middle Archaic. Therefore, when evaluating Middle Archaic land-use, I am specifically referring to the later half of this subperiod (6,500 to 5,000 B.P.). Unfortunately, there is little information with which to examine the early Middle Archaic land-use. Based on the analysis presented in this chapter, however, it appears that there is a considerable decline in early Middle Archaic land-use and site occupation. This observation is based on small number of early Middle Archaic sites and bifaces located in the project area. This pattern is also evident using data from the six excavated sites.

The late Middle Archaic hunter-gatherers of the CCAP area appear to have intensively utilized specific areas on the landscape, as well as intensively occupying specific locales. The preference for certain parts of the landscape is indicated by at least seven distinct clusters of late Middle Archaic activity. In addition, two sites (i.e., Ward and Butterfield), possibly three (i.e., Kirkland), have evidence of intensive occupation during the late Middle Archaic. It is also interesting to note that the site clusters and the intensively occupied sites occur in or near Zones 1 and 3, reflecting the importance of ecotones for hunter-gatherer land-use.

Several other patterns can be identified for this period. First, population seems to have increased during this time based on the higher frequencies of late Middle Archaic sites and hafted bifaces. Second, use of aquatic resources appears to increase. This pattern is evident by the high density of sites near the Green River (Zone 1) and the location of intensively occupied sites near or along Cypress Creek (see excavation data), as well as the decreasing distance of sites to wetland resources. In addition, when the distribution of Dalton and Early Archaic sites and bifaces are compared with the late Middle Archaic, a dramatic decrease in use of upland resources is apparent.

The Late Archaic (5,000-3,000 B.P.)

Scenario 4 appears to best describe the pattern observed for Late Archaic hunter-gatherers. Similar to the pattern established during the late Middle Archaic, Late Archaic hunter-gatherers utilized specific parts of the landscape, as well as intensively occupying specific sites. These landscape areas and sites seem to be the same ones occupied during the late Middle Archaic. This is indicated by the large number of sites having both Middle and Late Archaic components.

Several other trends identified for the late Middle Archaic continue or are elaborated during the Late Archaic. Based on site and biface distributions, hunter-gatherer groups seem to concentrate on wetland resources during this time. This is seen in the high percentage of sites and hafted bifaces located near the Green River (Zone 1) and Cypress Creek (Zone 2 and 3). In addition, analysis of the distance of sites and bifaces to alluvial soils shows a marked decrease in use of areas located away from wetlands compared to earlier components.

Interestingly, a high percentage of sites with only Late Archaic components occur along Cypress Creek, suggesting that resources in the ecotone area along the creek were becoming increasingly important during the Late Archaic. While many of the late Middle Archaic areas and sites continued to be utilized during the Late Archaic, this departure suggests that it was not sufficient to continue to occupy all the same locations. This may be a result of the increase in population during the Late Archaic as indicated by the increased number of sites and bifaces during the Late Archaic.

Living in Space: Discussion of the CCAP Archaic Landscape

It is obvious that the use of the CCAP landscape changed considerably throughout the Archaic period. Patterns of site and biface location, as well as site occupation, seem to indicate that as time progressed, both specific areas of the landscape and specific locales became more important. In general, location on ecotones (Zones 1 and 3) seem to be important throughout the Archaic; however, the way in which people used these areas changed.

The most obvious shift in land-use occurs during the late Middle Archaic continuing into the Late Archaic. During the Early Archaic, we see land-use following a generalized pattern, as indicated by a more or less even distribution of sites and less intensive occupation of sites as

compared to later subperiods. In contrast, later populations intensively occupied specific sites as well as areas of the landscape. I suggest that the increasing commitment to certain places on the landscape and the activities conducted (i.e., burial and everyday living) at these locations, represents a fundamental shift in the way the landscape was conceptualized by Archaic hunter-gatherers.

This new view of the landscape may be reflected in the treatment of the dead. Current evidence suggests that the majority of the burials, if not all, interred at sites like Ward and Butterfield occurred during the late Middle and Late Archaic (see Milner and Jefferies 1998). This may reflect an increasing claim by certain groups on these locations. Burial of the dead may act as a ceremonial claim to that part of the landscape, in the sense that because a group's ancestors are buried at a particular locale, the living relatives not only have claim to that spot, but also to the land around it (see Crothers 1999; Charles and Buikstra 1983; Buikstra and Charles 1999). While the shell and dirt middens of the Green River valley are not as visible as Woodland burial mounds, I believe that these locations would have, nevertheless, been recognized by Archaic groups in the area.

If the interpretation that the change in landscape use represents increasing claim to specific areas of the landscape, what are the relational aspects, *vis á vis* Zedeño (2000), of the intensively occupied sites in the Cypress Creek area? The Ward site and its surrounding area stands out above all others in the Cypress Creek landscape. Based on the site distribution data and WPA excavations "the Ward area" has the greatest concentration of sites and burials of any area in the CCAP study area. Other areas have concentrations of sites and burials, such as the Kirkland site and its surrounding area. It is also interesting that areas utilized in this manner (i.e., a cluster of small sites around a large intensively occupied one) occur in both Zones 1 and 3. This indicates that while direct access to resources plays a part in the location of these areas, they are not limited to one part of the landscape. This is also indicated by the many sites that display a wide spectrum of occupational history located in these two zones. In other words, sites located in these areas can range from a small lithic scatter, to few areas of midden concentration and no burials, to a dense, wide-spread midden accumulation with over 400 burials.

In summary, it appears that during the late Middle Archaic continuing into the Late Archaic, it became important for groups to claim specific areas of the landscape. While there is a distinct change in the way these areas were used (e.g., intensive occupation versus ephemeral occupation), knowledge of them seems to have considerable antiquity— as reflected by the presence of Early Archaic bifaces at these sites. In addition, the areas were not strictly confined to the places along the Green River, as indicated by Ward and Butterfield. While Crothers (1999:249) has argued that occupation of shell midden sites represents increasing claim to specific areas of the landscape, sites located away from the river seem to fall out of his discussion of this topic— possibly because he was specifically working on shell middens.

In conclusion, I suggest that, collectively, intensively occupied sites in the Cypress Creek area served to define territories of Archaic hunter-gatherer groups. These territories would not have been tied strictly to the main river valley, but would have extended into the uplands and possibly to adjacent, smaller rivers (e.g., the Pond River). Unfortunately, the data at my disposal does not allow me to investigate the boundaries of such territories. Future work on site specific and region-wide data may be able to test where or if these boundaries occur.

Hunter-Gatherers of Cypress Creek and the Green River Valley

In order to understand the diachronic changes in hunter-gatherer settlement that occur in the Cypress Creek project area, we must take into account the regional variations in hunter-gatherer settlement. Because most of the Cypress Creek sites are located within 10 km of the Green River, they are probably part of the Green River Archaic settlement system. Similar to some of the larger sites in the CCAP project area, many of the Green River sites suggest more intensive use of specific aquatic resources during the late Middle and Late Archaic (Watson and Marquardt 1983; Marquardt 1985). This is evident in the large accumulations of shell and non-shell middens that occur throughout the region. This is not to say that the uplands were abandoned. As indicated by the CCAP, many sites are positioned along ecotones which allowed access to multiple resources. In fact, assigning sites to either an upland or floodplain environment (see Hensley 1994), sets up an oversimplified view of resources available near sites. Even the resource zone approach taken in this thesis oversimplifies the relationships between sites and the

environment. Future studies need to employ more detailed information on environment in order to better understand the different resources available in each area.

Based on published radiocarbon dates, it appears that intensive occupation of sites in the Green River region began in the late Middle Archaic and continued into the Late Archaic (see Table 6.18). Of particular interest to this pattern is the middle Green River where extensive work has been conducted (Watson and Marquardt 1983). Crothers (1999:203) places the occupation for sites in this area (15Bt92, 15Bt5, 15Bt11, and 15Bt6) between 4500 and 6500 B.P. Crothers (1999:203; see also Milner and Jefferies 1998) also reports, however, that the radiocarbon dates from Kirkland (15McL12), Read (15Bt10), and Bowles (15Oh13) indicate that occupation continues into the Late Archaic period in the middle Green River. In addition, shell fishing continues to be an important part of the economy, at least at one site (Read) in this area (Crothers 1999:203).

The occupational history of the Ward site (15McL11) seems to follow the general pattern observed for many of the shell midden sites in the Green River region. Of the few radiocarbon dates for the site, most fall between 5120 and 4134 B.P. indicating that the intensive occupation began around the late Middle Archaic and continued into the Late Archaic. This pattern is also reflected in the projectile point distributions by the increase of Late Archaic points found at the site (see Jefferies et al. 2001). In addition, changes in landscape use in the Cypress Creek project area suggest that specialized use of particular areas (i.e., the interface region and the Green River) was becoming more and more important through time. This pattern of both site occupation and landscape use indicates the increasing dependence on certain areas of the landscape. With this increased reliance on these specific resources comes the concomitant changes in mobility and social organization in order to claim to areas of the landscape.

Crothers (1999:250), upon examining occupation at contemporaneous sites in the middle Green River, suggests that even when shell fishing ceased to be an important part of the site's economy, occupation continued. He suggests that while the initial settlement of a site may have been to exploit a specific resource, its continued occupation may have been attributed to social or ideological reasons. Evidence for this may be inferred from the changing density of shell midden layers in many of the occupation sites in the area and the large quantity of subsistence remains

other than shellfish (Crothers 1999). A similar postulate may be formulated for the intermittent use of sites after occupation decreases. While some of these sites are no longer base camps, certain groups may have still held certain use rights or property ownership over these areas and continued to use them as part of a logistical system of settlement (Crothers 1999).

In general, the pattern that can be observed for Archaic settlement in the Green River region is one of increasing claim to and reliance on specific resources. Productive areas on the landscape were known and occupied during Early Archaic; however, the role of these sites changed. Some of these sites continued to grow in size and were occupied in the subsequent Late Archaic period. For example, Indian Knoll is nearly twenty times larger than some of the sites occupied during the late Middle Archaic (McBride 2000:148). Although sites continued to grow during the Late Archaic, some sites that were established during the late Middle Archaic were abandoned or only have evidence of limited occupation such as the Baker site (15Mu12) (McBride 2000). This change in the intensity of occupation may indicate changing territories; however, more work on a region-wide scale with refined chronometric and relative dating is needed before this can be evaluated.

In conclusion, I argue that the Cypress Creek pattern of increasing claim to areas and locations on the landscape is typical for the late Middle and Late Archaic groups of the Green River valley. While evidence of intensive occupation of sites reflects this interpretation of specific locations, more regional survey is needed in other parts of the Green River to compare and evaluate land-use patterns of specific areas.

Summary

In this chapter I presented the results of a survey conducted for a portion of the Cypress Creek drainage, a tributary of the Green River. Through a distributional analysis of hafted bifaces and site data, several trends were identified. I have interpreted these trends to indicate a change in the way the landscape was conceptualized and used from Early Archaic to the late Middle and Late Archaic. In general, I suggest that during this time there is an increasing claim to both specific areas and locations on the landscape.

Next, I presented data from the Green River Region as a whole. Data from excavated sites in this area seems to support the interpretations given for the intensively occupied Cypress Creek sites. In general, we see similar trends in both the Green River region and the Cypress Creek study area. I argue that land-use patterns, similar to the ones identified for Cypress Creek, may be found in other parts of the Green River region; however, more survey is needed in these areas to evaluate this statement.

CHAPTER 7.

DIVERSITY IN HUNTER-GATHERER LANDSCAPES

In this Chapter I will compare the areas of Archaic land-use discussed in Chapter 2 with the Cypress Creek data in order to explore variability in hunter-gatherer land-use. Sassaman (1995a) has explored cultural diversity among hunter-gatherers; however, the examination presented here is a much more restricted comparison (as opposed to Sassaman's which included the entire Southeastern United States). Although, I do not take as wide a view as Sassaman, I do take a broad, inter-regional approach. This method allows for the identification of broad scale differences in patterns while minimizing the influence of bias in the samples (see Binford 1981).

Changing Landscapes during the Archaic Period

The degree and importance of certain areas of the landscape (i.e., territoriality) should be reflected in the use and constructions of landmarks. Over time, sites that attain landmark status should be identifiable by intensive occupation and commitment to incorporate these spaces into the social realm. While there are multiple ways of incorporating space into the social realm, it seems that Archaic hunter-gatherers accomplished this by interring their ancestors at these specific locations. Particularly, the dirt, rock and/or shell middens found throughout the North American Midcontinent seem to represent this phenomena. While these spaces are utilized throughout the Archaic, intensive occupation and frequent human burial does not occur until the late Middle Archaic. Therefore, we see a shift from reoccupation of these sites to reuse. In other words, during the Early Archaic, these sites represent short term occupations. In contrast during the late Middle Archaic we see extensive reuse of these locations as burial and habitation sites, where similar activities took place over many years. It is uncertain whether or not these sites were used by the same or different groups; however, whatever the case may be these sites represent an increasing commitment to certain locations on the landscape.

Based on the above discussion, let us pose the question: does territoriality increase during the Archaic period in some places and not in others? During the late Middle Archaic, hunter-gatherers throughout the North American Midcontinent began intensively occupying specific

locations on the landscape (e.g., Koster, Black Earth, Ward, Bluegrass etc.). In addition, evidence from archaeological survey indicates that these groups also restricted their movement to certain areas of the landscape. In contrast, for the Late Archaic, archaeologists have found little evidence to suggest intensive use of specific locations as compared to the Green River sites. Sites that were the locus of intensive late Middle Archaic activities, as indicated by rapid accumulation of midden and diverse artifact assemblages, contain evidence for much less intensive Late Archaic occupations (e.g., Koster and Black Earth).

Many areas of the North American Midcontinent also indicate a change in land-use during the Late Archaic. It appears that hunter-gatherers in some of these areas no longer restricted themselves to specific areas of the landscape. Similar to Early Archaic hunter-gatherers, these groups utilized a broader area of the landscape. Some areas, however, such as southwestern Indiana, continued to exhibit the restricted land-use pattern of the late Middle Archaic (e.g., Stafford 1994).

In contrast to other areas of the North American Midcontinent, data from the Green River valley, and specifically the Cypress Creek area, seem to indicate that the late Middle Archaic pattern continued into the Late Archaic. I have interpreted this pattern in the Cypress Creek area as indicating increasing importance of territoriality among hunter-gatherer groups.

In general, it appears that boundaries and territories become increasingly important throughout the North American Midcontinent during the late Middle Archaic. The archaeological evidence for this is the intensive use of specific sites and areas of the landscape. This is also reflected in the sharing of stylistic attributes on things such as bone pins and atlatl weights (e.g., Jefferies 1996a, 1997). In contrast, during the Late Archaic, these boundaries were renegotiated to a more fluid state— except in the Green River valley. In the Green River region the boundaries persisted, and possibly intensified during the Late Archaic.

Many researchers have used environmental change during the late Middle Archaic to explain the shift to decreased mobility, or intensive occupation of certain areas of the landscape (Jefferies and Lynch 1983; Nance 1988; Brown and Vierra 1983). Similarly, researchers have also used environmental change to explain the shift back to a more mobile way of life following the late Middle Archaic (Jefferies 1983). When we look at these changes across space, however,

we see that environmental change (i.e., climatic change) does not produce a uniform reaction in nearby areas. While these interpretations were made in terms of hunter-gatherer mobility, they may also be used to explain the changing patterns of land-use and intensive occupation of specific locations. Explaining Archaic land-use on the basis of environmental change begs two specific questions. First, why does a shift in the environment to warmer drier conditions coincide with a generally uniform increase in territorialism, or as others have suggested, decreased mobility across the Midcontinent in the late Middle Archaic. Second, why does the shift back to wetter, cooler conditions mark the return of less restricted land-use patterns, or increased mobility, in the some areas and not in others?

While I cannot fully evaluate these questions in this thesis, I can offer a model that might account for this variation in adaptation to changing environment. Following Stafford (1994; see also Stafford et al. 2000) and Brown and Vierra (1983; see also Brown 1985), I suggest that increasing territoriality occurred due to the increasingly heterogenous distribution of resources during the Hypsithermal Climatic Interval. During this time, many hunter-gatherer groups concentrated activities on specific locations and areas of the landscape in order to stake a claim of use-rights on specific areas. Once the climate returned to wetter, cooler conditions following the Hypsithermal, resources became more evenly distributed. Access to, and control over specific areas became less important with the return of a more even resource distribution, and over time control of these areas relaxed. Certain groups may have still claimed ownership; however, access was probably rarely denied. In contrast, other groups (e.g., Cypress Creek-Green River hunter-gatherers) at the end of the Hypsithermal may have chosen to continue even after it was no longer necessary to control access to resources. So why did some groups decide to relax control over resources and others intensify their claim? The answer, I believe, can be found in the relationship between population aggregations and the distribution of resources.

Cohen (1985; see also Brown 1985), suggests that regional population densities are the key factor in changing social relations (e.g., greater complexity, reduced mobility, increased territoriality). He argues that complexity correlates with high population density in conjunction with the quantity, temporal and spatial distribution, and reliability of sets of resources (Cohen 1985:112). In the same vein, I suggest that because populations aggregation increased during the

late Middle Archaic relative to viable resources, groups in the Green River valley found it necessary to continue to stake claim over and control access to certain resources on the landscape. In contrast, other areas of the North American Midcontinent were not as restricted by the population aggregation/resource distribution problem. I do not argue that certain population aggregation densities combined with heterogenous resource distributions produced greater territoriality among groups or that low population aggregation groups with homogenous resource distributions are not territorial. Instead, I propose that in either situation, it is easier or more difficult to negotiate land-use and access to resources. In other words, it is more difficult to negotiate access to resources when population aggregations are high and resources are heterogeneously distributed than in the opposing situation. In addition, I argue that the more difficult it is to negotiate access to resources, the easier it is for concepts of ownership or control over places on the landscape to become embedded into the cultural landscape.

Conclusions

I argue that the theoretical approaches to landscape use among hunter-gatherers must include the examination of a wide variation of land-use strategies (Stafford and Hajic 1992). In order to take this approach, we must examine these questions from both a local and regional scale analysis. Examination on the local level allows us to address changes and examine patterns on very small scales. The local examination of patterns then contributes to the larger regional view. Binford (1982; see also Sassaman 1995) suggests that by taking this regional view, bias in samples are filtered out and we are able to address broad scale patterns. By examining the differences in patterns between different areas, we are better able to evaluate our explanations for culture change.

I have argued that, in general, there are differences in settlement patterns and the development of increasing territorialism across the North American Midcontinent. When these areas are considered as a whole, traditional models are inadequate to explain the variation in the archaeological data. To examine variation in these areas we must adopt a model of territorialism that views it as a process that can emerge in different areas at different times and is not viewed as an irreversible trend. I have suggested, based on Cohen (1985) that variation in the degree of

territorialism in the North American Midcontinent in time and space is the result of the interplay of population aggregation and resource distribution. More in-depth studies into the paleoenvironment, site specific studies, and regional surveys will provide archaeologists with the necessary data to compare different areas of the North American Midcontinent and evaluate this model.

This thesis contributes to the local knowledge of sites and trends in the Cypress Creek area of the Green River, Kentucky. In addition, it makes a methodological contribution by reinforcing the notion that, in order to evaluate and explore variations in prehistoric landscape, multiple regions must be taken into consideration. While this approach is not new (see Caldwell 1958; Stafford and Hajic 1992; Sassaman 1995a), its application to the problem of changing landscapes among hunter-gatherer groups has yet to be realized (see Stafford and Hajic 1992 for an exception). Finally, the theoretical contribution of this thesis is that, in order to address more complex questions of hunter-gatherer development and change, archaeology must first look to the landscape which reflects the beliefs, movements, and organization of people throughout time.

References

- Ahler, S.
1984 *Archaic Settlement Strategies in the Modoc Locality, Southwest Illinois*. Dissertation, University of Wisconsin.
- 1993 Stratigraphy and Radiocarbon Chronology of Modoc Rock Shelter, Illinois. *American Antiquity* 58(3):462-488.
- Ahler, S., M. Bade, F. King, B. Styles and P. Thorson
1992 *Late Archaic Components at Modoc Rock Shelter, Randolph County, Illinois*. Illinois State Museum Reports of Investigations. 48.
- Ames, K.
1985 Hierarchies, Stress, and Logistical Strategies among Hunter-Gatherers in Northwestern North America. In *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, edited by T. D. Price and J. Brown, pp. 155-176. Academic Press, Orlando.
- 1991 Sedentism: A temporal Shift or a Transitional Change in Hunter-Gatherer Mobility Patterns. In *Between Band and States*, edited by S. A. Gregg. pp. 108-134. Southern Illinois University, Carbondale.
- Arnold, J.
1996a Understanding the Evolution of Intermediate Societies. In *Emergent Complexity*, edited by J. Arnold, pp. 1-12. International Monographs in Prehistory, Ann Arbor.
- (editor)
1996b *Emergent Complexity: The Evolution of Intermediate Societies*. International Monographs in Prehistory No. 9, Michigan, Ann Arbor.
- Barnett, W. and J. Hoopes (editors)
1995 *The Emergence of Pottery: Technology and Innovation in Ancient Societies*. Smithsonian Institution Press, Washington, D.C.
- Bense, J.
1994 *Archaeology of the Southeastern United States: Paleoindian to World War I*. Academic Press, San Diego.
- Bettinger, R.
1977 Aboriginal Human Ecology in Owens Valley: Prehistoric Change in the Great Basin. *American Antiquity* 42:3-17.

- 1991 *Hunter-Gatherers: Archaeological and Evolutionary Theory*. Plenum Press, New York.
- Binford, L.
- 1975 Sampling, Judgement and the Archaeological Record. In *Sampling in Archaeology*, edited by J. Mueller, pp. 251-257. University of Arizona Press, Tucson.
- 1978 *Nunamiut Ethnoarchaeology*. Academic Press, New York.
- 1980 Willow Smoke and Dogs' Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45:4-28.
- 1981 The Archaeology of Place. *Journal of Anthropological Archaeology* 1(5-31).
- 1983 *In Pursuit of the Past*. Thames and Hudson, London.
- Bird-David, N.
- 1988 Hunters and Gatherers and Other People-- A Re-examination. In *Hunters and Gatherers: History, Evolution, and Social Change Volume 1*, edited by T. Ingold, D. Riches and J. Woodburn, pp. 17-30. Berg, Oxford.
- Boas, F.
- 1888 *The Central Eskimo*. Bureau of American Ethnology Annual Report 6. Washington, D.C.
- 1907 Second Report on the Eskimo of Baffin Land and Hudson Bay. *Anthropological Papers of the American Museum of Natural History* 15:371-509.
- Breitburg, E.
- 1982 Analysis of Area A fauna. In, *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley Illinois*, edited by R. Jefferies and B. Butler. Center for Archaeological Investigations Research Paper No. 33, pp. 861-989. Southern Illinois University at Carbondale.
- Brooks, A. and J. Yellen
- 1987 The Preservation of Activity Areas in the Archaeological Record: Ethnoarchaeological and Archaeological Work in Northwest Ngamiland, Botswana. In *Method and Theory for Activity Area Research*, edited by S. Kent. pp. 63-107. Columbia University Press, New York.

- Brown, J. and R. Vierra
1983 What Happened in the Middle Archaic Introduction to the Ecological Approach to Koster Site Archaeology. In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. Phillips and J. Brown, pp. 165-95. Academic Press, New York.
- Brown, J.
1985 Long-Term Trends to Sedentism and the Emergence of Complexity in the American Midwest. In *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, edited by T. Price and J. Brown, pp. 181-224. Academic Press, Orlando.
- Buikstra, J. and D. Charles
1999 Centering the Ancestors: Cemeteries, Mounds, and Sacred Landscapes of the Ancient North American Midcontinent. In *Archaeologies of Landscapes: Contemporary Perspectives*, edited by W. Ashmore and A. B. Knapp, pp. 201-228. Blackwell Publishers.
- Caldwell, J. R.
1958 *Trend and Tradition in the Prehistory of the Eastern United States*. American Anthropologist Memoir 88.
- Carstens, K. C. and P. J. Watson (editors)
1996 *Of Caves and Shell Mounds*. University of Alabama Press, Tuscaloosa.
- Charles, D. and J. Buikstra
1983 Archaic Mortuary Sites in the Central Mississippi Drainage: Distribution, Structure, and Behavioral Implications, In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. Phillips and J. Brown, pp. 117-145. Academic Press, New York.
- Claassen, C.
1991a Gender, Shellfishing, and the Shell Mound Archaic. In *Engendering Archaeology Women and Prehistory*, edited by J. M. Gero and M. W. Conkey, pp. 276-300. Basil Blackwell Ltd, Oxford.

1991b New Hypothesis for the Demise of the Shell Mound Archaic. In *The Archaic in the Mid-South*, edited by C. H. McNutt, pp. 66-71. Archaeology Report No. 24, Mississippi Department of Archives and History, Jackson.

1992 Shell Mounds as Burial Mounds: A Revision of the Shell Mound Archaic. In *Current Archaeological Research in Kentucky*, edited by D. Pollack and A. G. Henderson, pp. 1-12. vol. 2. Kentucky Heritage Council, Frankfort.

- 1996 A Consideration of the Social Organization of the Shell Mound Archaic. In *Archaeology of the Mid-Holocene Southeast*, edited by K. Sassaman and D. G. Anderson, pp. 235-258. University of Florida Press, Gainesville.
- Clark, J. and M. Blake
1994 The Power of Prestige: Competitive Generosity and the Emergence of Rank Societies in Lowland Mesoamerica. In *Factional Competition and Political Development in the New World*, edited by E. Brumfiel and J. Fox, pp. 17-30. Cambridge University Press, Cambridge.
- Cohen, M.
1985 Prehistoric Hunter-Gatherers: The Meaning of Social Complexity. In *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, edited by T. D. Price and J. Brown, pp. 99-119. Academic Press, Orlando.
- Cook, T.
1976 *Koster: an artifact analysis of two Archaic phases in west central Illinois*. Koster Research Reports 3, University Archaeological Program Prehistoric Records 1.
- Cox, F.
1980 *Soil Survey of McLean and Muhlenberg Counties, Kentucky*. USDA Soil Conservation Service, Washington D.C.
- Crothers, G.
1999 *Prehistoric Hunters and Gatherers, and the Archaic Period Green River Shell Middens of Western Kentucky*. Dissertation, Washington University.
- Delcourt, P. and H. Delcourt
1981 Vegetation Maps for Eastern North America. In *Geobotany II*, edited by R. Romans, pp. 123-65. Plenum Press, New York.
- Drucker, P.
1939 Rank, Wealth, and Kinship in Northwest Coast Society. *American Anthropologist* 41:55-64.
- Dunnell, R.
1992 The Notion Site. In *Space, Time, and Archaeological Landscape*, edited by J. Rossignol and L. Wandsnider, pp. 21-42. Plenum Press, New York.
- Ebert, J.
1992 *Distributional Archaeology*. University of New Mexico Press, Albuquerque.

- Ellen, R.
1988 Foraging, Starch extraction and the Sedentary Lifestyle in the Lowland Rainforest of Central Seram. In *Hunters and Gatherers: History, Evolution, and Social Change Volume 1*, edited by T. Ingold, D. Riches and J. Woodburn, pp. 117-134. Berg, Oxford.
- Fleming, A.
1998 Prehistoric Landscapes and the Quest for Territorial Pattern. In *The Archaeology of Landscape*, edited by P. Everson and T. Williamson, pp. 42-66. Manchester University Press, Manchester.
- Fowler, M.
1959 *Summary report of the Modoc Rock Shelter: 1953, 1953, 1955, 1956*. Illinois State Museum Report of Investigation No. 8.
- Funkhouser, W. D. and W. S. Webb
1932 *Archaeological Survey of Kentucky*. University of Kentucky Reports in Archaeology and Anthropology 3, Lexington.
- Gamble, C.
1999 *The Palaeolithic Societies of Europe*. Cambridge University Press, Cambridge.
- Gibson, T.
1988 Meat Sharing as a Political Ritual: Forms of Transaction Versus Modes of Subsistence. In *Hunters and Gatherers: History, Evolution, and Social Change Volume 2*, edited by T. Ingold, D. Riches and J. Woodburn, pp. 165-180. Berg, Oxford.
- Gibson, J.
1996 Poverty Point and the Greater Southeastern Prehistory: The Culture That Did Not Fit. In *Archaeology of the Mid-Holocene Southeast*, edited by K. Sassaman and D. Anderson, pp. 288-306. University Press of Florida, Gainesville.
- Goodyear, A.
1982 The Chronological Position of the Dalton Horizon in the Southeastern United States. *American Antiquity* 47:382-395.
- Granger, J.
1988 Late/Terminal Archaic Settlement in the Falls of the Ohio Region of Kentucky: An Examination of Components, Phases, and Clusters. In *Paleoindian and Archaic in Kentucky*, edited by C. D. Hockensmith, D. Pollack and T. Sanders, pp. 153-203. vol. 15-203. Kentucky Heritage Council, Frankfort.

- Griffin, J. B.
 1952 Culture Periods in Eastern United States Archaeology. In *Archaeology of Eastern United States*, edited by J. B. Griffin, pp. 352-364. University of Chicago Press, Chicago.
- Griffin, J. B.
 1967 Eastern North American Archaeology: A Summary. *Science* 179:175-191.
- Guemple, L.
 1988 Teaching Social Relations to Inuit Children. In *Hunters and Gatherers: History, Evolution, and Social Change Volume 2*, edited by T. Ingold, D. Riches and J. Woodburn, pp. 131-159. Berg, Oxford.
- Guenther, M.
 1988 Animals in Bushman Thought, Myth and Art. In *Hunters and Gatherers: History, Evolution, and Social Change Volume 2*, edited by T. Ingold, D. Riches and J. Woodburn, pp. 192-202. Berg, Oxford.
- Haskins, V. and N. Herrmann
 1996 Shell Mound Bioarchaeology. In *Of Caves and Shell Mounds*, edited by K. Carstens and P. J. Watson, pp. 107-119. University of Alabama Press, Tuscaloosa.
- Hayden, B.
 1995 Pathways to Power: Principles for Creating Socioeconomic Inequalities. In *Foundations of Social Inequality*, edited by T. D. Price and G. M. Feinman, pp. 15-86. Plenum Press, New York.
- 1996 Thresholds of Power in Emergent Complex Societies. In *Emergent Complexity: The Evolution of Intermediate Societies*, edited by J. Arnold. Archaeological Series. vol. 9. International Monographs in Prehistory, Ann Arbor.
- Hensley, C.
 1991 The Middle Green River Shell Mounds: Challenging Traditional Interpretations Using Internal Site Structure Analysis. In *The Human Landscape in Kentucky's Past: Site Structure and Settlement Patterns*, edited by C. Stout and C. Hensley, pp. 85-126. Kentucky Heritage Council, Frankfort.
- 1994 *The Archaic Settlement System of the Middle Green River Valley, Kentucky*. Dissertation, Washington University.
- Ingold, T., D. Riches and J. Woodburn (editors)
 1988 *Hunters and Gatherers: History, Evolution, and Social Change Volume 1*. Berg, Oxford.

Janzen, D. E.

1977 An examination of Late Archaic development in the Falls of the Ohio River area. In *For the director: research essays in honor of James B. Griffin*, edited by C. E. Cleland, pp. 123-143. University of Michigan Museum of Anthropology Anthropological Papers 61.

Jefferies, R. W. and B. M. Butler (editors)

1982 *The Carrier Mills Archaeological Project: human adaptation in the Saline Valley, Illinois*. Center for Archaeological Investigations Research Paper 33, Southern Illinois University at Carbondale.

Jefferies, R. and M. Lynch

1983 Dimensions of Middle Archaic Cultural Adaptation at the Black Earth Site, Saline County, Illinois. In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. Phillips and J. Brown, pp. 299-321. Academic Press, New York.

Jefferies, R.

1982 The Black Earth Site. In *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley, Illinois*, edited by R. Jefferies and B. Butler, pp. 75-451. Research Paper 33. Carbondale: Center for Archaeological Investigations, Southern Illinois University.

1983 Middle Archaic-Late Archaic Transition in Southern Illinois: An Example from the Carrier Mills Archaeological District. *American Archaeology* 3:199-206.

1988a Archaic Period Research in Kentucky: Past Accomplishments and Future Directions. In *Paleoindian and Archaic in Kentucky*, edited by C. Hockensmith, D. Pollack and T. Sanders. Kentucky Heritage Council, Frankfort.

1988b The Archaic Period in Kentucky: New Deal Archaeological Investigations. In *New Deal Era Archaeology and Current Research in Kentucky*, edited by D. Pollack and M. L. Powell, pp. 14-25. Kentucky Heritage Council, Frankfort.

1995a The Status of Archaic Period Research in the Midwestern United States. *Archaeology of Eastern North America* 23:119-144.

1995b Late Middle Archaic Exchange and Interaction in the North American Midcontinent. In *Native American Interactions: Multiscalar Analyses and Interpretations in the Eastern Woodlands*, edited by M. Nassaney and K. Sassaman, pp. 73-99. University of Tennessee Press, Knoxville.

- 1996a The Emergence of Long-Distance Exchange Networks in the Southeastern United States. In *Archaeology of the Mid-Holocene Southeast*, edited by K. Sassaman and D. Anderson, pp. 222-234. University Press of Florida, Gainesville.
- 1996b Hunters and Gatherers after the Ice Age. In *Kentucky Archaeology*, edited by B. Lewis, pp. 39-78. University of Kentucky Press, Lexington.
- 1997 Middle Archaic Bone Pins: Evidence of Mid-Holocene Regional-Scale Social Groups in the Southern Midwest. *American Antiquity* 62(3):464-487.
- 1999 Mid-Holocene Hunter-Gatherer Interaction and Exchange in the North American Midcontinent. Paper presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia, Pennsylvania.
- Jefferies, R., G. Milner and E. Schlarb
 1999 *The Green River Archaic Project: Initial Reconnaissance*. University of Kentucky.
- Jefferies, R., G. Milner and V. Thompson
 2001 Diachronic Patterns of Holocene Hunter-Gatherer Settlement Strategies in the Lower Cypress Creek Valley of West Central Kentucky. Paper presented at the Poster presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans, Louisiana.
- Johnson, J. and S. Brookes
 1989 Benton Points, Turkey Tails and Cache Blades: Middle Archaic Exchange in the Southeast. *Southeastern Archaeology* 8:134-145.
- Justice, N.
 1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington.
- Kelly, R.
 1992 Mobility/Sedentism: Concepts, Archaeological Measures, and Effects. *Annual Review of Anthropology* 21:43-66.
- 1995 *The Foraging Spectrum: Diversity in Hunter-Gatherer Lifeways*. Smithsonian Institution Press, Washington.
- Kent, S.
 1987 Understanding the Use of Space: An Ethnoarchaeological Approach. In *Method and Theory For Activity Area Research: An Ethnoarchaeological Approach*, edited by S. Kent. pp. 1-62. Columbia University Press, New York.

- 1991 The Relationship between Mobility Strategies and Site Structure. In *The Interpretation of Archaeological Spatial Patterning*, edited by E. Kroll and D. Price. Plenum, New York.
- 1992 Studying Variability in the Archaeological Record: An Ethnoarchaeological Model for Distinguishing Mobility Patterns. *American Antiquity* 57:635-660.
- 1995 Does Sedentarization Promote Gender Inequality? A Case Study From The Kalahari. *Journal of Royal Anthropological Institute* 1:513-536.
- 1999 The Archaeological Visibility of Storage: Delineating Storage from Trash Areas. *American Antiquity* 64(1):2-15.
- King, J. and W. Allen
 1977 A Holocene Vegetation Record from the Mississippi River Valley, Southeastern Missouri. *Quaternary Research* 8:307-323.
- Kratz, C.
 1988 The Unending Ceremony and a Warm House: Representation of a Patriarchal Ideal and the Silent Complementarity in Okiek Blessings. In *Hunters and Gatherers: History, Evolution, and Social Change Volume 2*, edited by T. Ingold, D. Riches and J. Woodburn, pp. 215-248. Berg, Oxford.
- Leach, E.
 1986 Environmental and Anthropological Studies of the Little River Christian and Trigg Counties, Kentucky. In Report of the "Early Man in Western Kentucky" geologic investigations for the Kentucky Heritage Commission, Frankfort, Kentucky.
- Lee, E.
 1851 *New Map of Kentucky*. Colton Publishers. Map on file at the Kentucky History Center, Frankfort, Kentucky.
- Lee, R. and I. DeVore (editors)
 1969 *Man the Hunter*. Aldine Publishing Company, New York.
- Lee, R. and R. Daly (editors)
 2000 *The Cambridge Encyclopedia of Hunters and Gatherers*. Cambridge University Press, Cambridge.

- Lee, R.
1979 *The !Kung San: Men, Women, and Work in a Foraging Society*. University of Cambridge Press, Cambridge.
- Lopinot, N.
1982 *Reconstruction of Early Nineteenth-Century Vegetation Patterns*. In, *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley Illinois*, edited by R. Jefferies and B. Butler. Center for Archaeological Investigations Research Paper No. 33, Southern Illinois University at Carbondale.
- Lourandos, H.
1998 *Continent of Hunter-Gatherers: New Perspectives in Australian Prehistory*. Cambridge University Press, Cambridge.
- Marquardt, W. and P. J. Watson
1983 The Shellmound Archaic of Western Kentucky. In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. Philips and J. Brown, pp. 323-39. Academic Press, New York.
- 1997 The Green River Shell Mound Archaic: Interpretive Trajectories. Paper presented at the 54th Annual Southeastern Archaeological Conference, Baton Rouge, LA.
- Marquardt, W. H.
1985 Complexity and Scale in the Study of Fisher-Gatherer-Hunters: An Example from the Eastern United States. In *Prehistoric Hunter-Gatherers the Emergence of Cultural Complexity*, edited by T. D. Price and J. A. Brown. Academic Press INC., Orlando.
- McBride, D.
2000 *The Baker site and the Late Middle Archaic Period in the Green River Region of West Central Kentucky*. Masters Thesis, University of Kentucky.
- McFarland, A.
1961 *Geology of Kentucky*. University of Kentucky Press, Lexington.
- McGrain, P.
1983 *The Geologic Story of Kentucky*. XI ed. Special Publication 8. Kentucky Geological Survey.

- Milner, G. R. and V. G. Smith
1988 Kentucky's New Deal Archaeological Excavations, Collections, and Research. In *New Deal Era Archaeology and Current Research in Kentucky*, edited by D. Pollack and M. L. Powell, pp. 1-13, Lexington.
- Milner, G. and R. Jefferies
1998 The Read Archaic Shell Midden in Kentucky. *Southeastern Archaeology* 17(2):119-132.
- Philip B. Mink III, B. Jo Stokes, Jim Fenton, David Pollack, Wes Stoner, Gene Hume
2001 Points versus Polygons: Predictive Modeling in a Statewide Geographic Information System. Paper presented at the Conference for GIS and Archaeological Predictive Modeling: Large-scale Approaches to Establish a Baseline for Site Location Models at Argonne National Laboratory, Chicago.
- Moore, C. B.
1916 Some Aboriginal sites on Green River, Kentucky; Certain Aboriginal Sites on Lower Ohio River; Additional Investigation on Mississippi River. *Journal of the Academy of Sciences of Philadelphia* 16.
- Morey, D. and G. Crothers
1998 Clearing Up Clouded Waters: Paleoenvironmental Analysis of Freshwater Mussel Assemblages from the Green River Shell Middens, Western Kentucky. *Journal of Archaeological Science* 25(907-926).
- Morse, D. and A. Goodyear
1973 The Significance of the Dalton Adze in Northeast Arkansas. *Plains Anthropologist* 18:316-322.
- Morse, D.
1996 An Arkansas View. In *The Paleoindian and Early Archaic Southeast*, edited by D. Anderson and K. Sassaman, pp. 425-429. University of Alabama Press, Tuscaloosa.
- Muller, J.
1986 *Archaeology of the Lower Ohio River Valley*. Academic Press, Orlando.
- Munsell, L.
1818 *Untitled map*, On file at eh Kentucky History Center, Frankfort, Kentucky.
- Nance, J.
1987 The Archaic Sequence in the Lower Tennessee-Cumberland-Ohio Region. *Southeastern Archaeology* 6:129-40.

- 1988 The Archaic Period in the Lower Tennessee-Cumberland-Ohio. In *Paleoindian and Archaic Research in Kentucky*, edited by C. Hockensmith, D. Pollack and T. Sanders, pp. 127-52. Kentucky Heritage Council, Frankfort.
- O'Brian, M. J. and R. E. Warren
1983 An Archaic Projectile Point Sequence from the Southern Prairie Peninsula: The Pigeon Roost Creek Site. In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. L. Phillips and J. A. Brown, pp. 71-98. Academic Press, Orlando.
- Oyuela-Caycedo, A.
2001 Personal Communication.
- Pearson, S.
1998 Vernacular Buildings in the Landscape. In *The Archaeology of Landscape* edited by P. Everson and T. Williamson, pp. 166-182. Manchester University Press, Manchester.
- Phillips, J. and J. Brown (editors)
1983 *Archaic hunters and gatherers in the American Midwest*. Academic Press, New York.
- Phillips, J.
1983 Introduction. In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. L. Phillips and J. A. Brown, pp. 1-4. Academic Press, Orlando.
- Price, T. and J. Brown (editors)
1985 *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*. Academic Press, Orlando.
- Renouf, M.
1991 Sedentary Hunter-Gatherers: A Case for Northern Coasts. In *Between Band and States*, edited by S. Gregg, pp. 89-107. Southern Illinois University, Carbondale.
- Riches, D.
1982 *Northern Nomadic Hunter-Gatherers*. Academic Press, London.
- Ritchie, W. A.
1932 *The Lamoka Site, the type station of the Archaic Algonkian Period in New York*. *Researches and Transactions of the New York State Archaeological Association*, Lewis H. Morgan Chapter Vol. 7, No. 4.

- Rolingson, M. A.
1967 *Temporal Perspective on the Archaic Cultures of the Middle Green River Region*. Dissertation, University of Michigan.
- Russo, M.
1994 Why We Don't Believe in Archaic Ceremonial Mounds and Why we Should: The Case from Florida. *Southeastern Archaeology* 13:93-108.

1996 Southeastern Archaic Mounds. In *Archaeology of the Mid-Holocene Southeast*, edited by K. Sassaman and D. Anderson, pp. 259-287. University Press of Florida, Gainesville.

1998 Measuring Sedentism with Fauna: Archaic Cultures along the Southwest Florida Coast. In *Seasonality and Sedentism: Archaeological Perspectives from Old and New World Sites*, edited by T. R. Rocek and O. Bar-Yosef, pp. 143-164. Peabody Museum, Harvard University.
- Sassaman, K. and D. Anderson (editors)
1996 *Archaeology of the Mid-Holocene Southeast*. University Press of Florida, Gainesville.
- Sassaman, K.
1993 *Early Pottery in The Southeast: Tradition and Innovation in Cooking Technology*. University of Alabama Press, Tuscaloosa.

1995a Cultural Diversity Among Mid-Holocene Societies. In *Native American Interactions Multiscalar Analyses and Interpretations in the Eastern Woodlands*, edited by M. S. Nassaney and K. E. Sassaman. University of Tennessee Press, Knoxville.

1995b The Social Contradictions of Traditional and Innovative Cooking Technologies in the Prehistoric American Southeast. In *The Emergence of Pottery: Technology and Innovation in Ancient Societies*, edited by W. Barnett and J. Hoopes, pp. 223-240. Smithsonian Institution Press, Washington D. C.

2000 Agents of Change in Hunter-gatherer Technology. In *Agency in Archaeology*, edited by M. Dobres and J. Robb, pp. 148-168. Routledge, London.
- Scott, C.
1988 Property, Practice and Aboriginal Rights Among Quebec Cree Hunters. In *Hunters and Gatherers: History, Evolution, and Social Change Volume 2*, edited by T. Ingold, D. Riches and J. Woodburn, pp. 35-51. Berg, Oxford.

- Smith, B.
1992 Mississippian Elites and Solar Alignments: A Reflection of Managerial Necessity, or Levers of Social Inequality. In, *Lords of the Southeast: Social Inequality and the Native Elites of Southeastern North America*, edited by A. Barker and T. Pauketat, pp. 11-30. AAA Publication No. 3.
- Smith, H. E., III
1997 *A survey of Cultural Resources in an Area of Proposed Surface Mining within the Cypress Creek Drainage, McLean County, Kentucky*. Vaughn Engineering Report of Archaeological investigations, Number 129, Vaughn Engineering.
- Stafford, R. and E. Hajic
1992 Landscape Scale: Geoenvironmental Approaches to Prehistoric Settlement Strategies. In *Space, Time, and Archaeological Landscapes*, edited by J. Rossignol and L. Wandsnider, pp. 137-161. Plenum Press, New York.
- Stafford, R., R. L. Richards and C. M. Anslinger
2000 The Bluegrass Fauna and Changes in Middle Holocene Hunter-Gatherer Foraging in the Southern Midwest. *American Antiquity* 65(2):317-336.
- Stafford, R.
1994 Structural Changes in Archaic Landscape Use in Dissected Uplands of Southwestern Indiana. *American Antiquity* 59:219-237.
- Stein, J.
1980 *The Geo-archaeology of the Green River Shell Mounds, Kentucky*. Dissertation, University of Minnesota.

1982 Geologic Analysis of the Green River Shell Middens. *Southeastern Archaeology* 1(1):22-39.
- Styles, B. W., S. R. Ahler and M. L. Fowler
1983 Modoc Rock Shelter Revisited. In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. L. Phillips and J. A. Brown, pp. 261-297. Academic Press, Orlando.
- Turnbull, C.
1961 *The Forest People: a study of the Pygmies of the Congo*. Simon and Schuster, New York.

- Wagner, G.
1979 The Green River Archaic: A Botanical Reconstruction, Paper presented at the 44th Annual Meeting of the Society for American Archaeology, Vancouver.
- Walters, M.
1988 The Adams Mastodon Site, Harrison County, Kentucky. In *Paleoindian and Archaic Research in Kentucky*, edited by C. D. Hockensmith, D. Pollack and T. Sanders, pp. 43-46. Kentucky Heritage Council, Frankfort.
- Walthall, J.
1998 Rockshelters and Hunter-Gatherer Adaptation to the Pleistocene/Holocene Transition. *American Antiquity* 63(2):223-238.
- Watson, P. J.
1996 Of Caves and Shell Mounds in West-Central Kentucky. In *Of Caves and Shell Mounds*, edited by K. C. Carstens and P. J. Watson, pp. 159-164. University of Alabama Press, Tuscaloosa.
- Webb, W. S. and W. D. Funkhouser
1928 *Ancient Life in Kentucky*. Kentucky Geological Survey 6, Lexington.
- Webb, W. S. and W. G. Haag
1939 *The Chiggerville Site*. Reports in Anthropology and Archaeology, Vol 4, No. 1, University of Kentucky, Lexington.
- 1940 *Cypress Creek Villages Sites 11 and 12 McLean County, Kentucky*. Reports in Anthropology, Volume VII (1). Department of Anthropology, University of Kentucky.
- 1947 *Archaic Sites in McLean County, Kentucky*. Reports in Anthropology and Archaeology, Vol. 7, No. 1, University of Kentucky, Lexington.
- Webb, W. S.
1946 *Indian Knoll, Site Oh2, Ohio County, Kentucky*. Reports in Anthropology and Archaeology. Vol. 4, No. 3. Part I:113-365, University of Kentucky, Lexington.
- 1950a *The Carlston Annis Mound, Site 5, Butler County, Kentucky*. Reports in Anthropology and Archaeology, Vol. 7, No. 4, University of Kentucky, Lexington.

- 1950b *The Read Shell Midden, Site 10, Butler County, Kentucky*. Reports in Anthropology and Archaeology, Vol. 7, No. 5, University of Kentucky, Lexington.
- 1974 *Indian Knoll*. University of Tennessee Press, Knoxville.
- Weller, J.
1927 The Geology of Edmonson County 28:1-246.
- Wiant, M. D., E. R. Hajic and T. R. Styles
1983 Napoleon Hollow and Koster Site Stratigraphy: Implications for Holocene Landscape Evolution and Studies of Archaic Period Settlement Patterns in the Lower Illinois River Valley. In *Archaic Hunters and Gatherers in the American Midwest*, edited by J. L. Phillips and J. A. Brown, pp. 147-164. Academic Press, Orlando.
- Widmer, R.
1988 *The Evolution of the Calusa: A Nonagricultural Chiefdom on the Southwest Florida Coast*. University of Alabama Press, Tuscaloosa.
- Wilkins, G. R., P. A. Delcourt, H. R. Delcourt, F. W. Harrison and M. R. Turner
1991 Paleoeecology of Central Kentucky since the Last Glacial Maximum. *Quaternary Research* 36:224-239.
- Willey, G.
1966 *An Introduction to American Archaeology Volume I*. Prentice-Hall, Englewood Cliffs, New Jersey.
- Willey, G. and J. Sabloff
1993 *A History of American Archaeology*. W.H. Freeman and Company, New York.
- Williamson, T.
1998 Questions of Preservation and Destruction. In *The Archaeology of Landscape*, edited by P. Everson and T. Williamson, pp. 1-24. Manchester University Press, Manchester.
- Winterhalder, B. P. and E. A. Smith (editors)
1981 *Hunter-gatherer Foraging Strategies: Ethnographic and Archaeological Analyses*. University of Chicago Press, Chicago.

Winters, H.

1968 Value Systems and Trade Cycles of the Late Archaic in the Midwest. In *New Perspectives in Archaeology*, edited by B. S.R. and B. L.R. Aldine Publishing Co., New York.

1969 *The Riverton Culture*. Monograph, No. 1, Illinois Archaeological Survey.

Yellen, J.

1977 *Archaeological Approaches to the Present*. Academic Press, New York.

1998 The Transformation of the Kalahari !Kung. In *Limited Wants, Unlimited Means: A reader on Hunter-Gatherer Economics and the Environment*, edited by J. Gowdy, pp. 223-237. Island Press, Washington.

Zedeño, M.

2000 On What People Make of Places: A Behavioral Cartography. In *Social Theory in Archaeology*, edited by M. B. Schiffer, pp. 97-111. University of Utah Press, Salt Lake City.

VITA

Victor Dominic Thompson
Date of Birth: March 19, 1974
Place of Birth: Covington, Georgia

Education

1999-present -Graduate student at the University of Kentucky.
1997-98 -One year of post-bachelor course work in anthropology, University of Georgia.
1996 -BA Anthropology, University of Georgia, Athens.

Grants and Awards

2001 University of Kentucky Research and Travel Grant (\$100)
2000 University of Kentucky Research and Travel Grant (\$250)
1999 University of Kentucky graduate student enrichment award (\$500)

Archaeological Experience

Cypress Creek Archaeological Project, 2000-Present
Research Assistant, University of Kentucky. 9/99-6/2001
Laboratory Analysis, University of Kentucky. 10/2000-3/2001
Museum Assistant, William S. Webb Museum. 9/99-4-00.
Field Technician, Cultural Resource Analysis Inc, 6/99-8/99.
Field Supervisor/Crew Supervisor, Alexander Archaeological Consultants, 1/99-6/99.
Senior Research Assistant, University of Georgia, Lab of Archaeology, 9/97-12/98.
Field Technician, R.S. Webb and Associates, 9/98-12/98.
Field Technician, Southeastern Archaeological Services, 8/98-9/98.
Student Field Technician, University of Georgia Shallow Geophysics Field School, 5/98-6/98.
Field Technician, Alexander Archaeological Consultants, 10/97-12/97.
Student Field Technician, Belize Valley Archaeological Survey, Trent University, 6/97.
Field Technician, Alexander Archaeological Consultants, 12/96-1/97.
Research Technician, University of Georgia, Lab of Archaeology, 7/96-6/97.
Student Field Technician, University of Georgia Archaeological Field School, 5/96-7/96.

Teaching Experience and Public Archaeology

Teaching Assistant
2001 Fall semester: Anthropology 211, Native Peoples of North America.
Public Lecture
2000 Invited archaeological presentation at the Sayer School, Lexington, KY.
Public Lecture
2000 Guided tours of school children at the William S. Webb Museum of Anthropology, University of Kentucky.

Public Service

2000 Invited Science Fair Judge at the Lexington Traditional Magnet School.

Public Lecture

1999 Invited archaeological presentation at Heard-Mixon elementary school, Covington, GA.

Computer Knowledge and Other Skills

-All word processing programs, Surfer mapping program, ArcView 3.2 (ESRI certified Intro to ArcView), Site File database, Basic D-Base Programing, Excel, Corel Draw, AutoCad 2000, Power point, Photo Paint, Adobe Photo Shop, Adobe Illustrator, digital artifact photography, and basic computer hardware knowledge, Knowledge of total station and Global Positioning Systems.

Professional Membership

The Society for American Archaeology

Southeastern Archaeological Conference

The Society for Georgia Archaeology

The Society for Alabama Archaeology

KyOPA Kentucky Organization of Professional Archaeologists

Offices Held

2001-present Southeastern Archaeological Conference student affairs committee member.

1999-present Student representative for the Southeastern Archaeological Conference- University of Kentucky

1999-2001 Created and maintained Archnews list-server: A list serve to inform and facilitate knowledge for all archaeologists affiliated with the University of Kentucky.

1999-2001 Student representative for the Society for American Archaeology- University of Kentucky.

Publications, Reports, and Papers Presented

Richard Jefferies, George Milner, and Victor Thompson

2001 Diachronic Patterns in Holocene Hunter-Gatherer Settlement Strategies in the Lower Cypress Creek Valley of West-Central Kentucky. Poster Presented at the 66th Annual *Society for American Archaeology* Meeting. New Orleans, Louisiana.

Victor Thompson

2000 A Model for Variation and Complexity in Hunter-Gatherer Societies: An Example from Southern Illinois. Paper Presented at the 57th Annual *Southeastern Archaeological Conference*. Macon, Georgia.

Williams, Mark J. and Victor D. Thompson

1999 A Guide to Georgia Indian Pottery Types. *Early Georgia* 27(1).

Alexander, Lawrence, S., Victor D. Thompson., and Jeff M. Thomson

1999 *Phase I Archaeological Survey of 72 Hectares for a Proposed Wildlife Habitat Improvement on Redstone Arsenal, Madison County, Alabama*. U.S. Army Aviation and Missile Command Directorate of Environmental Management and Planning Redstone Arsenal, Alabama 35898, and Alabama Historical Commission Montgomery, Alabama.

Alexander, L.S., H.R. Campbell, D.J. Minnich, and V. D. Thompson

1999 *A Phase I Archaeological Survey of State Route 386 (Vietnam Veterans Boulevard) Extension, From Existing State Route 386 (Henderson Bypass) to State Route 109 (Gallatin Bypass), Sumner County, Tennessee*. AAC. Report submitted to Tennessee Department of Transportation, Nashville.

Alexander, Lawrence, Carl Kuttruff, and Victor Thompson

1999a *Phase II Testing of Archaeological Site 40LD52 in Loudon County, Tennessee*. AAC. Report submitted to Tennessee Department of Transportation, Nashville.

Alexander, Lawrence, Carl Kuttruff, and Victor Thompson

1999b *Phase II Testing of Archaeological Sites 40CR207 and 40CR210 in Carter County, Tennessee*. AAC. Report submitted to Tennessee Department of Transportation, Nashville.

Alexander, Lawrence and Victor Thompson

1999 *Phase I Archaeological Survey of US 231 Bypass from South US 231 to Baddour Parkway, Wilson County*. AAC. Report submitted to Tennessee Department of Transportation, Nashville.

Alexander, Lawrence, Emily Williams, and Victor Thompson.

1999 *Phase II Testing of Archaeological Sites IMA657, IMA767, IMA768, and IMA769, at Redstone Arsenal, Madison County, Alabama*. AAC. U.S. Army Aviation and Missile Command Directorate of Environmental Management and Planning Redstone Arsenal, Alabama 35898, and Alabama Historical Commission Montgomery, Alabama.